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Les statuts sur la pureté du sang, l'Inquisition Ibérique et la question du racisme nazi: quelques éléments de comparaison

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KEYWORDS

Spanish Inquisition, purity of blood, anti-Semitism; racial laws of Nazi Germany

Inquisition espagnole, pureté du sang, antisémitisme, lois raciales de l'Allemagne nazie,

ABSTRACT

The history of forced conversions to Christianity in the Iberian Peninsula is complex and differentiated. The question of the purity of blood, because of its racial connotations, was brought closer to the anti-Semitic laws of Nazi Germany. We suggest in this article some reflections on such a rapprochement.

L'histoire des conversions forcées au Christianisme, dans la péninsule Ibérique est complexe et différenciée. Plus précisément, la question de la pureté du sang, du fait de ses connotations raciales, peut être rapprochée des lois antisémites de l'Allemagne nazie. Nous proposons à quelques éléments de réflexion sur un tel rapprochement.

I

Nous cherchons à analyser quelques points fondamentaux devant permettre de préciser la question controversée d'un rapprochement entre les statuts sur la pureté du sang, qui ont touchés les Juifs espagnols du 15e siècle, et la question de l'antisémitisme racial allemand, de la fin du 19e siècle jusqu'à la fin de la Seconde Guerre Mondiale. Or, les conditions religieuses, culturelles, sociales et économiques propres à chacune de ces deux époques, elles-mêmes distantes de cinq siècles, sont profondément différentes, et donc difficilement comparables. Cependant, ce qui les rapproche concerne, d'une part les mêmes victimes de ces différentes mesures, les Juifs, et d'autre part l'échec commun concernant deux formes différenciées de tentative d'assimilation de leur altérité religieuse. Les historiens se sont opposés sur la question de la pertinence d'une comparaison entre les décrets de la *limpieza de sangre* et les mesures raciales nazies. Cet article cherche à préciser quelques points de réflexion concernant une telle comparaison, sans chercher toutefois à trancher cette question de façon définitive.

A partir du 12e siècle, l'Église espagnole s'est donnée comme mission de convertir les Juifs et le Baptême commencera à être imposé aussi aux Musulmans à la fin du 15e siècle, ces mesures seront généralisées aux 16e et 17e siècles. Le massacre des Juifs et leurs conversions forcées de 1391 ont amorcé un fort mouvement de christianisation. Suite aux énormes pressions dont les Juifs ont été

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l'objet, on a alors assisté à une vague de conversions, qui s'est accélérée entre 1412 et 1415. Près de la moitié de la population juive de Castille et d'Aragon a alors subi le Baptême, après que les quartiers juifs aient été assiégés en exigeant: «la conversion ou la mort pour les Juifs»[1]. Cette nouvelle grande vague, largement promue par Vincent Ferrer (1350–1419), prédicateur doué d'un fort pouvoir de persuasion, a d'abord touché les Juifs et plus tard les Musulmans[2]. Ces deux communautés ont connu un destin qui a été à la fois commun et distinct. Si le décret de l'Alhambra, de 1492, n'a concerné que les Juifs d'Espagne, celui de Manuel I, de 1496, ordonnait l'expulsion des Juifs et des Musulmans du Portugal. Les mesures, prises initialement contre les Juifs, ont été ensuite appliquées aux Musulmans[3]. Précisons que les *Mudéjars* étaient les Musulmans qui vivaient sous l'autorité des rois chrétiens pendant la *Reconquista* de l'Espagne, achevée en le 2 janvier 1492, avec la prise de Grenade, par contre, les Morisques ou *Moriscos*, étaient des Musulmans convertis au Christianisme, notamment en Castille entre 1499 et 1502, puis en Aragon de 1521 à 1526[4].

L'Inquisition espagnole, promulguée le 1er novembre 1478, par la bulle du Pape Sixte IV, s'étendait à toute l'Espagne catholique[5]. Elle était placée sous l'autorité de Tomás de Torquemada[6], et touchait pareillement aux deux communautés des Nouveaux Chrétiens. Concernant plus spécialement les Juifs, des techniques sophistiquées étaient alors utilisées pour les convertir, notamment au moyen de campagnes incessantes organisées par des Juifs apostats, formés à la fois au Judaïsme et au Christianisme. Ils mettaient largement en œuvre des moyens de prédication de masses, propageant des histoires édifiantes sur le Christianisme, en soulignant les actes criminels que les Juifs auraient commis, laissant courir de nombreuses rumeurs à leur sujet. Ces techniques ont été largement responsables des tueries de 1328 et surtout celles de 1391. Cependant après leur baptême, de nombreux conversos ont tenu à conserver leur lien avec le Judaïsme, laissant ainsi émerger une identité nouvelle: celle des crypto-judaïsants ou judéoconvers, qui a alors fait l'objet de persécutions religieuses[7]. Bien que le thème généalogique ait d'abord pu représenter un avantage social pour les Judéoconvers, jugés comme appartenant au Peuple élu[8], la question de l'origine raciale a changé de signification lorsque Pero Sarmientos, suivi par d'autres rebelles, contre le pouvoir royal de Juan II, a édicté à Tolède, le 5 juin 1449, les statuts (*Sentencia Estatuto*) de pureté du sang (*la limpieza de sangre*). La notion de *limpieza de sangre*, introduite, semble-t-il, dès 1414 à l'Université de Salamanca[9], puis appliquée en

1 D. Nirenberg, "Une société face à l'altérité. Juifs et chrétiens dans la péninsule Ibérique 1391-1449". E.H.E.S.S. *Annales. Histoire, Sciences Sociales*, 62, 4, 2007, pp.757-758

2 A. Echeverría Arsuaga, "Política y religión frente al Islam : la evolución de la legislación real castellana sobre musulmanes en el siglo XV". *Qurtuba*, 4, 1999, pp.45–72

3 I. Poutrin, "The Jewish Precedent in the Spanish Politics of Conversion of Muslims and Moriscos". *Journal of Levantine Studies*. 2016, 6, pp.71 - 87

4 L. F. Bernabé Pons, *Los moriscos: conflicto, expulsión y diaspora*. Catarata, Madrid, 2009; M.Carr, *Blood & Faith: The Purging of Muslim Spain 1492 - 1614*. London, Hurst & Company, 2017.

5 J. Pérez, *Brève histoire de l'Inquisition en Espagne*. Paris, Fayard, 2002, p. 9

6 H.C. Lea, *A History of the Inquisition of the Middle Ages*. T. II. New York, Harper & Brothers. 1887, pp.179-180

7 On a pu souligner que le terme *conversos*, utilisé par l'historiographie hispanique et anglophone, est quelque peu problématique, car il désigne, de façon ambigüe, pareillement les judéoconvers (descendants de Juifs, qui avaient aussi bien conservé qu'abandonné leurs pratiques religieuses) et les crypto-judaïsants. C'est pourquoi les termes français de judéoconvers, nouveaux-Chrétiens et crypto-judaïsants paraissent plus univoques. Cf.N.Muchnik, "Judeoconversos and Moriscos in the Diaspora". In M. Garcia-Arenal and G. Wiegers (Eds.), *The Expulsion of the Moriscos from Spain. A Mediterranean Diaspora.* Leiden, Brill, 2014, pp. 413-414.

8 D. Nirenberg, Was there race before modernity? : The example of "Jewish" blood in late medieval Spain.

9 S. Poole, "The Politics of Limpieza de Sangre: Juan de Ovando and His Circle in the Reign of Philip II". *The Americas*. 55, 3, 1999, p.365

1437[10], visait à dévoiler, chez tous les conversos, un ascendant non-chrétien, comme constituant un stigmate ethnique et social indélébile. La mise en place de ces statuts entraînait souvent des spoliations[11]. Ces mesures ont d'abord été jugées comme étant contraires à la communauté de l' Église, fondée sur l'esprit du Christ et non sur le sang[12], et elles ainsi ont été résiliées par la Bulle *Humani generis* du Pape Nicolas V, en date du 24 septembre 1449. Mais en fait, l'ensemble de ces décrets s'inscrivaient dans le souci ancestral d'affilier les Espagnols à la lignée Gothique (*hidalguia*)[13]. En ce sens, la *limpieza de sangre* continuait encore à obséder la société espagnole du 16e et du 17e siècles[14]. La *limpieza de sangre* visait à exclure les Nouveaux Chrétiens des charges ecclésiastiques, militaires et universitaires, stigmatisant les conversos comme souillés (*manchado*s) et infâmes (*infames*), porteurs de tares que même le Baptême ne pouvait supprimer[15]. Ainsi, le Pays Basque avait banni, en 1482, la présence des conversos, et les décrets sur la pureté du sang ont été appliquées, en 1498, à Barcelone, par plusieurs corporations de métiers[16].

Comme nous l'avons noté auparavant, les mesures effective prises contre les Musulmans sont plus tardives que celles qui concernaient les Juifs. Les premiers décrets de conversion, s'appliquant spécifiquement aux Musulmans, datent des années 1501-1502, et les conversions forcées furent imposées en 1526. L'expulsion des Musulmans se fera entre 1609 et 1614, alors que celle des Juifs date de 1492[17]. Malgré un destin commun, les communautés juive et musulmane ont vécu les conversions forcées de façons très différentes. Les Moriscos ont résisté davantage que les Judéoconvers à l'assimilation au Christianisme[18], et, après 1609, ils ont émigré en masse au Maghreb, alors que la majorité des Marranes sont restés dans la Péninsule Ibérique[19]. De plus, la conversion des Juifs et des Moriscos visait d'abord à renforcer le pouvoir politique de l'Église catholique, toutefois, celle des Juifs relevait plus particulièrement d'un souci fondamental de la théologie chrétienne[20].

Les lois sur la pureté du sang constituaient en fait une contradiction fondamentale de la société inquisitionnelle ibérique, entre la volonté d'assimiler les Juifs et les Musulmans au Christianisme, et

10 I.S. Révah, "La controverse sur les statuts de pureté de sang. Un document inédit : «Relación y consulta del cardenalG[u]evara sobre el negocio de fray Agustín Saluzio» (Madrid 13 août 1600)". *Bulletin Hispanique*. 73, 3-4, 1971, p.265 note 10

11 H. Kamen, "Confiscations in the Economy of the Spanish Inquisition". *The Economic History Review*, New Series, 18, 3, 1965, pp. 511-525

12 M. Shell, "Marranos (Pigs), or from Coexistence to Toleration". *Critical Inquiry*. 17, 2, 1991, p.310

13 D. Nirenberg, "Mass conversion and genealogical mentalities: Jews and Christians in fifteenth-century Spain". *Past & Present.* 174, 1, 2002, p.3.

14 S. Poole, "The Politics of Limpieza de Sangre: Juan de Ovando and His Circle in the Reign of Philip II". *The Americas*. 55, 3, 1999, p.388

15 R.L. Burk, "Purity and impurity of blood in early modern Iberia". In The Routledge Companion to Iberian Studies. J. Muñoz-Basols, L.Lonsdale and M. Delgado. Routledge, Mondon, New York, 2017, p.173

16 J. Edwards, "Race and religion in 15th and 16th century Spain: the 'purity of blood' laws revisited". *Proceedings of the World Congress of Jewish Studies*. II, 1989, p.160

17 M. Kriegel, "La prise d'une décision: l'expulsion des juifs d'Espagne en 1492". *Revue Historique*. 260, 1978, pp.48–90

18 cf. J.M. Anderson, *Daily life during the Spanish Inquisition*. Westport, Conn./ London, Greenwood Press, 2002, pp.105-106.

19 R. Levine Melammed, "Judeo-conversas and Moriscas in sixteenth-century Spain: a study of parallels". *Jewish History*, 24, 2010, pp.155-168.

20 Cf. S.J. Chester, *Conversion at Corinth: Perspectives on Conversion in Paul's Theology and the Corinthian Church*. SNTW. London and New York: T & T Clark, 2003, p.29; J.S. Amelang, *Parallel Histories: Muslims and Jews in Inquisitorial Spain*. Baton Rouge, Louisiana State University Press, 2013, pp.67-109.

la persistance de leur altérité, que le Baptême restait incapable d'annuler, et que seule la «pureté du sang» pouvait encore identifier. Selon l'expression de Yosef Haim Yerushalmi, elles constituaient une «revanche ironique» de Chrétienté, notamment contre l'intrusion des Juifs dans la société qui a tout fait pour les intégrer[21]. De plus, ces lois, elles-mêmes issues d'une volonté théologique de conversion généralisée, posaient des problèmes juridiques extrêmement complexes, eu égard aux enfants, dans le cas de mariages mixtes, ou dans celui où l'un des parents était resté juif[22]. Enfin, soulignons que ces lois ont souvent été contournées, au moyen de stratégies qui se sont souvent avérées efficaces pour promouvoir l'ascension sociale des conversos[23].

II

Comme l'a souligné Salo W. Baron, il n'est pas fortuit que les études, portant sur les Marranes et la question de la pureté du sang, se soient précisément multipliées dans les années 1930, après que la question juive soit devenue, dans l'Allemagne nazie, la question primordiale de sa politique raciale[24]. Les historiens se sont alors opposés concernant la pertinence d'un rapprochement entre les *Sentencia Estatuto* et les lois aryennes du National-Socialisme. Selon Cecil Roth, les décrets de Tolède sont précurseurs de ceux de l'Allemagne nazie[25]. Au contraire, pour Guido Kisch, le concept de race ne saurait concerner l'époque médiévale, puisqu'il était totalement ignoré par l' Église[26]. Pour sa part, Yves Chevalier évoque, à propos des décrets espagnols, la notion de «proto-racisme»[27].

Ce débat a été réexaminé par Yosef Hayim Yerushalmi. Il montre, entre autres, que dans l'Espagne de la Renaissance, tout comme dans l'Allemagne nazie, l'antisémitisme concomitant à l'assimilation des Juifs doit être considéré, dans les deux cas, non plus comme anti-judaïque, mais comme racial[28]. Yerushalmi en vient à briser la distinction traditionnelle entre l'antisémitisme religieux chrétien et l'antisémitisme politique et racial, visant ainsi à qualifier ainsi toute attitude hostile aux Juifs comme potentiellement « raciste ». Alors qu'au 17e siècle on reprochait au Juif de ne pas s'assimiler, de rester irréductiblement Autre, dans la seconde moitié du XIXe siècle l'Occident s'inquiète du fait que le Juif est devenu un Semblable. Hanna Arendt a montré que l'antisémitisme moderne résulte, dans une certaine mesure de l'assimilation des Juifs, rendue possible par l'émancipation que proposait la société Européenne du 19e siècle[29]. Suite à la Révolution Française, l'Europe se trouve confrontée à la question

21 Y.H.Yerushalmi**,** *From Spanish Court to Italian Ghetto. Isaac Cardoso*. New York, London: Columbia University Press, 1971, p.14

22 Cf. I. Poutrin, "La captation de l'enfant de converti. L'évolution des normes canoniques à la lumière de l'antijudaïsme des XVIe -XVIIIe siècles". *Revue d'histoire moderne et contemporaine*. 62, 2-3, 2015, p. 40-62.

23 Cf. M. Diago Hernando, "Estrategias de ascenso social en la Castilla del siglo XVI. La familia Río en Soria". *Historia Social*. 49, 2004, pp. 3-27

24 S. W. Baron, "Changing Patterns of Antisemitism: A Survey". *Jewish Social Studies*. 38, 1, 1976, p.21, note 27.

25 C. Roth, "Marranos and Racial Antisemitism: A Study in Parallels". *Jewish Social Studies*. 2, 3, 1940, p.244-248

26 G. Kisch, "Nationalism and Race in Medieval Law". *Seminar: An Annual Extraordinary Number of The Jurist.* I, 1943, p.73. En fait, Ivan Hannaford a montré que la notion de race est apparue progressivement à partir du 12e siècle, mettant en avant les idées de sang, de physiognomie, de climat, de pays et de langue. I. Hannaford, *Race: The History of an Idea in the West*. Baltimore and London, Johns Hopkins University Press, Washington DC: Woodrow Wilson Center Press, 1996, p.14

27 Y. Chevalier, *L'antisémitisme.* Paris, Cerf, 1988, p.267

28 Y.H. Yerushalmi, "L'antisémitisme racial est-il apparu au XXe siècle? De la limpieza de sangre espagnole au nazisme : continuités et ruptures". *Esprit*, 190, 3/4, 1993, pp. 7-35

29 H. Arendt, Les origines du totalitarisme. *Sur l'antisémitisme.* trad. franç. Le Seuil, Paris 1984 p.32.

des nationalités, surtout en Allemagne, politiquement et administrativement bouleversée depuis la dissolution du Saint Empire romain germanique, en 1806, jusqu'à la création, en 1871, du *Deuxième Reich*. L'unification allemande accentue la question juive, qui ne peut plus s'intégrer dans les cadres conceptuels de la philosophie politique de l'époque. D'une part, le nationalisme Européen perçoit les Juifs comme une nation étrangère, et d'autre part cette nation apparaît, du fait de son cosmopolitisme, comme susceptible de s'allier à d'éventuelles puissances ennemies.

L'antisémitisme prône la disparition de la référence Juive, responsable de la perversion de l'identité occidentale posée comme étant originairement Aryenne. Ce double processus, d'identification à l'aryanité et d'épuration vis-à-vis du peuple Juif, finira par poser une barrière infranchissable entre l'identité Aryenne et l'altérité Sémitique. Les lois Nazies de Nuremberg fourniront, en 1935, un statut légal à tel processus, en donnant un rôle fondamental à la question de l'altérité. Comme le souligne P.-A. Taguieff, la propagande nazie a incité à une lutte sans merci entre le "sur-autre" Aryen et le "sous-autre" humanoïde non-Aryen, que dirige l'"autre démoniaque" Juif. C'est précisément ce statut démoniaque qui appelait à une destruction totale[30].

Cette recherche d'origine, en produisant ce que L. Poliakov a appelé le «mythe Aryen», renoue en fait avec la mythologie préchrétienne[31]. D'un point de vue historique, elle résulte d'une confusion méthodologique entre la linguistique, l'anthropologie, la mythologie et la biologie.

L'essor de la grammaire comparée au 18e siècle a permis de forger le concept de famille de langues apparentées, en classant les civilisations situées à l'ouest de la Chine selon deux grands groupes linguistiques : les langues Sémites et les langues Aryennes. Cependant on assiste, au milieu du 19e siècle, au passage d'une analyse purement linguistique à des considérations d'ordre ethnographique puis raciste.

III

La parenté supposée entre les langues est alors interprétée comme constituant *l'indice de parenté génétique*[32]. Une telle confusion s'est accrue lorsque le terme de race a lui-même changé de sens. Alors qu'il désignait d'abord une entité nationale et culturelle puis anthropologique, ce terme s'est confondu avec la notion philologique de groupe linguistique et celle biologique de race. Cette confusion est due en grande partie à E. Renan, linguiste et historien. En 1855, il prétend démontrer que la "race sémitique comparée à la race indo-européenne représente réellement une combinaison inférieure de la nature humaine". Renan permet ainsi d'affermir la théorie présentée par Gobineau en 1853, visant à démontrer que la qualité d'une civilisation est fonction de la quantité de race aryenne qu'elle comporte[33]. La perspective comparatiste se trouvera renforcée, après la parution, en 1859, du livre de Darwin *On the Origin of Species*, qui permettra notamment à A. Schleicher d'identifier, à travers le combat des langues pour l'existence, la victoire de la souche «indo-germanique»[34].

30 P-A. Taguieff, La force du préjugé. *Essai sur le racisme et ses doubles*. Paris. La Découverte 1987. p.175.

31 L. Poliakov, *Le Mythe Aryen. Essai sur les sources du racisme et des nationalismes*. Nouvelle édition. Bruxelles. Complexes. 1987, pp.16-17.

32 P. Tort, *Évolutionnisme et Linguistique*. Avec le concours de D. Modigliani. Paris. Vrin. 1980, p.14.

33 J.A. de Gobineau, *Essai sur l'inégalité des races humaines*. Paris 1853-1855.

34 A. Schleicher, "La théorie de Darwin et la science du langage (1863)". trad. franç. publiée par P.Tort in *Évolutionnisme et Linguistique*. op.cit. p.77

A partir des années 1870, le racisme allemand va s'attacher à identifier l'aryanité à la germanité, pour l'opposer à la judaïté. La dénomination d'antisémitisme raciste, revendiquée comme laïque, apparaît en 1873 avec Wilhem Marr dans son pamphlet intitulé *La victoire du Judaïsme sur le Germanisme, d'un point de vue non-confessionnel*[35]. Dans l'Allemagne de la fin du XIX[e] siècle, la biologie devient désormais la source et le critère ultime de toutes les valeurs. Le mal Juif n'est plus seulement imputable à sa religion mais au sang, comme le montre en 1881 K. Eugen Dühring, dans son livre sur la question Juive comme question raciale, morale et culturelle[36]. La communauté de sang, contrairement à l'appartenance religieuse, constitue et conserve une identité indélébile, à laquelle il n'est plus possible d'échapper. Par ailleurs, un certain nombre de penseurs Chrétiens se tournent vers l'aryanisme, par-delà le judaïsme qui n'est plus perçu comme la religion mère. Ainsi, le Christ possède, depuis Fichte et surtout Renan, une origine Aryenne[37]. A travers ces changements idéologiques, l'opposition aryanisme/sémitisme finit par apparaître comme celle du bien et du mal. En 1889 Houston Stewart Chamberlain, le gendre de Wagner, propose une philosophie de l'histoire universelle centrée sur la lutte à mort entre l'idéalisme, incarné par la race Allemande, et le matérialisme, que représente la race Juive[38]. Cette opposition entre idéalisme et matérialisme n'est plus celle que présentait Hegel, entre l'Universel Chrétien et le Particularisme Juif. Sur ce point, le racisme Allemand trouve sa source philosophique, d'une part dans la philosophie de la nature, que dénonçait Hegel, d'autre part chez des auteurs comme Schopenhauer, percevant dans les phénomènes naturels l'"expression de la volonté», et dans une certaine mesure chez Nietzsche, qui situe dans la nature l'origine des vraies valeurs. Il s'agit là d'un profond retournement par rapport à Hegel, qui s'opère au nom de ce que R. A. Poix a appelé la «religion de la nature», totalement opposée à la tradition judéo-chrétienne[39]. La décadence sacerdotale Juive n'est plus due à un attachement à la nature, et donc à une incapacité à s'élever vers l'Esprit véritable, mais à une vie spirituelle antinaturelle, qu'une existence noble et authentiquement vitale se doit alors d'écarter. Comme le souligne Hanna Arendt, l'hostilité libérale à l'égard des Juifs, largement inspirée par les philosophes des Lumières, s'inscrit dans ce mouvement antireligieux, qui voyait dans les Juifs les survivants du Moyen Age[40]. De ce fait, par-delà le Christianisme, le Judaïsme se trouve visé au titre de religion mère[41].

Le racisme allemand produit alors un paradoxe qui semble inverse à celui des décrets espagnols sur la pureté du sang. Alors qu'en Espagne, le sang vient pointer l'échec de la politique de conversion au Christianisme, puisque même les sincères conversos se trouvent persécutés, le nazisme est obligé de reconnaître les limites de sa perspective raciale. Comme suite aux lois racistes de Nuremberg du 15 septembre 1935, le III[e] Reich a promulgué le 14 novembre 1935 un décret cherchant, par l'article 5, à définir le Juif comme celui qui "au point de vue racial descend d'au moins trois grands-parents purement Juifs". Il s'appuie sur l'article 2 qui ne va pas au-delà d'une définition purement religieuse: "Un grand-parent est purement Juif en dehors de toute autre considération, s'il a appartenu à la

35 *Der Sieg des Judenthums über das Germanenthum – Vom nichtconfessionellen Standpunkt aus betrachtet*. Bern: Rudolph Costenoble, 1879

36 K.E. Dühring, *Die Judenfrage als Frage des Rassencharakters und seiner Shädlichkeiten für Existenz und Kultur der Völker*. Leipzig 1881.

37 cf. M. Olender, *Les Langues du Paradis. Aryens et Sémites ; un couple providentiel.* op.cit. pp.96-97.

38 H.S. Chamberlain, *Die Grundlagen des neunzehnten Jahrhunderts*. München 1899.

39 R. A. Poix, *National Socialism and the Religion of Nature*. Provident House. Beckenham 1986, trad. fr. Paris. Le Cerf 1993. p.34, note 10.

40 H. Arendt, *Les origines du totalitarisme. Sur l'antisémitisme.* trad. franç. Le Seuil, Paris, 1984, p.111

41 Cf. J. J. Rozenberg, *Le corps-autre et les sources de l'altérité: l'interface bio-psycho-culturelle*. Bruxelles, De Boeck, 2011, pp.111-130

communauté religieuse Juive"[42]. Cette définition englobe donc également des grands-parents purement Aryens convertis au Judaïsme. De plus, l'antisémitisme racial constitue une véritable idolâtrie de la nature. En effet, vouloir modifier artificiellement les phénomènes naturels, présuppose, comme le suggère J. Gayon, que la sélection naturelle n'est pas capable par elle-même de réaliser le rêve raciste[43]. Pensant avoir reçu la mission Divine d'établir une barrière entre les races, le National-Socialisme cherchera en fait à réduire l'espèce humaine à une race unique[44].

Si le modèle d'une telle aspiration concerne la thèse évolutionniste du "struggle for life", par lequel les races supérieures seraient en mesure de l'emporter, ce modèle est également associé à l'idée d'épuration, qui appartient au domaine sanitaire, allant à l'encontre de l'idée de diversité qui était fondamentale pour Darwin[45]. Une telle aspiration, d'ordre eugénique, s'inspire directement du programme que Francis Galton proposait en 1889 afin d'"élever ou d'abaisser les qualités raciales des générations futures, aussi bien physiquement que mentalement"[46]. Même si considéré en lui-même, le programme de Galton se saurait être réduit aux propositions racistes qu'il contient, la réalisation de ces propositions par l'eugénisme nazi a été préparée par les théoriciens allemands de l'hygiène raciale. Ces derniers en sont venus, après la Première Guerre Mondiale, à statuer sur la valeur de la vie. C'est ainsi qu'en 1920 K. Binding et A. Hoche préconisèrent la destruction des vies sans valeur *(der Vernichtung Lebensunwerten Lebens)*[47], investissant de ce fait la biologie du pouvoir de décider de la vie et de la mort de populations entières. Toutefois, le passage de l'eugénisme biomédical au génocide hitlérien n'a été possible que par l'intégration d'autres facteurs majeurs, comme le «racisme nordique», promu au rang d'une thérapeutique raciale, et l'«antisémitisme manichéen», opposant l'Aryen au Juif[48].

Les rappels historiques auxquels avons procédés dans cet article, restent susceptibles de préciser le contexte d'émergence du thème ibérique de la *limpieza de sangre*, et sa résurgence, à partir de la seconde moitié du 19e siècle. Ces mesures expriment, selon des modalités différenciées, dont il convient toujours de distinguer les formes spécifiques d'apparition, une volonté commune d'éradication de la référence juive. Elle finira par déployer un processus mythologique sans précédent, dans le but de reconstruire l'identité occidentale, à travers une recherche d'antériorité, d'authenticité et de pureté raciale, déjà en fait esquissée dans l'Espagne inquisitionnelle.

42 F. De Fontenette, *Histoire de l'antisémitisme*. Paris, PUF, 4 eme éd. 1993. p.95.

43 J. Gayon, "Le philosophe et la notion de race". *L'aventure humaine*. 8, 1997, p.20

44 Cf. J. J. Rozenberg, "From anti-semitism and racism to ethics: an epistemological reflection on the Nuremberg trials and code". In J.J.Rozenberg (Ed.) *Bioethical and ethical issues surrounding the trials and Code of Nuremberg: Nuremberg revisited*. Lewinston, Mellen Press, 2003, pp.1-20

45 Ch. Darwin, *L'évolution des espèces*. trad. franç. Paris, A. Coste 1951 p.57. cf. J. J. Rozenberg: *Bio-cognition de l'individualité. Philosophèmes de la vie et du concept*. Paris. PUF. 1992. pp.102-105.

46 F. Galton, *Natural inheritance.* MacMillan, London 1889.

47 K. Binding und E. Hoche, "Die Freigabe der Vernichtung Lebensunwerten Lebens". *Ihr Mass und Ihre Form*. Leipzig 1920.

48 B. Massin, Préface à la traduction française de P. Weindling, *L'hygiène de la race*. T. I. Hygiène raciale et eugénisme médical en Allemagne, 1870-1933. Paris. Editions de la Découverte. 1998

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Logos e magia. La forza della parola nei rituali magici

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KEYWORDS

logos, magic, classical Greek literature, Greece, magia, letteratura greca classica, Grecia, *magos, mageia.*

ABSTRACT

The magic rites are divided into oral (spells) and manual (sympathetic rites or symbolic rites, sacrificial rites, healing rites, purification rites), complementary to each other. These rites present a recitative part, λόγος, with formulas and spells, and an operational part, πρᾶξις, with particular gestures, tools and substances. In both cases the word is fundamental because it is the magic tool par excellence, thanks to its evocative and expressive power: it is a creative and pragmatic force that acts directly on reality. This act of speech is expressed either through simple pronunciation, as in the case of oral spells, or through writing, generally on particular objects. The study will attempt investigate the power of the logos in magic rites, the ritual formulas and the different types of written objects.

Introduzione

Un rituale, secondo la definizione di S. J. Tambiah (1968:175-208) è un sistema di comunicazione simbolica caratterizzato da una precisa forma convenzionale ripetuta di volta in volta e costituita da sequenze di parole e atti, grazie al quale chi presiede il rituale e l'officiante sono connessi e condividono gli stessi valori. Nel caso di un rito magico, invece, il mago lo compie in solitudine, quindi emittente e destinatario coincidono: il messaggio del rituale magico riguarda esclusivamente l'officiante e fondamentale diventa il rapporto che s'instaura con le divinità invocate (Graf 2009:203-206.) Per compiere tali riti, quindi, il mago necessita innanzitutto di precise formule evocatorie, sia orali che scritte, di determinati rituali, di un complesso corredo di strumenti (bacchette, bacili, anelli, coltelli, scale, rotelle, raganelle, fusi, chiavi, specchi, ecc.) e di sostanze, i cosiddetti *φάρμακα*.

La procedura rituale non è descritta nei testi più antichi, caratteristica invece presente nei testi più tardi. Possiamo tuttavia affermare l'esistenza di riti semplici, che constano per esempio solo in un ordine impartito al mal capitato che il mago vuole sottomettere, e riti più complessi, che si basano sul connubio tra parola e gesti.

I riti magici, infatti, si distinguono in orali (gli incantesimi) e manuali (riti simpatici o riti simbolici, riti sacrificali, riti curativi, riti di purificazione) e non di rado si completano vicendevolmente. Ecco perché i riti presentano una parte recitativa, il *λόγος*, con formule e incantesimi, e una parte operativa,

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la *πρᾶξις*, nella quale sono usati determinati gesti, strumenti e sostanze. In entrambi i casi fondamentale è la parola.

La forza del *logos* nei rituali magici

La parola, grazie alla sua potenza evocatrice ed espressiva, è lo strumento magico per eccellenza: è una forza creatrice e pragmatica che agisce direttamente sulla realtà, esercita su di essa un influsso e se ne impossessa. Questa forza pragmatica della parola è detta perfomità, principio secondo il quale l'atto locutorio agisce già dall'istante in cui è pronunciato (Astori 2000:21-22).

Questo atto di parola deve avvenire all'interno di un rituale e si esprime o tramite il semplice pronunciamento, come nel caso degli incantesimi orali, o attraverso la scrittura, in genere su particolari oggetti aventi a loro volta una precisa funzione.

Analizzando i testi tramandati, si può postulare la formula rituale di base per i riti più complessi: una volta esaurite le pratiche preliminari per officiare un rito (Muscolino 2011: CXXXII-CXXXIII; Astori 2000:39-43), come la purificazione del luogo di celebrazione e l'erezione del cerchio magico, il mago prosegue con la recitazione di una preghiera strutturata in tre parti distinte: *invocatio*, *narratio*, *preces* (Graf 2009:184-188; Lucan. 6, 507-830). La preghiera assume quindi, come nel rito religioso, un ruolo fondamentale che mette in primo piano il rapporto con le potenze spirituali (Astori 2000:23-24).

L'*invocatio* è l'invocazione rivolta alle divinità. Sono specificati i nomi, i luoghi di culto e le loro funzioni e si conclude con l'esortazione a comparire e ad ascoltare la preghiera.

Nella *narratio* l'officiante sottolinea i suoi meriti nei confronti della divinità invocata elencando i precedenti sacrifici e le offerte passate, affermando così l'assoluto diritto di ottenere ciò che si richiede.

La *preces*, infine, è la richiesta propriamente detta e conclude la preghiera.

Le formule usate si basano o sul comando, utilizzando il modo imperativo, come nel caso degli scongiuri, o su un tono declamatorio, o ancora usando lo schema della supplica, o infine ricorrendo alla semplice invocazione (Astori 2000:24-25).

In queste formule orali fondamentale è l'uso di determinate figure retoriche basate sulla ripetizione fonetica o lessicale, quali l'epanalessi, l'allitterazione, l'anafora, l'assonanza, il polisindeto e la paratassi. Lo scopo è quindi, oltre quello di aiutare la memoria, la creazione di parallelismi sintattici e della ripetizione ossessiva di determinate parole o strutture all'interno del discorso allo scopo di rafforzare il potere persuasivo della preghiera. Si fa leva sul ritmo cadenzato e sugli *Ἐφέσια γράμματα*, suoni a-semantici da recitare e caratterizzati da un suggestivo carattere fonico.

Ruolo importante assume anche l'analogia, anch'essa essenziale per ricreare quei parallelismi tanto sul piano sintattico quanto del contingente:

> *il procedimento analogico vuole stabilire un rapporto di comparazione tra un avvenimento, o serie di avvenimenti, considerati paradigmatici, e una situazione attuale che va modificata, il cui modello è appunto rappresentato dal primo termine di paragone. Spesso il salto tra le due serie di avvenimenti è molto ardito, ma è proprio in questa irriducibilità al reale e in questa apparente illogicità, che sta*

> *la potenza dell'analogia e della metafora magia, le quali fanno parte di una rete simbolica che ha comunque una sua intima e coerente struttura semantica* (Astori 2000:26).

L'efficacia persuasiva di queste formule è rafforzata anche da una particolare intonazione che conferisce una musicalità specifica alle parole: la magia, d'altronde, è strettamente connessa alla musica e al canto e la potenza dell'incantesimo è così amplificata.

I termini greci che indicano il canto magico sono *ἐπῳδή* (S. *Aj*. 582; A. *Eu.* 649; X. *Mem.* 2, 6, 10; Pl. *R.* 4, 426 b; Pi. *P.* 3, 47 ss.; 4, 217; Hom. *Od*. 19, 450-458; Apoll. *Bibliotheca* 2, 2, 2) e *ἀοιδή* (A.R. 1, 23-31; 4, 42; 4, 59; 4, 157; 4, 907; 4, 1665 ss.).

Ἐπῳδή è sempre usato dalle fonti in termini negativi, a esclusione dell'episodio descritto nell'*Odissea*, nel quale Odisseo è curato da una terribile ferita (Hom. *Od*. 19, 450-458).

Significativo è il passo nella *Pitica 4* di Pindaro (*P.* 4, 213-221) nel quale si descrive il rito erotico che Giasone usò per soggiogare il cuore di Medea, complice Afrodite, affinché la sventurata acconsentisse a tradire patria e affetti per aiutarlo a rubare il vello d'oro: esso consisteva nel legare un particolare uccello, il torcicollo screziato, ai quattro raggi di una ruota e pronunciare incantesimi di supplica (*τ' ἐπαοιδάς*).

Molti sono, invece, i casi nei quali appare il termine *ἀοιδή*: è usato per indicare la voce di Orfeo, talmente potente da ammaliare rocce e fiumi, far muovere querce (A.R. 1, 27; Apollod. *Bibliotheca* 1, 3, 2) e da sconfiggere le Sirene (A.R. 4, 906-909; Apollod. *Bibliotheca* 1, 9, 25), il soave quanto mortale canto di quest'ultime (A.R. 4, 914) e gli incantesimi di Medea, coi quali è in grado di aprire le porte senza toccarle (A.R. 4, 41-42), muovere la luna (A.R. 4, 59-61), sconfiggere un drago (A.R. 4, 156-161) ed evocare le Chere (A.R. 4, 1665-1671). Nell'*Odissea* è usato nuovamente per il canto delle Sirene (Hom. *Od.* 12, 37-54; 158-200) e per quello di Circe (Hom. *Od*. 10, 221; 253), capace di attrarre a sé gli uomini giunti sulle coste della sua Eèa.

Nelle fonti il canto magico a volte è accompagnato dal suono di strumenti e passi di danza. In quest'ultimo caso un esempio sono le Erinni, che intonano un terribile canto di morte accompagnato da un movimento di danza circolare attorno a Oreste (A. *Eum*. 306 ss.). Per l'uso di strumenti musicali e il loro connubio con l'arte cantoria ammaliatrice, spiccano il già citato passo delle *Argonautiche* nel quale Orfeo, accompagnato dalla sua cetra bistonica, sconfigge le Sirene e sposta le querce, e tre vasi dell'archivio Beazley raffiguranti le Sirene suonatrici di *lyra* e doppio *αὐλός*: la *lekythos* attica a fondo bianco del Pittore di Edimburgo, datata al 525-500 a.C. e conservata al Museo Nazionale di Atene, inv. CC958 (*ABV* 476); una *oinochoe* attica a figure nere, datata al 500-475 a.C., della Collezione Callimanopoulos di New York (*Para* 183.22 bis); la *lekythos* attica a figure nere del Pittore di Atena, datata al 500-475 a.C. e conservata al Museo Archeologico Provinciale di Bari, inv. 2732 (*ABL* 257.68).

Possiamo affermare, quindi, che nelle pratiche magiche l'incantesimo risulta essere il prodotto di parola e musica, caratterizzato da una forte potenza persuasiva e ammaliante.

La musica è, dunque, solo un rafforzativo dell'azione della parola ed è quest'ultima il vero fulcro dell'azione magica.

La parola è uno strumento complesso che deve essere usato esclusivamente da chi è esperto di arti magiche, pena il fallimento di tutto il rito. L'officiante, nell'invocazione delle forze sovrannaturali,

utilizza gli *ονόματα βαρβαρικά*, i nomi segreti di tali entità, dimostrandosi così degno di ricevere l'aiuto divino (Graf 2009:211). In realtà non si tratta di nomi barbari, ma dei nomi più antichi, assiri ed egiziani, di queste divinità e che si sono conservati nel tempo: come afferma F. Graf (2009:213), la magia ha dunque un preciso aspetto epistemologico. Il loro uso risale all'epoca classica e il primo esempio in letteratura lo troviamo nella tragedia euripidea *Ifigenia in Tauride*, nei versi nei quali il messaggero racconta i preparativi di un rito di purificazione con il fuoco portato a compimento da Ifigenia e durante il quale la ragazza lanciava urla e intonava incantesimi barbarici (E. *IT.* 1336 ss.).

Le divinità sono chiamate a testimonianza del diritto di ricevere quanto richiesto e lo scopo è sottometterle alla volontà dell'officiante. La finalità può essere o benefica o malefica, come nel caso dei riti vendicativi o dei veri e propri malefici, e la formula può essere indirizzata ai *δαίμονες*.

Un *δαίμων* è un *πάρεδρος*, un aiutante che l'officiante lega a sé per tutta la vita tramite un preciso rito iniziatico. Sono considerati anche come anime dei morti (Hes. *Op*. 122; A. *Pers.* 620; E. *Alc*. 1003) e numi tutelari (A. *A*. 1569; Pl. *Phd*. 107 d). Il termine ha assunto il significato demoniaco, poi mantenuto nel corso della storia, con Senocrate (Cfr. Xenocr. fr. 15 Heinze; frr. 23-24 Heinze). Significativo è un passo di Platone (Pl. *Smp.* 202 e - 203 a) nel quale il filosofo afferma che Eros è un demone, in quanto intermediario fra ciò che mortale e ciò che è immortale, che si mescola tra gli uomini e tramite esso gli dei comunicano con loro, sia quando sono svegli sia quando dormono.

I *daimones*, quindi, si collocano nella sfera intermedia tra uomini e dei, "sono intermediari e traghettatori, trasmettono messaggi e doni dagli uomini agli dei e viceversa, preghiere e sacrifici da una parte, ordini e premi dall'altra" (Burkert 2010:579), non possiedono una natura divina pura, quindi non sono né divini né mortali, sono sensibili alle esperienze fisiche, come il dolore e il piacere, sono invisibili, forti e a differenza degli dei hanno passioni e sostengono o odiano il male, quindi ne esistono di buoni o cattivi (Pl. *Smp.* 202 e - 203 a; Pl. R. 392 a; 450 c; Pl. *Lg.*738 d; 799 a; 848 d; 906 a; Pl. *Epin*. 984 b - 985 b; Arist. *Div. Somn*. 463 b 12; Xenocr. fr. 15 Heinze; frr. 23-24 Heinze; Maxwell-Stuart 2003, 23; Burkert [1977] 2010, 579-581). Ciò fa intuire come esista una gerarchia divina: instaurando un rapporto con le divinità maggiori, innanzitutto con la conoscenza del loro nome antico, si ottiene obbedienza da tutto il resto della gerarchia (Graf 2009:218-220).

Qualunque sia l'entità al quale il mago si rivolge, denominatori comuni sono la costrizione, *ἀνάγκη*, e la persuasione, *πειθώ*. Esistono diverse forme di costrizione (Graf 2009:216-217): mediante l'astuzia, provocando la divinità con determinate argomentazioni care a essa; attraverso i riti nei quali si attira la collera delle divinità su un'altra persona con una falsa accusa, *διαβολή*, di empietà; mediante estorsione o un ricatto nei confronti della divinità; puramente verbale, nella quale si esprime una minaccia, cioè attraverso gli *ἐπάναγκοι λόγοι*, 'parole che costringono'.

La parola, quindi, è la prima delle armi magiche di un mago, amplificata qualora fosse anche scritta.

La parola scritta

La parola scritta, per estensione, detiene lo stesso potere di quella enunciata, ma ne è un rafforzativo poiché veicola, fissa su un supporto e rende durevole nel tempo la volontà dell'officiante: essa non è soggetta ai limiti dell'oralità.

I messaggi iscritti si dividono in semplici, come formule criptiche, alfabeti mistici e sequenze vocaliche, e più complessi, quali *defixiones*, *phylakteria*, invocazioni, inni, preghiere, messaggi augurali, liste di nomi delle vittime da legare al maleficio. Frequente era l'uso di inserire rappresentazioni grafiche, costituite da immagini di divinità e demoni con i loro attributi, e simboli magici (Viglione 2010:119-131). In quanto estensione della parola pronunciata, quella scritta presenta gli stessi schemi ripetitivi, supportati però da uno specifico programma grafico (Centrone 2010:95-117).

L'atto della scrittura, infine, era accompagnato dal pronunciamento degli *ονόματα βαρβαρικά* delle stesse formule incise (Bevilacqua 2010:17-20).

Lo studioso G. Vallarino (2010:21-82) ha proposto una classificazione dell'intero repertorio dei documenti magici iscritti, suddividendoli in due gruppi.

Il gruppo A racchiude tutti i semplici supporti scrittori non esclusivamente pertinenti all'ambito magico (lamine di metallo - oro, argento, rame, bronzo e piombo - lastre di pietra, lastre calcaree, terracotta - *ostraka*, tegole e lastrine - selenite, fogli di papiro, legno, strisce di lino, pergamena). La scelta del materiale si basava sull'uso specifico al quale l'oggetto era destinato: nel caso esso dovesse essere custodito o nascosto si optava ad esempio per le lamine in metallo, se invece doveva essere esposto a difesa ad esempio della casa, dei campi o del raccolto si preferiva la pietra, la terracotta o il legno e le incisioni avevano dimensioni maggiori. Meno frequenti i supporti più deperibili. Sul materiale deperibile e sul papiro si scriveva con l'inchiostro nero mescolato con mirra, oppure rosso cinabro, mescolato ad aromi. È importante sottolineare che i rituali di magia richiedevano inchiostri eterogenei e ricavati da varie sostanze, semplici come erbe e aromi, o complesse come sangue di animali (scimmia, asino, capra, piccione, corvo, falcone, anguilla). Lo strumento dell'incisione era quasi sempre lo stilo in bronzo o in rame battuto a freddo, o anche una pietra dura e persino un chiodo.

Il gruppo B racchiude gli oggetti che possiedono un uso specifico indipendentemente dalla scrittura, connesso a scopi utilitari (gioielli e ornamenti personali) o con un'autonoma funzione magico-rituale (figurine antropomorfe (Graf 2009:132-134; Bevilacqua 2010:55-58), chiodi, medaglioni devozionali, lucerne, *tintinnabula*, strumenti magico-divinatori, oggetti connessi con la *lekanomanteia* e con la *lychnomatheia*, gemme oracolari, *pinakes*, vasi, scatole, libri). In questi casi la scrittura è il rafforzamento di uno strumento già operante di per sé o l'elemento attivante il potere magico.

In entrambi i casi si nota l'essenziale ruolo svolto dalla parola.

Oltre sui supporti citati, si scriveva anche su oggetti deperibili come piante, foglie, stoffa, cera, focacce, mollica di pane, con la quale si plasmavano figurine, uova, radici, parti del copro di animali e conchiglie. Quest'ultime erano simboli della sessualità e della fecondità femminile e per questo usate soprattutto nei riti erotici di attrazione, i *φιλτροκατάδεσμοι*. È attestato, infine, anche l'uso di scrivere su arredi sacri e suppellettili domestiche.

Le classi di documenti più numerose sono costituite dalle *φυλακτήρια*, richieste di favore e protezione, attestate a partire dal II secolo a.C. e fino all'età bizantina e incise su oggetti aventi funzione apotropaica, e dai *κατάδεσμοι*[1], cioè le già citate *defixiones*, che si trovano lungo una arco

1 Il termine *κατάδεσμος* indica letteralmente un incantesimo (cfr. Pl. *R.* 364 c). Esso è un rito di maleficio con invocazioni alle divinità degli Inferi al fine di ottenere vendette, infliggere punizioni o lanciare incantesimi amatori (cfr. Astori 2000:27-28).

cronologico cha va dal VI secolo a.C. fino al V d.C. e in genere erano scritte su supporti materiali, le *tabellae defixionis*. Il tipo varia a seconda delle finalità (Audollent 1904: LXXXVIII-CVI):

Tabellae iudiciariae et in inimicos conscriptae

Sono le *defixiones* mirate a nuocere agli avversari in un processo al fine di non farli comparire in tribunale o di colpire le loro facoltà oratorie e intellettuali. Sono diffusissime ad Atene tra la metà del V e la fine del IV secolo a.C., ma sono attestante anche nel resto dell'Attica e in Frigia, Cipro, Melos, Megara, Tanagra, Corcira, Olbia Sarmatia, Moesia inferiore, Brigantium in Raetia, in Germania, in Gallia, nel Lazio, a Capua, Punteoli e Cartagine.

Tabellae in fures calumniatores et maledicos conversae

Sono le *defixiones* contro i ladri, i calunniatori e i maldicenti. A differenza delle altre, in esse il *defigens* ha già subito il danno e non conosce i nomi dei nemici. Sono attestate a Cnido, Megara, Britannia, Spagna, Attica, Chersoneso, Capua, Bruttium e Cartagine.

Tabellae amatoriae

Sono le *defixiones* amatorie, con le quali si cerca o di suscitare amore in qualcuno, o di privare l'amato degli appetiti sessuali se non sono riversati verso il *defigens*, o di creare discordia in una coppia nel caso in cui l'amato sia sposato. Anch'esse sono diffusissime in ogni epoca e regione. Sono attestate a Cnido, Atene e nel resto dell'Attica, Menidhi, Roma, Cuma, Cartagine, in Beozia, Germania e Lazio, Hadrumentum.

Tabellae in agitatores et venatores immissae.

Sono le *defixiones agonisticae*, con le quali si cerca di assicurarsi la vittoria in contesti agonistici circensi o in altri spettacoli. Sono attestate soprattutto in età imperiale. Quelle contro gli aurighi sono attestate in Siria, Roma, Cartagine e Hadrumentum; quelli contro i *venatores* a Cartagine.

Gli ulteriori studi (Gager 1992:116-149; Nisoli 2007:271-287; Graf 2009:116-125) condotti dopo A. Audollent portarono alla determinazione di un quinto tipo: le *defixiones* contro rivali economici, con le quali si mira o a privare la vittima delle proprie abilità lavorative e legarla alla sventura, o a proteggere la propria bottega e il proprio lavoro. Esse sono attestate dal IV secolo fino ai papiri magici.

Il cardine di tutte è il verbo *καταδέω*, letteralmente legare, fissare saldamente, imprigionare. Esso rimanda quindi a due azioni specifiche: immobilizzare e legare la vittima al volere del *defigens*. Questo senso di legatura in alcuni casi è enfatizzato con l'inchiodamento delle *tabellae*, atto che non solo amplifica il legame della vittima al maleficio ma che si basa sul paragone tra vittime e lamina stessa.

Esse, inoltre, erano nascoste nella terra, nel mare, in un fiume, in una conduttura dell'acqua, in una grotta, in una tomba, in un pozzo, in fontane, nei *bothroi* e nei santuari delle divinità ctonie e sotterranee, alle quali ci si rivolgeva per affidare il destino della vittima designata del maleficio. Si cerca quindi sempre il movimento vero il basso e il contatto col mondo sotterraneo, a differenza del culto

pubblico che tende verso l'alto (Graf 2009:123-124).

Secondo lo studioso F. Graf esiste, tuttavia, un'altra spiegazione del perché deporre le lamine in questa tipologia di luoghi: la scrittura ha lo scopo di fissare la parola pronunciata e di farla durare. Deponendo la *defixio* in quei luoghi non si fa altro che preservarla ulteriormente e raggiungere direttamente i defunti[2], che assolvono la funzione di messaggeri, e le divinità ctonie. È 'un'azione di ridondanza della parola stessa mirante ad assicurare l'arrivo del messaggio' (Graf 2009:126).

Conclusioni

La proporzione che si potrebbe ricavare dalla studio effettuato è che il *magos* sta alla magia come il *logos* alla persuasione e alla costrizione. Lo scopo è attrarre a sé le proprie vittime con strumenti quali l'abilità nel circuire con la parola l'animo altrui e la volontà di sottomettere al proprio volere persino le divinità.

Il *magos* ha "la facoltà di evocare più cose di quanto gli altri non possano immaginare. Le sue parole, i suoi gesti, le sue strizzate d'occhio, i suoi stessi pensieri sono delle forze. Tutta la sua persona sprigiona effluvi, influenze, cui cedono la natura, gli uomini, gli spiriti e gli dei" (Mauss 2000:29): la sua peculiarità magica risiede nella sua forza, nella sua volontà di compiere azioni di cui altri non sono capaci, di superare quei limiti imposti per definizione dalla natura umana e arrivare a soggiogare l'altrui volontà. Questa forza, questo insieme di poteri, che può riassumersi nella nozione di *mana* (Mauss 2000, 109-124; Luck 2006, 9; Luck 2010, 5-6)[3] può espletarsi innanzitutto grazie alla parola.

Per portare a compimento un rito, un mago è alla continua ricerca del contatto con la sfera del divino. Alla base non vi è però la volontà di avere un'esperienza puramente mistica, ma perseguire uno scopo materiale: la riuscita del rito stesso. Egli ha infatti bisogno dell'aiuto degli dei, dei quali deve quindi conoscere tutti i segreti e gli *ονόματα βαρβαρικά*. Il *magos*, giocando di astuzia e con la sua forza, si rivolge alle divinità costringendole o persuadendole ad accondiscendere la sua volontà: le provoca con argomentazioni provocatorie, ne promuovere la collera su terzi, o addirittura ricorre alla minaccia o al ricatto (Graf 2009, 216-217).

I *magoi*, quindi, sono colpevoli di atti empi e sacrileghi e frodano e ammaliano con i loro canti magici gli ingenui malcapitati. Tale bravura persuasiva è sottolineata da Platone e da Gorgia: nella *Repubblica* (Pl. *R.* 2, 364 b-c), afferma che riescono a convincere le persone benestanti di essere in grado di compiere riti di catarsi e sono esperti nell'arte della persuasione a scopo di lucro, nel *Menone* (Pl. *Men*. 80 a-b), dove si sottolinea che questi individui incantano con lusinghe e ammaliano nel pronunciare incantesimi, e nelle *Leggi* (Pl. *Lg.* 10, 909 b-d), dove si denuncia la loro empietà nella promessa di riuscire a influenzare e raggirare persino la volontà degli dei. Gorgia (Gorg. *Hel.* 10-12), infine, sottolinea come la forza degli incantesimi ammalia e, incitando errori dell'anima e inganni della mente, persuade ad acconsentire a spiacevoli azioni.

La parola, infine, è uno strumento potente che aumenta la sua forza persuasiva col canto e con la scrittura. Nel mito, in riferimento al bel canto, esemplificativi sono i casi di Circe (Hom. *Od*. 10,

2 Nel particolare, la mediazione avveniva attraverso i defunti morti prematuramente, gli *ἄωροι* (*áoroi*), o per morte violenta, i *βιαιοθάνατος* (*biaiothánato*i). Cfr. Graf 2009:127; Bevilacqua 2010:15.

3 Gli equivalenti greci, testimoniati dai testi di età ellenistica, sono *δύναμις* (potenza), *χάρις* (grazia) e *ἀρετή* (efficacia).

221-223; 253) e delle Sirene (Hom. *Od*. 12, 37-54; 158-200; A.R. 4, 914). Esse, con voce suadente e armonica, attirano a sé gli uomini sprovveduti che arrivano a perdere la propria umanità, come nel caso della maga, o addirittura la vita.

Rafforzativo della parola è, infine, la scrittura. Essa è attestata sia su supporti deperibili che su oggetti durevoli nel tempo e si è constatato un legame con gli Inferi e le divinità ctonie, volto a amplificare la potenza del rito e della parola scritta.

Il *logos*, quindi, è espressione della volontà degli uomini che ne posseggono l'arte. Un'arte che nei riti magici equivale alla forza di persuasione e costrizione dell'officiante ai danni di uomini e divinità.

Abbreviazioni bibliografiche
Le abbreviazioni delle fonti greche sono state redatte secondo le indicazioni del *Liddell-Scott-Jones*.

A.	Aeschylus Tragicus
A.	*Agamennon*
Eu.	*Eumenides*
Pers.	*Persae*
Apollod.	Apollodorus Mythographus
A.R.	Apollonius Rhodius Epicus
Arist.	Aristoteles Philosophus
Div. Somn.	*de Divinatione per Somnia*
E.	Euripides Tragicus
Alc.	*Alcestis*
IT	*Iphigenia Taurica*
Gorg.	Gorgias Rhetor et Sophista
Hel.	*Helena*
Hes.	Hesiodus Epicus
Op.	*Opera et Dies*
Hom.	Homerus Epicus
Od.	*Odyssea*
Pi.	Pindarus Lyricus
P.	Pythian
Pl.	Plato Philosophus

Epin.	*Epinomis*
Lg.	*Leges*
Men.	*Meno*
Phd.	*Phaedo*
Smp.	*Symposium*
R.	*Respublica*
S.	Sophocles Tragicus
Aj.	*Ajax*
X.	Xenophon Historicus
Mem.	*Memorabilia*
Xenocr.	Xenocrates Medicus

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Healing and the Land: Cultural Perspectives on Health and Environment. The Case of Aboriginal Australia

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KEYWORDS

Health, environment, land, Australia, wellbeing, conservation, Aboriginal, Indigenous, Europeans, Western, colonization, fire, humans, nature, culture, totemism, burning, New South Wales, Victoria

ABSTRACT

In this article, it is questioned whether and how cultural values and ideas play a role in influencing the ways in which we, as humans, behave towards nature, and how then we end up shaping it differently; this is done by bringing at first the instance of "Western" conceptions on the environment from the 17th century onwards. The centre of this issue is mainly developed around how different ways of treating the environment affect people's wellbeing, and specifically it is brought the example of Aboriginal peoples in Australia, with regard to their experiences during and after colonization. Colonizers, in fact, imposed on Aboriginal communities different ways of living within the environment and also of dealing with health and sickness, causing disrupting consequences for the native peoples' wellbeing and also for the environment's one, that ended up being differently managed. Specifically, it is presented the example of the customary use of fire among Aboriginal communities, utilized as a way to take care of the land, a behaviour that positively affects peoples' lives and wellbeing too. In this way, it is emphasized the positive role that humans can play in shaping a healthy environment when they assume particular behaviours related to specific values and ideas (the example of totemism within First Australians is also reported), while at the same time they can be a negative and dangerous influence, in case they value nature as a mere resource, or as a domain to be kept apart from humans.

Introduction

The influence that the environment has on our health, represents new hints from which it is possible to approach both fields, the environmental and the medical one. There are various disciplines that are addressing these issues from new perspectives, like that of environmental health, which promotes human wellbeing, by focusing also on ecological balance and healthy environments. Especially since the First Industrial Revolution, the acknowledgement of the impacts of human activities on the environment and their consequences on human health, had represented a slow start into a change of perspective around these topics. A series of posterior events - included the Second Industrial Revolution, the Second World War, the increased use in chemicals and pesticides, the rise of environmental movements, and of new disciplines that started to put at their centre the environment, such as environmental economics – contributed to the reinforcement of these ideas. There is also a new paradigm that generated around these issues: "One Health", an approach jointly developed by FAO, OIE, and WHO, that has the main aim of advancing practices for better public health able to consider everything present in the environment, including the environment itself, and in this way getting out of the individual body perspective. Its representative symbol is a circle that depicts "Healthy People" – "Healthy Environments" – "Healthy

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Animals" (Fig. 1).

Much of the material that can be found about the One Health paradigm presents a deep focus on the infectious diseases' control and prevention, and on the zoonoses (animal borne infectious diseases) that, due to the increasing human population that leads to the consequent inhabitancy of a large amount of natural spaces, poses more frequent risks to the elevate contact between humans and animals. Nonetheless, this approach is developing also in other branches, like food safety, diseases related to climate change and rising temperatures, pollution, but also to the health issues that might derive from socio – economic disparities, that is from the social environment (which can include the availability and possibility of access to health and public services); in this regard, it relates also to the numerous hazards that impact differently people in poorer countries compared to those living in richer ones, as well as individuals in the same society, that can have diverse possibilities and life's standards. The main goal of this paradigm, then, aims not only to an improvement in humans' wellbeing, but also to an implementation of strategies in order to have mutual benefits both for humans and for non – humans and their environments, that is to research on a balance between ecosystems and human lives.

The field of environmental health has developed new perspectives also on the positive role that the environment can play in influencing human wellbeing, for which living in healthy environments, with an exposure to clean air, clean water, access to food, and availability of natural spaces, all represent an asset to human physical and mental wellbeing: "[…] we need a research agenda directed not only at exposures we suspect to be unhealthy, but also at those we suspect to be healthy, and at outcomes that reflect not only impaired health, but also enhanced health […]" (Frumkin 2001: 238). Generally then, when talking about environmental health, we need to consider not only the negative and dangerous effects of the health hazards[1], that can affect people exposed to a badly damaged environment, but also the positive outcomes of living in healthy environments, and not just that: at the same time, in fact, it's also important to consider that humans themselves, when in contact with nature, can bring positive changes to it, by monitoring, curing, saving and implementing strategies to preserve and enrich the environment they live in. In fact, by quoting Seddon: "[…] we are not always despoilers. We can also be creative" (Seddon, G. 1997: 112). Do cultural values and ideas influence whether we tend to be despoilers or creative?

The core of this article regards health and environment approached from the perspective of culture, and it will focus on the relations that humans can entertain with those two variables: specifically, it will refer to the analysis of the encounter between different cultural concepts of land and of the environment that happened in Australia during and after colonization, from the late 18th century to the present day. Indeed, the colonizers imposed a different land's perception compared to that of the various Aboriginal communities[2], and this had effects not only on the environment itself, that

1 Yassi et al. (2001) talk about «health hazards» that can be divided between hazards caused by natural factors, which have always existed, and those caused by human actions – by technological and industrial development, that by modifying the natural environment play an important role into human lives too: these last hazards can also include factors such as light, noise and safety of the surrounding social environment.

2 I acknowledge that talking about "Western" on one side, and "Aboriginal" on the other, it's a generalization: "Generalizations about Aboriginality can obscure the fact that there are many Aboriginalities. […] Generalizations about non-Aboriginality can conceal the great differences between first- and sixth-generation Australians, and between immigrants from England, southern Europe and South-East Asia" (Cameron, J. 2003: 187 – 188). For this reason, I find important to justify the use I made of some words: throughout this article, when I mention a general "we", "us" or when I talk about "Western", I do it in order to refer to the main philosophical, historical and scientific trends risen in Europe especially from the 16th – 17th centuries onwards – and that quickly expanded elsewhere through colonization for instance – that have characterized centuries crucial to the development of key ideas that are at the base of the thought formation and of the institutional approaches which influenced our education under many aspects. However, I would like

ended up being differently managed, but also on the wellbeing of most of the Aboriginal peoples, that, besides, had been subjected to different ways of dealing with health and sickness.

As a practical and contemporary example of how different cultural values affect land management, and how this comes to condition peoples' wellbeing, it will be introduced the practice of traditional customary use of fire among Aboriginal communities in Australia. This will also result to be explicative of how during colonization, different ways of managing the environment had been naturally and culturally imposed on Aboriginal peoples, with consequences that have been affecting also the nowadays clashes when it comes to land rights, co – management of protected areas and natural reserves, and, more generally, environment and health related issues. Protection and enhancement of land can in fact be intended in different ways according to different cultural and social settings, and they end up shaping the environment differently, causing also wanted or unwanted effects on people's health.

> *Well, we had six hundred dialects in Australia. […] And that means [that] there were six hundred communities. And those six hundred communities had a responsibility in their area, to manage the land. And, what we call cool burning, cool burning is done in the winter time mainly, and that burns enough not killing the animals, it's taken into consideration that, with the cool burn, when the migrating creatures went migrating, then the[y] cool burn, so that only the underneath, the canopy of the trees would burn out. It didn't burn above the tree […], no fire would have reached that high… it was done by what we call cool burning. And, it was done in a way, that you knew where the fire was gonna go. […] what we call a section, like a section that we would burn, like, it would be like… in sections, but wasn't general. Fire didn't go and take everything. […] So that's how we managed the earth. It was burnt for the rejuvenation, that would rejuvenate the forest, in fact it was healthy, it was a healthy forest to be burnt, and burnt in a proper manner. So that, so the trees and leaves and then, plants would need a fire to propagate. By that sort of heat and fire, proper management, for burning sections. So, just a way it was the whole… you can imagine six hundred communities throughout Australia, doing the same thing as I said in the appropriate times. And that kept people and land healthy, and kept getting rid of toxic weeds, and those things that came to this country brought by European[s]* (Uncle Ossie[3], 28th July 2020).

In this excerpt of interview, the issue of the recent bushfires that hit Australia between 2019 and 2020 is presented, especially in the optic of the cool burning practices, that are part of the traditional ways of dealing with the land of most of the Aboriginal communities living in Australia. The actions that people, individually and as a group, undertake with regards to the environment, mirror the ideas and the values that they have about it. According to different societies and cultures, in fact, and more specifically regarding peoples' and groups' social, economic and religious conditions, the ways in which people live the environment, and how they define sustainability are multiple: in this way, we

to restate that I acknowledge that, if not properly explained, it is just a dangerous generalization that risks to include in one word different economic, cultural, social and religious conditions that keep changing and that keep contributing to the creation of new "Wests". The same discourse can be done also for the word "Aboriginal", since Aboriginal communities, tribes and groups in Australia differentiate in social, geographical, cultural and linguistical terms. I will use it by making reference to the areas where I mostly conducted my research, which are in New South Wales and Victoria, and I will utilize it in a way that implies the diversity and the plurality of the communities (by using, for instance, "Aboriginal peoples", "First Australians", and "Aboriginal communities" or "clans", this last one to refer to the smaller unit within a community). These generalizations then, they are done in a way to refer to general concepts that are usually broadly accepted from the "two" sides, and that treat about themes and world views that can be more relatable to one or the other.

3 Uncle Ossie is part of the Yuin – Monaro Nation, and he is a long – term advocate of Indigenous Rights in local, national and international spheres. The terms "Uncle" and "Auntie" are used among Aboriginal peoples, as a way to show respect, then referring to the Elders, those people considered to have a wide knowledge of traditional values and an active engagement into their group. I asked and I was given permission by my interlocutors to address them in this way.

could talk about "many natures" that are formed by multiple cultures and by multiple cultural ways of shaping nature – against the typical perspective "one nature – multiple cultures". So, how is the case that the environment can be shaped differently according to peoples' ideas? There are some values, ideas and beliefs, that trigger in humans different responses to the environment, different behaviours and also different ways in which to see themselves in their role of "humans" within that environment.

In the first part of this article, there will be a brief analysis of some of the main concepts that had been formed around nature from the XVII century onwards, in a "Western" perspective; then, it will be represented how these concepts got exported in different natural, cultural and social settings through colonization, and the encounter with different local ideas around them; lastly, the practical example regarding the recent bushfires, with reference to the Aboriginal traditional burning practices and to the values and ideas that hide behind these behaviours (like totemism), will be the centre of the last part, that will also reconnect to the influences that the environment can have on health (and that our ideas about health can have on the environment).

An anthropocentric vision of the environment

Let us first start with the word "environment" itself: it comes from the French *environ*, "surrounding", implying the idea of something that is external, around us. Mühlhäusler and Peace (2006: 458) have defined it as «an anthropocentric notion» in itself, since it came to identify that nature mainly important to human beings, and for this reason it is contrasted with the word "nature" itself.

It seems that the word "environment" was used for the first time around the 17th century, right before the period that we refer to as Enlightenment. The 17th and 18th centuries saw the decisive passage from theocentrism to anthropocentrism, and the concepts of progress and development started to be part of the current mode of thinking human life on Earth. This was also thanks to the progress made by science (e.g. Newton and Copernic) that contributed to the establishment of a new relationship between humans and nature – this last one being perceived as an objective order structured by universal laws. Science then became the subject whose means was the objective knowledge of the world and its laws, and whose goal was the dominion by men on it (Andreozzi 2011: 101).

The 17th century is also the period when nature became an important part central to various disciplines, but being mainly seen still in the perspective of "natural resource", as something that could serve humans and had to be exploited for humans' purposes. In this regard, Latour said that already in the 17th century, economists considered nature in their studies, but taking it "as a mere 'factor in production', a resource that was precisely *external*, *indifferent to our actions*, grasped from *afar*, as if by *foreigners* pursuing goals that were *indifferent* to the Earth" [emphasis in original] (Latour 2018: 74). As expressed by Viveiros de Castro, humans (in some specific contexts like in this one analysed here) have followed a path in which they emerged from their animal status and from the biological world, in order to return into it as masters. After the Industrial transitions (both the one that happened in the second half of the 18th century, and that one that reached its peak at the end of the 19th century), the main ideas associated with it in the countries majorly exposed to this change, were related to an extreme confidence "in human ability to solve all problems and exploit natural resources for own benefits, regardless of the consequences" (Bennett 2002: 14). Even in the artistic field, with the development of the three dimensions perspective, typical of the Renaissance art, "nature becomes a quantifiable, three – dimensional universe appropriated by humans. […] Nature becomes then objective, so that 'she' becomes 'it', and 'it' can be understood and controlled" (Pálsson 1996: 66). The prevailing ideas then regarded those of simplification and control that could be held over the land, in order to maintain a

powerful position towards nature and towards the people living in a specific territory.

Between the end of the 18th and the start of the 19th centuries, the environment started to be approached in a different way, at least in the literate and the artistic field – that are the domains from which culture and ideas are generated. In fact, it was characterized mostly by a disenchantment towards the human power to reign over the environment, and there was a rising feeling of fear towards a nature that had become "wilderness". If nature before was mainly seen as a place from which to take the maximum in terms of resources, in that moment it became mostly understood as a domain opposite to that of humans, an empty space where no human action should be involved. We can say then that wilderness was considered the real nature, while natural resources were still regarded as part of the civilized world, in their role of serving humans' needs.

In this period, Romanticism, the natural world became something to be admired and respected, but at the same time it was still regarded as a separate sphere, distant from the world where humans live. That incomprehensible wilderness, so vast, dangerous and beautiful at the same time, those immense landscapes that evoked the idea of the "sublime", in front of which humans felt powerless and like a grain of sand, represented a break that people could take from their urban daily lives, from the "civilized" world. Romanticism can also be considered as a reaction to the increased industrialization and urbanization, against which philosophers, writers and painters praised nature in its shapes and perfection, in an attempt to distance themselves from their urban lives.

It's clear that in both these examples, we have a concept of the environment that either has to be exploited for its resources, or that has to be exclusively admired and protected. And, in both cases, it's regarded as something external, incapable of any reciprocal (and two – ways) interaction with humans.

Pálsson (1996) gave a name to these two different behaviours. One is "orientalism", which implies the pure exploitation of nature, while the second is "paternalism", whose main characteristic is the protection of it. What is important to notice here, as Pálsson (1996: 66) underlines, is that in both cases, despite having two totally different goals, humans are depicted as the "masters of nature." The main vocabulary that refers to the former includes words such as "domestication, frontiers and expansion" (Pálsson 1996: 68). In the second definition, we can talk about the rights of the environment, but this is meant in the way that "humans act on behalf of nature" (Pálsson 1996: 70), so still having a different kind of power over it. "Humans exploit and degrade, but they also conserve and protect" (Bennett 2002: 13), and both actions can empower them in different ways. Pálsson adds then a third variable totally different from the previous ones, which is "communalism", that does not have implicit in it the separation between nature and culture because it implies reciprocity and a dialogic relationship – and he also relates this kind of relationship to that between anthropologists and the peoples they study (Pálsson 1996: 72 – 73).

> *Ironically, what capitalism destroys, Western culture personifies as precious: 'romantic constructions of nature accompany its systematic plunder, exoticism serves exploitation; romance and rapacity are familiar partners'* (Adams 2003: 29).

The encounter with "other" cultures

The historical events that saw some of the European countries spreading their empires all over the world, especially from the 16th century onwards, represent the seeds of a colonization of lands and spaces, but also of minds. The concepts of globalized and global culture are fairly recent, but the whole

process probably had started with the colonization that, with its centre in Europe, spread all over while assuming different shapes and going across many local changes.

First of all, before seeing how Europeans reacted to different environments and different conceptions of nature, that is before approaching the non – human sphere, let's see how they interacted with the communities and the individual members of the other cultures they met. This is because the ways in which we relate to the "other" from the same species, can be a mirror to the ways in which we behave to the non – human world, perceived as the ultimate expression of difference: "humans approach Nature as they approach Society: they do unto the natural world what they do unto themselves" (Bennett 2002: 10).

During most of the colonization experiences, when difference was recognized, it was followed usually by domination – you are different, then inferior. "Differences are judged as grounds of inferiority, not as welcome and intriguing signs of diversity" (Plumwood 2003: 58). If instead equality was recognized, in the name of a common human nature, assimilation was usually the outcome, so the assimilated had to assume the customs, beliefs and behaviours of the dominating society. Both these responses characterized the approach taken towards Aboriginal people in Australia for instance, by first implying the segregation policies, with the creation of reserves, then by (forced) assimilation – with the result of the Stolen Generations[4].

Especially from the 18th century onwards, another way of perceiving the "Other" consisted in their idealization, introducing the Roussonian idea of the "noble savage" in perfect harmony with nature, totally apart from the urbanized and civilized world.

These ways of perceiving the "Other" with a sense of superiority towards them on one side (even when considered equal and then assimilated), and in a romantic way on the other – and considering that one vision is not exclusive of the other – have an equal outcome, which is a sense of deafness – deafness that can be translated in the relationships both with the "other" as human, and as pertaining to the non – human world:

> *[…] our perceptions are screened through a colonizing conceptual sieve that eliminates certain communicative possibilities and dialogical encounters with the more – than – human world. Such an analysis suggests that our main problem lies not in silence, but in a certain kind of (constructed) deafness* (Plumwood 2003: 67).

To find a difference – in – equality is important, in order to give credit to other cultures, beliefs, economies and political structures, that should have the right to express their voice too.

Even those cultural constructs that we generally consider the crown jewel of Western culture, like those of equality between humans, as just mentioned, and individual freedom, despite being fundamental and still sadly not always respected in "Western" countries nowadays, they can have two side effects – both on the environment and on the local communities – in case they are utilized in the wrong manner: firstly, in fact, they can contribute to further outdistance humans from the world

4 The Stolen Generations are formed by those Aboriginal people that, as children, were forcibly removed from their families in order to be settled in missions, in "boarding houses" or in white families, where they could be Christianised and educated to a "white lifestyle". The main goal was then to absorb them in the dominating society. In this way, the descendants of the colonizers thought that they could wipe out all the physical and social "black" characteristics in order to have a fully "white" society. This happened between the 1910 and 1970s, however these assimilation policies informally started much before, already in the 19th century.

surrounding them, making promises over the benefits available to everybody from an exploitation of natural resources with no consequences: "[…] *greed is accentuated in human behavior by civilizations that permit large numbers of people to exist in apparent "freedom" from environmental constraints*" [emphasis in original] (Bennett 2002: 9).

The latest demonstration of this is in the post – Second World War, when through the promises made by governments, with regard to development and to the infinite resources available at accessible prices, "[…] almost everywhere expectations have exceeded the possibilities of realization, or at least have failed to conform to practical limits" (Bennett 2002: 9 – 10), pushing to a further exploitation to meet the increasing demand. Secondly, as previously stated, equality can have its downside by stating that all humans are equal – with implicated the risk of (forced) assimilation. Furthermore, these liberal concepts such as those of freedom, individual human rights and private property, might devalue the needs and beliefs of more holistic kinds of societies: "Individual based regimes tend to exclude or at least subordinate all other conceptions of society, property, and the person, such as relational and holistic conceptions, in which the person is seen not as a self-bounded, autonomous entity but in terms of relations to others and to larger social wholes" (Escobar 2008: 50).

The encounter with "other" nature(s)

As well as these two main concepts – exploitation and admiration – were applied to people, they were also referred to the land. These two major approaches sustained the colonization of lands and they took place, sometimes overlapping each other, across the centuries central to colonization. Between the 16th and the 17th centuries, the exploitation of natural resources was the main perspective, sometimes accompanied by the idealistic visions of new Eden(s) inspired by the new landscapes. From the mid – 18th century, an increasing acknowledgment of the environmental impacts of capitalism helped to stimulate conservation ideas. Naturally, the time frame changes specifically according to the places, for instance in Australia it started much later, since the Australian landscape was considered too wild to inspire any idealistic image, so it could only be exploited.

The idea of humans as masters of nature (using the "orientalism" perspective previously explained), then, got imported also in the colonies, where the environment was perceived differently by native people and it was given different cultural meanings, therefore it was also built differently.

> *Nature exists in a dense universe of collective representations that at once grounds different ways of doing things with/around nature. Succinctly put, many communities in the world signify their natural environment, and then use it, in ways that markedly contrast with the more commonly accepted way of seeing nature as a resource external to humans and which humans can appropriate in any way they see fit (Descola and Pálsson 1996; Restrepo and del Valle 1996)* (Escobar 2006: 124).

Furthermore, colonizers arriving in Australia considered the land, especially between the 18th and the 19th centuries, as an empty space, *terra nullius*, underdeveloped and unmanaged, with the people living there not considered able to properly take the best out of it, reason why the colonizers regarded themselves as those with the right and almost with the duty to exploit it: "Not seeing the signs of ownership and property to which they were accustomed, many settlers assumed that there was no ownership and property, and that the landscapes were natural" (Rose 1996: 17).

If on one side, the lack of consideration of different ways of managing the land lead to the

appropriation of it and to the imposition of European ways of exploitation to get the most out of it, then on the other, also conservation ideas were portrayed according to European conceptualizations of nature, following this time the "paternalism" perspective, by using the Pálsson's concept.

Around the 19th century, in fact, colonizers, even in Australia, considered important also the preservation of the land; still, conservation implied a total separation of the natural environment from the human sphere. In fact, these conservation ideas were still part of a Western conceptualization of it, implying the separation nature – culture: it had been rarely sensitive to other world views and to the local communities' needs. In this view then, nature had to be preserved "maintaining representative sections of it free of human interference […]" (Adams and Mulligan 2003: 10).

> *The view that an unspoiled environment is one untouched by humans can hardly be pushed to its logical conclusion, and in case it is misleading, first because it sets Man against Nature, where it is more illuminating to see Man as a part of Nature; and secondly, because we are not always despoilers. We can also be creative* (Seddon 1997: 112).

Even nowadays there are two dangerous rhetoric employed by many environmental movements: one considers Indigenous peoples as an integral part of their environment – perpetuating then a separation between "us", civilized and urbanized, and "them", in total harmony with nature (reason why those Indigenous people who are more assimilated in the dominant society and who employ ways of living closer to it, are not considered really Indigenous, therefore not worth of the support of NGOs). On the other hand, there are still conservation movements that consider any human activity harmful for the specific protected area, and who then plan to move the communities living there to other places – ignoring the fact that many communities could actually contribute to the management of those areas.

Indeed the fact that "we can also be creative", to report what Seddon wrote, can be exemplified by the different traditional activities carried out by Aboriginal people that contributed not only to an effective preservation, but also to an enhanced sustainable productivity of the land.

At the same time, a logic that pursues simply the preservation of natural parks and specially designated areas, cannot go too far, with the continuous separation humans – nature, since it leaves aside all the important changes that should be done outside those protected areas: "[…] measures to conserve integrity cannot stop with protected areas, but must address the exploited landscape matrix between them" (Miller and Rees 2000: 13).

Within this brief analysis of the views that influenced the colonizers' activities in other countries, it's possible to see two main branches that, even today, play a big part in our ways of looking at the world: anthropocentrism, for the land was regarded as an instrument to be exploited in order to reach the goal of human wellbeing – even if just in the short – term; Eurocentrism (today it could be called Euro – North American centrism), for which (the not yet) Europeans considered themselves on a higher level not only over non – humans, but also compared to the people from cultures that drastically differed from what they were used to, that were also regarded as primitive and inferior for not sharing what for the colonizers was considered as natural and universal, like their economic interests over the land (Plumwood 2003: 53).

> *[…] So manipulation and to modify, and for buy and trade and sell, so to buy and invest, and make more money. And buy more land, and sell more land and make more money. Aboriginal people didn't look at our land like that. We looked at the land as our mother, our land is our mother, and we must look after our mother, and our mother will look after us. You see? We*

> *believe we come from the earth, and then when our people die, they go back to the earth. Until the creator comes and takes them to a better place* (Uncle BJ[5], 13th August 2020).

Techno – scientific progress should not be directly related to the certainty of a general improvement of life and, as well as the economic demands, it's part of assumptions that only depend from the value system of a specific cultural context, and it is not universal; ecologic demands instead come from fundamental physical and biological laws (Andreozzi 2011: 109).

Concepts such as those of "progress", "development" or "developed" are culturally constructed, and throughout history they have been often imposed on other cultures, that could have different ideas over these concepts, for instance in the ways in which human progress is considered:

> *Non è, infatti, il concetto di 'progresso' a costituire, in sé, un errore. Lo è piuttosto utilizzare questa nozione, come fa l'Occidente, nella convinzione che l'essere umano sia una forma di vita superiore intrinsecamente orientata verso lo sviluppo economico, scientifico, tecnologico e industriale* (Andreozzi 2011: 100)[6].

What are the needs behind the decisions that are taken for the actions implemented towards the land? And how much our cultural values, transmitted through history, play a role into determining the different importance we place to the various elements able to influence our health, variably according to different social and cultural contexts?

In the next section, a more specific look will be given to the cultural context of Aboriginal Australia, where the relations entailed with the environment are totally different.

Bushfires and cultural burns in Australia

Australia has been at the centre of scientists', governments', and members of the civil society's attention for the raging bushfires that hit the country between the end of 2019 and the beginning of 2020. These fires have particularly raised the world's attention because of their direct relation with changing climates around the world, and they are correlated to many other similar events that hit other countries, like Siberia, California and Brazil. By looking specifically at Australia, these fires are surely the result of climate change and rising temperatures, adding the fact that this country has always been affected by these events, due also to the hot and dry temperatures that can be reached during summer, accompanied by strong winds that facilitate the spread of the flames.

However, there is also something else that should be considered in the analysis of this event, and in order to understand why, in these last decades, the fires have been so raging. Climate change in this, as previously stated, obviously played its role, but another reason can be found in the mismanagement of the land.

There are various local councils and environmental movements, in fact, that often impede Aboriginal people to carry out their traditional burning practices (Fig. 2) because they consider them as being dangerous, and as a major threat to native species of plants and animals. In this way, multiple natural reserves and conservation dedicated areas are left partially unmanaged, especially with regard

5 Uncle BJ has been the Chairman of Eden Local Aboriginal Land Council since its inception. He is a descendant of the Yuin – Monaro Nations.

6 "It is not, indeed, the concept of 'progress' that is, by itself, a mistake. The mistake consists in making use of this notion, as it is done by the West, in the certainty that human beings are superior forms of life, intrinsically oriented towards economic, scientific, technological and industrial development" (My translation).

to these traditional activities. By not taking care of the land in this way, then leaf and litter accumulate on the ground, with the high risk of getting dry and catching fire more easily during the dry season.

> *They put laws that you couldn't burn at all without a permit. And they stopped the cool burning several years ago, and that's why this country became an infernal, because they wouldn't allow that takes place in the proper portions, and you couldn't get all these people [to] agree, you couldn't get local government to agree with national park, and then the national park with forestry, and forestry with the agencies that are responsible for land. And those [the fires] got out of hand, no one who is really doing the proper cool burning […]* (Uncle Ossie, 28th July 2020).

In order to gain a clearer perspective on these concepts regarding the land, let us approach the practical use of fire that had been (and partly still is) employed by Aboriginal communities.

Cool (or cultural) burning practices are (and especially were) activities utilized as a way to manage and to take care of the land: they have to be done during the winter time, otherwise it would be too hot and dangerous, and these fires have to be carefully managed and controlled in shape, size and duration, in order to avoid that they spread too widely: in fact, they have to remain low and small, and they need to be done in patches. Indeed, it is not possible to burn everything at once, but only patches of land could catch fire in an alternate way: this results to be useful not just for the animals, that can take refuge in the unmanaged parts, but also so that in this way, if during summer a fire naturally starts in those unburnt parts of land, it cannot spread too much because it would be surrounded by patches of land already burnt.

The two main functions of these fires were: burning the weeds and the litter accumulated on the ground, in this way avoiding the insurgence of bigger fires during the dry season; the enhancement of land's production, since there are plants that need heat and smoke to germinate. These customary practices then were not just a way to ensure productivity and wellbeing solely for human beings, but they were carried out with the certainty of their benefits to other animal species and to the whole ecosystem. These practices can be partly considered as the mirror of the values that Aboriginal people formed with their stories, their songs, and their cultures in general, about nature and about the role of humans within it. In this, it is conceived a much more holistic perception of the world, for which the health of humans entirely depends on the health of the environment.

> *I'm gonna use in Aboriginal language, saying /mei mietha/, our mother, our mother earth, yeah. She is the one that looks after us, if we look after it. And that's mentally, spiritually, and bodily* (Uncle Graham[7], 1st July 2020).

Ideally, totemism – in Australia – can be a good example, in this case study, of how ideas and value systems play a role into affecting people's behaviours towards the land. There can be individual totems and social totems (generally represented by an animal, a plant or a natural element in general), which respectively imply a responsibility by the individual and by the group, which has to guard on them: totems also mediate between peoples and their respective places and natural elements, with which they hold special relationships. Through a series of ceremonies then, the survival of certain types of plants and animals is ensured; in this sense then, culture, society and land are inextricable, and the wellbeing of each single sector of the social and natural systems, is interconnected to the others.

It does not matter whether what is implied by totemism is true or not, or whether any belief in any cultural system is real or not, but what matters are the actions and the behaviours that they create, that

7 Uncle Graham is an Elder part of the Yuin Nation, Director of the Aboriginal Medical Health Service.

end up having an impact on the land and on society.

Where Christianity makes humans superior to the other creatures to the eyes of God, where Science places them at the same biological level of the other beings, but at the same time provides them with the instruments and tools to rule on them, Totemism sets humans on the same level of the other beings, because of a reciprocal need, in order to maintain an ecological and social balance within the community and the ecosystem. The only thing that might be asked further to humans, is a major responsibility because of their larger impact on the environment, reason why they must ensure the balance, the continuity and the prosperity of the land they live on.

In this case, in most of the Aboriginal cultures, the role of the totem and the relationships it entails with human beings, help to reduce the line that in our society we usually draw between the animal/natural world and that of humans. Indeed, it is a line that does not exist in Aboriginal peoples' ways of perceiving the world.

> [The totem] *It is a sign of unity between things or persons unified by something else. The 'something else' is one or more of a possibly vast set of significations of that totem. There are many possible symbolisations of the ground and cause of unity. One of the most common is the symbolic complex 'one flesh—one spirit—one country—one Dreaming'* (Stanner, W. E. H. 1979: 129).

"Dreaming", it is referred to a mythical period that tells about the beginning of times. In the previous quote, Stanner talks about "one Dreaming", a common Dreaming, a common spirit: there are then many Dreamings, all of them related to the histories of specific families, clans, communities, totem groups, and animal and plant species.

Because of these multiple Dreamings, Stanner then states that they are common elements in Australian culture, but they are not universal, they can't be universalized because each group is characterized by their own Dream Time.

> *You know, the life cycle of a kangaroo? Or the life cycle of a whale? That life cycle is called Dreaming. Kangaroo Dreaming is kangaroo life cycle. Whale Dreaming – whale life cycle. You see what I'm saying? […] So, my Dreaming is the black duck Dreaming. And that talks all, all the life and the ceremonies, and the technology, and the language of the Yuin people, is Yuin Dreaming* (Uncle BJ, 13th August 2020).

As there are many "Dreamings" then, there are also many totems, since each individual has one, as well as each group. Indeed, these beliefs' systems are to be considered mainly local, there is not that sense of self – imposing one's own beliefs and habits to other people. The implicit sense into this, is that knowledge about the land and about its elements implies the fact of being capable of dealing with it, knowing how to treat it in order to get the most out of it, but without compromising its wellbeing.

The most important thing to be acknowledged, as part of these totemist structures, systems and beliefs, is that they trigger some forms of behaviour, like that one that produces fire management practices. Being these values never considered universal, there is not then the concept of imposing them on someone else, especially when it comes to activities to be done in someone else's country: since knowledge is localized and specific, when visiting or travelling somewhere else, it is considered a duty to "always ask" (Rose 1996: 45), because of a lack of knowledge that relates to a different locality.

There is a practical example reported in the book written by Rose I just mentioned, that tells about a

mistake related to the treatment of the land by an Aboriginal group visiting another part of the country, where they acted without asking to the locals first, provoking in this way a big damage to the land:

> *The burning of the cane grass caused the water temperature to become too hot. The fire was lit by Aboriginal people who did not know the country. They did not have any consultation with our people for the country. We call this 'indiscriminate burning', regardless of what persons they are* (Rose 1996: 46).

From this quote, we can relate these totemist systems and the beliefs that lay under them, in relation to the use of fire, which was done only locally: every single individual, used to take care of their local land, but by doing this, also the wellbeing of other communities and environments, even on the other side of the country, was automatically ensured, since everybody was doing their job on the country. Uncle Graham used the image of a puzzle, saying that in their cultures, we have to imagine it working like a puzzle, for which each piece is fundamental for the formation of the whole picture, but each individual knows only about their piece: "Cause you can't know everything, you're part of the puzzle. You're one piece in a puzzle" (Uncle Graham, 1st July 2020).

> *'Burn grass' takes place after the wet season when the grass starts drying off. This takes place every year. The country tells you when and where to burn. To carry out this task you must know your country. You wouldn't, you just would not attempt to burn someone else's country. One of the reasons for burning is saving country. If we don't burn our country every year, we are not looking after our country* (Rose, D. B. 1996: 63).

Totemist relations then, bring humans closer to animals and to other beings, and in this relation, their wellbeing is related to that of the ecosystem itself: humans are responsible for taking care of the land and of its elements, also so that they can ensure its productivity, and to get benefits that will influence their family's and community's wellbeing too.

This explanation revealed to be fundamental for a better understanding of the customary use of fire among Aboriginal communities: it can be viewed, in fact, as an example of responsibility and as a way of taking care of the land, as it has been briefly explained in the very beginning of this article.

Fire, then, is not considered useful just for humans, like when it was discovered as a tool for scaring animals, for cooking and heating purposes, and for creating tools and weapons: in these instances, it was mostly used for human needs, and not as something that could actually connect them to the environment and that could be employed for enhancing land's productivity. In Greek culture, which laid the basis for the Latin and the European cultural contexts, fire was exactly the instrument that differed humans from other animal species, bringing them to a superior level, and that released them from the chains that tied them to nature. In the myth of Prometheus, in fact, where fire was donated to people by the semi – deity that, with this action, condemned himself, fire is seen as the key to civilization and the end of the mere animal status for humans. In the Aboriginal understanding of the world, instead, fire is considered as something used to work in, with and for the environment: and in this case, by working for the environment we mean also working for humans themselves, since they are considered part of the natural sphere, for which, on the other side, something done against the land, will have its reverse effects on humans themselves.

These different ways of relating to nature, then, had their effects on the land itself. On one side, with protection it is meant the total exclusion of human activities on the land; on the other, humans are seen as integrated and fundamental part in natural management, and a non – relation can be

considered as bad as exploitative actions actively taken against it.

A more integrated management of country, that could include both the government, environmental movements and local councils, and also Aboriginal communities themselves, should be considered in its positive and relational activities, where each part can bring the most positive experiences coming from their specific knowledge.

In this, the recent catastrophic events seem to have turned both national and international interest to Aboriginal ways of managing the land, and hopefully it will give all the credit deserved to these practices, also for the future.

> *So our fires here, we have cool burns, and after fifteen years of pushing all this stuff, they're starting finally to listen, just a little bit: because of the fires, because of the fires, people, the community, the broader community, they started to think, well… because we had, we had a trial burn, a cultural burn on our lands, that saved a town from being wiped out, that's the only thing that saved the town. But, because of the catastrophe that took place and because we proved that our cultural burns are significantly safe and it's good for the environment, the soils, and everything that's connected, now, because of that they're starting to listen* (Uncle Graham, 1st July 2020).

Conclusions: healing with the land

By bringing new ethical perspectives and by challenging those that we have, it can set a new direction to how we consider actions taken in favour or against the environment: in fact, we generally consider environmental consciousness as something ethical rather than seeing it as something necessary, that we do not just for the environment itself, but for our own wellbeing. In this sense then, being anthropocentric (that, as shown in the first section of this article, brought people to consider themselves superior to nature), could be useful in order to reverse people's attention to the ways in which we behave towards the environment: by harming it, we'll just end up harming ourselves. During the conference *The Post – Coronavirus Ecological Front*. *New strategies for change in the prism of the pandemic crisis*, 30/04/2020, one of the guests, Mathis Wackernagel (founder and president of Global Footprint Network) proposed the concept of "skin in the game", implying the fact that talking about the environment's health is talking about our own: "[…] we feel we are in the game, it's not just about 'Oh that's nice, let's save the Ethiopians!' We are in the game, it's our game!" (Fondation Braillard Architects[8]). In all this, we can see how much not just the environment, but the ways we perceive it, and therefore the ways in which we behave towards it, end up influencing our own health and wellbeing.

The ways in which Aboriginal communities behaved towards their environment, was extremely explicative of the ways in which they perceived their health, and how their health could be influenced and how it should be treated.

> *[…] being wholly focused on global values can lead to the devaluation of local needs […]. So projection of the local onto the global has its problems, but so does the obverse* (Napier Et al. 2015: 8).

This statement can be extremely explicative of the core of this conclusion: in fact, by taking Australia as an example, the forced imposition of "global" accepted concepts such as those of equality

8 https://braillard.ch/activites/pcef/ - Last consulted: 28/07/2020

(according to which Aboriginal people had to be assimilated) and private property (that lead to the fencing of the land and to the inability for Aboriginal people to freely access to its resources), had damaging consequences on Aboriginal peoples' lifestyles. At the same time, we can see that these believed globalized concepts, are instead still local, pertaining to a specific cultural context, in this case that of European colonizers. In this way, we can approach it from a different perspective, by seeing the European values as a projection of local values on a global scale – when they should be considered only local. On the other hand, if we take medicine, and Western medicine specifically as an example, we can also consider that as a projection of global values (in the sense that they are accepted and considered useful on a global level in multiple contexts) on a local scale, by obscuring in this way local perspectives and ways of dealing with health and sickness, and by also not considering what actually could enhance wellbeing in a different local perspective (Napier Et al. 2015: 9).

In this sense, we can also understand how land, by being differently conceived, it is also differently managed: in most of the Aboriginal communities' perspective, in fact, the environment plays a major role in affecting humans' wellbeing, the two aspects are entirely correlated, and for this reason, land has to managed and has to be taken care of, for instance by using traditional burning practices, and in this way it will also take care of us.

Furthermore, Aboriginal concepts of medicine and healing were directly challenged and strongly destabilized by the Western conceptions of health and medicine, for which they were imposed on the Aboriginal health systems: also this ended up to have disruptive consequences on Aboriginal peoples' social structures, beliefs and healing practices – and health itself as well. Here the issue lays in an ethnocentric approach to the Aboriginal health problem, for which it is implicated that "Aborigines have – or should have – the same 'health values' as white Australians" (Moodie 1973: viii). As recorded by the first settlers that reached Australia, in fact, Aboriginal peoples used to be in very good health, since their wellbeing depended on a healthy diet and on an active lifestyle.

> *[…] we're better off than a lot of other people in a lot of other countries, 'cause a lot of people are starving, and a lot of people are suffering for wars going on in their countries. So, in today's standards we're better off than a lot of other people in a lot of other countries. But we're not better off than what our people used to be before colonization* (Uncle BJ, 13th August 2020).

There are many things that badly affected Aboriginal peoples' physical, mental and social health during and after colonization, but in this context, there has been neither the space nor the possibility to go through all of them.

What is important to understand here is whether and how the forced changed relationship with land played a role in the lowering of Aboriginal peoples' health, and how, more generally, a distanced relationship with the environment can affect also our wellbeing. For this reason, I found appropriate, in the context of these arguments and questions, to mention the case of fire as an example of Indigenous management of land.

Considering in our perspectives on health the "more – than – human" world, can be enriching with regard to positive outcomes to happen both for us and for the environment, and it can enlarge our comprehension of how, in other cultural contexts, these different perspectives have brought to a better understanding of land and of the ways in which we can contribute to its productivity, while still maintaining its ecological sustainability.

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Sitography

Fondation Braillard Architectes: Mathis Wackernagel's and Thomas Vellacott's interventions During the webinar *The Post – Coronavirus Ecological Front. New Strategies for Change in The Prism of the Pandemic Crisis*, 30/04/2020 <https://braillard.ch/video/post-coronavirus-ecological-front-new-strategies-for-change-in-the-prism-of-the-pandemic-crisis/?Lang=en> (Last consulted: 28/07/2020).

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Immagini

Fig. 1 - The "triad" of the One Health paradigm. Source: Semantic Scholar.

Fig. 2 - Example of cool burning. Source: ABC News.

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Coping with the weight-centric model of health care: the role of interoception.

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KEYWORDS

interoception, sportsmen/ women, overweight, obesity.

ABSTRACT

Interoception (IC) is mostly self-awareness. IC is a little sense constantly monitoring how we feel inside. It can go awry, potentially distorting our body image. This paper considers different aspects of this sort of sixth sense and its role in a medical and social milieu dominated by the stigma for oversized bodies. IC appears to be related to "body consciousness". Some preliminary data using the Heartbeat Perception Task (HPT) are added. The test was administered to three subsamples: sports practicing subjects (SP, or 17 sportsmen and 16 sportswomen aged 23,6±8.5 years); 10 overweight (OV, 25,0<BMI>29,9) males and 15 females (aged 44.8±3,3 years); 13 obese (OB, BMI>30,0) males and 12 females, aged 30.4±6,5. For HBT test significant differences emerged among sub-groups. SP and OV did not show gender differences, while high scores (0.85±0.11) and moderate scores (0.67±0.79) were obtained by SP and OV, respectively. In OB, significant gender differences and low scores (0.44±0.10) were found and the latter in 96% of the subjects, mostly males. SP show a better interoceptive capacity. To reprogram IC contemplative practices, yoga, thai chi, mindfulness training, and graded exercise therapy are suggested.

Introduction

The role of evolution in shaping our sense organs to cope with the objective reality has been discussed for decades (Trivers, 2002; Schmidt-Rhaesa, 2007). Our predecessors able to perform the essential tasks needed to survival sustained by the accuracy of their senses, fed on, fought, fled and mated better, therefore transmitting their genes, that in turn coded for more accurate perceptions. Today, after having abandoned speculations regarding the idea that what we perceive differs from objective reality (in contraposition to objective reality), the core of the problem is focused on the differences existing between the so called "truth strategies" versus the "pay-off strategies". For the former we see objective reality as it is, for the latter only the strategies having a surviving value are valid. In other words, according to Mark et al. (2010), only those allowing fitness pay-off, or those permitting to grasp what is needed to survive are passed to the next generations. Evolutionary game theory (Maynard Smith, 1982) provided the mathematical criteria useful to predict the result of different strategies. For the sake of argument, let's say this model is valid, every living being possessing sense organs lives in its own virtual reality, depending on how its sense organs were shaped by its gender and species evolution. Very simple organisms like bacteria are in fact able to detect signals from their environment, react, and create a picture of it. This thanks to different membrane sensors capable to capture information about the status of PH, temperature, light, nutrient substrates and so on, in the immediate neighborhood of their cell (Etzkorn et al., 2008). Very complex organisms

use specialized neurons to detect a variety of physical events, thanks to the mechanism of sensorial transduction. Usually five senses are mentioned in the textbooks, actually their number is higher and even the experts disagree on the distinctions existing among the different categories (Carlson, 2001). In short, the role of our senses is to arrange a virtual reality and the sense organs are simplifying interfaces. For decades the sense organs students focalized their attention to the brain, putting the body apart, but after Damasio's idea of "embodied consciousness" (1994), it has been postulated that cognition deeply depends on several and different aspects of the agent's body other than the brain (Garfinkel et al., 2015). The role of the sense of interoception (IC) became more and more important, as it could account for the bodily origins of the sense of self, with implication for consciousness in humans and other animals (Spinney, 2020).

IC represents, moment by moment, the somatic sensations coming from the body (Craig, 2002). It is fundamental for body awareness, that is linked to self-identity (Bermùdez, Marcel & Eidan, 1995; Tsakiris, 2010). For some other Authors IC is a multidimensional construct that includes also how an individual reacts to sensations (Cameron, 2001). IC sensitivity is malleable and its awareness appears to modulate body percepts (Tsakiris et al., 2011). Anorexic patients, for example, showed decreased interoceptive awareness (Pollatos et al., 2008). Other health problems are related to an improper IC, ranging from post-traumatic stress disorder (Wood & Taylor, 2008), dissociative (Michal et al., 2014; Sedeno et al., 2014) and somatoform disorders (Schaefer, 2012). Food and water intake assumption (Herbert et al., 2012), eating disorders (Herbert & Pollatos, 2014), and addiction (Naqvi & Bechara, 2010) are also involved. During time, the concept has been broadened as the neural pathways processing interoceptive information can be used by bodily signals that are not necessarily internal, as it happens for tickle or affective touch (Murphy, Catmur & Bird, 2017). The Authors suggest also a more updated terminology. For example, a distinction between *implicit* and *explicit* IC perception: the latter has more to do with the conscious representation of IC signals. On the other hand, the difference between IC *sensitivity* and *sensibility* exists: the former requires an accurate discrimination of IC signals, while the latter is "an individual's self-reported interoceptive ability" (page 46). Recently IC has been supposed to be of fundamental importance for a lot of higher order abilities (Seth, 2013; Quattrocki & Friston, 2014; Füstös et al., 2013). This is connected to the insula and the cingulate cortex, called "the interoceptive cortex" by Craig (2002) even if a clear definition of IC and the neural regions involved in it is still a matter of debate. This because IC includes all the bodily information sent via two main pathways (Craig, 2004, Critchey & Harrison, 2013). Insula and the anterior cingulate cortex are considered fundamental for IC as here interoceptive signals converge, even if doubts emerged recently (Feinstein et al., 2016). Clearly, many studies have shown huge variability in subjective awareness of inner feelings, therefore an "interoceptive ability" can depend on: the differences in transduction and/or in transmission to the central nervous system; how consciously everyone can perceive and consciously discriminate interoceptive signals; how the individual cognition is affected by the unconscious perception of interoceptive states, and, finally, the force of the signal itself. Murphy et al. (2017) recently introduced the concept of "Atypical IC" defined in this way: "Unusually high or low sensitivity, sensibility or awareness. Used to indicate an interoceptive profile that is not typically observed in the general population" (page 46). This "malfunctioning" has been associated with obesity and diabetes (Herbert & Pollatos, 2014) and, because of new researches highlight IC importance in higher-order cognition, involving learning, decision making (Werner et al., 2009) emotional memory (Pollatos & Schandry, 2008), and in the affective domain (Füstös et al., 2013), its understanding, especially during life span and in different conditions, has become fundamental. The simplest and common way to measure IC is to ask someone to count their heartbeats over a fixed period of time and to compare their results with those of an electrocardiogram. More accuracy was reached using the heartbeat-evoked potential (HEP) and, thanks to an electrocardiogram and brain scanning the monitoring techniques became more and more precise (Pollatos & Schandry, 2004). Despite the fact

that people's ability to count the heartbeats shows high variability (Viviani, 2017), it has been however found that those showing more accuracy are better in perceiving the emotions of others and perform better in intuitive decisions (Dunn et al., 2010). This started studies on body illusions and how HEP may influence our conscious experience of things, whose aim is to understand how brain activity turns into conscious experience (Park & Tallon-Baudry, 2014). All these attempts show that our bodily self is not passive but plays a role in all our decisions.

At this point, it must be mentioned that some studies are questioning the weight-centric model of health care (Bacon & Aphramor, 2011; Tomiyama et al., 2018; Hunger et al., 2020), that are contrasting with scientific evidence many weight perceptions and weight-focused campaigns all centered on weight loss. They in fact assume that poor health is connected to higher body weight, conducive to weight stigma. The latter could drive to poor health and could result to weight gain because of direct and indirect effects of social stress, especially on black women. According to Strings & Bacon, (2020) in fact, "difficult life circumstances cause disease. In other words, the predominant reason black women get sick is not because they eat the wrong things but because their lives are often stressful and their neighborhoods are often polluted" (page 23). The weight stigma reflects the racist stigmatization of black people's bodies, a prejudice started in the late 19th century (Strings, 2019). Most of the weight-based policies assume that weight reduction could be achieved if an individual is able to recognize her or his overweight status, for example using the BMI "report cards". However, lot of evidence shows that self-perception regarding the overweight status does not favor health outcomes. The same use of the Body Mass Index (BMI, or the body mass divided by the square of height in Kg/m^2) has been questioned: if evidence showed that the mortality risk increases with individuals with the highest and lowest BMIs, those in the middle range, or those showing overweight or low obesity, do not show higher mortality risk when compared to normal-range BMI subjects. In fact, some doctors are at present moving away from a weight-centric model and prescribe healthier behaviors, thanks to a study carried out more than 11.000 adults. It showed that people lived longer when they moderated the alcohol consumption, where no-smokers, had a diet rich in daily vegetables and fruits and exercised more than 12 times a week (Matheson et al., 2012; Bhaskaran et al., 2018). In order to better understand the role of IC sensibility in this variegated panorama, the present paper presents some preliminary data on IC sensibility on three different cohorts of subjects: people practicing sporting activities (SP), overweight (OV) and obese (OB) subjects, to evaluate the levels of their heartbeat perception, in the idea that a reduced IC ability could be connected to high levels of body fat. Herbert & Pollatos (2014) in fact, not only found a negative correlation between BMI and IC in overweight and obese subjects, but also differences between them and normal weighing subjects. To start a longer and more appropriate research program in this slippery topic, I checked three different cohorts of subjects in the naive idea that a poor IC could permit me to define better the directions to be taken. Nothing special, for goodness' sake, just an attempt. With a lot of limits: subjects were not controlled with an electrocardiogram and were chosen on the basis of their willingness to cooperate in this preliminary effort. Then, their number is very small, therefore the statistical evidence is poor.

Materials and methods

The Heartbeat Perception Task (HPT) was ascertained in three sub-samples: sports practicing subjects (SP, or 17 sportsmen and 16 sportswomen aged 23,6±8.5 years); 10 overweight (OV) males and 15 females (aged 44.8±3,3 years); 13 obese (OB) males and 12 females, aged 30.4±6,5. Among the sub-groups the age differed significantly ($F_{(2,83)}$=72.79, p<.01). None of the SP were obese, and among the OV and the OB subjects, none of them practiced regular sporting activities. The administered HPT was the Arnold's version (2012), based on the original of Schandry (1981), whose reliability was questioned (Rouse, Jones & Jones, 1988; Phillips, Jones, Rieger & Snell, 2003). As the issue is

complex, the decision to start with this controversial methodology was taken because its easiness, to collect preliminary data on the person's own sense (even with methodological flaws), because "if one wants to measure the person's accurate perception of visceral sense, then that is probably a different situation entirely" (Gary Jones, 2020, personal communication). The test requires that subjects silently count their heartbeats during a specified time interval. It is a "mental tracking" method, according to Knoll & Hodapp (1992). The Authors found that this methodology could be used all the times where it is not important to assess the difference between heartbeat perception ability, and the ability to estimate heart rate. In addition, it appeared to be useful to compare very good and very bad cohorts of perceivers, according to the findings of Whitehead et al. (1977). This permitted the measurement of the explicit IC sensibility in my sub-groups in a very simple way, as what was needed was a stopwatch and a calculator. Subjects were requested to sit in a comfortable place and to take few deep breaths. Then to start the stopwatch and count their heartbeats for 60 seconds just feeling their heart's rhythm, and then to write the number down. They were not admitted touching their neck or wrist. After couple of minutes subjects were requested to put their fingers on their wrist (or their neck) and count heartbeats for another minute. They repeated the measurements after two minutes and averaged the two measurements. They were then asked to calculate the difference existing between the heartbeat estimate and the two pulse or neck averaged counts. The final value was the absolute value of the difference, or the exact amount by which the mark was missed. Then subjects were requested to calculate the following formula:

1 - (Estimated heartbeat – average pulse)/average pulse.

The scores were fixed in this way: 0.80 or higher = the subject possessed a very good interoceptive ability; from 0.60 to 0.79 the subject had a moderately good sense of self. If s/he scored below 0.59 this had to be interpreted as being poor IC. In the SP sample the short from of IPAQ (International Physical Activity Questionnaire), whose validity as surveillance instrument was ascertained by Hagströmer et al. (2006), was administered to all the subjects, aiming to fully ascertain their sports involvement. It is commonly used as a standardised measure to estimate habitual practice of physical activity and has provided reliability and validity data in many countries worldwide, both in its long and short forms. The latter consists of eight items permitting the estimation of the time spent performing moderate to vigorous physical activities, plus the time spent sitting, considered as being indicator of inactivity. The IPAQ furnishes different degrees of activity/inactivity in Total METS (that are multiples of the resting metabolic rate). If an individual does not reach 700 METS s/he is inactive; from 700 to 2519 s/he is sufficiently active; after the 2520 METS is active or very active. To calculate the BMI, subjects reported their height and weight. Even if self-reports can be conducive of errors, Spencer et al. (2002) suggested to use them to identify relationships, especially in epidemiological studies. OV subjects were those whose BMI ranged between 25,0 and 29,9, OB were those exceeding 30.0. Vital statistics was ascertained in all the subsamples and for SP curricular data were asked. Mean and standard deviations for the sub-groups were calculated and the differences tested by ANOVA. Further on, to partial out the age of the subjects, an ANCOVA was administered, with age as the co-variate.

Results

The SP subsample showed no gender differences for HPT scores (males, M=0.86±0.12, females, F=0.85±0.10). Most of them scored at the highest level (M=76.5%, F=68.8%), and few subjects were found at moderate level (M=17.6%, F=31.3%). Some results of the IPAQ test are interesting. First, only one subject was inactive (MET < 700), six subjects resulted to be sufficiently active, and all the others were active or very active. The average score was 5550.17±5662.74 (min=240,

max=31680). In general, the male values were higher, apart the MET for vigorous activity (for M=2780.00±1774.85), that was higher in F=4656.00±4950.06 (p<.05), who walked, on average, more (M=1601.54±2168.33, F=2108.08±2905.78, p<.01). Female SP, however, remained sit longer than males (M=307.50±205.38, F=465.00±178.66, p<.05) and practiced lesser moderate activities (M=1337.14±305.38; F= 672.00±499.12, p<.05). No correlations were found for total MET and HPT, some others appear not to be remarkable: measured heartbeat and time spent sit (r= -.51, p<.01), time spent walking and MET for vigorous activity (r=.58, p<.01).

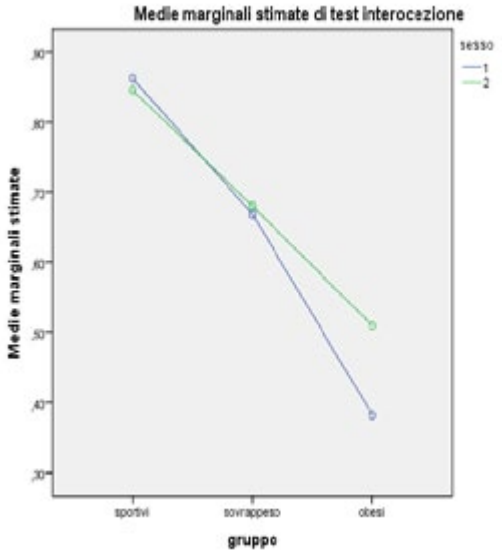
For the HPT test, in the global sample differences emerged among sub-groups (table 1).

Table 1 – Scores obtained in the HBT test in the three different sub-groups.

Sub-samples	**Sportsmen/women**		**Overweight subjects**		**Obese subjects**	
Gender	M	F	M	F	M	F
Average	0,86	0,85	0,67	0,68	0,38	0,51
SD	0,12	0,10	0,08	0,08	0,1	0,06

ANOVA 2 (gender) x 3 (sub-groups), with HBT score as dependent variable, highlighted group differences ($F_{(2,83)}$=131.04, p<.01), no gender differences ($F_{(1,83)}$=3.71, p=.058), and interaction ($F_{(2,83)}$=4.36, p<.05). Inside the sub-groups gender differences emerged for OB only ($F_{(1,83)}$=11.25, p<.01). Figure 1 depicts the results.

Figure 1 – HBT rates found in the three cohorts of subjects (sportsmen/women, overweight and obese subjects). Blue line=males, green line=females.



The results of the HBT were subdivided into three classes (poor, moderate, and very good). In the first one 96% of the OB were found (n=24), followed by OV (n=5, 20%) and with one SP only (3%). The OV sub-group placed itself inside the second class (n=19, 76%), followed by SP (n=8, 24%). No OB were found inside the very good class, practically covered by SP (n=24, 76.7%). Significant differences emerged using the chi square test (p<.01). To verify if the observed differences in interoceptive sensibility could be ascribed to differences in age, an ANCOVA analysis whereby age

was held constant, showed that significant differences existed for groups ($F_{(2,83)}$=127.50, p<.01), but not for gender, with interaction ($F_{(2,83)}$=4.09, p<.05).

Discussion and conclusions

Despite its methodological faults, two important gradients emerged during this short preliminary study: a gradient for interoceptive sensibility found among sub-groups (SP>OV>OB), followed by another, showing that poor sensibility=OB, moderate=OV, very good=SP. Results are in line with those of Herbert & Pollatos (2014). This confirms the starting hypothesis: high values of BMI correspond to low interoceptive ability, as already signalled by Herbert et al. (2013) who, ascertaining intuitive eating, found that IC is a promising mechanism for most of the eating disorders-related research. In effect, intuitive eating is a philosophy sounding remarkably simple: "Eat when you are hungry, stop when you are full". The Authors found that: "Interoceptive sensitivity predicted relevant facets of intuitive eating and BMI. Interoceptive sensitivity fully mediated the relationship between intuitive eating and BMI" (page 22). Clearly, how this happens in different individuals is completely unclear. The processing of interoceptive signals is believed to underlie self-awareness. Nowadays a growing body of research suggests that the brain masks the sensation of heart beating compensating, because most of the times to be able to feel our pulse racing would be distracting. We must be able to feel it only when it becomes an important signal of fear or excitement (Salomon et al., 2016). So, when flashing objects appear synchronically with the heartbeat, the activity of the insula is suppressed. According to the main Author:" The brain knows that the heartbeat is coming from the self, so it doesn't want to be bothered by the sensory consequences of these signals" (quoted by Kwon, 2016, page 13). At this point, do normal weighing OV and OB subjects behave differently? In which ways IC has systematic effects on our conscious experience of the world? They should be many. In 2002 White et al., studying patients with chronic fatigue syndrome hypothesised that these patients perceive physical activity as more as an effort than healthy controls, as they have shown the tendency to underestimate their cognitive skills. There is more, inactivity appears to increase perception of effort with exercise, therefore IC appears to be enhanced or sensitised (Whiting et al., 2001). This causes an increase of bodily awareness, which could be the cause of sedentary behaviours. The other horn of IC is connected to the fact that cardiac sensations are in relation with threat processing. In effect, if scary images are projected coordinated with heartbeats, they are more easily found to be intense (Kwon, 2016). This could explain why people that are aware of their internal states are more prone to anxiety and panic disorders (Paulus & Stein, 2010). Luckily, in most of the people the heart works unnoticed. Nevertheless, why atypical interoceptive sensitivity is found in some individuals should be ascertained. They could present difficulties in the affective domain that can be ascribed to this "malfunctioning" (Shah et al., 2016). Interesting is to note that in our preliminary survey exercisers show a greater sensibility than other sub-groups, and without gender differences. This could be partially ascribed to the fact that they should be able to make the right decisions on how and when they must invest their energies, a phenomenon called pacing, that is based on circumstantial factors. In practice, they should maintain homeostasis (Smits et al., 2014). Future research on exercisers needs, in my opinion, the introduction of the criterion "level of performance", that could furnish interesting output, despite the difficulties to be precisely ascertained. In the SP sub-group, the IPAQ test furnished congruous correlations, for example the negative one existing between sedentary lifestyle and measured heartbeat, or the positive correlation between walking time and the MET for vigorous activity. In this small sample, gender appears not to influence HTP performance, apart in OB subjects, where females furnished better results. This could be explained in this way: usually women are more circumspect regarding their appearance, and subsequently more attentive to body signals. Rouse, Jones & Jones found, in 1988, that body fatness could play a role in heartbeat perception, given the different distribution of human adipose tissue (android/gynoid) in the male and female bodies. Not only, but

Khalsa et al. (2009) suggested that exteroceptive receptors can signal the vibration of the chest wall due to heartbeat: the differential deposition of fat between sexes could cause the different results. Clearly, the paucity of the sample may have influenced the results. Also the different ages of the sub-samples may have affected the results: parameters varying with age, like the percentage of body fat, the variability of heartbeat, and the systolic blood pressure (Murphy et al., 2017), may have played a role. In effect, in our survey the ANCOVA test did not completely ascertained the effects of age. We must consider that a lot of individual variation in many aspects of IC has been found and this is related to how individuals are able to perceive, use, prioritise and put together all the information belonging to the viscera, with all the affective, motivational and cognitive information. A high number of individual factors play a role in IC perception, ranging from depression, anxiety, eating disorders, culturally-mediated feeding patterns, dietary restraints and so on (Stevenson et al, 2015). Given the importance of IC for typical higher-order cognition, in learning and decision-making and in the affective realm, it is important to examine IC during the lifespan. This because, as magistrally synthesized by Farb et al. (2015) in their introduction: "IC is an iterative process, requiring the interplay between perception of body states and cognitive appraisal of these states to inform response selection". As some researchers are exploring if "body signals influence emotions and if emotions shape our sense of self through memory and learning" (Spinney, 2020, page 31), it is necessary, at this point, to mention another important aspect concerning the introduction of modalities permitting to "mind" the body, increasing awareness. This could be achieved in different ways, all of them aiming to train subjects to closely heed their ongoing physical sensations: for example through the introduction of contemplative practices, or with yoga (that permits to be focalized in breathing and body sensations) and thai-chi (Carei et al., 2010). Or, as suggested by Tsakiris et al. (2011) with the introduction of mindfulness training (a modality focused on the present moment avoiding any judgement or elaboration). It is also called open-monitoring meditation: expert meditators show diminished activity in anxiety-related areas, for example the insular cortex and the amygdala (Ricard et al., 2014). If incorporated inside the cognitive-behavior therapy it could diminish eating disorders. In practice, all the strategies permitting the development of interoceptive attention, like the above mentioned mindfulness training, are useful (Farb et al., 2013). The results of this group suggest that interoceptive training can modulate task-specific cortical recruitment. This because mindfulness meditation training alters cortical representations of interoceptive attention. There is more: for example distraction awareness, whose network includes the anterior insula and the anterior cingulate cortex, underpins the meditator's awareness of the distraction (Hasenkamp et al., 2012). Stevenson et al. (2015) reported a wide spectrum of contemplative techniques involved, mainly belonging to the Asian tradition. D'Alessandro et al. (2016) suggested touch-based manual practice and therapies, such as osteopathy, to interactively modify the sensitization states, using interoceptive pathways. Clearly, further studies are necessary, using well-concocted, randomized controlled trials aiming to isolate the meditation-connected effects from other psychological factors that can exert their influences. Also, long-term longitudinal studies for possible comparisons are requested. All these studies on mental trainings potentially beneficial to health and well-being may become an important path to mankind's welfare. Concluding, given the importance of IC in higher order cognition, and its repercussions on learning, decision-making, in the affective domain and in the emotional experience (Murphy et al., 2017), its study in different ages and populations appears to be fundamental, to found adequate solutions for a vast array of health-related problems. If IC generates or sense of self and if consciousness is not a mere product of our brain acivity, but it is embodied, some philosophical problems will arise, as stated by Spinney (2020, page 32): "Death must be reconsidered because usually it is defined as being the "irreversible loss of brain (but not body) function". More: research on IC "has implication for the consciousness of other animals and how we treat them. And if consciousness is embodied, it would mean that a machine or a robot with no way to integrating signals from its body will never be conscious". And, if what we perceive has few to do with objective reality, but it is just an interface with it, only experiments starting with our subjective reality will permit to

imagine testable empirical predictions in the *mare magnum* of consciousness that, probably in the future, will become a sort of *ether*. A concept that in the course of the history of science have forged theoretical foundations, creating paradigms that dominated for substantial periods of time.

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The Celtic roots of King Matruk and Saint Augusta in Veneto, Italy

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KEYWORDS

Matruk, Madrucco, Matrucus, St. Augusta, Ceneda, Serravalle, Mount Altare, Mount Antare, Veneti, Carni, Celts, Lugh, Taranis, Brigid, Brigantia, bear cult, Mercury Artaio

ABSTRACT

King Matruk is a well-known character in the Vittorio Veneto area: Archbishop Minuccio de' Minucci, in full swing Counter-Reformation, narrated that Matrucus, a Germanic-speaking barbarian warrior king, persecuted Christians and did not scruple to torture and kill his daughter Augusta, later Saint Augusta. I believe that Matrucus was not a Germanic warrior, but a Celtic character possibly connected with the archaic cult of the bear and the feasts related to the spring equinox and the end of the harvest, in which the battle between spring and winter was celebrated. An analysis of the legend of St. Augusta and King Matruk shows that Augusta and Matruk belong to the much older Venetic and Celtic layers, which left us a number of toponyms as well as sanctuaries in the area. There are aspects of the landscape that are also connected with Matruk and Augusta. In sum, we have a multi-layered tradition of remarkable antiquity, which shows the merging of Venetic, Celtic and Roman traditions in a border territory, as well as their continuation in both the Christian hagiographic legend and Saint Augusta's cult.

Introduction

Vittorio Veneto is a city located in the north-eastern region of Veneto, Italy, and is a merger of two former municipalities, Cèneda and Serravalle, which were united into a municipality in 1866 and named Vittorio in honor of the king of Italy, Vittorio Emanuele II. The Meschio river, whose source is located in the Lapisina Valley, a few kilometers north of the city, passes through the town from Serravalle through the district that bears its name. The area was occupied in ancient times by Veneti (Venetkens) and Celts. A pagan sanctuary was in use on Mount Altare frequented by Veneti, Celts and Romans.

Ceneda, located right at the confluence of a number of traffic lines, was the most important Venetic center of this territory. The presence of the Venetic necropolis in locality 'ai Frati', with finds that document a continuity of depositions from the 8th to the 1st century BC, confirms the existence of one of the most important centers of the ancient Veneti. Towards the end of the Iron Age, the area was dotted with places of worship, votive *stipe* or sacred deposits, located on the slopes of Col Castelir in Villa di Villa (Cordignano), in the karst spring area of Pra della Stalla in Orsago, at Castello Roganzuolo (San Fior), on the hillsides of Scomigo near the Cervada stream, in Tarzo, and on the top of Mount Altare in Ceneda (Arnosti 1993: 2). The important sanctuary on Mount Altare

was connected with divination practices, and in relation to the salty-bromine iodine and sulphurous medicinal waters it was continuously frequented from the 6th century BC to the 4th century AD. Despite this important evidence, there is no mention in the historical sources of the name of the citadel until the 6th century A.D. How Ceneda came to have a certain urban relevance in the 6th century can be explained by the characteristics of its location, which became strategic between the Late-Ancient and Early Middle Ages (Arnosti 1993) (Fig. 1)

The Carni (in Greek Καρνίοι) were a tribe of the Eastern Alps in classical antiquity, settling on the mountains that separate Norico and Veneto (roughly corresponding to the more modern Triveneto). Devoto (1974: 56) considered them a Celtic people who entered the Italian territory from the Alpine passes in the 4th century BC. Their area of settlement is not precisely known: Strabo borders them on the mountains, while Ptolemy assigns them two cities near the Adriatic coast. The first historical date relating to the arrival of the Carni is 186 BC, when they descended towards the plain (where they previously used to winter) and on a hill they founded a defensive settlement, Akileja (Aquileia) and spread in the Treviso foothills and in the plain, occupying Venetic areas, until reaching the coast at Altino and the Brenta river, and the border with the territory of the Cenomanes Celts. In late antiquity, under the pressure of the Germanic and Slavic peoples, the mountainous area populated by the Latinized Carni gradually narrowed down to Carnia and the Friulian plains, accepting migratory contributions from Carniola, Carinthia and other areas. The phenomenon probably stabilized under the Lombard domination of Friuli.

During the 4th century BC the contact with the Carnic and Halstatt area gravitates around the Piave valley and some transversal valleys. During the La Tène B2 period (325 / 300-250 BC) Cadore (from the Latin Catubrium, a clearly Celtic name) is part of a wider scenario involving Carnia and Carinthia, while Gaulish weapons appear along the Piave valley between Mountbelluna and Altino. During the La Tène C2 period (200-130 BC), Cadore appears stabilized and Celtic weapons are located at the terminals along the Piave valley axis, in Lagole and Altino. On Mount Altare and in Villa di Villa (Vittorio Veneto) during more or less the entire period La Tène B2 and C2, Celtic offerings appear at the sanctuaries. Celtic material continues to show a stabilization of Celtic populations in the Treviso foothills area also during the periods La Tène D1a-2a, 130-100 BC and D1b-2a, 100-49 BC (Gambacurta and Ruta Serafini 2019) (Fig. 2).

In the 1st century BC, Emperor Augustus established a castrum at the foot of an important pass in what is now the heart of Serravalle, to defend Opitergium (Oderzo) and the Venetian plain to the south. South of the *castrum* a *vicus* developed in what is now Ceneda which later became a city on the Via Claudia Altinate.

At the beginning of the 5th century AD Ceneda and Serravalle were devastated by Attila the Hun, but later were re-fortified under the dominion of Theodoric, king of the Ostrogoths. In the 6th century AD, the Byzantine writer Agathias Scholasticus recounts how during Justinian's Gothic War, Ceneda changed hands between the Ostrogoths, the Franks and the Byzantines. The Lombards built the castle of S. Martino near the heart of Ceneda, and in 667 the Duchy of Ceneda grew in size when, according to Paul the Deacon, it acquired part of the territory of Oderzo after the destruction of that city by the Lombards. The fortification on the heights of Ceneda is documented by finds and burials all with West-East orientation typical of late antiquity. There was a widespread and stable settlement with defensive fortifications on the hilltop and on the immediate slopes of San Paolo hill (what will be the medieval fortress of Ceneda, also called castrum S.cti Eliae) starting from the end of the 4th-beginning of the 5th century AD.

This settlement nucleus, which was the fulcrum of the emerging castrum (in the medieval meaning of castle) of Ceneda, was backed by a series of other fortified areas in the surrounding hills, while the buildings of the Roman citadel in the plain were left to their fate. An effective barrier of the Serravalle bottleneck had to provide protections up to a certain altitude both on the Mountsel to the west and on the hill of Saint Augusta to the east (so in the Late Middle Ages). From the mid-5th century AD, the late Roman strategies proved inadequate to protect the area from the pressure of the peoples on the northern border.

The Bear King: Matruk

King Matruk or Matrucco/Mandrucco is a well-known character in the Vittorio Veneto area: he was supposed to be a Visigothic commander of Alaric's in the 5th century AD, at the head of a garrison in Ceneda and then made king or duke, according Mgr Bechevolo (2010). In the 16th century archbishop Minuccio de' Minucci from Serravalle, secretary of Card. Madruzzo, bishop-prince of Trento and later Pope Paul III, in full swing Counter-Reformation, in 1581 wrote the story that justifies Saint Augusta's two feasts, on March 27th and August 22nd, and narrated that Matrucus, an Alemannic warrior and father of the virgin and martyr Augusta, as a worshiper of Odin, persecuted Christians and did not scruple to torture his daughter: she had two teeth torn out, then he had her condemned to the stake, then tied to a hooked wheel and thrown down a slope, to no avail, finally he had her beheaded with a sword blow. Once she died, he repented, built a sanctuary in her honour, and went away to Germany. Note the possibility that Minucci linked the lineage of his patron, Madruzzo, to that of the saint through the name of Augusta's father, since there is a similarity, if not an identity, between the name Madrucus / Matruk and the surname of the bishop-prince Madruzzo. The text was included first in the *De provatis sanctorum historiis* by L. Surius and J. Mosander, Coloniae Agrippinae ap. G. Calenium and haer. Quentelios 1581, and then in *Acta Ss*. IX= Mae III Venetiis ap. S. Coleti 1726, col. 685s. at the day March 27th, mistakenly considered the saint's birthday, and not the date of the discovery (*inventio*) of her relics in 1450. The date 410 AD, year of Augusta's birth was supported by Andrea de' Minucci in 1754, based the writings of a local scholar, Guido Casoni (1561-1642) and a 18th century memorial stone (Roman 2011:274-75, n.4)

Why did Minucci, whose patron was the very powerful bishop-prince of Trento, later Pope Paul III, supported the opinion that Augusta and her father Matruk, the villain of the story, belonged to a Germanic-speaking people? The so-called barbaric invasions had been a traumatic event, but we should not forget a more traumatic event for the contemporaries, the Protestant Reformation; the Council of Trento, held between 1545 and 1563, was still fresh in the memory of the participants. Even the *Beneficio di Cristo* by Marcantonio Flaminio from Serravalle, considered the most popular devotional work in 16th-century Italy, published in Venice in 1543, had been heavily influenced by John Calvin's *Institutes* of 1539, and condemned by the Inquisition. Most Lutherans, Calvinists, Anglicans, and Anabaptists spoke Germanic languages such as German, English and Dutch. Therefore, a nefarious heathen, a German-speaking king who tortured to death his Christian virgin daughter was a good piece of propaganda.

Saint Augusta's story unfolds around two mountain fortresses: according to legend she was born in the castle 'of Matruc', of probable medieval origin (Roman 2011:10), in Piai di Fregona, from the Visigothic chief Matruk (according to Marson, [1903, in Roman 2011:10], or Alemannic according to Minuccio de Minucci). Her mother died in childbirth and the newborn was entrusted to the nurse Cita, who secretly made her baptize and educated her to the Christian faith, while Matruk was a fervent pagan. The Piai's castle is situated on the small Piai hill (here are the three springs from where

it originates a tributary of the Livenza, the Monticano river) at the foot of Mount Pizzoc, extreme western offshoot of the massif of Cansiglio-Cavallo. The castle had Roman origins as a control station, along the valleys of the rivers Carron and Friga, tributaries of the Meschio, connected with the road that climbed up toward the plateau of Cansiglio and Alpago, in connection, also visual, with the strongholds of Serravalle and Ceneda at west, and with the late-ancient fortified settlement of King Matruk in the locality of Nastego at the Fratte at south, and to east with the fortifications on the hills of San Daniele, above Osigo, and Montaner in the municipality of Sarmede. The castle of Piai was part of the Longobard Duchy of Cenedese, with its capital at Ceneda; with the arrival of the Franks the duchy was enlarged and called Marca of Friuli. Still in the Middle Ages the castle was a fundamental fortress for the road that joined Cadore and Friuli.

Matruk gave his daughter the name of Augusta as a sign of good luck. She grew up in the 'castle of King Matruk' on Mount Marcantone or St. Augusta's Mount, above Serravalle. She is attributed the miracle of the transformation of bread into wildflowers, near a stone halfway on the path that leads to the sanctuary. It is known that Mount Marcantone, the place of martyrdom, was called *Mons sancte Auguste* as early as 1234. The saint is also mentioned in the statutes of Serravalle in 1360 as the patron saint venerated since ancient times. The cult of Saint Augusta, however, was only formalized on May 22, 1754 thanks to a decree of Pope Benedict XIV issued on request of Bishop Lorenzo Da Ponte. Saint Augusta is mentioned twice in the calendar: March 27th recalls the discovery, during the restoration of the sanctuary in 1450, of her relics; the other name day is August 22nd, and for the occasion Vittorio Veneto organizes a fair (Fig. 3).

I believe that Matrucus was neither a Gothic or an Alemannic warrior, but a Celtic character possibly connected with the archaic cult of the bear and the feasts related to the spring equinox and the end of the harvest, in which the battle between spring and winter was celebrated. The daughter's 'torture' itself has the flavor of archaic sowing and harvesting rituals: torn teeth (seeds), burning (of stubble on swidden, or slash-and-burn agriculture), hooked wheel (the harrow to prepare the soil), all measures that do not move the girl to abjure, and above all do not kill her, and finally the sword that kills her (the scythe). It is the wheel (a solar and seasonal symbol) and not the sword that usually appears in Saint Augusta's iconography. The story of the torture is similar to that of St. Catherine of Alexandria, but it also reminds of the traditional votive bonfires (*Brandopferplätze*) of the Iron Age, a usage that has lasted, in a milder form, until the 20th century in the Triveneto area.

The first part of the name Matrucus or Matruk derives from Gaulish matus 'bear', euphemistic form from *matus* 'good, lucky, auspicious' (Welsh *math*, ancient Irish and Scottish *maith*, middle Welsh *mad*, middle Breton *mat*, related to the Latin *manus*, good and *maturus*, mature, said of fruit) not to irritate and to appease the dreaded plantigrade. So it means The Good One (i.e. the bear). Delamarre (2003:220) is skeptical about Vendryes' hypothesis that the Gaulish *matu-*, bear, and *matu-*, *mati-*, *matiacos*, good, favourable, complete, were the same word, an epithet of the bear (a taboo word), but I would not discard it.

The second part of the word may derive from **rokka*, a proto-Celtic term meaning 'to grunt' (Welsh *rhoch*, Breton *roc'ha*) for which we would have The Grunting Good One, or the Hoarse Goodwisher, a common periphrasis to define a bear (it is very probable that this sense got strength in the Middle Ages, with bears being brought around the houses during the holidays, cfr. Pastoureau 2007). Or the second part may derive from **trougo*, **trukko-* (Gaulish *trogos* and *dru*, ancient Irish *trog*, Welsh and Breton *tru*, Cornish *troc*), which means 'bad, evil, miserly': in this case we would have The Evil / Avaricious Bear ', an excellent epithet to represent the harshness of winter and therefore for the evil

king of the hagiographic legend invented by Minucci, but who in the first part of the name, *Mat*, preserves the idea of goodness, abundance and crops that have reached maturity.

Augusta and Cita: a Dual Goddess?

It is no coincidence that Saint Augusta's two feasts are celebrated one, March 27th (according to the old calendar), around the spring equinox, and the other, August 22nd is the Feast of The Immaculate Heart of Mary, Traditional Catholic Calendar and the Queenship of Mary, the New Calendar. In the old Roman calendar (until perhaps as late as 153 BC), the *mensis Martius* (Mars' month) was the first month of the year; until renamed for Augustus Caesar, August was called Sextilis, originally the sixth month (*sext-*) when the year began in March. Hence Saint Augusta's day was also a New Year's Day.

In the second half of March there were a number of Roman festivals:in ancient Roman religion, the *Quinquatria* or *Quinquatrus* was a festival sacred to the goddess Minerva, celebrated from the 19th to the 23rd of March. The older festivals were of Etruscan origin and were to celebrate the Spring Equinox, the spring rebirth rites of women. The festival *Tubilustrium*, purification of the trumpets, was held on March 23, the last day of the *Quinquatria* festival held in tribute to the Roman God Mars and Nerine, a Sabine goddess.

The celebration on March 17th was meant to honor Liber Pater, an ancient god of fertility and wine. Liber Pater was also a vegetation god, responsible for protecting seed, and like Dionysus had female priests although Liber's priests were older women. Over time this feast evolved and included the goddess Libera, Liber Pater's consort. This ancient Italic ceremony was a country or rustic ceremony with a procession and a phallus, meant to protect people's fertility as well as the crops from evil. From March 16th through 28th the Romans also celebrated the feasts of the Magna Matris or Cybele: the Hilaria (from theGreek ἱλαρός cheerful, merry) were ancient Roman religious festivals celebrated on the March equinox to honor Cybele as well as Attis' and Adonis' death and resurrection.

On August 13th-15th there was the feast of Diana and Vertumno (god of the seasons and the ripening of crops). On August 19th-20th the Romans feasted with wine and ripe grapes in honor of Jupiter, on August 21st there were the very important *Consualia* feasts, in honor of Conso and Opis / Ope / Ops (the goddess of abundance, associated with Saturn and therefore often identified with Rhea, associated with Chronos / Saturn), archaic deities of the fields and fertility, and on August 23rd the *Vulcanalia* in honor of Vulcan, along with sacrifices to Maia, the Nymphs in campo ('in the field'), Ops Opifera, and a Hora. During this festival dedicated to the god Vulcan, an essentially atoning ritual was celebrated, consisting of throwing animals into the fire, in exchange for one's life. On August 24th sacrifices were made to Luna on the Graecostasis; it also was the first of three days when the mysterious ritual pit called the *mundus* was opened in Rome. It is possible that at least some of the most cosmopolitan Roman feasts were celebrated also in the '*Venetorum angulus*' and later in the *Regio X Venetia et Histria*.

The name Augusta derives from the Latin Augustus, from the Indo-European root *au̯eg-, u̯ōg-, aug- ug-*, 'I increase' and 'I make famous' in a figurative sense. Old Indian *ugrá-* 'immense' lat. *augeō*, *-ēre* 'to increase, augment, enlarge, spread, extend', *auctor* (= *umbr. uhtur*) 'a promoter, producer, father, progenitor, author etc', *auctiō* 'an increasing; hence, from the bidding, an auction', *augmen*(*tum*) 'an increase, growth, a kind of sacrificial cake', *augur 'a* seer, soothsayer, diviner'.

In Pokorny we find the Root / lemma: *au̯eg-, u̯ōg-, aug-, ug-*with s-forms *au̯ek-s-, auk-s-, u̯ek-s-, uk -s-* Page (s): 84-85 /(https://academiaprisca.org/indoeuropean.html). In general the sense of 'to grow, to increase', it exists in more or less all Indo-European languages.

The term is also connected with '*augur*', from Latin *augur*, a religious official in ancient Rome who foretold events by observing and interpreting signs and omens, perhaps originally meaning 'an increase in crops enacted in ritual,' in which case it probably is from Old Latin **augos* (genitive **augeris*) increase, and is related to *augere* increase, from PIE root **aug-* (1) to increase, Greek *ἀ(F)έξω* 'grow, increase', *ἀέξομαι* 'grows'; *αὔξω, αὐξάνω* 'grow, increase', Latin *auxilium* 'help, aid, assistance, support, succor' (originally Pl. *-ia* 'strengthening, reinforcements', N. Pl. *auxilis* 'auxiliary troops, or in gen., military power'); Old English *eacien* to increase, German *wachsen*, Gothic *wahsjan* to grow, increase.

Others believe August is related to the Greek *aughé*, light, splendor, ray, from which *augazo*, radiate, illuminate, shine. In the proper sense 'great' and therefore noble, majestic, venerable, sacred. Title given by Octavian onwards to the Roman emperors. (Bonomi 2004-2008).

In Pokorni (1959) we find the Root / lemma: *aug-* Page(s): 87 to glance, see, dawn, probably derived from Root / lemma: *au̯es-*: to shine; gold, dawn, aurora etc. Greek *αὐγή* 'shine, ray, daylight; eye', *αὐγάζω* 'shines, illuminates; sees', *ἐρι-αυγής* 'shining very much'; Albanian *agój* dawns, agume aurora, morning, dawn; Homeric Greek. *ἠώς* *(āusōs), Gen. *ἠοῦς* (*ἠόος*), Attic. (with accent innovation) *ἕως*, Dorian *ἀ ¯ώς, ἀ F ώρ*, changing through ablaut *öol*. *αὔως* aurora (proto gr. *αυ [σ] ώς*).

The archaic connection between 'grow' and 'dawn' is also found in Beekes (2010): *αὐγή aughé* [f.] 'light, glow, ray of light', e.g. of the sun (ll.). *IE? *h2eug-* 'shine'. Denominative verbs: 1. *augazomai* 'to see clearly, lighten, shine upon' 2. *aughéo* [v.] 'To illuminate'. Probably an old verbal noun, cf. Alb. *ag* 'dawn' <*h2eug. Perhaps further to OCS *jug'b* 'South, south wind'. A connection with the root **h2eug* 'to increase, grow strong' seems plausible, in view of the limited distribution of the words meaning 'light'.

Therefore we have a character that looks like the Christianized version of a pre-Latin, Venetic and / or Celtic deity who would be the local personification of the archaic goddess of dawn, in her luminous aspect and in that of the goddess of growth, whose epithet will be translated into the Latin adjective 'augusta'.

The legend also speaks of the nurse, Cita, a friend of Augusta's mother and the one who secretly had the baby girl baptized and raised her in the Christian faith: strangely she did not suffer any consequences for these actions, but she is sanctified together with Augusta. The name Cita may derive from the Celtic words *cet, cait* (wood, forest), *caito-, ceto- cetion*, wood, forest; *Caito-brix*, wooded hill in Lusitania, the term gives rise to numerous toponyms deriving from the Gaulish *-cetum* (Delamarre 2003: 97). In Matasovic (2009:174) we have the Protoceltic term *kwantyo-* flat hill, from the Indo-European root *kwem-t-*, hill, similar to the Latin *cumulus*, hill, middle Irish hill, eminence, open space, assembly. According to Matasovic, the original meaning could have been that of prominence. Cita seems to be a local hilly forest goddess.

Hence we have two divine figures: a young one, with the traits of a solar and crop goddess, and an older, nurturing one, with the traits of a forest / mountain goddess. There may be a third female figure, Augusta's mother, but she appears to be more of a duplicate of Cita, who looks Augusta's real

mother. Thus we have a dual goddess: young and old, which seems to agree with the many Venetic and Celtic dual goddesses. We have seen above that there were a cluster of festivities also in Roman times in the dates around March 17th and August 22nd and also a Catholic one: maybe in these dates a local dual goddess was celebrated, who had her sacred space on a number of hills, and that was related to a divine figure of Bear god/king.

It is reasonable to think that the Romanized Celts and the Venetic people who lived around Revine Lago, Tarzo, Ceneda, Serravalle and in general in the area of Mount Altare / Antare had rituals comprising the rolling of fire wheels down the slopes, and sacrifices to local Venetic and Celtic deities to which they added the Roman ones. Among the Celtic gods there was a cult to a very powerful bear-god that the Romans identified with *Mercurius Artaios*, called *Matunos* or *Matunnos* from the Celts of Gaul and Britannia, *Matutinos* in Switzerland and southern Germany; he is very similar to the Welsh *Math fab Mathonwy* (Bear son of Bear Cub), who could only sleep with his feet on the lap of a virgin, unless he was at war. *Math*, king of Gwynedd, is the greatest wizard in Wales in the *Mabinogion*, similar to the Irish magicians *Math mac Úmóir in drui*, the druid of the *Tuatha Dé Danann* and *Matgen*, the wizard of the *Tuatha Dé Danann* in the second battle of Moytura.

Nor does it escape the fact that the current festival of the saint begins on August 10th with a pilgrimage and that it is also the period of Saint Lawrence's Fires, with the appearance of the Perseid swarm. The Perseids are a meteor shower that the Earth crosses during the summer period as it travels its orbit around the Sun. This meteoric rain occurs from the end of July until beyond August 20 and the peak of visibility is concentrated around August 12th, with an average of about a hundred light-trails observable with the naked eye every hour. Given the shift of the calendar, our calendar and the Venetic and Celt calendars, which had lunar months, do not coincide perfectly. The Irish called the Perseids 'Lugh Games' because they appeared around August1st, *Lughnasadh* or *Lughnasa*, when the *Tailteann Games* opened, in honor of the goddess Tailte, adoptive mother of the light god Lugh. The feast commemorates the sacrifice of the god (in the form of wheat), that is in its cycle of death to give nourishment and rebirth, wheat was identified as one of the aspects of the Sun/light god, Lugh. A priestly and military god, he protected merchants, travelers and thieves. His epithets were: *Esus* 'the best' (to be linked to the Latin *optimus*), *Teutates* 'man of the tribe', *Samildanach* 'with many craft skills'. Do not forget that *Esus, Tautates and Taranis* are named together by Lucanus. In Gaul he is *Lucus* in the Romanized forms of *Mercurius Artaios* Mercury-Bear and *Mercurius Moccus* Mercury-Boar; we should remember that the bear and the wild boar are animals that symbolize royalty.

Michel Pastoureau in his book *L'Ours. Histoire d'un roi déchu* (The bear, the story of a fallen king, 2007), shows not only that until the late Middle Ages the bear and not the lion was a symbol of the sovereign, but that 'ursine' saints existed and still exist, such as San Romedo, Sant'Orso (Saint Bear, including a Sant' Orso patron of Aosta venerated on both sides of the Alps), Sant'Orsola (she-bear), St. Martin, Sant' Ursicino (Saint Little Bear; there are several of them, one is the patron of cattle in Tyrol and one is the apostle of Friuli) etc., and that during the Middle Ages shrines and convents owned bears that went around the villages at certain times of the year when there were important holidays. These include Saint Lucia, Saint Nicholas, Saint Martin and Christmas. The heirs of these auspicious bears are, among others, the *krampuses* of Tyrol and Friuli, Switzerland, lower Germany, France and the straw bears of Piedmont, the British Isles, etc. Pastoureau (2007: 107, 101) notes that the name Martin contains the noun '*art*', bear in the Celtic languages.

On the other hand, Lugh lends its name to many toponyms. In Veneto we remember Lugo di Vicenza and Lugo di Campagna Lupia (near Venice). Rübekeil (2003) suggests that Lugus was a triple

god, including Esus, Toutatis and Taranis, the three main deities mentioned by Lucanus (who does not mention Lugus, but Caesar claims that Lugus / Mercury was the most important god of the Gauls).

The sanctuary on Mount Antare

As for the etymology of Mount Altare (Fig. 4), it seems established that in ancient times it was called Mount Antare and that the name Altare (altar) is to be considered a popular interpretation that recalls the presence of a sanctuary on the part of the mount called Collo Maledicto (Cursed Hill), when the name Antare or Antares did not have an intelligible meaning to the villagers any longer. In 1989 the Archaeological Group of the Cenedese, led by experts from the Archaeological Superintendence of Veneto, brought to light, from six trenches dug on the Collo Maledicto, finds of worship dated to the 6th century BC-4th AD, which are still preserved in Padua (one hundred votive coins, gold *laminas*, 'sortes' etc.). Giorgio Arnosti (1993) writes that the lower half of a bronze figurine was collected on Mt. Altare, produced with matrices, but worked in file and gouge to represent female characteristics, with the vulvar rhyme clearly evident. The ithyphallic figurines and other finds collected both on Mount Altare and in Tarzo and other nearby places show, according to Arnolfi, one of the aspects of the personality of the tutelary deity, as patron of femininity and health. On Mt. Altare there is a small cave called in the local dialect "*Buss dea Vècia*" (The Old Woman's Hole), which might be the deity the sanctuary was dedicated to and remembered in some way by the inhabitants of the area. Among the votive finds of the Venetic-Roman sanctuary there are some unusual bronze *laminas* with engravings that look like Latin numbers, provisionally identified as '*sortes*' (drawing of lots), which could also have an oracular meaning.

A Cenedese border document dated 1398 witnesses not only the demonization of the locality, Arnosti (1993), in the toponym 'Collo Maledicto' (Cursed Hill), but also the existence of the ancient name of Mount Altare (actually a hill, called mount from the use of the term by the Romans even for very modest heights):

> *... et a fontanella deorsum usque ad ruium de Merille et a ruio de Merille sursum per plaiterium usque ad sommitatem montis de Antares. Et a dicto Mount de Antares usque ad Colum maledictum, et a dicto Collo Maledicto usque ad sommitatem montis qui est inter Serravallum et Cenetam.*

The Colle Maledicto was so called by the Christians who after the edict of Theodosius in 380 had distanced themselves from pagan rites such as that of cleromancy. Arnosti (1993:23) writes:

> *'As for the sanctuary of Mount Altare we have an absolute lack of dedications or figures. However, we know some specializations of the tutelary deity. Mt. Altare has been known for centuries for the bromide-iodine and sulphurous springs that flow from the slopes of the hill. Perhaps the cult of the god is related to rituals at the springs, which are active even a short distance from the top, and few but significant fragments of drinking vessels have been collected among the finds recovered in the site. It would therefore be a divinity of health, but also a protector of warriors and human settlements, as suggested by the male bronze statues and the blades. In the negative, it is not a pastoral divinity, of breeders or farmers: in fact there are no [metal] laminas with figures of cattle or finds clearly connected with agriculture and pastoralism. The number of animal bones collected is very low. On some laminas with an irregular quadrangle and tapered downwards shape there is a strange punching with a more pronounced double decorative element, usually two cup marks, of unknown meaning, but which is assumed to be connected to a double personality of the tutelary deity, not extraneous to the Veneti, see also in Villa di Villa the double representation of the divinity on some laminas. He is also a patron of merchants*

> *for the large number of Norician coins (few republican Roman ones). The presence of an iron writing stylus and the so-called 'sortes' may also suggest an oracular divinity. In summary, the deity of Mt. Altare appears with a contradictory, but rather specialized personality, and the sanctuary seems to be mainly connected with the urbanization of Ceneda.*

Carlo Forin reports (see references) that a Superintendent refused to associate the name Antares with the finds as proposed by Carlo Forin, because of the 'oriental name', which would refer to the star Antares. Forin also reports: '

> *My mother remembers that my grandfather, Dal Mas Giuseppe, corrected it towards 1930: Don't say Mount Altare! It's called Antare! - In 1600 it was called 'Mount de Nantares' [according to Giovanni Tommasi, in The Diocese of Ceneda, Diocese of Vittorio Veneto, 1998, on p. 11].*

Now, given that Forin is a follower of Giovanni Semerano's theoretical rubbish, I don't feel like condemning the Superintendent. The point is that the name Antare (s) has nothing to do with the star Antares, whose name however is not oriental (Semerano had the fixation to derive every word from Akkadian or Sumerian through para-etymologies and so does Forin), but originates from the Greek Αντάρης (Antares) and means *rival of Ares* (*anti-Ares*) or *similar to Ares*, probably because of the reddish color similar to that of planet Mars. The mount was named Mount di Antares in 1398. Actually Antare has a Celtic flavor, which is reinforced by the fact that both Ceneda and Treviso (Latin *Tarvisium*, *Tarvisum*, possibly from the name of the Celtic Taurisci coming from Carinthia and Carniola; possibly from the Celtic *tarwo*, bull) are Celtic toponyms. Apparently there was a strong core of Celtic population in the area, which is reflected in the toponyms.

Therefore , we have two ' mounts' related to a dual goddess, and a third related to a masculine god, where we also have a cave named the Old Woman's Hole. It is a temptation to relate this cave with the older aspect of the dual goddess.

Ceneda, an ethnonym

Ceneda is remembered for the first time in the 6th century A.D. by Venantius Fortunatus in his *De vita S.cti Martini*, IV, vv. 657 and 668: '*... 1 submontana quidem castella per ardua tendens; / ...' Per Cenetam gradiens et amicos Duplavenenses, I ...*' (in Arnosti 1993)

Ceneda is traced back to the Celtic term *kenet*, but the meaning is controversial. *Kenet* is a term from which the male name Kenneth also derives; as an adjective it is an appellative which means 'the beautiful' in various Celtic languages, such as Gaelic *Caioneach*; in Breton the adjective is the same, *kenet*. As a noun in Breton *kenet* means 'firewood' and it is tempting to see in the toponym Ceneda the meaning of 'place where you can get firewood'. However, there are other terms that can explain the meaning of *kenet* / Ceneda:

1. *cineal*: offspring, clan, nation, Irish cineul, Ancient Irish *cenél*, Welsh *cenedl*, Ancient Welsh *cenetl*, Cornish *kinethel*, from proto-Celtic **kenetlo-n*. Indo-European *qen*, to begin, to start; Greek *kainós*, new (*kanjós*); Latin: *re-cens*, English: recent; ecclesiastical Slavic *koni*, beginning; Sanskrito *kaná*, young man.

2. *cinneadh*, *cinne*: tribe, clan, Irish *cineadh*, *cine*, Ancient Irish *ciniud* (genitive *cineda*); from the root *qen* in *cineal*, q.v. Hence *cinnich*, pagans, Irish *cineadhach*, a pagan.

So Ceneda, from *kenet* can mean 'the beautiful', but it seems the least probable hypothesis from an anthropological point of view, given that it is an appellative aimed at a person (such as Philip the Beautiful, king of France), or it can mean '(place of the) firewood'. I prefer the meaning 'tribe, clan, nation' as the likeliest, given that many ancient peoples often used generic terms such as 'we people, people' to define themselves and 'the nation, the tribe' in the sense of the place where they dwelt to define the locality, in particular the 'heart of the nation'. In essence, in this sense it is a term of ethnic differentiation.

This is the same conclusion reached by Basset Trumper and Tomasi (2004:9-10) : Celtic base **ken-* take, originate, ancient/mid Irish *cenél*, ancient Corish *cenetl*, mid/modern Cornish *cenedl*, people, nation, family, etc., and also < **ken-i-*, airl. *cét-*, *cétne* first (> mod. *céod*), ancient/mid Cornish. *cynt* before/ previous; they suggest **ken-e-ta* or rather **ken-i-ta* 'original city', 'original settlement' or 'city of the firstborn, city of the natives', where the original name Kenita turned into Keneta around 500-700 AD.

Etymology of Antare

Going back to Antare (s), it seems composed of two parts: 'ant-are (s)' or 'an-tare (s)'.

The term *anto-* in the Gaulish language means 'limit, edge, frontier' (Delamarre 2003: 49); the meaning would derive from the proto-Indo-European **anti*, opposite, front, Sanskrit *antah*, border, border, end, from which the root **ant*, 'front'. *Ar* is a word found in many hydronyms, such as Aire, Ayr, Aar, Arro, Arrow, Arve, but with a dubious etymology, perhaps connected with Sanskrit *ara*, 'fast' 'flowing', and perhaps with the Celtic adjective *garw*, 'violent'. Basically it means 'fast flowing, violent', that is a river. In this sense '*ant-are*' could mean 'in front of, opposite the river' (the Meschio river?), or it may mean 'limit, border of the river', but it is not very probable, since we are talking of a hill, not a river.

Ant- may derive from the proto-Celtic adjective *ande*, 'large' or from the proto-Celtic terms *antor*, *antros*, which also mean 'large'. Delamarre (2003: 45), in discussing the Gaulish intensive particle *and-, ande-, ando-*, 'very', recalls how frequent it is in toponyms. It seems to correspond to the ancient Irish *an-*, *ind-*, Breton and Welsh *an-*, all particles that can derive from a proto-Celtic **nde* <**ndi*, Sanskrit *àdhi*, 'above, in'. In the Scottish and Irish Gaelic languages an intensive particle assumes the idea of excess.

Delamarre (2003: 479) also reports an interesting term: *anderos*, the one found below, inferior, infernal, chthonic, written on the Chamalière curse lead tablet. The Gaulish inscription of Chamalières of the first century AD contains the expression *brixtìa anderon*, for which two possible interpretations have been given, as reported by Peter Schrijver (2002: 212-13). The meaning is 'for the magic of the underworld' (Lejeune and Marichal 1976-77, Lambert 1979, among others), where *anderon* would be a plural genitive of *anderos*, from the proto-Celtic **ndheros*, underground, lower. The other meaning would be 'for the magic of young girls', an expression that finds parallels in ancient Irish and in the Gaulish inscription of Lazarc. But as Schrijver points out that Jeroiter Anderon (*Corpus Inscriptionum Latinarum* II 2598) is more likely referred to Jupiter Chthonius, that is, of the Underworld, than Jupiter of Young Women.

Two Gaelic Scottish words are also worth mentioning:

1. *àr*, plow, medieval Irish *ar*, Welsh *ar*, plowed land, Latin *aro*. Hence *aru*, collected.

2. *àr, air* (pl. *Ara*), battle, massacre, defeat, devastation, Irish and Ancient Irish *àr*, welsh *aer*, Ancient Breton *air*, from Proto-Celtic **agron* massacre, root *ag*, drive (war chariot?), chase, cf. Gaelic *agh*, doe, fawn, ancient Greek *agra*, hunting, Avestic *azra*, looting.

If we divide *Antare (s)* in *Ant* + *are (s)* we may assume the meaning of Great Battle, but there is the problem that if the name of the mountain has a final -s it may be a pural (the words with termination *-ar* make in the plural *-res* in the insular Celtic languages, or as in this case 'ara', but the Gaulish plural is *-os*). Is it possible that we have a similar Cisalpine Gaulish word? Delamarre refers the Gaulish term *agro- / agrios* battle, massacre, which is found in the name of the *Uer-agri*, an Alpine tribe named by Caesar and perhaps in the toponym *Su-agrius*, as well as in Latinized names such as *Agri-cu*, War Dog. Alternatively we may interpret '*ant-*' as a privative particle and '*-are (s)*' as deriving from a Gaulish Cisalpine term that would mean 'plowed land', or 'harvest', in this case indicating a place, Mount Antare (s), whose name would mean 'Without plowed land' or 'cropless', given the petrous nature of the soil. But this is guesswork.

According to Giovanni Tommasi (1998) the mountain in 1600 was called 'Mount de Nantares' but this poses big problems, since *nanto- nantu* (Delamarre 2003: 230-31) in Gaulish means 'valley, stream, river', very frequent in French toponyms. In Veneto we have Nanto (a town near Vicenza). It is an excellent meaning for a river valley, but as a hill name it does not seem likely, also because in general the second part '*-are*' would be superimposable to many hydronyms, such as the river Aar, the Ar, the Arc, the Herault , the Arre etc. from the pre-Indo-European root **ar*, stream. It is probable that in the seventeenth century, having lost the meaning of the name Antare, some locals tried to 'normalize' it by associating it with the toponym '*nanto*'. The name 'Mount de Nantares' in this case would mean 'mountain of the river valley,' which could be that of the Cervada torrent, an affluent of the Monticano river.

There is an interesting Gaulish term (Delamarre 2003: 289), *taranus*, the storm or the god of the storm, preserved in a Gascon dialect word *taram*, thunder, and perhaps in the Norman *tarane*, gnome, goblin. The same word in the insular Celtic: ancient Irish *torann*, storm, the noise of the battle, medieval Irish *torand*, noise, Welsh *tarann*, Cornish *taran*, thunder, from the Protoceltic **toranno-s*, ancient Breton *taran*, thunder, with a passage in Brithonic and in Gaulish from *oRa* to *àRa*. I also mention the Scottish Gaelic *taran*, the ghost of a dead child without baptism and *torrun*, a great noise. See ancient Greek *toros*, sound. Delamarre writes that this *taranus* and neo-Celtic derivatives have been approached to the Germanic name of the thunder and the god of war **Thunaraz* <ancient Norse *Thorr*, ancient High German *Donar*, from an Indo-European root **(s)tenonate*, for which the Celtic would show a metathesis *tonar*> *toran-* that would not yet have appeared in the Brithonic theonym Tanaro (Taranis, the variant reported by Lucan designating the storm, thundering Jupiter) and in the ancient name of the Po river, *Tanarus*, the Thunderer. According to Delamarre it is better, however, to explain the Celtic words with a root **tor-*, puncture, lacerating (noise), cracker, ancient Irish *toirn*, noise, noise and separate the two theonyms with identical functions, the Germanic Thunaraz and the Celtic Toranus <Tonarus.

It is worth adding that, according to MacBain's Gaelic Dictionary, the *root tar, tor* doubles to give the name Tartar, noise (which would also be the name of the Tartar river that bathes the Great Veronese Valleys, occupied by the Celtic Cenomanes), a root that gives the Irish *toirn* and *toirneanach*, thunder, and the Scottish *tàirnneanach*, thunder. From the root **tor*, perforate, which Delamarre considers the most economical explanation for the theonym Toranus < Tonarus, and from the words of the Celtic languages for 'thunder' also derive terms to designate the drill (Welsh *taradr*, cochlea,

Breton *tarar*, *tarazr* , cochlea, Latin *terebra*, drill, from the root **ter*, through, which also originates the Scottish word *thar*, Irish *tar*, across, Welsh between, over, and *trach*, beyond, from the Gaulish preposition *taro*, across).

From the same root **tor*, **tar* derive two interesting Gaelic words, Scottish *tora* and *tarachair*, augur, *soothsayer*, seer, who interprets omens, Irish *tarachair*, whose first meaning is 'drill', 'gimlet'. We can therefore assume that a seer 'pierces' the veil of mystery to interpret omens. This also explains the relationship with the semantic group linked to the Gaulish preposition '*taro*' and the various neo-Celtic prepositions which indicate 'through'. In fact, the seer 'passes through' this reality and reaches the divine. Maceachen's Gaelic-English dictionary (1922) gives only one meaning for *Tarachair*, -e, m. an augur, a seer, a soothsayer. Macleod and Dewar's Gaelic dictionary (1831) reports the term *targain*, a verb which means to foretell, to prophesy, to predict the future, hence the masculine noun *targradh*, which means the action of divination. Both terms derive from the same root '*tar*'. In Welsh we have the verbs *darogan* and *daroganu* (where t- has become d-), which both mean to foretell, prophesy, foreshadowing the future.

Finally, I mention the northern British feminine noun '*torr*' which is derived from the Indo-European **(s) tṛh1-* (zero degree of **(s) terh1-* 'rigid') –s- hence the proto-Celtic **to/arsā-** Brithonic *torrā->*? ancient Welsh *torr*> mid-modern Welsh *tor*, ancient and modern Cornish *tor*, ancient Breton *tar, tor*> medium-modern Breton *teur, tor*; ancient Irish *tarr->* middle-modern Irish *tarr*, Scottish Gaelic *tàrr, tòrr*, Isle of Man Galelic *tarr*. While the etymology is uncertain, the meaning of the root is 'something that sticks out,' especially a belly. In a topographical sense it is 'a pile of rocks', in the Welsh toponyms especially in the southwest, although it is rare in Cornish, and 'a protruding hill, a hill' in Scottish Gaelic, but not in Irish. These topographical meanings would be relatively late and it is not clear whether they are of Brithonic or Gaelic origin. From '*tor*' and '*tar*' derive two words that imply a 'protruding belly', *torrach*, pregnant, Irish *torrach*, pregnant, fruitful, medieval Irish *torrach*: it derives from *t*orth-aco-*, from **torato-*, *toradh*, fruit, the Welsh term '*torwy*,' with a big belly, has been compared with the previous terms, from '*tor*', belly, Gaelic *tàrr*. *Tàrr* in Gaelic means lower belly, tail, breast, Irish *tárr*, belly, lower belly, medieval Irish *tarr*, Welsh *tor*, Breton *tor*, ancient Breton *tar*: **tarsâ*, *tarmsâ*; Scottish *thairm*, belly, guts, English *tharm*, German *darm*, guts; ancient Greek *trámis*, tail, intestines, hip. The idea of a pile of stones is also present in the first three meanings of the Scottish Gaelic *tòrradh*, a masculine noun that indicates: 1. To form a heap or pile, 2. pile, 3. burial, burying a corpse, 4. solemn burial or procession, 5 watch over a dead, 6. dam embankment 7. payment to maintain a mill dam.

Recalling that *an-, ant-, and-* are particles that mean 'great', even in the sense of excessive, exaggerated, one could think that *An- tare (s)* means, based on the last meaning mentioned, *An-tar*, *Antarr*, that is 'big pile of stones', 'protruding (earth) belly', a name suitable for a hill of about 450 meters, even if prosaic.

However I must say that I prefer the other meaning that derives from '*tor / tar'* in the sense of 'through'. We have seen that from the same root **tor*, **tar* derive the Gaelic terms, *tora* and *tarachair* (Irish *tarachair*), augur, soothsayer, seer, who interprets omens, which as the first meaning have 'drill', 'gimlet'. The metaphor of the piercing eye also exists in the Italian expression 'penetrating glance' and in the English expression 'gimlet eye', where gimlet actually indicates the gimlet, a small hand tool to make holes in a piece of wood. We may think, as I have already said, that the seer 'pierces' the veil of mystery to draw auspices and interpret omens: the seer, the augur, 'passes through' this reality and penetrates the divine one.

The tradition linked to Mount Antare is such that I prefer the latter meaning, although the former cannot be completely excluded, since the ancients had an unbridled passion for riddles and puns. Moreover, in the name Antare we do not know what is the length of the vowels, so important in ancient Celtic, as Delamarre (2003: 10) recalls, therefore recommending to look also at the context (e.g. it is probable that the name Sego-latis means Hero [*latis*, long vowel] of Victory [*sego*] and not Swamp [*latis*, short vowel] of Victory). So it is possible that 'antare' may mean both 'a large pile of stones' and Great Seer. In the latter case we would have *An-* (great) + *tare* (seer, augur). At the foot of Mount Altare in locality Salsa, there are also some thermal springs that have always had a religious importance, given their relationship both with health and with the nether regions (and here the term *anderos*, infero, chtonio, should be remembered). On the Collo Maledicto the presence of a Venetic sanctuary was dedicated to a divinity bearer of health, but also with warrior implications, judging by the figurines of the offerers.

Summing up, Arnosti (1993), as we have seen, writes that the lower half of a bronze figurine was collected on Mt. Altare, with the vulvar rhyme clearly evident. The ithyphallic figurines and other finds show one of the aspects of the personality of the tutelary deity, as patron of femininity and health. On Mount Altare there is a small cave called "Buss dela Vècia" (The Old Woman's Hole), which was probably a deity a sanctuary was dedicated to by the ancient inhabitants of the area. Among the votive finds of the Venetic-Roman sanctuary there are unusual bronze laminas temporarily identified as 'sortes' which could also have an oracular meaning. Moreover, we have seen that from the root **tor*, 'perforate', which Delamarre considers the most economical explanation for the theonym Toranus <Tonarus (Taranis) and the words of the Celtic languages for 'thunder', it derive the meaning of 'seer, augur'. Is it possible that the name Great Seer is an appellation of a thunder god similar to Toranus <Tonarus (Taranis), revered by warriors, who even came from Norico to honor him? Yet Arnosti says that divinity would be the patron of femininity and health. Is She/He the Great Seer? Arnosti himself writes that on some irregular quadrangle and tapered downwards laminas there is a strange punching with a more pronounced double decorative element, usually two cup marks of unknown meaning, but which is assumed to be connected to a double personality of the deity. The presence of an iron writing stylus and the so-called 'sortes' may also suggest an oracular divinity.

The Collo Maledicto, as the highest part of Mount Altare should be called, takes us to the dawn of the Cenedese civilization, with the very recent discovery, right on the top, of an extraordinary staircase, formed by 43 steps of rocky conglomerate, which between the sixth century BC and the 4th century AD led to the 'temple of cleromancers', a site (frequented for a millennium) where some popular oracles through the 'sortes', that is wooden/metal objects, gave responses to future events. The staircase, dating back to the sixth century BC, if it were contemporary with the archaeological finds found on site at the end of the 1980s, would confirm what local historians have been saying for some time, namely that on Mount Altare (or Antares) there is the oldest cleromancy site in Italy (Da Rold 2020:1).

In summary, the deity of Mt. Altare appears with a contradictory, but rather specialized personality, and the sanctuary seems mainly connected with the urbanization of Ceneda '. It is worth remembering, however, that if the deity of Mount Altare is connected with the urban settlement of Ceneda, as Arnosti believes, then it is also strongly connected with the population of Ceneda, which is a Celtic toponym.

If we accept Arnosti's hypothesis, that is, that we are faced with a dual deity, who appears in the relatively near Venetic sanctuary of Villa di Villa, then the contradictory personality of the god/dess of Mount Antare could be explained by the fact that in reality the deities are two. One could be a Venetic god of the storm and thunder that the Celts identified with Toranus / Tanarus / Taranis and the

other a goddess who might have the characteristics of an Irish Morrigan (the Holy Cow healing the wounded warriors and accompanying those who died in the Beyond, Mother of the Battlefield and Warrior goddess of prophecy), Bride or Brigit (the sacred White Sow, goddess of domesticated fertility, prophetic / poetic inspiration, health and metallurgy, who presides over the perpetual fire; coins were thrown to her in the sources of healing waters). Both Morrigan and Brigit are triple goddesses. The Indo-European solar goddess, the Goddess of Dawn (Ousa, Eos, Aurora, etc.), in Celtic environment evolves, among others, into Brigit / Bride / Brigantia, etc., born exactly at dawn, together with the sun, with sunrays coming out of her head; in Scotland and England she was associated with the cult of the swan until the 17th century in popular religiosity. She was a goddess of war and childbirth, a relation we can found in many cultures around the world. If the Veneti seemed to Polybius so similar to the Celts, apart from the language, it is perhaps possible to imagine that they had similar uses.

In Corbridge, Northumberland, the goddess called Brigantia is connected with Jupiter as his consort, therefore with a warrior god of the sky. In continental Europe the evidence is scarce: in France there are inscriptions to Brigindo and Brigindona, which are considered representations of the same insular goddess. In addition to the Brigands, tribes of Celtic Britain protected by Brigantia (who is also the goddess of the Brent River), we also have the Brigade tribe of Central Raetia, whose capital Brigantium Raetiae, located on the eastern bank of the Brigantinus Lacus is now known as Bregentz on Lake Constance in Austrian Tyrol (Roman Raetia). It is interesting that this is also the location where a *defixion* or curse tablet was found which invokes Ogmios (god with aspects of Hermes and Heracles) and also names Dis Pater, a fact that indicates that there is a strong relationship between the Gaulish Brigantia, Ogmios and Dis Pater, similar to that between the Irish Brigid, Dagda and Ogma. In northern Britain the goddess is depicted not with a wheel, but with a globe. However, Saint Brigid is also depicted with solar straw wheels similar to counterclockwise swastikas which are interpreted as solar wheels, the crosses of Saint Brigid. Brigid's feast is February 1st, Imbolc, while Saint Brigid's day is February 2nd, the Candlemas (candles are one of the symbols of the Celtic goddess).

It is quite possible that the female divinity who prophesized from the 'Buss dea Vecia' and healed through the thermal waters that reached up to 200 meters on Mount Antare was a Venetic version of Brigit / Morrigan, just as the god of the storm could be a local Venetic version of Taranis, god of the Heaven and the Storm / Thunder, whose symbol is the solar wheel, which appears in the iconography of Saint Augusta. We should not forget that Augusta - and Cita - are also connected with childbirth, and therefore with dawn: if we consider also Augusta's mother, we may consider the merging of two traditions: the Venetic dual goddess and the Celtic triple goddess, which were later Romanized and Christianized. One must not forget the meaning of Brigid, eminent, high, and that of Augusta, great, noble, or shining, are very similar. Delamarre (2003:87) writes that the name of the Irish saint Brigid derives from the Gaulish/ Goidelic adjective **brigenti*, the eminent, the noble, and is a late personification of the ancient goddess of Dawn. According to Matasović (2009: 78–79) and Mallory and Adams, (1997:269), the name is derived from the Proto-Celtic name **Brigantī* and means The High One, cognate with the Old Irish name Brigid, the Old High German personal name Burgunt, the Sanskrit word *Bṛhat* High, an epithet of the Hindu dawn goddess Ushas, and Avestan *bərəzaitī*. The ultimate source is the Proto-Indo-European **bʰr̥ǵʰéntih₂* (feminine form of **bʰérǵʰonts*, high), derived from the root **bʰerǵʰ-* to rise.

The nearby Rhaetian populations were also heavily influenced by Celtic penetration, such as the Swiss Raetians from Bregentz, where an eponymous goddess appears with characteristics similar to those of the Mount Antare' deity. On the other hand, we also have a similar situation in the Vicenza foothills: the Reti of Magrè had as their neighbors people living in a town with the clear Celtic name of Breganze.

The Celtic god of the stormy sky is sometimes identified with Jupiter (Jupiter Tanarus, Jupiter Taranis / Taranucus) and Dis pater / Pluto (both in the Scholia of Bern), a fact that would make the mysterious Jupiter Anderon / Jupiter Chthonius of the *Corpus Inscriptionum Latinarum* even more transparent. Although the sanctuary on the Collo Maledicto of Mount Antares was dedicated to a deity or pair of deities belonging to the Venetic populations of the foothills around the current town of Vittorio Veneto, it was renowned enough to be visited by Celtic or Celticized populations who lived in the area and also by merchants and transalpine warriors from Norico (Austria). As Arnosti (1993) writes, there were two very important flow lines: the first in the south-north direction, a very direct route of penetration in the Alps up to the Norico valleys, on the Ceneda-Mel-Cavarzano (BL)-Cadore-Lothen (BZ) route, which was already indicated by the oldest Hallstattian-derived torques, with a hedgehog termination and herringbone decoration, present both in Ceneda and in Lothen, the other in the east-west direction, along the foothills north of the karst springs' line, on the Tagliamento-Vivaro-Polcenigo-Ceneda-Mountbelluna-Brenta route. These routes, to and from Norico, were confirmed by the diffusion of the silver oboli coins with the cross of the Tectosages tribe, living in the Drava and Gail valley, up to the sanctuary of Mount Altare above Ceneda. These so-called '*Volcae Tectosages*' are almost unknown in the Venetic area and documented in a consistent number in the extreme Venetic-Celtic station of Gurina in Austria; some specimens were collected in Lagole di Cadore, Moggio Udinese and Casteiraimondo near Forgaria in Friuli.

Conclusion

During the Iron Age the area around Vittorio Veneto was a frontier where Veneti, Celts and Raetians met and clashed. At the time of the Roman Empire the area was crossed by roads, among them the Via Augusta Altinate, connecting Norico with Altino on the Adriatic coast, and the local populations Romanized their cultures and became Roman citizens. In Late Antiquity the Romanized peoples of the Triveneto bore the brunt of the new peoples, most of them speaking Germanic languages, who crossed the Roman limes, Visigoths, Ostrogoths, Alemanni, Lombards, Franks, etc., and in time became denizens of new political entities.

In the area a number of medieval ruins of castles or towers are named after a fictional character, Matruk/Matruc/Matrucco. We do not know exactly when the legend of St. Augusta was born, but there is evidence of her cult in the Middle Ages, and in full swing Counter-Reformation archbishop Minuccio de' Minucci wrote the hagiography of Saint Augusta. Minucci and later writers supported the opinion that Augusta and her father Matruk, the villain of the story, belonged to a Germanic-speaking people, either the Visigoths or the Alemanni, because in the Counter-Reformation period most Protestants spoke Germanic languages such as German, English and Dutch. Therefore, a nefarious heathen Germanic king martyrizing his Christian daughter was a good piece of propaganda.

An analysis of the legend of St. Augusta and King Matruk, however, convinced me that Augusta and Matruk belong to the much older Venetic and Celtic layers, which left us a number of toponyms as well as sanctuaries in the area. Augusta's Christian feasts, on March 27th and August 22nd, occur in a period when a number of both Venetic-Celtic and Roman festivals occurred, most of them related to the agricultural cycle. On the other hand, the 'torture' of the saint is also modeled on agricultural symbolism, and her prominent symbol of martyrdom, the wheel, is typically solar and seasonal. The wheel is also a symbol of an important Celtic goddess, Brigit/Brigantia; her name means the Eminent, the High One, and she is associated with spring, fertility and fire as well as healing, poetry/magic and birth. Augusta's name also means the Eminent, the Noble or the Great, and is related to growth, light and prophesy. She appears strictly connected with an older woman, her nurse Cita, whose name means

'wood, forest, forested hill'; hence we can identify a dual goddess, young virgin Augusta and older nurturing Cita, typical of the Venetic-Celtic cultures (a triple goddess if we count Augusta's mother, connected with birth), belonging to an older layer of tradition, still lurking under the Christian veneer.

Matruk's name, on the other hand, indicates a Celtic origin (the Celtic word *matus*) and a bear god; he seems the local version of one of the most important Celtic gods, the light/sun god Lugh, a priestly and military god (hence his relation with fortified towers), who was also related to the agricultural cycle in the form of wheat. In Gaul one of his Romanized forms was *Mercurius-Artaios* (Mercury-Bear). The bear is an animal that symbolizes royalty well before the lion, so it is obvious that Matruk actually is King Bear.

There are aspects of the landscape that are also connected with Matruk and Augusta, such as the 'mounts' Prai di Fregona, Mt. St. Augusta, and Mount Altare/Antare. The last one, in particular, was a Venetic sanctuary, which has evidence of ancient cults related to healing and prophesying and was visited by worshippers belonging to different peoples, Veneti, Celts, Romans. The name and the tradition of the so called Collo Maledicto (Cursed Hill) points out to a Venetic dual deity, as well as to the Celtic god of the stormy sky, Taranis, sometimes identified with Jupiter Anderon and Chthonius and Dis Pater by the Romans.

In sum, in the area of Ceneda and Serravalle, we have a multi-layered tradition of remarkable antiquity, which shows the merging of Venetic, Celtic and Roman traditions in a border territory, as well as their continuation in both the Christian hagiographic legend and Saint Augusta's cult.

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Pictures

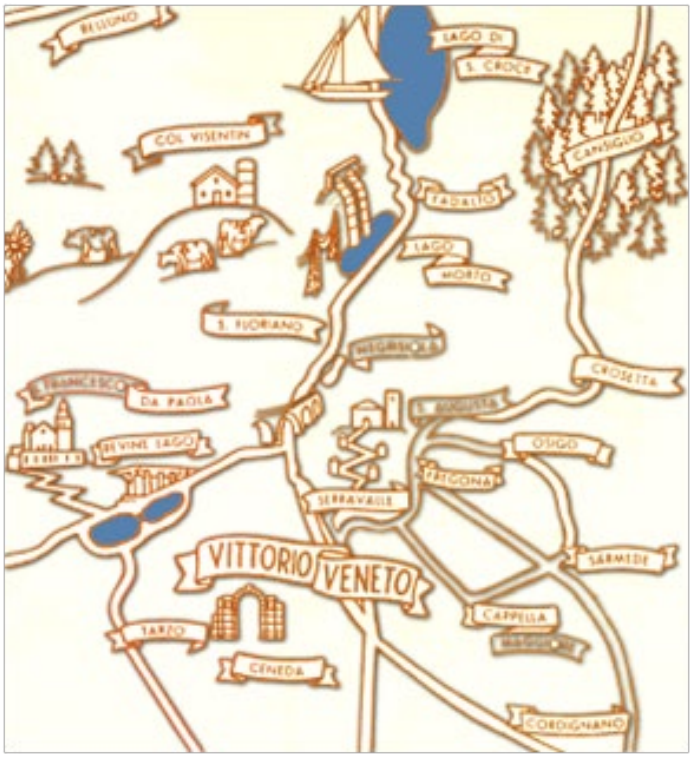

Fig. 1 - The area of Vittorio Veneto (TV).

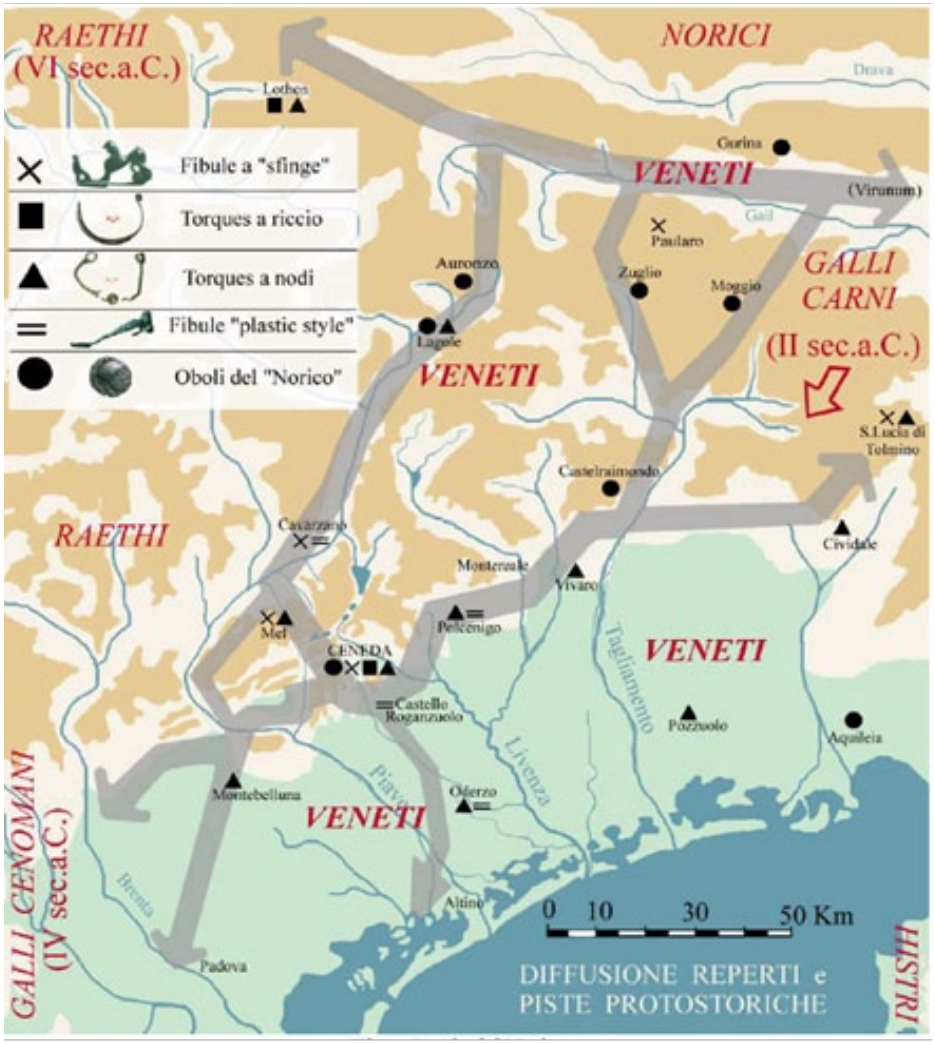

Fig 2 - The ancient roads to Norico, sanctuaries and offerings. From Arnosti G. 1993. Reperti votivi e santuari paleoveneti nell'Alto Cenedese, in Il Flaminio 6:55-82.

Fig. 3 - Saint Augusta, wooden sculpture.

Fig.4 - Mount Altare/Antare

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The adolescent basketball player: the importance of some anthropometric characteristics for speed, resistance, power and agility

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KEYWORDS

basketball, adolescents, anthropometry, athletic tests.

ABSTRACT

Given the paucity of data in relevant literature on the relationships existing between anthropometry and performance in adolescent basketball players (BP), we investigated on 64 adolescent BP aged 13/17 years old belonging to two provincial and élite Italian teams. They were subdivided into under-14 (U-14) and under-17 (U-17) subjects. Body composition and somatotypes were ascertained, together with speed, resistance, power and agility tests. In both U-14 élite and province sub-groups differences emerged for most of the parameters considered, while the U-17 sub-groups did not display a similar neat differentiation. Age appeared to be positively correlated with the athletic tests; stature positively correlated with VO_2 max and speed tests but negatively with agility, while weight appeared not to influence the tests. Skinfolds resulted to be negatively correlated with VO_2 max and jumps, but positively with speed and agility. Fat mass resulted to be positively correlated with speed and agility and negatively with jumps. Body density appeared to be positively correlated with jumps and resistance and negatively with VO_2 max, speed and agility. As the latter aspect (together with strength and power) appears to be an important predictor for success in BP performance, the present small investigation should be improved and more accurately verified.

Introduction

Basketball is a very popular sporting activity requiring a variety of movements. During this physiologically intermittent sporting activity in fact, athletes must cover 4500 meters and must run, dribble, jump and perform stuffing of position (McInnes, Carlson & McKenna, 1995). To reach excellent performance this endurance game requires physical characteristics often highlighted in relevant literature, which reports a number of anthropometric variables associated to endurance performance. They range, in fact, from height, weight, BMI, fat, total skinfolds, but also thickness of lower limbs, length of the upper legs, thigh girth and length of the limbs (Koley, Singh & Satinder, 2011; Visnapuu & Jürimäe T., 2008). The optimal combination of characteristics needed to reach success (i.e.: body size, physique, technical skills and motor abilities) are difficult to be assessed in young athletes (Vaeyens et al., 2008). They are a source of investigations whose approaches are often multivariate (Guimarães et al., 2019). The anthropometric approach is usually focused not only on bodily measures (height, sitting height, weight, arm span, upper and lower limbs lengths), but also on somatotype and body composition assessments (Coelo et al., 2010). Usually, in fact, young BP are taller and heavier than their peers and show a high degree of fat-free mass and show greater hands then their equal in age subjects (Hoare, 2000; Torres-Unda et al., 2013). During adolescence

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biological maturation is highly variable and this appears to affect the training experience, as shown by te Wierike et al. (2015) and Ramos et al. (2018). However, as shown by Beunen & Malina (2008), anthropometrical and physiological differences tend to disappear during growth, therefore technical skills appear to be important for selection in order to correctly identify the position in a team (te Wierike et al., 2015; Karalejič, Jakoviljevič & Macura, 2011). Other components are important, as they are connected to somatotype, physique and general aspect. Just to mention two of them, interesting are old data from two cohorts of BP aged from 13.1 to 13.6 years old subdivided into amateurs and "professionals", who showed a greater maturity level than the same-age control group (mainly due to selection which requires higher stature and early maturers - Viviani, Lavazza & Grassivaro Gallo, 1994). The "professional" sub-group, more prone to the pressures and expectancies of their professional environment and those of the opponent teams, desired a wider body than the control group and their amateur colleagues. The latter, because of their lower level, probably did not match their strength against the tall and stout opponents in the rival teams, so they did not desire a wider body. In another study (Viviani et al., 1991) was found that BP males have a greater self-evaluation of their motor competence than BP females, that their motor self-efficacy is highly correlated to self-concept and that the excess of weight negatively influence personal self-evaluation. The aim of the present survey was mainly descriptive and comparative. We in fact collected data from 4 male basketball teams (under 14 years old – U-14 and under 17 y.o – U-17) participating in two different categories (élite and province). We evaluated their body composition, somatotype, and some physical tests connected to speed, resistance, power and agility. This in order to gain insights useful to better direct these young athletes in their sporting practice (choice of roles, physical characteristics to be achieved, types of training to be proposed and so on).

Materials and methods

Subjects were 64 boys aged 13-17 belonging to 4 different teams. 18 of them belonged to an *èlite* team (average age in months=164.9±3.7), 16 to a province team (aged 163.1±5.5 months); 13 of them to an *èlite* team (age=199.2±3,3) and 17 to a province team (age=187.8±9,9). All anthropometric measurements were taken according to the protocols of the Working Group on Kinanthropometry (Ross & Marfell-Jones, 1995) and Lohmann, Roche & Martorell's Instructions (1992). The anthropometric equipment included height and weight scales, a small sliding caliper, a flexible steel tape measure and an Holtain caliper (Holtain Ltd., Crymych, UK). Somatotypes were collected using Carter & Heath's instructions adjusted for children (1990, pages: 367-384). The Body Mass Index BMI (weight/stature^2) and the Height-Weight Ratio HWR (stature/cubic root of weight) were calculated. Body composition was estimated, to calculate body density, using the sum of triceps, subscapular and abdominal skinfolds. Then we estimated the percentage of body fat (FAT%), the Fat Mass (FM) and the Fat Free Mass (FFM) of our athletes (Brozek et al, 1973; Lohman, 1980). As the use of these generalized equations could over- or underestimate the percentage of body fat (because the skinfold equations vary with maturation level), we used the 13-17 years old male population-specific model conversion proposed by Heyward & Wagner (2004). Then, as according to Drinkwater, Pyne and McKenna (2008), that recommend a careful selection of tests for BP to ascertain resistance, we utilized the Léger's test (Multistage 20-m. shuttle-run test for aerobic fitness, 1988), which permits to ascertain the maximal consumption of oxygen (ml/kg/min) (Léger & Lambert, 1982, Fig. 1).

As recently shown in Mayorga-Vega, Aguilar-Soto & Viciana's meta-analysis (2015), even if the validity (criterion-related) of the Leger's protocol is statistically higher for adults, it is not bad for children as r_p = 0.78 (0.72-0.85). For the assessment of leg muscular mechanics and power, we used the Bosco's test with Erdo tester connected, to measure the time of the jump (Bosco & Viitsalo, 1982; Bosco, 1992). As Mancha-Triguero et al.'s (2019) systematic review showed that speed and agility are

the less studied qualities in BP, we decided to investigate these two aspects. For speed, that recently Ramos et al. (2020) showed to be important for BP male adolescents, the subjects were tested on three different length tests: 9 meters, 18 meters - change of direction – 9 meters. The agility test was administered many times, in order to gain a reliable average score. Fig. 2 shows how it has been performed.

We used standard descriptive statistics for measures and derived variables. A two-ways ANOVA was carried out to compare the subgroups. Pearson's correlation coefficients were applied to establish the relationships among the variables measured. The Statistical Package for Social Science, version 17.0, was used to analyse data.

Results

The main results found for the 4 sub-groups are shown in table 1.

Table 1 – Main characteristics of the four sub-groups of BP.

U-14 élite	N	Mean	SD	Min	Max
Age (months)	18	164,96	3,69	158,90	170,50
Weight (kg)	18	54,99	8,64	40,00	70,50
Height (cm)	18	165,97	9,52	154,50	182,00
Chest circumference	18	80,82	5,41	71,20	90,00
Upper arm girth	18	23,82	2,04	19,20	26,60
Calf circumference	18	33,88	2,25	29,50	36,90
Biepicondylar breadth of the femur	18	7,90	0,65	6,10	8,90
Biepicondylar breadth of the humerus	18	6,50	0,89	5,30	9,60
Triceps skinfold	18	10,83	3,71	6,40	20,40
Subscapulr skinfold	18	7,60	2,78	5,20	14,20
Supraspinale skinfold	18	12,94	4,26	7,00	21,00
Abdominal skinfold	18	12,70	4,92	6,20	27,60
BMI	18	19,86	1,70	16.44	22,52
HWR	18	43,77	1,35	41,46	45,82
Endomorphism	18	3,18	0,88	1,89	5,52
Mesomorphism	18	2,81	1,24	0,49	6,14
Ectomorphism	18	3,45	0,99	1,77	4,96
% Fat	18	11,80	3,03	7,75	20,98
Fat mass	18	6,58	2,20	3,62	11,39
Fat free mass	18	48,41	7,18	35,68	61,73
VO_2 Max	18	44,43	3,07	40,25	49,00
U-14 province	N	Mean	SD	Min	Max
Age (months)	16	163,09	5,52	149,70	170,30
Weight (kg)	16	63,52	12,74	42,60	87,70
Height (cm)	16	168,04	9,05	153,30	186,50
Chest circumference	16	85,70	6,81	71,20	99,50
Upper arm girth	16	27,08	3,64	20,80	33,10
Calf circumference	16	36,16	2,99	31,20	42,20

Biepicondylar breadth of the femur	16	8,13	0,82	6,20	9,20
Biepicondylar breadth of the humerus	16	6,49	0,35	5,90	7,10
Triceps skinfold	16	16,55	6,90	5,80	29,60
Subscapulr skinfold	16	10,95	5,60	4,40	20,80
Supraspinale skinfold	16	19,26	8,17	6,80	30,40
Abdominal skinfold	16	15,54	4,58	8,60	22,00
BMI	16	22,43	3,76	16,18	29,00
HWR	16	42,38	2,47	38,43	48,12
Endomorphism	16	4,38	1,54	1,57	6,44
Mesomorphism	16	3,54	1,61	0,01	5,79
Ectomorphism	16	2,54	1,66	0,16	6,64
%FAT	16	15,37	4,67	8,61	23,91
Fat Mass	16	10,23	5,01	4,01	20,97
Fat free Mass	16	53,28	8,20	38,59	69,63
VO_2 Max	16	40,03	2,63	36,75	43,75
U-17 élite	N	Mean	SD	Min	Max
Age (months)	13	199,19	3,33	195,00	206,10
Weight (kg)	13	72,45	9,85	57,00	95,30
Height (cm)	13	182,77	4,71	173,00	189,00
Chest circumference	13	90,61	5,26	80,50	100,80
Upper arm girth	13	27,28	2,77	21,90	32,20
Calf circumference	13	37,15	2,78	32,70	42,30
Biepicondylar breadth of the femur	13	8,51	0,23	8,00	8,70
Biepicondylar breadth of the humerus	13	7,04	0,38	6,50	7,80
Triceps skinfold	13	11,37	4,41	5,60	21,20
Subscapulr skinfold	13	9,15	3,23	5,20	15,40
Supraspinale skinfold	13	16,52	8,90	7,20	36,40
Abdominal skinfold	13	14,26	6,59	8,00	28,20
BMI	13	21,69	2,77	16,84	26,68
HWR	13	43,99	2,00	41,32	47,81
Endomorphism	13	3,34	1,34	1,67	5,88
Mesomorphism	13	2,60	1,29	0,34	4,56
Ectomorphism	13	3,62	1,47	1,67	6,42
%FAT	13	12,90	4,03	8,43	21,86
Fat Mass	13	9,66	4,41	4,98	20,83
Fat free Mass	13	62,79	6,00	52,02	74,47
VO_2 Max	13	49,00	3,28	43,75	54,25

U-17 province	N	Mean	SD	Min	Max
Age (months)	17	187,84	9,94	171,60	202,10
Weight (kg)	17	65,18	10,35	47,00	89,50
Height (cm)	17	175,14	6,97	166,00	186,00
Chest circumference	17	88,84	6,91	76,80	107,00

Upper arm girth	17	26,81	3,23	22,00	36,30
Calf circumference	17	36,95	3,23	31,80	43,80
Biepicondylar breadth of the femur	17	8,25	0,50	7,30	8,80
Biepicondylar breadth of the humerus	17	6,71	0,42	6,10	7,40
Triceps skinfold	17	11,29	4,61	5,60	22,60
Subscapulr skinfold	17	9,49	3,33	5,80	17,80
Supraspinale skinfold	17	15,79	6,02	8,00	30,60
Abdominal skinfold	17	14,02	4,98	7,80	27,60
BMI	17	21,21	2,84	16,85	25,87
HWR	17	43,70	2,00	40,78	46,92
Endomorphism	17	3,49	1,08	1,81	5,84
Mesomorphism	17	3,05	1,22	0,79	5,22
Ectomorphism	17	3,41	1,47	1,27	5,76
%FAT	17	12,91	3,54	8,55	22,80
Fat Mass	17	8,72	3,87	4,02	20,41
Fat free Mass	17	56,46	6,91	42,98	69,09
VO_2 Max	17	44,57	2,97	38,50	52,50

In the U-14 sub-groups, between the two categories of athletes (*élite* and province), differences emerged for all the parameters analysed (in general: $p<.05$), apart stature and FFM. Greater differences ($p<.01$) were found for most of the skinfolds, the somatotype components and agility, jumps, VO_2 max and fat mass. The two U-17 sub-groups showed a neat difference from the previous age group, as significant differences emerged only for: stature ($p<.05$), VO_2 max ($p<.01$), agility ($p<.01$) and FFM ($p<.05$). Regarding the somatotypes, the under 14 (province sub-group) tended towards an endomorph-mesomorphic physique, the under 17 (province subgroup) resulted to be central, while the two *èlite* subgroups tended to be ectomoph-mesomorphs (Fig. 3).

We found a positive correlation between age and athletic tests (r was always higher than .05 for VO_2 max and jumps - $p<.01$). Stature appears positively correlated with VO_2 max ($r=.36$, $p<.01$); speed tests ($r=.25$, $p<.05$) and negatively correlated with agility ($r=-.39$, $p<.01$). Weight does not appear to influence the athletic tests. Circumferences and body diameters did not show significant correlations, while the four skinfolds highlighted negative correlations with VO_2 max and jumps ($p<.01$), and positive correlations for speed and agility ($p<.01$). Regarding body density, a positive correlation was found for jumps and resistance ($p<.01$), conversely, for speed and agility, the correlation resulted to be negative ($p<.01$). Fat mass resulted to be significantly and negatively correlated with jumps ($p<.01$), while for speed and agility it showed to be positively correlated ($p<.01$). This happened also with the Léger's test ($p<.05$).

Discussion

Basketball is a very dynamic sporting activity as, in a nutshell, it requires to move at high speed while changing directions. The game demands during all the context require a certain level of endurance, therefore, a moderately body composition should be maintained while strength, power and agility mut be improved to reach success, depending on the position in the team, even if the latter has not the same importance found in other sports like football (Ransone, 2017). If a lower height, body mass and body Fat% is usually requested for guards (Sallet et al., 2005), forwards and centers show high stature and weight, and higher values of body fat. In this context good predictors

of BP performance are power, strength and agility: in fact, successful athletes show higher sprint times and agility (Delextrat & Cohen, 2008). In effect, the training programmes include not only work to improve the cardiovascular base, useful to aerobic fitness, but are mainly focused on strength, agility and power development (Meckel, Gottlieb & Eliakim, 2009). Among the many characteristics that a coach is request to supervise for a balanced development of very young players (technical, tactical, motor, physiological and psychological) in the context of the individual growth, maturation, general development and the somatic build, correct anthropometric diagnoses are considered to be fundamental by many Authors (Dežman, Trninić & Dizdar, 2001; Ostojic, Mazic & Dikic, 2006; Sampaio et al., 2006; Montgomery et al., 2008; Vaquera et al., 2015). In our U-14 sub-samples, in effect, significant differences were not found only for height and FFM. These differences are mostly due to the presence, in the élite sub-group, of a coach who permits different performances during a championship. Both sub-groups of athletes were taller and heavier than the majority of the same age Italian adolescents (Cacciari et al., 2002), and the peripubertal soccer players athletes studied long time ago by Viviani, Casagrande & Toniutto (1993). Data are also congruent with those found decades ago by Viviani & Casagrande (1990) and Viviani et al. (1991). Analogous results were found for the U-17 sub-samples, indicating the fundamental role of selection (or even self-selection, for the U-14 boys). In the two U-17 sub-samples the small differences found, however, may be inconsistent with the great discrepancy present in competitive performances requested during a league, so it is possible, for this age group, that other factors such as technique, tactics and psychology play a role. For BMI and HWR comparisons were not possible due to the lack of existing Italian data. For example, a group of more than 1100 mixed Sicilian adolescents aged 13±3.1 years old, in which half of the participants were overweight or obese, showed a BMI, on average, of 21.8±3.1, quite congruent with our data (Grosso et al., 2013). For somatotype, comparisons with older data found in Italian adolescent students (n=40: 3.0-3.0-3.2; Viviani et al., 1991), revealed the tendency towards the central somatotype. Children aged 11/12 years old showed this tendency as well (3.1-3.1-3.1), not differently from a 13/15 cohort (2.9-2.9-3.3) reported by Viviani et al. (1996). Adult Italian subjects practicing moderate levels of physical training, however, revealed to be mesomorph-endomorph (n=62: 3.4-3.4-2.8; Viviani & Zanuso, 1993). Our U-17 province team (3.5-3.1-3.4) tended towards these scores more than the élite one (3.3-2.6-3.6). In another study (Viviani & Grassivaro Gallo, 1997), tennis players aged 13.5 years old (n=30: 3.5-4.1-3.5) and a group of the same age swimmers (n=30: 1.9-4.2-3.8) tended to be, respectively, mesomorphs and ectomorphic mesomorphs. Soccer players aged 13.1±0.5 years tended to be balanced mesomorphs (1.9-4.4-3.2 - Viviani, Casagrande & Toniutto, 1993). A very small sample of national level Italian BP (Viviani & Casagrande, 1990), aged 17 years old (n=11) showed the following scores: 2.4-3.3-3.3. With a stature of 188.5±6.5 and a weight of 81.7± 9.0 Kg., they were definitely taller and stouter than the present U-17 élite cohort. International relevant literature reports a huge, contrasting and confounding variety of data for young BP. Just to mention some of them, Canli (2017) found a 4.6-4.6.2.2 somatotype in Turkish boys aged 12-14 years old; Zorba et al. (1996) a 1.7-5.2-3.4; while Gryko et al (2018) reported an average 2.1-3.8-4.2 for a sample of 14.9 years old compatriots. Ayan & Erol (2016) found an ectomorphic-mesomorphy profile in the male U-15 Turkish National Team (3.0-4-0-3.6). Marta et al. (2011) found a 3.6-1.2-1.5 somatotype in Portuguese boys. Mathur et al. (1985) found an average 1.9-5.3-3.4. These unparallel findings could be ascribed to different factors, ranging from age, maturity status, level of performance, just to mention the most important among them. Some Authors claim that the in pre-pubescence the correlations exiting between body type and motor performance are generally low and limited (Marta et al., 2011), while other Authors assert, in their abstract, that "some anthropometric measures might have moderately negative influence on test results in technical skills in 14 years-old players" (Karalejič, Jakoviljevič & Macura, 2011). Therefore, to navigate in this flood of data is extremely frustrating, because of the impossibility of reliable comparisons. We must bear in mind, at this point, that endomorphy, expressing the degree of adiposity development, acts

as a limiting factor in body propulsion and lifting tasks and tends to be negatively correlated with performance in many motor tasks (Malina & Bouchard, 1991). Mesomorphy, which expresses the osteo-muscular development, therefore actively acting on strength and motor performance in general, becomes favourable in boys from early adolescence (Malina, Bouchard & Bar-Or, 2004). As it is strictly correlated with ectomorphism, the boys with good meso- and ectomorphism components show better results in most of the motor domain tests. The body linearity and muscular hypotonia expressed by the ectomorph component (Dumith et al., 2010), permits a better propulsion and lifting body tasks. More important in BP appears to be body composition and, even if a specific body composition appears not be a fundamental factor in BP to reach success, it determines the players position (Ransone, 2017). This because its strong relationships with aerobic fitness and anaerobic power. However, the paucity of data and the high variation in BP adolescents does not permit valid conclusion in this slippery aspect. As agility (the ability to move quickly and change directions), together with strength and power (that in BP results in a quick combination of speed and strength) appears to be an important predictor for basketball performance (Hofman, 2013), the correlations found in our samples are quite congruent. In our BP, in fact, jumps are negatively correlated with fat mass, speed and agility with body density, while VO_2max and jumps with the skinfolds. As age, stature and fat mass increase, they favour VO_2max, speed and agility, while the increase of body density, favouring jumps and resistance, negatively influences other aspects, such as speed and agility. Therefore, if basketball demands strength, agility and power development, but also aerobic fitness, coaches should include, in their training programs, also efforts to build a good cardiovascular base.

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Images

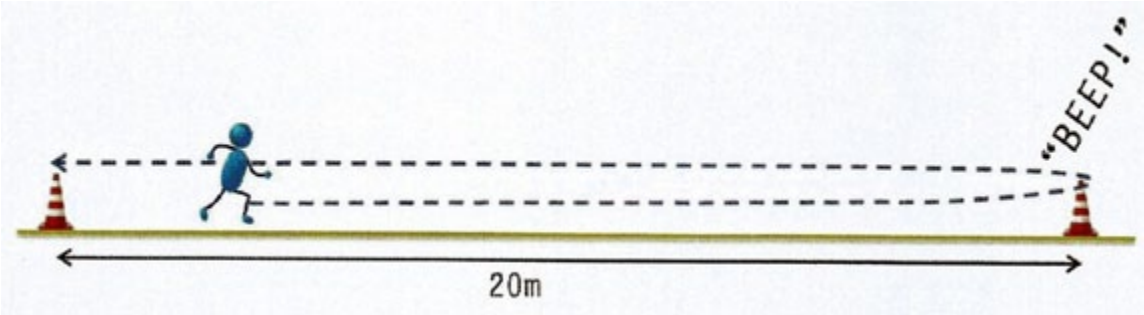


Fig. 1 – In this test subjects must travel a distance of 20 meters within a pre-set time interval. Each athlete must start running and reach the finish point within an audible warning. After that s/he will have to return to the starting point by the next sound. As the test progresses, the time interval decreases, forcing the tested subject to increase her or his speed until s/he can keep in sync with the sound recording.

*VO_2 max = 31.025 + 3.238*S – 3.248*A + 0.1536*S*A. Where: S = Final Speed (km·h-1) A = Age (yrs) (S=8 + 0.5 *last stage completed).*

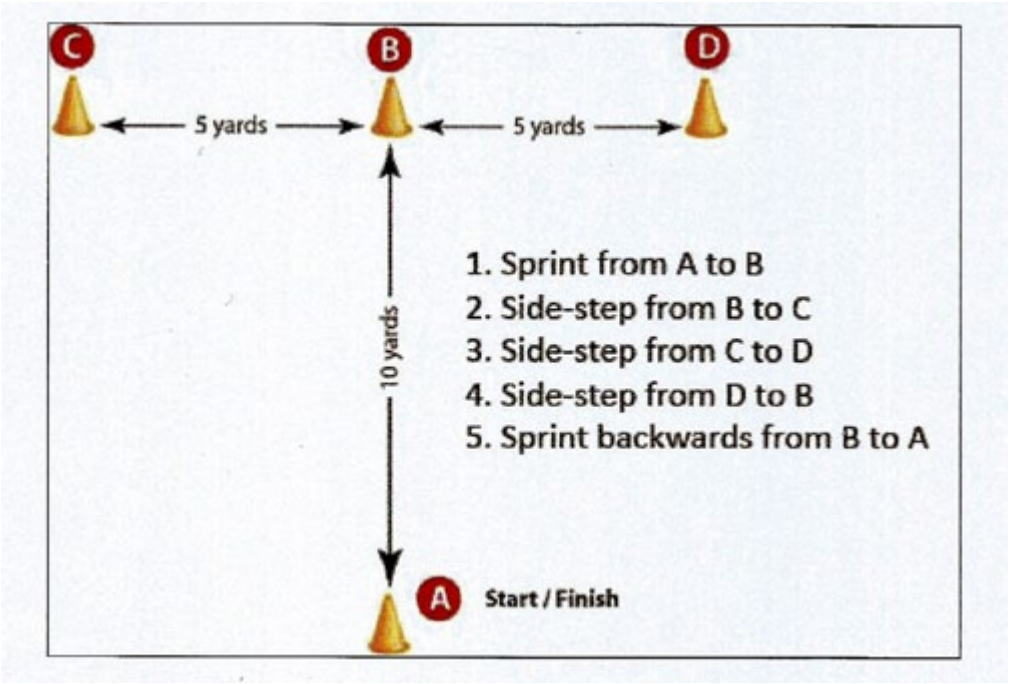
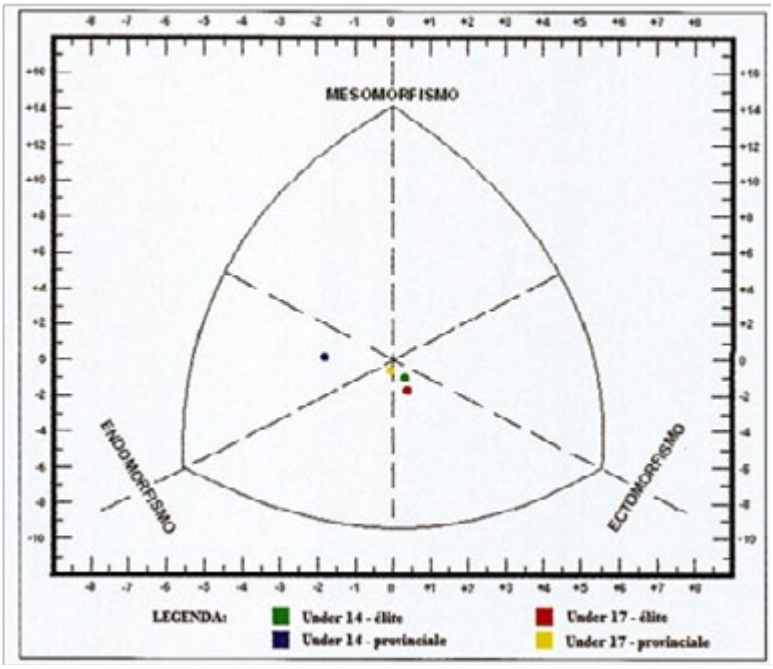


Fig. 2 – The agility test (simplified). The agility test involved a series of athletic movements functional to the game, such as running forward, running backward and sliding sideways. The latter is one of the most used movements by players in the defensive phase. For this reason, it becomes a sort of "focus of attention" during the training sessions.

Fig. 3 depicts the somato-chart showing the average somatotypes of the four sub-groups. (Somatochart of four sub-groups of Italian adolescent BP).



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Drowning Self

Staging the Charm of the Strange, the Power of the Different, the Beauty of Death

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KEYWORDS

Photography, Mermaid, Ophelia, Femininity, Corporeality, Identity, Psychological Well-Being

ABSTRACT

In (amateur) model photography, it is very popular to stage women close to or in water. This motif refers to aquatic creatures that can be distinguished into various categories: the gentle Meerjungfrau *and the dangerous* Nixe *(both translate mermaid), as well as the iconic "*Ophelia*" who is also associated with an aesthetic way of dying. This article, based on long-term participant observation and qualitative interviews, is not only about the reasons why people are fascinated by such beings, but why they want to embody them. All these figures are captivating through their beauty, but also include ambiguity. The research shows that being a mermaid or Ophelia can enable the person to articulate inner conflicts by visualizing them and acting them out. Further, it helps to overcome one's own body by taking the often challenging effort to impersonate these characters, thus to become something different. The physical effort to pose in the water adds to this effect that was described by (hobby) models as "healing".*

Introduction

Women, sitting on a rock with scaly fishtails by the seaside or peacefully sinking into a dark, romantic pond, long gowns floating on the water - this sounds like a picture taken from a fairytale and images like these enjoy great popularity within the scene of model photography in which mostly amateur models take pleasure in being staged for photographs. Why do people fancy staging images like these? Various reasons for the fascination for fairytales can be assumed, among them the way fairytales give moral teachings, fit into simple thought patterns of good and evil (especially Disney's versions, see Hastings 1993:84f.), satisfy the wish for a just world, enable catharsis and the feeling of nostalgia „nurtured by a presence that is in deficit" (Fischer 1984:217). Similarly, icons, understood different from the semiotical usage of the term as something "quintessential and exemplary" (Holt 2004:231) fascinate due to the condensation they offer and, as the etymology suggests, it is often a visual condensation that is recognized and repeated.

The historical and cultural relevance of water, as well as its omnipresence, might explain, why water has always been inspiring. Especially, the connection between water and women is very present in mythology, fairytales, literature, and painting. "Whether it is murmuring, whispering, splashing or tossing, the sound of the water stands for the voice of nature"[1] (Stuby 1992:5)—it is the voice of the imagined "Mother Earth", nurturing, caring, but also rough and difficult to tame—an ambivalence that may make it even more intriguing. However, there are three rather different water-related females

1 1 "Ob es murmelt, raunt, plätschert oder tost: Die Stimme des Wassers verkörpert den Urlaut der Natur."

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that mainly serve as an inspiration for photo shoots and that will be analysed in the following.

Research methods

This article is based on several years of participant observation within the scene of model photography, a scene that comprises several 100 000 members alone in the German-speaking areas[2]. It includes hobbyists and (semi)professionals alike, with a focus on the hobbyists. Photo shoots are often done as *tfp*= "time for pictures" which means that neither the models nor the photographers get paid but that both can use the resulting pictures for their portfolios. Thus, there is usually a high intrinsic motivation to engage in photo shoots. The roles are not fixed - some models "switch sides" and become photographers or practice photography parallel to modelling, some photographers occasionally go in front of the lens, sometimes as an ironical reflection. However, more than 90% of the models are female and there are slightly more male than female photographers. The scene connects via specific online platforms and Facebook groups, as well as real-life meetings in photo clubs or at events.

Participant observation implies taking part in the scene—in my case as a photographer—which can make it difficult to achieve the right balance between participation and the emic view on the one hand and distance and thus a more objective, external view on the other hand (see Lapassade 2007, 50, see Grutzpalk 2003, 15): viewing rather from the outside leads to observation (instead of participant observation), a too pronounced inner view makes the researcher's perspective more difficult and possibly also impedes the cultural mediation.

Therefore, 30 in-depth, semi-structured interviews in informal settings were conducted to add to the data from the participant observation and to gain more insights about opinions, values, and subjective meanings of the interviewees (see Reinders 2016:81). The strategy to combine various methods should be a "path of knowledge and extension of approaches in the collection and analysis of data" (Flick 2010:285, see also Jerrentrup 2018:25ff.). More than 90% of the models stated that being staged as a mermaid or as Ophelia would be among their favourite topics and that they had either done so already and would like to repeat it, or that it was on their to-do list.

Mermaid

The mermaid—half-woman, half-fish—is probably among the most famous hybrid creatures (for the history of anthropomorphism see Naumov 2013), the most iconical figure connected to water used e.g. by the coffee brand Starbucks, prominent in "animation films, toys and even [in] electronic-computer games some kind of 'mermaidization' syndrome is developed" (Akgün Comak and Pembecioglu 2018:156f.).

Also for the models, the mermaid is among the favourite figures to embody. Even though there are mythological male figures that are human-fish hybrids, e.g. Poseidon's son Triton or Matsya, an avatar of Lord Vishnu, it is hard to find any calls for photo shots set up by male models or photographers looking for male models to embody a merman—obviously, the species is imagined to be feminine.

The mermaid is a creature that hardly fits into categories—not fish, not human—and that carries traits of asexuality on the one hand, as she seemingly does not have any sexual organs, and on the

2 The forum "Model-kartei.de" counts more than 300 000 members, the groups on Facebook around 30 000- 40 000 members (e.g. Modelnest, Modelbox, Alternative Modelkartei).

other hand, is imagined to be a very erotic creature. She was also interpreted as similar to intersexual people: "Cultural representations of intersex subjects and mermaids have in common, throughout history, a profound anxiety of the unknown, the other-than-human, the transgressive, of that which resists bodily, speciesist and/or gendered unity by exceeding boundaries of the body and identity" (Amato 2016:192).

When it comes to the term "mermaid", the German language offers an interesting distinction that I will use in the following: There are *Meerjungfrauen*, mermaids which literally can be translate as "virgins of the sea", and "Nixen", which etymologically are traced back to the Latin term "necare" that means "to kill". Thus, there is a fundamental difference between *Meerjungfrauen* and *Nixen*, even though they are portrayed very similar or even indistinguishable, as beautiful women usually without legs and feet but with a fishtail.

Meerjungfrauen

The *Meerjungfrauen* is deeply associated with Hans Christian Andersen's fairytale that has no direct predecessor in folklore (see Mussies 2016:2) and later Walt Disney's adaption. In Andersen's tale, the Little Mermaid "is driven to the surface world by two complementary but separable impulses: a romantic/erotic desire for the handsome prince whom she rescues from drowning in a shipwreck and a moral desire, privileged in Andersen's telling, to attain a soul with the promise of an afterlife" (Hastings 1993:85). A sea hag turns her into a human in exchange for her enchanting voice. The agreement further states that she must win the love of the prince and marry him in order to obtain a soul, otherwise she would die by the dawn of the first day after his marriage without the chance to ever get a soul. The Little Mermaid's romantic desire gets frustrated as the prince marries another girl. However, she rejects the opportunity to kill the prince in order to save herself. But when the deadly sun rises, the Little Mermaid gets a second chance at immortality and becomes an ethereal spirit: "Even though the romantic/erotic narrative is frustrated, the 'higher' narrative of moral progress remains a possibility" (Hastings 1993:85, for Andersen's personal motivations see Mussies 2016:2). In the Disney movie, first released in 1989 and about to be remade, the Little Mermaid Ariel is also willing to sacrifice for true love, but the romantic fulfilment and the happy-ending are stressed. Everything evil is encapsulated in the sea witch Ursula, another hybrid character with the legs of an octopus and the upper body of a female, whereas the sea hag in Andersen's story is a minor character appearing only once.

Looking at *Meerjungfrauen* such as the Little Mermaid, one is "split between envy and pity" (Barounis 2016:192). Just as Ariel, they are imagined as rather gentle and often weak creatures, matching a common observation: "The myth that tells us of the encounter between female creatures connected to the sea or to springs and male conquerors of the sea and builders of dams represents such an imagined world, […] in categories of femininity and masculinity. In this fantasy, the feminine is imagined as the Aquatic, flowing, and the masculine as a force that restrains and channels"[3] (Stuby 1992:9). Consequently, the *Meerjungfrauen* is pictured to have classical feminine features, representing beauty and grace but also weakness and powerlessness: Ariel for example "is silent and passive" (see Mussie 2016:6).

3 "Der Mythos, der uns von der Begegnung zwischen weiblichen Meeres - und Quellwesen und männlichen Meeresbezwingern und Dämmebauern erzählt, repräsentiert eine solche, […] ausphantasierte, in Weiblichkeits- und Männlichkeitsbilder gekleidete Vorstellungswelt. Das Weibliche wird in ihr als das Aquatische, Fließende imaginiert und das Männliche als Kraft, die eindämmt und kanalisiert."

One step further one can interpret that the woman (like the sea creature) stands for nature, and the man for culture. This opposition has a long tradition in our society: "In Western patriarchal culture, both women and nonhuman nature have been devalued alongside their assumed opposites—men and civilization/ culture" (Kemmerer 2011:15). However, it is obviously wrong to imagine that people, be they men or women, can overcome nature: "Man is a creature of nature, insofar as he is his (biological) body, and he is a creature of culture, insofar he (by socialisation), has his body" (Gugutzer 2015:15). Thus, men and women, and even Meerjungfrauen can be understood as creatures of both nature and culture. The nature/culture and "man/woman dualism is used as justification for exploitative attitudes and actions of men toward women" (Mickey 2018:xx). Indeed, this dualism might be currently changing. Ecofeminism dates back to the 1970s and raises "awareness about interconnections between women's oppression and nature's domination in the attempt to liberate women and nature from unjust subordinations" (Yang 2018:3). Nowadays, in the context of increased debates about the protection of the environment, these ideas experience new relevance. The *Meerjungfrauen* then embodies an interesting link between nature and culture, and harmonisation between both.

Meerjungfrauen are imagined as enchanted creatures, usually very beautiful and graceful but they also implicit represent a tragedy: they often want to be real women but are stuck in a category in between animal and human, water and land. They do not fit in. This is e.g. exemplified in the story of Ariel who wants nothing more than to be a real woman. Here two different, tragic aspects in the *Meerjungfrau*'s status of "being in-between" can be detected: in the first place, *Meerjungfrauen* would not have a place in human society—thus the tragedy lies in the discrimination, in the behaviour of others towards them. Being different means being suspicious. Countless experiments have proven a preference for in-groups, especially famously shown in Henri Tajfel and John Turner's study about the minimal group paradigm (see Tajfel and Turner 1986). Creatures in-between human and animal might be fascinating but form an ultimate out-group. As a second tragical aspect, they cannot be what they want to be—usually human— therefore are not content with their bodily existence.

As already mentioned, *Meerjungfrauen* are weak creatures. In Disney's version, "Ariel does not have any power and ends up marrying a guy she barely knows […] so she is just trading one form of patriarchy for another" (Mussie 2016:5f.). In order to get her voice, the sea witch Ursula says: "You will have your looks, your pretty face […] The men up there don't like a lot of blabber or babble". Towbin and his colleagues interpret, that "to win the love of the prince, she must forfeit her thoughts and intellect, her independence and identity" (Towbin et al. 2008:38) and even the prince himself quickly adjusts to Ariel's lack of voice. The famous story of the mermaid is "maledriven and privilege, power, oppression, and sexual intrusion are all present within the the fairy tale as well as the film. At the same time, there is a hidden layer of LGBTQ+ traces" (Mussies 2016:8), in Andersen's motivation to write it—he had to cope with his unfulfilled love for another man—as well as in the text itself, and even in Disney's depiction of Ursula that was inspired by a famous drag queen. Thus, the *Meerjungfrauen* can also be understood as a statement about gender relations.

Nixe

The *Nixen* might look just like *Meerjungfrauen*: they are also woman-like creatures of the sea. Even though they are also imagined as beautiful and graceful, they feature very different characteristics. "She spoke to him, she sang to him, His fate became quite plain, Half drawn by her he glided in And was not seen again"[4] in Goethe's ballad "The Fisherman" (1779) the creature seems to be beautiful and beguiling but at the same time dangerous, even deadly. Again we encounter an "unsettling hybrid

4 "Sie sprach zu ihm, sie sang zu ihm … halb zog sie ihn, halb sank er hin und ward nicht mehr geseh'n"

between species" (Barounis 2016, 190): "As mythological sirens, mermaids (*Nixen*, the author) are understood to be premodern femme fatales whose feminine allure is fraught with heterosexual peril" (Barounis 2016: 190). Sirens, a specific type of female creatures of the sea, are known from Homer's Odyssee. The resourceful Ulysses wants to listen to the amazing and mesmerizing chants of these creatures but knows that they intend to knock him off course in order to kill him. So he tells his crew to plug their ears while he binds himself to the mast to enjoy the wonderful but dangerous sounds. Thus, combining the two poles of beauty and danger, sirens are understood as *Nixen*. Different from *Meerjungfrauen*, they are powerful, through their beauty (and eventually some magic) they exert power over men, and only Ulysses can trick them. It is not their physical strength, but their charisma, their charm which empowers them. Therefore, their strength only develops in the encounter with men, and, seen from another perspective, it is grounded in men's weakness.

As such, *Nixen* are similar to *Meerjungfrauen*, but another aspect is stressed - here the powerful and even aggressive - there the tragic. In both cases, the fundamental opposition "male – female" is underlying the idea of the mermaid. (See Fig. 1)

Being a mermaid

When it comes to photography, it is the recipient who is imagined to surrender to the sea creature's magic, her beauty and grace. Here the difference between *Meerjungfrauen* and *Nixe* vanishes: both share the power to fascinate and seduce, a power that is imagined to be ultimately feminine. Besides the fascination they exert, all kinds of mermaids share the uncanny. The "uncanny valley" is described as the relationship between the degree of resemblance of an object or a creature to a human and the emotional response of the recipient. Whereas people tend to like objects having human-like features, objects or creatures which can be identified as very close to humans but still not really human such as corpses, human-like robots etc. often cause unpleasant emotions. There are various explanations of this phenomenon (e.g. see MacDorman and Entezari 2015), among them the fear of the unknown and the threat toward well-established patterns of thinking. Being half-fish and half-human, the mermaid might be close to the uncanny valley, which can be used well in art, as it evokes stronger and more ambivalent feelings than just a beautiful woman. Being staged as a mermaid thus makes the model act out the feeling of "not fitting in"(see Mussie 2016, 8) and being rejected which refers "to the innocent girl having no voice heard by the others, expecting to be accepted" (Akgün Comak and Pembecioglu 2018, 164).

The combination of the beautiful upper part of the mermaid with a fishtail—something that, regarded on its own, is usually seen as rather unpleasant or even disgusting—to form an enchanting entity, can stand for an embrace of the own oddities and weaknesses. As a whole, the person can still be beautiful and maybe even due to her weaknesses special, enchanting, and powerful.

Further, there is the wish for a different body, as *Meerjungfrauen* are often driven by the wish to have legs instead of the fishtail. Therefore, many women, who wish that their body were different, can identify with mermaids and express their sorrows by playing a mermaid—an aspect that was mentioned by nearly every model that has already been staged as or would like to be staged as a mermaid. At the same time, the lack of control over the own body is overcome in the photo shot with the help of props, make-up, costume, posing, and retouching. Another aspect, connected to the already mentioned unsatisfaction with the own body, is the lack of sexuality due to the fishtail, which leaves room for psychoanalytic readings of the *Meerjungfrauen* as a creature that stands for unsatisfied wishes.

An argument that is similar to the wish to have a different body but that even exceeds it is the wish for a different type of existence. This is a more comprehensive aspect: the mermaid not only wishes to have legs but also to change her entire being, her surroundings, her life, her species. Some women who are uncomfortable in their role in society, their stage of life, or their existence can articulate this by staging themselves as mermaids. Sell interprets Ariel as striving for upward mobility trying to belong to a "better" social group, the group of humans (see Sell 1995). Thus, either one's own physical issues or questions about one's role in society were addressed by every interviewee who was interested in being staged as a mermaid. This aspect is supported in the original version of Andersen's story, in which the mermaid "remains something non-human, representing something very human" (Mussie 2016:3) which can be interpreted in the context of homosexuality, or, more general, the repression of certain groups or people by society: "The hidden message is that it's wrong for a mermaid to fall in love with a prince" (Mussie 2016:3), thus, a conservative message that prevents the overstepping of boundaries. This message can be questioned if a human being personifies a mermaid and consequently proves that it is possible to cross such boundaries.

Another aspect lies in the power that female creatures of the sea exert. It is different from that of a warrior queen as it has a more psychological touch to it, it is the power over people's, especially men's minds and emotions. This kind of power appears not only more elegant and subtle but eventually also matches the real-life experiences of the women themselves much better.

Even though both types of mermaids are associated with beguiling beauty and ultimate femininity, they lack the organs for "real" sexuality and therefore might limit the recipient's phantasy. As such, the German term *Meerjungfrauen*, literally translated as "virgin of the sea" makes sense: she must be and remain a virgin. Therefore, embodying a mermaid could also be seen as a critical approach to one's own sexuality.

Body-transcendence in Christian terms was seen in Andersen's version of the Little Mermaid, that can be interpreted in terms of "humility and redemption" (Zipes 2013:133): "Trust in God's design, and you will fare well, even if you should die" (Zipes 2013:133). The mermaid has to sacrifice her worldly body in order to gain a place in the heavens. Model photography offers a parallel, as it uses the body to actually transcend it: being staged and eventually not even recognizable any more, the model becomes rather an idea, a concept, or a symbol than just another version of herself (see Jerrentrup 2018:119).

Ophelia

Another prototypical figure connected to water and also another popular photographic topic is called "Ophelia" within the scene of staged photography.

Looking at Shakespeare's play, Ophelia inspired countless works of arts, literature, theatre plays, paintings, and movies (see Pererson and Williams 2012:1f.) and also countless interpretations. Ophelia's appearance seems to be of special importance: "Ophelia is not coached in what to say to Hamlet. Rather, she is supposed to communicate an impression by her visual appearance alone" (Gellert Lyons 1977:60) states Gellert Lyons with regard to Ophelia's meeting with Hamlet arranged by Polonius in the third act of the play. The focus on her visual appearance sounds superficial, thus, it becomes particularly ironic that her death will be "in-depth" as she will be drowning.

Gellert Lyons continues looking at the association that Ophelia's appearance evokes and states,

that it is "reminiscent of countless representation of the Virgin" (Gellert Lyons 1977:61). Obviously, Shakespeare plays with iconography, linking Ophelia to Mary as well as to the mythical, pastoral Flora. But also Ophelia herself became an icon, e.g. standing for the beauty of death.

Of course, there are far more messages that can be found in Shakespeare's Ophelia. "To view the deaths of the tragic females as victimizations by patriarchy—and no more than that—is to ignore the commentary that Shakespeare's texts make upon masculine impulses of possession, politics, and power" (Gajowski 1992:22). However, going deeper into the rich literature on Shakespear's figure seems unnecessary considering that most model and photographers staging "Ophelia" might be roughly aware of Shakespeare's story but most probably do not get any further.

Besides, more sources may have inspired the staging of a beautiful drowning or drowned girl: "The aestheticization of death in water has a long cultural-historical tradition, as does the aestheticization of drowning—and it is predominantly embodied by females"[5] (Fenske 2012:230). Among the sources that made the death in water popular in Western art and imagination is the story of an unknown corpse in the year 1900 that added to its popularity. The death mask of this young woman was displayed to the public in Paris in order to find out more about her identity. What made her famous was her beautiful and somehow content looking face, an aura of mysteriousness surrounding her. Soon, there were numerous reproductions of her mask, decorating private living rooms up to today (see Fenske 2012:232).

Even Nazi propaganda used death in the water. In their movies, it was mainly the actress Kristina Söderbaum, who played the self-abandoning woman. The Nazis glorified such self-abandonment and death, and the women portrayed by Söderbaum had to suffer loss, deprivation, and violence (see Fenske 2012:233). The dying woman stood for the life and death in the service of her nation and thus, was morally lifted up.

The woman dying in water thus can be a sign for self-abandonment, be it as resignation, as social statement, due to victimization, or as a sign of ultimate capacity for suffering.

In a more psychoanalyst point of view „the configuration of the dead lover stands for the paradox desires for a carefree approach to the female and at the same time for the desire for its elimination"[6] (Stuby 1992, 14). The corpse is not deformed as it happens in many other ways of dying but still looks very human and very beautiful. However, she cannot act anymore and therefore becomes a perfect object for (male) desire. Interpreted from this point of view, Ophelia is part of sexual phantasies playing with dominance and submissiveness. In this line of thought, her sex plays an important role, and the death in the water anyway is a kind of dying that carries feminine connotations, proven also by statistics about real suicides in water (see Fenske 2012:230).

Another interpretation looks at the ambivalence of death: "On the 'beautiful corpse', the fear of death and the desire for death can be transferred"[7] (Fenske 2012:232). Making the unthinkable look beautiful, its aestheticisation, puts worldly categories on the non-worldly, describing it with words

5 "Die Ästhetisierung des Todes im Wasser hat eine lange kulturhistorische Tradition, genauso wie die Ästhetisierung der Wasserleiche – und sie bezieht sich ganz überwiegend auf Frauen"

6 "in der Konfiguration der toten Geliebten […] der paradoxale Wunsch nachgefahrloser Annäherung an das Weibliche und der Wunsch nach seiner Eliminierung"

7 "Auf die ‚schöne Leiche' kann die Angst vor dem Tod sowie der Wunsch nach dem Tod übertragen werden"

like "dainty", "graceful", or "romantic", which might make it even seem worthwhile. Ophelia's death is imagined as tragic but also peaceful (see Fenske 2012:230). The dying women is in the water, thus is back to nature where she came from, and the circle of life can begin again as a huge Panta Rhei.

Contra to this interpretation of a harmonic death close to nature, Ophelia can also be understood as the pinnacle of decadence, as reflected in Heiner Müllers *Hamletmaschine*: "In an aestheticizing perspective, death is detached from its factuality, transformed into a literary motif, and as such gains new formal quality. It is not the death of the dead woman that matters, but the extent to which she approaches the Ophelia depiction of John Everett Millai. It does not seem important that she is dying, and what consequences this may have for the dying and her husband, but the formal and aesthetic qualities of dying"[8] (Bolterauer o. J.). It is only the surface, the façade, resulting in an extreme superficiality which has lost any other value. Ophelia as peacefully going back to nature on the one hand and being the embodiment of superficiality on the other hand - these two very different readings of Ophelia as a symbol of the aesthetic death point towards the ambivalence that constructs the entire figure: she is part of two worlds. "Moving between life and death, reason and insanity, eroticism and decadence, forced to sanctity by her male relatives and condemned by Hamlet as a whore, Ophelia is anything but stable in her identity and portrayal"[9] (Ochsner 2014:458). This seems to be a parallel to many models, who are trying to find or fix their identities.

Being Ophelia

Under the label "*Ophelia*" that is obviously taken from Shakespeare's play, women in model photography are portrayed in or close to water. They pose in a beautiful, feminine but passive way that evokes the association of sleep or even death. Often, the women are shown wearing long dresses that float on the water. As already mentioned, the ambivalence surrounding Ophelia makes her a particularly interesting subject for art. Her picture exists in the collective unconscious, yet she can be shown in various ways, placing emphasis on one or the other part.

For the models, her story offers a chance for identification: "The story of Ophelia […] shows the destructive forces that affect young women. As a girl, Ophelia is happy and free, but with adolescence she loses herself […]. She has no inner direction […] Her value is determined utterly by male approval" (Pipher and Pipher Gilliam 2019:4). Thus, the conflicts that surround Ophelia are quite typical and well-known to many models—a fact, that was confirmed in most interviews.

The self-designation "*Ophelia*" is also used by girls "who identify with the fictional character […], when trying to justify their self-destructive impulses toward anorexia, bulimia, and physical self-punishment" (Perni 2016:503, for a personal account, see Harrison 2015). In this context, Ophelia is perceived as fragile, but—from the perspective of the girls concerned—also as self-determined: she creates her body and her life in a way she wants to, even if it would be her wish to destroy herself.

8 "In ästhetisierender Perspektive wird der Tod aus seiner Faktizität losgelöst, er transformiert sich in ein literarisches Motiv und gewinnt als solches neue formale Qualität. Nicht die tote Frau als gestorbene scheint von Belang, sondern die Frage, inwieweit sie sich der Ophelia-Darstellung des John Everett Millais annähert. Nicht daß gestorben wird und welche Konsequenzen dies für die Sterbende und ihren Mann haben kann, erscheint wichtig, sondern die Frage nach den formal-ästhetischen Qualitäten des Sterbens

9 "Sich zwischen Leben und Tod, Vernunft und Wahnsinn, Erotik und Dekadenz bewegend, von ihren männlichen Verwandten zur Heiligkeit gezwungen und von Hamlet als Hure verdammt, ist Ophelia sowohl in ihrer Identität als auch in ihrer Darstellung alles andere als stabil"

Further, the countless interpretations of Ophelia seem to embody the search for identity: her picture creates attention, as it is recognizable, yet offers a blank paper that can be filled by the photography team, by their ideas and interpretations: "It leaves room for creativity", as one of the interviewees put it.

Following the psychoanalyst reading, devote fantasies might be playing a role, but often in a rather abstract way, the idea of surrendering in general or surrendering to death. It can mean a preoccupation with death, the wish to give it a try and to demystify it. Here, the connectedness to nature might come into play, but also mere aestheticisation might help to handle the inevitable. Staging Ophelia is a strong Memento Mori. Every photograph can be regarded as such and the relationship between the photograph and her photographed that has been described this way by many scholars (see e.g. Sontag 1973/2005, 11 and Blood and Cacciatore 2014), yet, Ophelia is a Memento mori in a much more obvious way. Thus, staging her serves the confrontation with death and through its aestheticization, some of its horrors might be lost. Embodying her resembles staging the own death and in a way overcoming it. The preoccupation with death was mentioned by every model who had already or wanted to model as Ophelia. (See Fig. 2 and Fig. 3)

Overcoming the body

There are more water-related creatures embodied in model photography such as nymphs who are known as minor goddesses in Greek mythology, the Celtic Melusine, and sea monsters such as Nessie. However, mermaids—*Meerjungfrauen* or *Nixen*—and Ophelias are the by far most popular in model photography which is obvious in interviews, in calls for shots both set up by models and photographers, and pictures presented on Facebook or Modelkartei.

Before a photo shot takes place, the model usually deals with the planned topic, thinks how she will embody the character, e.g. which dresses she could wear, which makeup would be appropriate, which postures suitable, and thus, builds up a projection screen in her mind.

The situation of the photo shot itself is often laced with anxiety: The photograph will keep the moment in a detailed and static way that can be disadvantageous, and anyway, it usually belongs - in the first place to the photographer, who thus gets a visual impression of the model that exceeds her self-perception by offering the chance to zoom in or to show angles the model cannot even see herself in front of the mirror (see Jerrentrup 2018:41f.). This situation cause a feeling of lack of control and requires a lot of trust. Further, both model and photographer have to communicate about the feelings to embody which often leads to an intimate conversation. Playing a role in a photo shot is often comparable to method acting, a strategy introduced by the Russian actor and film director Konstantin Stanislawski who taught his students to empathize with the role they intended to embody by finding the relevant emotions inside themselves (see Hänßler 2018). However, even if the model does not use this strategy but tries to understand the character she embodies through observation and research on it, magnetic resonance imaging shows that the same areas in the brain are activated by real emotions. A large body of research suggests that there are obvious effects on a person playing a character: "States of the body, such as postures, arm movements, and facial expressions, arise during social interaction and play central roles in social information processing", and further, "bodily states in the self produce affective states" (Barsalou et al. 2003:43). More complex and long-term relationships between values, attitudes, behaviour, and embodiment may be difficult to prove, but at least it has to be noted that playing a role makes the model feel different, eventually gracious and mysterious, eventually evil and powerful, or close to death yet beautiful. It is possible, that playing a *Meerjungfrauen*—not content with her body yet enchanting and mysterious to others—can help to develop a more positive attitude

towards her own flaws, and that playing a *Nixe* can make the individual feel powerful even though she is aware of herself being eventually different from what is usually perceived as socially desired. Embodying *Ophelia* may help her to define her identity and to integrate the inevitable in her life. However, impersonating any of these creatures means to eventually overstep the boundaries of one's own body, to turn it into a symbol. The result is more than a beautiful picture, in which the model is still recognizable as an improved version of herself. In these pictures, she is not posing as herself but stands for something different, for one of her traits and her way of coping, or for a more general human condition.

The scenarios for photography can be implemented in different ways, among them, full photo montage is possible, but in most cases, the model will really get into the water, which can be physically and emotionally challenging. Usually, she wears long dresses that get heavy in the water or even a fishtail which impedes her movements; the location is often a pond or a lake, thus the water is cold and often full of seaweed and mud. The team might have to take a long walk carrying all the props in order to reach the location. In the case of underwater photography, modelling entail even an effort for a good swimmer. The dresses can be pulling her down, and the posing underwater with the eyes opened and a suitable face expression is quite difficult for many.

Becoming a mermaid or Ophelia thus means exploring the body's boundaries in many ways: overcoming fears, anxieties, and aversions, as well as overcoming reality's limitations by turning into a fantastic creature or, more in general, into a concept. As one model expressed it, this "can be a healing experience."

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Images

Fig. 1 - Mermaids are often depicted in a kitschy, dreamlike way. Model: Tanja. Bodypainting: Peter and Petra Tronser

Fig. 2 - As many Ophelia motifs, the model seems to be indulging and suffering at the same time. Model: Wing Sum Diana Chan.

Fi. 3 - The body underwater looks astonishingly light and gracious. Model: Ilka Kru

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Gaì: la lingua perduta dei pastori

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Gaì, gergo, jargon, pastorizia, Valcamonica, Alpi

ABSTRACT

The present paper endeavour to explore the sociolinguistic charateristics of gaì, a local jargon spoken by some pastoral communities on Italian Alps, untill mid/late XX century. The article first tackles the classification of gaì as a class language, and identifies its affinity with other local and foreign jargons. After a brief description of gaì's main linguistic features, the article proceeds by locating its socio-anthropological roots in the relations between shepherds, farmers and miners. Lastly, the article proposes a non-linguistic research on the origins of gaì, with a focus on the introduction of enclosures in Valcamonica.

Con il declino della pastorizia transumante nell'arco alpino, si è assistito alla graduale ma irreversibile scomparsa di quelle forme di linguaggio con cui comunicava il mondo pastorale fino al secolo scorso. Tra questi gerghi o, come li definisce Sanga, "lingue diverse", un posto di spicco è occupato dal gaì, la lingua dei pastori delle valli bresciane e bergamasche. Parlato principalmente tra Valcamonica, Valseriana e Valsaviore, si è costituito lingua franca dagli alpeggi ai ricoveri invernali delle greggi, fino alle propaggini del territorio piacentino, e in alcune località di Engadina e Valtellina.

Prima di entrare nel dettaglio del gaì, si presenterà brevemente il concetto di gergo, analizzandone le caratteristiche principali così come formulate dalla letteratura accademica. Si procederà quindi con la presentazione dell'analisi linguistica prevalente del gergo dei pastori, riportando alcuni esempi di termini ed espressioni tipiche. Infine si concluderà con la formulazione di un'ipotesi sulle origini gaì, a partire dall'osservazione dei cambiamenti socioeconomici in Valcamonica tra XVI e XIX secolo.

Il gergo come lingua di classe

Le ragioni alla base della nascita e dello sviluppo di un gergo sono molteplici e complesse. A differenza di lingue e dialetti, un gergo nasce da un preciso atto cosciente e volontario all'interno di un gruppo sociale che intende mantenere le proprie comunicazioni separate e di difficile decifrabilità per l'ambiente ampio in cui è inserito (Borello 2001: 13). Gli studi sul gergo hanno proposto una lettura duale del fenomeno: come comunicazione associata a forme di marginalità sociale o quale orgogliosa manifestazione di identità. In entrambe le letture, "esorcismo dell'insicurezza o registro

della fierezza" (Lurati 1989: 7), il linguaggio gergale è spesso stato associato alla malavita, a un bisogno di segretezza per fini illeciti, trascurando la sua valenza di lingua franca. Per Sanga "Il gergo è una lingua tendenzialmente internazionale, per molti versi più simile al latino del clero che ai volgari nazionali" (Sanga 1987: 16), che permette ed è alimentata dagli scambi tra marginali di diversa provenienza, tanto da poter essere definito, "per la sua natura di contatto (*pidgin*) e del suo uso presso gruppi nomadi [...], lingua unitaria dei marginali molti secoli prima che le classi popolari uscissero dal particolarismo dialettale" (Sanga 1987: 16).

Il gergo è, per Marcel Cohen, una lingua di gruppo "piuttosto e prima che segreta, sotto l'aspetto sociale, e una formazione parassitaria sotto l'aspetto più propriamente linguistico" (in Sanga 1984: 201). Il lessico di un gergo è infatti il prodotto di un'azione intenzionale di ristrutturazione, il cui risultato è una "controlingua" o una "co-lingua". Un gergo non è infatti mai lingua madre del gergante, ma si accompagna a questa in base all'appartenenza ad un mestiere, ad un gruppo sociale o aggregativo, acquisendo pienamente il titolo di "lingua di classe" (Sanga 1984: 201). L'uso esclusivamente orale, non limitato spazialmente, con scambi continui, produce una lingua ricca e composita, con una pluralità di voci ed elementi comuni diffusi su ampie aree geografiche. Il risultato di queste continue produzioni e interazioni tra gerghi, dialetti e lingue madri smentisce la vulgata che fa del gergo un linguaggio chiuso, tanto è vero che alcune parole adottate dalla lingua italiana corrente hanno origine gergale, è il caso di termini come *sgobbare* o *monello* (Borelli 2001: 15).

Come osservato da Menarini nelle sue opere sui gerghi bolognesi, è possibile individuare un'ampia base lessicale comune tra i gerghi italiani (e in parte anche stranieri), "che si realizza in forme fonetiche diverse, poiché ogni gergo utilizza il sistema linguistico locale" (Sanga 1984: 189). Esempio di questa continuità lessicale ci viene offerto dalla resa del termine "villaggio". In classi prevalentemente caratterizzate da una vita vagabonda e ai margini della società, il paese acquisisce una caratterizzazione negativa, di trappola o asprezza. Nel *Rotwelsch* tedesco il villaggio prende il nome stesso di *Gefahr*, in tedesco "pericolo", per la cultura di piazza il villaggio è *il grillo*, termine che a Napoli indica i ceppi degli arrestati e a Manova le tagliole (Lurati, 1989: 8). In gaì la borgata è definita *riscéra* o *risséra* (Tiraboschi 1879: 19), traslando il termine del dialetto bergamasco che indica il mucchio di ricci accumulatosi sotto i castagni. Questa unitarietà del gergo dipende e disvela la rete di relazioni che intercorre all'interno di una stessa classe sociale, alimentata dagli incontri "lungo le strade, nelle osterie, negli ostelli" frutto di una vita nomade (Sanga 1984: 201).

Sulla base di queste ricerche pare dunque lecito definire il gergo come "la lingua, lessicalmente unitaria, della classe dei marginati", per cui un'analisi latamente linguistica del gergo richiede più che mai di "partire dallo studio antropologico dei gerganti" (Sanga 1989: 17). Solo infatti una conoscenza diretta dei gerganti, del loro ambiente e cultura permetterebbe la comprensione dei meccanismi alla base della formazione o dell'adozione di voci e costrutti.

Slacadùra di Tacolèr, la lingua dei pastori

Il gaì, lingua dei pastori delle valli bresciane e bergamasche, ha caratteristiche che lo portano a collocarsi a pieno titolo nella categoria ampia dei gerghi di mestiere, e dei gerghi italici più in generale. L'etimologia del termine gaì è incerta. L'ipotesi ad oggi più accreditata lo vuole di derivazione celtica, dal termine *gau*, "terra dei pastori" o "area contadina e pastorale" (Goldaniga 1995: 15). A conferma di questa lettura, in alcune zone dell'alta Valcamonica il gergo dei pastori prende il nome di *gaù*.

A livello di costruzione linguistica, è possibile identificare termini mutuati da altre lingue, spesso legati alle rotte transumanti dei pastori, e parole comuni all'*argot*, al *Rothwelsh* e ad altri gerghi furbeschi (Tiraboschi 1879: 6). Termini gaì sono talvolta comuni ad altri gerghi di mestiere delle valli vicine: al "*Calmùn* dei calderai di Lanzada in Valmalenco, [al] *Taròn* degli spazzacamini rendesi, [al] *Tarùsc* degli ombrellai ginesini, [al] *Rügin* dei magnani ticinesi, [allo] *Sciobàr* dei calzolai della Valfurva, [al] *Dubiùn* dei mercanti della Valchiavenna" (Goldaniga 1995: 15). Accanto a questi emergono voci dai dialetti bergamaschi e di Valcamonica, come *biölc* o *biolc*, il contadino di pianura, comune al dialetto di Capo di Ponte (Valcamonica). Spesso questi termini sono però intesi in gaì in senso figurato, come nel caso già discusso di *risséra*, o di *calìgen* (fuliggine) e *cornàè*[1] (cornacchia) per indicare il prete, dal colore del suo abito. L'analisi lessicale proposta da Sanga stima al 62% le voci del gaì bergamasco comuni ad altri gerghi o a lemmi dell'italiano popolare, percentuale che salirebbe intorno al 75-80% considerando i gruppi lessicali (Sanga 1984: 195). Infine si osservano onomatopee, l'utilizzo di nomi propri per nomi comuni, è il caso del termine di origine biblica *giüdéa*, che indica la borsa dei denari, e svasamenti fonici dei dialetti madre.

L'influenza dei dialetti madre è evidente nell'osservazione delle variazioni, spesso vocaliche, dello stesso termine così come registrato nell'una o nell'altra valle o della preferenza di un sinonimo su di un altro. Tiraboschi registra principalmente il gergo parlato a Parre e Rovetta, in Valseriana, evidenziando in maniera pungente lo scambio di epiteti con i pastori delle valli vicine: pigri per gli uni i pastori della Valseriana, gabbatori per gli altri quelli della Valcamonica (rispettivamente *trolì* e *petaèle*). A questi vanno aggiunti detti ed espressioni proprie del gaì: se lo *sgorler* è il sacco in cui dorme il pastore, la bella donna sarà quella da *ficà zo per ol sgorler*, da mettersi nel sacco, mentre la brutta sarà quella da buttare giù dalla rupe, *la baldra da ficà zo per ol Saplì* (Tiraboschi 1879: 22). Anche in questa espressione è evidente il forte legame con il territorio: il *Saplì* è infatti il nome dato ad una rupe nei pressi del paese di Parre.

Il gaì, al pari di altri gerghi, è caratterizzato da una spiccata mutevolezza, evidente nei confronti tra le prime raccolte di termini a fine ottocento e quelle portate avanti da Facchinetti e, più recentemente, Goldaniga, per cui sarebbe errato volerlo interpretare come un linguaggio statico. La continua produzione di nuovi termini è rilevata sempre da Tiraboschi, che testimonia come l'assenza di una voce nel vocabolario del pastore sia risolta con un atto creativo di costruzione di significato:

> *Chiesi ad uno di loro come si dicesse bacio in gergo, ed avendo egli dichiarato di non saperlo, si pose a riflettere; pochi minuti dopo soggiunse: "Mi pare a me che si potrebbe dire Sòfio; già io direi Dà ü sòfio, perché il bazio non mi pare altro che una specie di soffio." Avendogli poi chiesto il nome del braccio, rispose: "Veramente non lo ricordo; però si potrebbe dire Grepadùr." Questa volta egli aveva derivato il nome dal verbo Grepà, che significa rubare; a lui braccio e ladro erano parsi la stessa cosa.* (Tiraboschi 1879: 7).

Pastori, mangia-téra e minatori: un linguaggio di fratellanza e conflitto

La tradizione individua due principali categorie di gerganti: ambulanti e malviventi (Sanga 1984: 196), categorizzazione che pare esclude i pastori transumanti parlanti gaì (sarebbe infatti una forzatura volerli "ambulanti" ad ogni costo). Tuttavia, anche i pastori rientrano nella più ampia classe dei marginali: l'affermazione di una società agricola, stabilmente ancorata alla terra, che rappresenta il bene primario, si scontra con la "caratteristica sociologica della instabilità" e del "vagabondaggio" della pastorizia (Sanga 1984: 196), condannandola ad una emarginazione economica e sociale.

L'esistenza del gaì viene giustificata dai gerganti proprio dallo scontro tra pastori e realtà agricola delle *enclosures*: "l'agricoltore maledice il pastore, e questi trova odiosa, ingiusta l'appropriazione de'

1 *Cornàcc* in Facchinetti.

terreni: l'agricoltore custodisce e cinge il suo campo; il pastore si ride di termini, di fossi e di siepi" (Tiraboschi 1879: 6). Così registra nel 1879 il linguista bergamasco Antonio Tiraboschi, interrogando i pastori di Parre, a principio del suo lavoro di stesura del primo vocabolario di gaì:

> *"Noi, dicea [il pastore], abbiamo dovuto formarci questo linguaggio per non farci capire dai lavoratori de' campi. Un grave danno è venuto a noi dall'agricoltura! Non possiamo più vivere in nessun luogo colle nostre greggie, poiché dappertutto siamo scacciati dai mangia-téra"* (Tiraboschi, 1879: 6).

Se già la definizione di agricoltore come "mangiatore di terra" è illuminante, l'ostilità tra pastori e agricoltori emerge anche dall'osservazione di altri termini gaì. Il termine "rubare" è reso dalla voce *cainà*, nell'analisi di Tiraboschi dal nome di Caino, che fu, secondo le Scritture (Genesi 4,2), il primo a lavorare la terra[2]. Similmente viene chiamato lupo (*mosèt*) il *campajo*, la guardia dei campi (secondo Tiraboschi, termine usato in Val Cavallina).

Al contrario, e forse inaspettatamente in un contesto quale quello della Valcamonica, in cui l'estrazione del minerale di rame e di ferro ha costituito un elemento centrale nello sviluppo locale fin dal terzo millenio a. C.[3], lo stesso conflitto non trova spazio nel rapporto tra pastori e minatori. Il legame tra pastori e minatori attraversa diversi livelli di analisi. Innanzitutto, lavoro in miniera ed allevamento hanno talvolta costituito i due estremi di un "complesso integrato di attività" intraprese stagionalmente o periodicamente dagli abitanti delle valli alpine: "allevamento, miniera, bosco, artigianto ambulante" (Sanga et Viazzo 2016: 7). Questa integrazione tra allevamento e miniera è ad esempio riportata nel rapporto del 1910 sulla miniera di Cretaz a La Thuille, in Valle d'Aosta, nella quale "si lavora solo d'inverno perché d'estate gli operai preferiscono dedicarsi alla pastorizia [...]" (Sibilla 2016: 68). Un secondo elemento di vicinanza tra minatori e pastori è la comune caratterizzazione nomade, che si espleta nella transumanza per il pastore e nella migrazione per il minatore, spesso lavoratore migrante stagionale. Entrambi marginali, appartengono alla categoria dei *lingéra*[4] "gli emigranti stagionali, gli artigiani dalle eclettiche competenze capaci di grande flessibilità nel lavoro, gli operai pronti per qualsiasi mestiere, i pastori transumanti – "contro" il *bacàn*, il contadino benestante, proprietario di una certa quantità di terreni e di un numero di capi di bestiame che gli permettono una vita agiata" (Delpero 2006: 34, in Viazzo 2016: 20). Infine, la qualità di gerganti accomuna queste due categorie, legnadole nel conflitto con proprietari di terra e contadini.

Le origini del Gaì: una proposta di ricerca

È difficile individuare in un secolo preciso la nascita del gaì. Due percorsi possono essere intrapresi:

2 In una interpretazione etimologica minoritaria del gaì, dal termine *cainà* deriverebbe il termine *gavì,* da cui gaì, da intendersi come "lingua falsa" (Goldaniga: 1995: 15). Tuttavia non si ritiene questa interpretazione attendibile, sia alla luce delle vicende bibliche che vogliono Caino lavoratore del suolo, sia nell'utilizzo citato del termine *cainà* con il significato di rubare.

3 L'estrazione mineraria in Valcamonica è fatta risalire dagli studiosi al Calcolitico (III millennio a.C.), periodo in cui nelle incisioni rupestri iniziano ad apparire armi quali asce e pugnali (Cominelli, 2017: 10), mentre l'estrazione del minerale di ferro è con sicurezza attestabile al V secolo d.C. con la datazione delle gallerie più antiche della miniera di Piazzalunga (Berzo Inferiore) (Cominelli, 2017: 10). Il primo documento attestante l'estrazione del minerale di ferro in Valcamonica è il polittico di Santa Giulia, risalente al 905-906 d. C. (Menant 1987: 782), da allora la siderurgia ha avuto un crescente ruolo nell'economia della valle. Nel 1858 la Valcamonica esporta "ferro e acciajo" verso le città di Bergamo e Brescia per un valore rispettivo di 105.500 lire e di 1.020.250 lire (Rizzi 1870: 15). Nel 1870 il Sacerdote Bortolo Rizzi registra la presenza di sette forni per la fusione del minerale di ferro estratto nella valle, di cui il solo di Pisogne (BS) "dà 41 quintali di ghisa al giorno" (Rizzi 1870: 33).

4 Per un'analisi etimologica del termine si veda Sanga 1984: 262 .

una ricerca etimologica, che si concentri sulle origini delle voci e la loro compresenza in altre forme linguistiche, svolta in parte da Sanga, o un'analisi sociale, che si concentri sul passaggio da una realtà dedita alla pastorizia ad una prevalentemente agricola. Ovviamente bisognerà tenere conto che questa seconda ricerca parte dal presupposto, mutuato da una narrazione postuma dei pastori, che il gaì si sia affermato in contrapposizione all'affermazione dell'agricoltura e delle *enclosures* nelle valli alpine.

Si consideri il caso della Valcamonica. Il trimestrale L'Alba di sabato 8 Maggio 1858, occupandosi della "riunione della Valcamonica alla provincia di Brescia" ne offre un interessante quadro storico e demografico. Nel 1561, la popolazione della Valcamonica è registrata a 43 446 abitanti (anagrafe veneto), "de' quali, tra pastori, mandriani, muratori, facchini, escivano per circa 6 mesi dell'anno 2 mila" e "mandava per Iseo cinquemila montoni, tremila vitelli, tremila capretti annualmente; e delle centomila pecore che possedeva, tosava 10 mila pesi di lana". L'Alba ci presenta dunque una società cinquecentesca parzialmente transumante, con un'economia fondata sulla pastorizia e una "reciproca insufficienza di cereali [nella Valcamonica e nel territorio di Bergamo]".

Questi dati paiono trovare parziale conferma in "La coltura alpina", di Gabriele Rosa, pubblicato nel 1869, che riporta la presenza nel 1562 di centomila capi di specie ovina "forse contando anche le greggi del Tonale trentino di Vermilio, che ha ancora 10 mila pecore, e che erano 20 mila un secolo fa" (Rosa 1869: 13). Per quanto questi numeri possano quindi essere sovrastimati, restano significativamente superiori alle statistiche del 1776, che stimano i capi ovini intorno ai trentamila, a cui è necessario aggiungere quella parte di capi "migranti ed estivanti nell'Engaddina, e perché il timore delle tasse fa occultare parte del peculio" (Rosa 1869: 13). La presenza di "capi migranti ed estivanti" nell'Engadina rimarca la presenza di una comunità pastorale transumante, evidenziata già nel '500, ma con una significativa decrescita nel numero di capi. Inoltre, non è più riportata alcuna carenza nella produzione cerealicola, che sembra anche confermare un implemento delle tecniche e delle aree destinate all'agricoltura.

Il numero di capi ovini resterà pressoché costante nel secolo successivo, attestandosi nel 1869 a 34 mila capi, con un contestuale aumento demografico che porta la popolazione della valle a sessantamila unità. Tra metà XVIII e metà XIX secolo, si delinea una crescente difficoltà nella pratica della pastorizia stanziale e transumante, evidenziata dall'analisi Rosa: "Nel secolo scorso era molto più agevole la pastorizia vagante, per la grande copia de' pascoli comunali, de' luoghi incolti, e perché anche i colti non erano chiusi, dopo la messe e la falciatura, rimanevano aperti all'invasione pastorale" (Rosa 1869: 14). L'aumento demografico e la chiusura dei campi costituirono un momento cruciale nel delineare la classe dei pastori come "classe dei marginali". Il contestuale acuirsi delle tensioni tra comunità agricola e pastorale, potrebbe dunque aver dato l'avvio tra '700 e '800 alla costruzione di un nuovo gergo di pastori, o alla progressiva separazione dai dialetti locali di termini ed espressioni proprie dell'attività e della vita del pastore, in uso prima che questi si costituissero gergo. Parrebbe dunque ragionevole collocare la nascita del gaì in quanto gergo di classe, o la sua adozione in Valcamonica, all'interno di questo quadro storico-sociale.

Sebbene Goldaniga pre-dati l'utilizzo del gaì ad almeno il XVI secolo ("Si tratta di una lingua arcaica, già segnalata nel 1500", Goldaniga 1995: 16), egli non riporta le fonti su cui basa tale affermazione, né il testo cinquecentesco in cui la presenza del gaì dovrebbe essere segnalata. L'analisi dei principali testi riguardanti la valcamonica, incluso i "Curiosi trattenimenti[5]" di Gregorio di Valcamonica, su cui sono

5 *Curiosi trattenimenti continenti raguagli sacri, e profani de' popoli camuni opera del P. Gregorio di Valcamonica*, pubblicato nel 1698.

basati buona parte degli studi successivi sulla valle[6], non ha per ora dato riscontro di tale affermazione. Tuttavia, non è per questo da escludere con certezza la possibilità di una comparsa precoce del gaì come gergo.

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6 Tra questi il già citato *Illustrazione della Valle Camonica* (Rizzi 1870).

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Il campo oltre il luogo: l'etnografia digitale ai tempi del distanziamento sociale

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KEYWORDS

field research, covid - 19, online sociality, social distancing, virtual environments

ABSTRACT

Anthropological knowledge relies on a particular methodology, participant observation. The practice of being in the field for a long time, busy in daily contact with the one's interlocutors, has become anthropology's distinctive mark. Nowadays, the challenge of Covid-19 and the obligatory restrictions on sociality dynamics require a rethinking of these theoretical and methodological assumptions: what does doing ethnography at the time of social distancing mean? This contribution aims to rethink the concept of the field made inaccessible by the current contingencies, overcoming the idea of a geographical location. Hence, online sociality as becomes a relational location built on people's communicative practices. Furthermore, researchers are creatively adopting new ways of relating to their interlocutors at a time when social contacts are necessarily limited.

Introduzione

Una delle caratteristiche più affascinanti dell'antropologia è la sua costante capacità di reinventarsi. Molto spesso durante i corsi di studio universitari gli studenti vengono abituati all'idea che quando si fa ricerca niente è scontato, niente è certo, ma tutto dipende dalle contingenze del momento. Il percorso che ci eravamo prefissati nei momenti iniziali della ricerca può prendere inaspettatamente una piega diversa, o possiamo accorgerci che proprio quel dettaglio trascurato nelle note di campo fa emergere dinamiche che si rivelano centrali (Gupta, Ferguson 1997, Shah 2017).

Con questo non si vuole intendere che l'antropologia non abbia delle solide basi metodologiche; al contrario, è proprio su queste che si gioca la relazione con la contestualità storico - sociale. Se pensiamo che l'antropologo si occupa di qualcosa che sfugge ad una concreta definizione concettuale come le esperienze umane (Hinkson 2017), a partire dalle quali far emergere dinamiche sociali più ampie, possiamo renderci conto di come il sistema di regole comportamentali, correnti accademiche di pensiero che impariamo sui manuali per strutturare una ricerca, debbano costituire un bagaglio di conoscenze da usare con una postura flessibile.

Si è usata l'espressione "esperienze umane", al posto dei più comuni (e abusati) termini "cultura" e "tradizione", per evitare di cadere in categorizzazioni nette e definite: le tradizioni non esistono, se le pensiamo come tasselli immobili del grande puzzle della cultura. Parlare di "esperienze" significa

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invece mettere in campo le innumerevoli casistiche attraverso cui si snoda la vita umana: l'antropologia approfondisce quindi l'analisi del suo fluire, in cui il mutare delle pratiche religiose, linguistiche, relazionali, lavorative etc. segna le tappe del percorso. Seguendo questa corrente, appare chiaro come chi si avvicina all'antropologia sia portato a non considerare niente nella sua essenzialità, ma a guardare ogni cosa da innumerevoli prospettive: flessibilità e creatività appaiono come compagne affidabili della ricerca. L'antropologo viene quindi educato non tanto a seguire un rigore metodologico ma ad adattarne le potenzialità alle diverse situazioni che ha di fronte (Biscaldi 2019).

In questo articolo si parlerà del fare ricerca etnografica durante il particolare momento storico che stiamo vivendo, la pandemia di Covid-19, come pretesto per avanzare una riflessione sulla capacità dell'antropologo di ripensare la propria presenza sul campo, a partire da una sua decostruzione come luogo geograficamente situato. L'interrogativo più urgente a cui gli antropologi hanno cercato di rispondere ha riguardato le modalità di fare etnografia nel periodo di limitazione dei contatti sociali (Kuiper 2020): se l'etnografia prevede un contatto diretto e prolungato con le persone, come portare avanti una ricerca se incontrarsi costituisce un rischio per la diffusione del virus? La complessità del concetto di "fare etnografia" è qui affrontata attraverso la sua dimensione relazionale, prospettiva su cui si costruisce l'articolo: in questo senso, la pratica etnografica si basa sull'incontro tra ricercatore e interlocutori con cui portare avanti un percorso di conoscenza reciproca, fondamentale per fare emergere gli aspetti della ricerca che si vogliono approfondire. Molto spesso, non senza una certa ironia, la figura dell'antropologo è stata descritta sulla base della sua capacità di inserirsi in una comunità o gruppo di persone per studiarne le dinamiche. E questo suo "inserimento", talvolta problematico,[1] si costruisce sulla relazione che instaura con le persone. Trascorrendo del tempo con i propri interlocutori, l'antropologo impara a condividere con loro la quotidianità, parlando la stessa lingua, mangiando lo stesso cibo. Su queste basi si instaura un profondo rapporto di fiducia reciproca tale per cui il ricercatore è accolto a pieno titolo come parte del gruppo.[2] Il dilagare del Covid-19 ha precluso proprio questa possibilità relazionale, limitando la socialità quotidiana nelle sue forme più semplici, come prendere un caffè al bar, incontrare parenti e amici. Nel periodo compreso fra marzo e giugno 2020 ci siamo dovuti abituare a ripensare il nostro mondo all'interno delle mura domestiche, rinegoziando la centralità di ciò che per noi è sempre stato scontato, l'interazione fisica con gli altri. Divenuta fonte di timore collettivo, e per questo limitata, allontanata, sanificata (SIAC - Società Italiana di Antropologia Culturale 2020, <https://www.youtube.com/watch?v=fnWt1aLX5y4>, min. 20), l'interazione è stata ripensata alla luce della mancanza della sua materialità, come il toccarsi, il guardarsi, il parlarsi. Le piattaforme di comunicazione digitale come WhatsApp, Facebook, Teams e Zoom hanno rappresentato validi strumenti di supporto alla partecipazione alle attività sociali: mai come durante il periodo di quarantena abbiamo capito l'importanza delle innumerevoli modalità attraverso cui possiamo rimanere in contatto, abituandoci a nuovi modi di essere presenti.

L'articolo prende in esame proprio questa dimensione dell'etnografia concentrandosi sul concetto di "campo di ricerca" che viene ripensato da una prospettiva relazionale, guardando alle pratiche comunicative che lo animano. Al ricercatore si aprono nuovi scenari di ricerca per cui anche gli ambienti virtuali possono essere pensati come "campo" su cui costruire una relazione con i propri interlocutori. Viene per questo discussa la prospettiva attraverso cui il campo di ricerca può non essere geograficamente e fisicamente delimitato ma può costruirsi sulle interazioni che avvengono negli spazi digitali, per esempio in un contesto come un gruppo Facebook, un forum online, un canale YouTube.

1 La complessità dell'incontro etnografico è dovuta in gran parte al posizionamento dell'antropologo: questioni relative al genere, all'età, alla provenienza geografica e sociale possono influenzare il rapporto con gli interlocutori, rendendolo più o meno agevole, e influenzare l'andamento della ricerca (Wojnicka 2020).

2 In realtà le dinamiche di relazione sono ben più complesse di così: nonostante l'accoglienza, l'antropologo vive spesso una certa tensione tra il suo ruolo di ricercatore esterno alla comunità e quello di membro riconosciuto.

Nella prima parte del testo verrà tracciato un quadro generale delle basi concettuali della prassi etnografica, ponendo l'accento sull'importanza del campo come località dell'incontro e di costruzione del sapere antropologico. In seguito, questa nozione viene ripensata alla luce delle sfide della contemporaneità: quindi, nella terza e ultima parte, la domanda sul fare etnografia ai tempi del distanziamento sociale trova una risposta negli ambienti virtuali, attraverso cui ridisegnare i confini del campo di ricerca e guardare criticamente alle varie dimensioni che assume la relazionalità.

L'antropologia si fa sul campo

È ormai informazione nota che il concetto di campo di ricerca come luogo geograficamente situato si è imposto come elemento chiave della disciplina antropologica con l'opera di Bronislaw Malinowski, "Gli Argonauti del Pacifico Occidentale" (1922). Sebbene già con Franz Boas la pratica di viaggiare per raggiungere luoghi lontani in cui fare ricerca diventi comune prassi, è l'esperienza di Malinowski alle isole Trobriand, in Melanesia, che permette all'antropologo polacco di codificare il metodo dell'etnografia antropologica, che consiste appunto in un prolungato periodo di tempo trascorso presso una comunità di persone per osservarne lo stile di vita nelle sue varie dimensioni. La differenza sostanziale rispetto all'antropologia della seconda metà dell'Ottocento è proprio il viaggio intrapreso in terre lontane per conoscere di persona pratiche culturali, modelli parentali e rituali che prima erano studiati dagli antropologi unicamente attraverso dei questionari e dei resoconti redatti da altri ricercatori inviati sul posto.[3] Quello che comincia a prendere forma con Malinowski è il metodo dell'osservazione partecipante, per cui l'antropologo trascorre del tempo con le persone con cui fa ricerca, vivendo a contatto con loro ogni giorno. Col tempo questa pratica è diventata centrale nella produzione del sapere antropologico: oggi sembra impensabile poter fare ricerca su un qualsiasi argomento, come un rituale religioso, senza che siano coinvolti gli attori sociali che vi prendono parte. Il concetto di campo dunque, come luogo in cui risiedere con delle persone per un determinato periodo di tempo, è divenuto centrale in antropologia.

Come scrivono Akhil Gupta e James Ferguson:

> *Since fieldwork is increasingly the single constituent element of the anthropological tradition used to mark and police the boundaries of the discipline, it is impossible to rethink those boundaries or rework their contents without confronting the idea of the field. The field of anthropology and 'the field' of 'fieldwork' are thus politically and epistemologically intertwined; to think critically about one requires a readiness to question the other* (1997:3).[4]

Fare ricerca sul campo diventa quindi ciò che rende gli antropologi tali, quasi un rito di passaggio che consente di acquisire una specifica professionalità. Non dobbiamo tuttavia cadere nell'inganno di pensare il campo come qualcosa di predefinito: al di là di un'astrattezza manualistica, il campo è qualcosa che viene ad esistere nella relazionalità con le persone, mutevole e multidimensionale. È un processo condiviso tra ricercatore e interlocutori: ormai lontana da una malinowskiana, distaccata osservazione, la ricerca sul campo è co - costruita e non è più un progetto che appartiene al solo ricercatore. Egli stesso è parte del campo e partecipa attivamente alle dinamiche di socialità: è questa sua presenza sensoriale che gli permette di avere una conoscenza approfondita dell'oggetto di ricerca.

3 Ironicamente, si parla degli antropologi di quel periodo come "antropologi da poltrona", vista la loro assenza dai luoghi della ricerca (Shah 2017:55)

4 "Poiché il lavoro sul campo è sempre più l'unico elemento costitutivo della tradizione antropologica utilizzata per segnare i confini della disciplina, è impossibile ripensare tali confini o rielaborarne i contenuti senza confrontarsi con l'idea di campo. Il campo dell'antropologia e 'il campo' del 'lavoro sul campo' sono quindi politicamente ed epistemologicamente intrecciati; pensare in modo critico all'uno richiede la disponibilità a mettere in discussione l'altro"

In un importante articolo dell'inizio degli anni Novanta, l'antropologa Barbara Tedlock (1991) scrive a proposito del cambiamento avvenuto, intorno agli anni Ottanta, nella pratica etnografica verso una "osservazione della partecipazione" che problematizza la dicotomica opposizione fra un'osservazione oggettiva e distaccata e una partecipazione più attiva, fino a quel momento ritenuta la principale prassi metodologica. Si tratta di una svolta narrativa che segna l'ingresso, nei testi etnografici, della riflessione del ricercatore sulla sua esperienza di campo: sensazioni, disagi e ricordi vanno a comporre queste nuove etnografie. Il ricercatore comincia ad osservarsi nelle dinamiche di socialità in cui è compreso e a riflettere sulle modalità attraverso cui è presente sul campo e vi instaura legami: il condividere il tempo e lo spazio, creare una quotidianità con le persone sul campo diventa parte della ricerca, o meglio, del metodo di ricerca. Appare chiaro quindi come negli ultimi quarant'anni l'elemento relazionale sia divenuto centrale sia negli scritti etnografici che nella metodologia di ricerca; per l'antropologo Alpa Shah l'etnografia è una "prassi rivoluzionaria" (2017):

> *[...] through living with and being a part of other people's lives as fully as possible, participant observation makes us question our fundamental assumptions and preexisting theories about the world; it enables us to discover new ways of thinking about, seeing, and acting in the world. It does so by being inherently democratic not only because of its pedagogy of a two-way process of exchange between educator and educated but also because it ensures that we explore all aspects of the lives of the people we are working with, recognize their interconnections* (2017:47).[5]

Queste considerazioni permettono di pensare la conoscenza antropologica come un processo concretamente prodotto attraverso la pratica di essere sul campo, di viverlo (Wacquant 2004).

Spesso la relazionalità è esperita su un campo di ricerca geograficamente delimitato (Shah 2017). Questa contingenza spaziale è stata per lungo tempo condizione necessaria della ricerca sul campo, quando l'antropologia era dedita allo studio di popolazioni esotiche, ancora lontana da una messa in discussione dei suoi assetti sociali e culturali. Viaggiare lontano era prassi comune per gli antropologi, con lo scopo - quasi documentaristico - di conoscere altre società e altre dinamiche di vita.

Sebbene il concetto di campo di ricerca sia più complesso, e non necessariamente legato ad un singolo luogo,[6] è comunemente concepito come uno spazio materiale, che ha un nome e delle coordinate geografiche. Il significato di strutturare una ricerca è ancora legato ad un luogo in cui andare e in cui vivere per un periodo prolungato di tempo che ci permetta di ampliare le nostre vedute mettendone in discussione gli assunti (Fabietti 2015). Abbandonare questa materialità sembra difficile anche a partire dai contesti universitari che formano gli antropologi, in cui la metodologia etnografica è pensata esclusivamente per essere applicata su un contesto spazialmente definibile. Ma non tutti i luoghi sono uguali: alcuni più di altri "comunicano" l'idea di una ricerca sul campo autentica, dove l'autenticità in questo caso risiede nell'esperienza vissuta a contatto con un'"alterità" ricercata lontano dal proprio contesto sociale di riferimento. La scelta di luoghi "lontani, esotici, e strani" (Gupta, Ferguson 1997:13) sembra riprodurre dinamiche di potere per cui l'antropologia insegnata nelle Università non si è ancora svincolata dai contesti coloniali in cui è nata. E questo genera una stereotipizzazione dell'idea di campo di ricerca e della figura dell'antropologo, ancora imbrigliato nell'immagine popolare di colui che indaga i misteri nascosti nelle culture degli altri popoli. Anche nel caso in cui la ricerca non preveda un

5 "Vivendo e facendo parte della vita degli altri nel modo più completo possibile, l'osservazione partecipante ci fa mettere in discussione i nostri presupposti fondamentali e le teorie preesistenti sul mondo; ci permette di scoprire nuovi modi di pensare, vedere e agire nel mondo. Lo fa essendo intrinsecamente democratica non solo per la sua pedagogia di un processo di scambio bidirezionale tra educatore ed educato, ma anche perché ci assicura di esplorare tutti gli aspetti della vita delle persone con cui lavoriamo, di riconoscere le loro interconnessioni".

6 Mi riferisco, per esempio, alle etnografie multi - situate (Cfr. Riccio 2019).

soggiorno presso una località esotica ma un contesto più familiare e vicino l'idea di circoscrivere il campo ad una spazialità definita sembra perdurare. Un campo così delimitato - è il caso di ricerche che si concentrano in una città, comunità, villaggio specifici - permette di sperimentare una certa sicurezza riguardo alla propria presenza come antropologi. Non viene messo in discussione il nostro "essere lì" (Mollerup 2017) perché siamo fisicamente presenti e partecipi di una concreta - e corporea - socialità. La centralità del corpo è fondamentale in questo senso, perché l'esperienza del campo è posta in essere attraverso una sensorialità che spesso è data per scontato, ma che non può essere trascurata. L'uso del nostro corpo ci è ormai così familiare che passa inosservato: potersi muovere, parlare, toccare, guardare ed essere guardati è un essere nel mondo (Csordas 1999:146) inconsapevole.

Ci relazioniamo agli altri attraverso il nostro corpo, e proprio la nostra presenza intersoggettiva deve essere interrogata a partire dalla sua centralità (Le Breton 1990), per comprendere come l'incontro etnografico sia un gioco di specchi di cui siamo protagonisti tanto quanto ne siamo spettatori.

La sfida dell'assenza del corpo

Prima di continuare a riflettere sulle prospettive che possiamo adottare per guardare criticamente alla ricerca sul campo, è necessario presentare il contesto in cui nasce questo ripensamento concettuale. L'improvviso dilagare del Covid - 19 nel nostro paese, a partire da febbraio 2020, ha rappresentato una brusca battuta d'arresto alla nostra vita sociale, un'immediata presa di coscienza della nostra vulnerabilità. In poco tempo abbiamo dovuto abituarci all'urgente necessità di sottrarci al vissuto delle relazioni quotidiane: abitudini prima scontate come uscire di casa e vedere qualcuno sono state sottoposte a scrupolose attenzioni, e limitate al minimo. Le immagini delle città vuote diffuse in televisione e attraverso i social network ci comunicavano l'angosciante assenza della nostra quotidianità, mentre le notizie delle migliaia di persone contagiate ci hanno portato a mettere in discussione la sicurezza della nostra presenza nel mondo (De Martino 1977).

La dimensione relazionale della nostra vita si è radicalmente trasformata; privata della fisicità delle interazioni corporee (SIAC - Società Italiana di Antropologia Culturale 2020, <https://www.youtube.com/watch?v=fnWt1aLX5y4>), è stata affidata ad altri mezzi: pensiamo per esempio ai concerti casalinghi sui balconi, o ai cartelloni con gli arcobaleni che ci rassicuravano che "andrà tutto bene", frase simbolo del periodo di quarantena grazie alla diffusione sui social network. In particolare, grazie ai mezzi di comunicazione virtuale (social network, piattaforme di comunicazione da remoto come Zoom, Teams, Google Hangouts) abbiamo svolto gran parte delle attività sociali come lezioni universitarie e scolastiche, riunioni di lavoro, lauree. Queste dinamiche di socialità a distanza hanno rappresentato l'occasione per ricreare un senso di coesione in un momento di incertezza collettiva.

Ancora oggi usiamo l'espressione "distanziamento sociale" per riferirsi a questo nuovo codice comportamentale che abbiamo interiorizzato come necessaria norma sanitaria di prevenzione: restare in contatto, ma mantenendo le giuste distanze. Parlare di distanziamento sociale inasprisce però l'assenza di relazionalità, che invece, come abbiamo visto, ha trovato altre forme di espressione: a questo proposito, l'espressione "distanziamento fisico" sembra più adatta, in quanto sottolinea la mancanza oggettiva di contatto fisico tra le persone (Allen, Ling, Burton 2020). Se la socialità ha trovato nuovi canali di applicazione, che siano gli ambienti virtuali dei social network o l'"arredo urbano" dei messaggi lasciati sulle porte delle case, la fisicità dell'incontro è venuta a mancare. Ed è proprio a partire da questo l'isolamento sensoriale (Le Breton 1990) che possiamo ripensare il concetto di "essere presente" e le modalità di interazione come valido approccio per fare etnografia ai tempi

del distanziamento sociale.[7] Una questione non semplice, su cui si sono confrontati gli antropologi di tutto il mondo su articoli e conferenze online. L'impedimento improvviso e forzato di raggiungere qualsiasi luogo in cui fare ricerca dà vita a una condizione di precarietà perché manca uno spazio fisico in cui legittimare la presenza come ricercatori. Il concetto di "luogo" qui assume un significato di spazio materiale in cui collocare l'esistenza umana. Pensarsi attraverso i luoghi (Hinkson 2017) significa interiorizzare la relazione tra l'ambiente in cui si vive e la vita stessa: è chiaro dunque che in condizioni - come l'impossibilità di spostarsi fisicamente - in cui l'ambiente che abitiamo e che abbiamo addomesticato secondo le nostre esigenze (Boni 2014) subisce profonde trasformazioni siamo portati a interrogarci sui termini della nostra esistenza, mettendola in discussione. In relazione a ciò, negli ultimi anni, il rapporto fra uomo e ambiente è stato analizzato nei termini delle radicali trasformazioni causate dai cambiamenti climatici e dalle migrazioni (Albrecht 2005, Lazrus 2012, Hinkson 2017), una prospettiva di analisi per cui il concetto di luogo è assunto come approccio teorico alla comprensione delle circostanze contemporanee. Apprendiamo da telegiornali e notizie diffuse in rete come migliaia di persone nel mondo siano costrette ogni giorno ad abbandonare le proprie case a causa di disastri naturali, guerre o situazioni di persecuzione che compromettono il senso di appartenenza ad un luogo che si sente come proprio. Dunque sperimentare la mancanza di un luogo, la sua distruzione o modificazione può causare la perdita del senso della propria individualità come parte del mondo (De Martino 1977, Albrecht 2005).

Questa prospettiva ci permette di avanzare una riflessione sui significati che il periodo di quarantena ha rivestito nell'attività di antropologo sul campo. Privato di una dimensione relazionale, il suo ruolo deve essere ripensato proprio a partire da questa assenza: è qui che si colloca la riflessione su cosa sia il campo, e se possa essere circoscritto a delle coordinate geografiche precise.

Lo spazio virtuale come esperienza etnografica

Alla luce di quanto detto, la pratica di fare etnografia oggi si trova ad essere profondamente mutata: in un momento storico in cui l'utilizzo delle piattaforme digitali di comunicazione è centrale, come abbiamo visto, al mantenimento della partecipazione alla vita sociale, è necessaria una riflessione critica sulla funzionalità degli ambienti virtuali all'etnografia antropologica. Attraverso quale prospettiva è possibile strutturare una ricerca sul campo se questo è reso inaccessibile? Come fare etnografia ai tempi del distanziamento sociale? Potremmo concepire la pratica etnografica come prospettiva di riflessione e analisi delle dinamiche contemporanee: così come nella seconda metà dell'Ottocento la ricerca era affidata a questionari anonimi e non si era imposta la consuetudine di trascorrere il tempo con i propri interlocutori, nel contesto odierno della pandemia di Covid-19 l'etnografia sia adatta a nuove esigenze, riflettendo la necessaria e costante medicalizzazione dell'interazione (SIAC - Società Italiana di Antropologia Culturale 2020, <https://www.youtube.com/watch?v=fnWt1aLX5y4>, min. 18). La ricerca sul campo come specchio della contemporaneità assume quindi i caratteri di una pratica sicura, "pulita" (SIAC - Società Italiana di Antropologia Culturale 2020, <https://www.youtube.com/watch?v=fnWt1aLX5y4>, min. 18). È necessario dunque andare oltre la concezione della località fisica per esplorare il campo di ricerca nella sua multidimensionalità: non solo vissuto in quanto spazio materiale dunque, ma guardato attraverso le dinamiche sociali che su quello spazio prendono forma. Abbiamo già affrontato una riflessione critica sui limiti del concetto di distanziamento sociale, che si è rivelato inadeguato persino durante il periodo di lockdown, in cui abbiamo sperimentato nuove modalità di restare in contatto.

Gli ambienti virtuali, strumenti fondamentali di socialità a distanza, offrono interessanti prospettive

7 Cfr. *supra*.

di analisi: osservati nella loro natura relazionale, possono rappresentare uno spunto di riflessione per svincolare il concetto di campo di ricerca dai confini materiali. Il concetto di socialità appare però ancora confuso: possiamo definire con questo termine ogni gesto che ci permette di condividere qualcosa con gli altri o ogni pratica comportamentale che mettiamo in atto in un ambiente con altre persone? A cosa è affidata la socialità?

È importante sottolineare, tuttavia, che non tutti gli ambienti virtuali hanno la stessa natura relazionale, che si basa sul modo in cui è concepita una determinata piattaforma. Ad esempio, la comunicazione su una pagina Facebook è affidata a modalità di interazione che non sono presenti su un forum online, come scambiarsi i like (Kozinets 2010). Dalla struttura delle piattaforme dipende quindi il modo in cui parliamo con gli altri, e come sperimentiamo le relazioni. Su un campo di ricerca virtuale - che sia una comunità online su un forum, un gruppo su un social network - viene a crearsi un nuovo rapporto tra le figure del ricercatore e i suoi interlocutori, che possono essere utenti assidui o semplici frequentatori del web. Privata della fisicità, la relazione è affidata alla condivisione del tempo: comunicare virtualmente con qualcuno, "essere" online nello stesso momento e scambiarsi messaggi, commenti e altre forme di interazione digitale, permette di fare esperienza di un diverso tipo di compresenza. Questa si rivela centrale in assenza di una vicinanza spaziale (Mollerup 2017), costruita nei termini di una lunga e partecipata interazione.

Ecco quindi che la socialità virtuale diviene centrale in questa nuova modalità di fare ricerca di campo, mettendone in discussioni le nozioni apprese sui manuali. L'antropologo si approccia al campo virtuale osservando le modalità di interazione fra le persone, le varie dimensioni della comunicazione a cui egli stesso partecipa,[8] entrando in contatto con le persone secondo una diversa sensorialità: difatti, sebbene si tratti di una presenza virtuale la sua, costruire la riflessione dando per scontata l'assenza del corpo si rivela un approccio riduttivo e semplicistico. L'esperienza del campo virtuale ha una sua dimensione sensoriale ed emozionale, che si materializza nel tempo dedicato alla presenza sul campo: sperimentare sensazioni di stanchezza fisica nello stare connessi ad un dispositivo di comunicazione digitale - pc, tablet, cellulare - per molte ore al giorno (Góralska 2020). La partecipazione al campo ci permette di essere coinvolti emotivamente nell'esperienza delle persone con cui ci rapportiamo: le emozioni sono il tramite attraverso cui il corpo diviene partecipe attivo anche in un contesto virtuale (Pennacini 2011). In merito alla dimensione sensoriale della comunicazione, in un contesto di ricerca virtuale, è necessario fare ulteriori riflessioni: il rapporto tra ricercatore e interlocutori può trascendere i confini dell'ambiente digitale per entrare in una sfera più personale, attraverso lo scambio del numero di telefono (Biscaldi 2019). Una conversazione telefonica come modalità di intervista o colloquio informale - le fonti più rilevanti per costruire il testo etnografico - mette in campo una comunicazione ibrida, in cui la distanza è mediata dalla presenza della voce. In questo senso possiamo riflettere sulle varie dimensioni che la presenza del corpo assume anche in un contesto virtuale: il suono e la tonalità della voce, le pause nel discorso, il possibile coinvolgimento emotivo di un racconto personale. Inoltre, nel caso dell'utilizzo di piattaforme di comunicazione come Skype, la possibilità di osservare l'altra persona nella sua espressività rende ancora più complesso il concetto di una presenza del corpo, mediata dalla tecnologia (Mollerup 2017).

Si tratta di aspetti che ci rendono partecipi di una dinamica comunicativa che trascende la virtualità dell'ambiente, contribuendo a pensarlo come esperienza etnografica vissuta e arricchita di nuovi stimoli:

> *Social media is experienced - and remembered - in the body in ways that challenge the distinctions we might otherwise make between virtual and physical encounters. Such online*

8 Sulle modalità di ingresso e partecipazione del ricercatore alle dinamiche del campo virtuale cfr. Kozinets 2010.

> *research experiences will become increasingly inescapable, and anthropologists must find ways to incorporate them into their repertoires* (Gray 2016:502).[9]

È necessario infatti adottare un approccio critico agli ambienti di socialità virtuale, evitando considerazioni a priori sulla sua validità come campo di ricerca: questa va analizzata nei suoi termini (Boellstorff 2008), non come un'imitazione delle modalità di interazione "offline".

Come spiega la sociologa Christine Hine:

> *Being immersed in the setting meant being able to experience those conditions and to learn how to live among those who did so alongside them, and thus provided a fairly recognizable mirroring of a standard ethnographic stance* (2017:21).[10]

La ricerca di campo deve essere quindi affrontata da una prospettiva flessibile e attenta al contesto: gli ambienti digitali possono essere interrogati nella loro dimensione sociale, osservando come le persone ne fanno uso per comunicare, adattando - in quanto ricercatori - la propria presenza (Hine 2017). Ponendosi quindi come località relazionale (Kaur 2019), i settings virtuali offrono l'opportunità di ripensare il senso di "luogo": non legato ad uno spazio materiale, ma neanche vincolato ad un unico contesto virtuale, come può essere un forum online, un gruppo Facebook, un profilo Instagram. Proseguendo la riflessione secondo una prospettiva relazionale, i continui flussi di comunicazione (Appadurai 1996) che ogni giorno animano le pratiche di socialità rendono più sfumati i confini del concetto di luogo: essi stessi possono apparire come approccio allo studio di dinamiche sociali più ampie, aprendo l'idea che abbiamo di campo di ricerca a innumerevoli interpretazioni.

Conclusioni

In questo breve contributo si è cercato di presentare una prospettiva critica al concetto di campo di ricerca, mettendone in discussione la località come spazio materiale. In un momento critico come quello che stiamo affrontando, in cui l'incertezza di una pandemia che avanza minaccia le nostre forme di socialità, si rende necessaria una riflessione su come la disciplina antropologica possa rispecchiare le dinamiche contemporanee, nei termini di un'etnografia ripensata non sulla fisicità del luogo ma sulla sua dimensione relazionale e condivisa. In questo senso, la riflessione presentata può fornire nuovi spunti per un'analisi che dal campo comprenda dinamiche relazionali più ampie, nuove modalità di restare in contatto e di mantenere la prossimità sociale in un contesto che guarda alla distanza come prima forma di sicurezza. Si rende quindi necessario affrontare distanze e prossimità come riflessi di una socialità trasformata, ma non meno intensa, che si rispecchia in una pratica etnografica in continua riformulazione.

9 "I social media sono vissuti - e ricordati - nel corpo in modi che sfidano le distinzioni che altrimenti potremmo fare tra incontri virtuali e fisici. Queste esperienze di ricerca online diventeranno sempre più inevitabili e gli antropologi devono trovare il modo di incorporarle nei loro repertori".

10 "Essere immersi nell'ambiente significava poter sperimentare quelle condizioni e imparare a vivere in mezzo a coloro che lo facevano insieme a loro, e quindi fornire uno specchio abbastanza riconoscibile di una posizione etnografica standard".

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Determinants of Infant Mortality in rural Bundelkhand region of U.P.

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KEYWORDS

Infant mortality; Socio-demographic factors, cross sectional research design; Bundelkhand; rural population; female education; probability of infant survival

ABSTRACT

Infant mortality is known to be one of the most sensitive and commonly used indicators for determining the socio-economic development of a country and therefore indirectly points towards the maternal child health. In this paper a cross-sectional survey of 100 mothers (age 15-49 years) was done to determine the socio-demographic factors affecting them and hence their infants' survival in rural Bundelkhand region of U.P. The paper focused on educational status of mother, her socio-economic status, knowledge on childcare practices, family income and influence of distance of healthcare centres from the place of living. Among all the determinants of infant mortality selected in the model study, education of the mother and the socio-economic status (including sanitation and clean drinking water) of her household played an important role in determining the survival status of the infant.

Introduction

Infant mortality rate (IMR) is the number of death of children below one year of age per 1000 live births. Infant mortality rates reflect economic and social conditions of mothers and newborns, as well as the effectiveness of health systems (Organisation for Economic Co-operation and Development, 2011). The high IMR of a country indicates the unmet health needs, unfavourable environmental factors, and low health and socio-economic status of its population. In the developing world every year over 10 million children under five years of age die and the large proportion of it is from causes that are preventable through a combination of good care, nutrition supply, and medical treatments (UNICEF report 2017). Thus the level of infant mortality would present a measure of how well a society meets the needs of its people (Bicego and Ahmad, 1996). The determinants of infant mortality are not static, they vary with geographical location. Data on causes of infants' mortality are considered essential for planning and policy making. There is also a great link of the problem with national / international policy/programmes such as; Millennium Development Goals (2000-2015) and Sustainable Development Goals (2015-2030).

India has improved its IMR marginally from 33 per 1,000 live births in 2017 to 32 in 2018 (SRS, 2017). In the last decade, the infant mortality rate declined from 50 to 32, falling about 36.7 percent in rural areas and about 36 percent in urban areas. Despite the decline in IMR over the last decades, one in every 30 infants died at the National level (irrespective of rural-urban divide). Among the States/ Union Territories, the IMR ranged from 7 in Nagaland to 47 in Madhya Pradesh for 2017 (SRS, 2017).

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There are various factors associated with the mother which influence IMR such as mother's level of education, environmental conditions, political and medical infrastructure, immunization etc. (Genowska et al. 2003). Other important factors are safe water availability, nutrient deficiency, illness, injection, injury, and accident. Besides these, individual factors (occupation, education, beliefs), household characteristics (household wealth, religion, race and ethnicity, residence) and community characteristics such as economic, politic and health system efficiency also play a major role in determining the status of the infant survival. (Mosley and Chen, 2003: 25–45).

Gakidou et al, (2010: 959-71) estimated the contribution of improvement in women's education to reduction in child mortality using the data of 219 countries, gathered between 1953 and 2008. The coefficient for women's education implied that for every 1 year of increase in the education of women of reproductive age, the child mortality decreased by 9.5 per cent. In South Asia, the expansion of women's education accounted for 39.1 per cent of the reduction in the number of child deaths. Mother education emerges as the single most important determinant of child health-care utilisation in India when the influences of other intervening factors are controlled (Govindasamy and Ramesh, 1997).

In the industrial world, a dominant factor in the decline in infant mortality has been social and economic progress (Reidpath et al, 2003: 344-46). Household socio economic status is important for child survival because it determines the amount of resources (such as food, good sanitation and health care) that are available to infants (Millard, 1994: 253-68). Lower infant mortality has been reported by Da Vanzo et al. (1983: 143-60), in households where toilets exist, where piped water is used (Brockerhoff, 1990: 564) and where there is electricity (Madise and Diamond, 1995: 95-106).

Studies have attributed the rural disadvantage in infant mortality in less developed countries to the urban bias (Crenshaw and Ameen, 1993: 297-313), which indicates a disproportionate benefit gained by an urban population in the allocation of public resources (Lipton, 1977). Some have also shown a significant relationship between this urban advantage in terms of health care facilities and urban–rural mortality gaps in the developing countries, including India (Subramanian et al, 2011: 818-825).

The people of Bundelkhand face the dual burden of a poor economic environment combined with the lack of proper school education and health facilities.

Literacy levels in Bundelkhand are very low, and the overall literacy rate is 69 percent and the literacy rate for women as only 57.6 percent (Census of India, 2011). Basic literacy is low and though school education has achieved universal access to primary education, there is much to be done for the universalisation of secondary and higher education. The quality of actual learning is low, with children not able to comprehend, understand and absorb what they are being taught. Girls attend schools closer to home, but often girls are not allowed to attend schools that are located far away, and thus they miss out on education as they move to higher classes. Education in urban areas is relatively better, with a number of private schools in urban areas. But even urban educational achievements are not significantly better than those of a rural education.

The status of women in Bundelkhand, a particularly strongly patriarchal society, is not equal to men, anywhere. Leading from centuries of active discrimination, institutionalizing male dominance in customs and traditional practices, and an unchanging society have contributed to a much worse condition of women than in other parts of India. The sex-ratio is extremely low at 885 women for 1,000 men (Census of India, 2011), having improved somewhat from 873 in 2001 (Census of India, 2001).

The basic objective of this paper is to determine the effect of five socio- demographic factors influencing infant mortality in the rural Bundelkhand region, Palinda village. They are 1) Education of the mother 2) Socio-economic status of her household involving factors like kutcha/pucca house, sanitation, drinking water availability etc. 3) her knowledge on vaccination, breastfeeding and other infant care practices 4) average monthly income of her house 5) the distance of the healthcare centre from her place of living. Information from this project can assist government, policy makers, NGO's and other stakeholders to put in place systematic, efficient, organized, viable and long term strategies for improving infant health.

Methodology

Study area: The field study of the project was done in village Palinda of distt. Jhansi, Bundelkhand region, Uttar Pradesh. The village is backward and underdeveloped. It lacks daily basic necessities. The main occupation of people living here is agriculture which is challenged by drought-like conditions and deficient rainfall. The village lacks in prospects like education, standard of living, employment, necessary facilities like hospitals and doctors etc. The status of human development in U.P. is far from satisfactory even after more than five decades of development planning aimed at the social and economic upliftment of the people. The people of Bundelkhand are still facing the dual burden of a poor economic environment combined with the lack of proper school education and health facilities. (Human Dev. Report, UNDP, 2012)

In the present study a total sample size was of 100 mother respondents from age group of 15-49 years was interviewed. A pretested and modified interview schedule was framed and utilized for the collection of data. Informed written consent was taken from the participants before beginning the interview and they were familiarized with the purpose of the present study. Information pertaining to the demographic details like age at menarche, age at first conception, number of conceptions, and number of live births along with age of the infant that died (in months) were ascertained from the participants. In addition to this, data on education (in which four categories were divided in terms of no education by mother, education up to primary, secondary or tertiary class); socio-economic status of the mother (which included her living space (kutcha or pucca house), availability of in house sanitation, drinking water and availability of any vehicle. Presence of less than two or two factors was considered as poor status); knowledge of the mother regarding infant care practices (in which questions pertaining to breastfeeding, immunization, institutional delivery and pre-natal care were asked); annual income status of the family of the mother. In addition to these, the distance of the health care centre from the place of living and how it determines the decision to approach healthcare personnel during emergency situations was also assessed.

Data from the respondents were verified, compiled, coded and summarized before analysis using the Statistical Package for Social Science (SPSS) Windows software so as to make realistic inferences based on the study sample. In this Statistical package, descriptive statistics particularly frequencies and percentages were used to show the linkages between independent variables and dependent variables. Student's t-test was used when the difference between the means in two groups was considered; however when more than two groups were present analysis of variance (ANOVA) was used. Stepwise regression analysis was utilized to ascertain the variables that affected fertility in the present study.

Results

Measures of Infant mortality

The study revealed that 27% of the household surveyed had experienced infant mortality. (Table 1)

TABLE 1: Percent mortality distribution

Infant mortality	No. of women	Percentage
Experienced	27	27%
Not experienced	73	73%
Total	100	

Most of women from the surveyed area reported had very little knowledge of the reasons of the infant death.

TABLE 2: Percentage infant mortality in each group for the determinants

Determinants	Percentage infant mortality faced in the group	Mean live births in each group	p- value
Education			
No formal education	62.96%	0.33	
Primary education	29.63%	0.68	
Secondary education	07.41%		0.001
Tertiary education	0%		
Socio economic status			
Poor status	59.25%	0.41	
Better status	40.74%	0.75	0.003
Knowledge of the mother			
Insufficient knowledge	70.37%	0.30	
Sufficient knowledge	29.63%	0.56	0.018
Income			
Insufficient	81.48%	0.19	
Sufficient	18.52%	0.45	0.015
Distance of households from the health centre			
Distance affects (the decision to approach healthcare in emergencies)	85.19%	0.15	0.005
Does not affects	14.81%	0.45	

Effect of education

A mother's education plays an important role in determining the children's health conditions. It helps the children to be mentally healthy and active. People in the village seemed reluctant to allow their women to go out for education.

The respondents which were not able to attend to any kind of formal education were 41 percent whereas 59 percent were able to attend some kind of formal education. The formal education was further segregated into primary, secondary and tertiary education (Table 2). The numbers of respondents with primary education were 39 percent, secondary education i.e. completing high school was 18 percent and above that only a mere 4 percent were able to attend the education. The highest percentage of infant mortality from the sample was faced by the group with no education i.e. 41 percent. It can be seen that the mean live births is higher in group with some kind of formal education whereas it is less in the case of no formal education ($p<0.05$).

Effect of Socio-economic status

Various factors were taken into consideration for socio-economic status like kutcha house or pucca house, sanitation, drinking water availability, owning a motorized vehicle/ non-motorised vehicle/no vehicle. These were the main factors to be considered as they displayed the basic necessities of a household.

Based on the socio-economic factors, mean was obtained from the values and the respondents with more than 2 positive responses were given a score of one and rest were given a score of zero.

It was observed from the distribution that the percentage of infants dying in the poor socio-economic status group (59.25%) is more than the percent infants dying in the better socio-economic group (41.75%). Also, there is a higher chance of survival (as seen from the mean live births) in case of better socio-economic status of the household ($p<0.05$) (table 2).

Effect of knowledge of mother

Factors taken into consideration to judge the knowledge of healthcare practices during and after pregnancy were: breastfeeding and colostrum knowledge, immunization and its importance, pre-natal care practices, importance of institutional delivery. The responses were in the form of yes and no and a mean response was noted.

During the survey it was observed that more than 50 percent of the women lacked knowledge about the basic information on various factors that can affect the health of their infants. It could be seen (table 2) that the group of women with insufficient knowledge faced lower mean infant mortality as compared to the group of women with sufficient knowledge ($p<0.05$).

Effect of income

During the survey it was observed that majority of the rural households of the village had a very basic minimum income and a lot of it depended on the agricultural output of their fields. Since the village economy has lower price of living therefore a threshold of Rs 8,000 per month was decided as sufficient income. It was assumed that the income of the husband and wife (if

working) is the income of the mother.

It was observed (table 2) that the majority of the rural households of the village had a very basic minimum income and a lot of it depended on the agricultural output of their fields. Therefore it was considered as the cutoff to determine the sufficiency and insufficiency of income to survive with basic requirements in the village. It was found that only 18.52 percent of the mothers had sufficient family income to survive on and were facing less risk if infant mortality whereas a majority of mothers i.e. 81.48 percent were living at a below average income and were facing more infant mortality ($p<0.05$).

Effect of Distance of Healthcare Centers from the household of the respondents

It was noticed that the healthcare services were not available in the village within 1-2 km radius. The survey had the objective of finding out that whether the distance of City hospitals or Local primary health care centers influence the decision of the guardians to approach such services in the time of need for their infants or they depend on home remedies without any knowledge.

As from the above distribution (table 2) of IMR and distance, it can be seen that the group which gets affected by the distance has higher percentage of infant mortality (85.19%) whereas on the other hand the group which does not get affected by infant mortality faces less mortality (14.81%) ($p<0.05$).

Regression analysis

Linear regression was employed in this study so as to check if independent variables affect dependent variable. Before analyzing, households with no infant deaths were coded 1 and 0 was used for occurrence of infant mortality. Five covariate variables were entered: distance from the healthcare services, income, education, socio-economic status and knowledge of the mother.

Table 3: Showing regression analysis result

Factors	R- square	Standard error
Education	0.101	+0.425
Socio-economic status	0.105	+0.424

The stepwise regression analysis shows that education and socio-economic status of the household are the two important factors (out the five selected) that affected infant mortality status of the selected population.

Discussion

The infant mortality correlates very strongly with the national development and is among the best predictors of states' failure. Infant mortality is also a useful indicator for judging any country's level of health and development, and it's a component of the physical quality of life index (Alderman and Behrman, 2004).

In the present study different aspects involved in a mother's life were analysed and it was seen that

each of the determinants under study had an influence, direct or indirect on the infant and his/her survival.On exploring the relationship between education and IMR it was observed that the number of mother's with some formal education experienced only a small percent of the infant deaths whereas the mother's with no formal education were at a greater risk of experiencing infant mortality with the percentage going up to 42%. The association between education and infant health can be explained a number of different ways. An educated mother might be more able to use health care information and therefore understand the importance of child immunization, early child health seeking and appropriate caring for children practice better than illiterate mothers (Desai et al, 2010: 71-81). This is consonance with the previous studies which have argued that education is the most influenced factor in differentiating the infant and child mortality levels within all the socioeconomic factors (Mondal et al, 2009: 31 – 39). Also with Caldwell's (1979: 395-413) work and Hobcraft's (1993: 159-75) review for a wide range of developing countries like Malaya, Ghana, Nigeria, Kenya etc. suggested a strong link between child survival and child health on the one side, and maternal education on the other. It suggested that a mother's education enhances child survival. But a few studies (Das and Dey, 2003: 249–73) have shown a not so intimate relationship between maternal education and infant and child mortality, although the amount of education required to produce a significant reduction in mortality differs from culture to culture.

Infant mortality is widely used as an indicator of the socioeconomic wellbeing of a society. It is an outcome rather than a cause, and hence it directly measures the results of distribution and use of resources. It can be seen our study that the household with a better condition to live were providing their infant a comparatively safer environment for survival. Similar to our conclusion, other studies like Da Vanzo et al. (1983: 143–60) points out that lower infant mortality has been reported in households where toilets exist, where piped water is available and where there is electricity. In contrast to the above results, various studies like Zachariah and Patel (1982: 125-42) showed that socioeconomic factors explained only a small percentage of the differentials in the rate at the household level. These studies concluded that a substantial decline in infant mortality rate is possible without significant improvement in economic development.

Knowledge of the mother has been analysed using the questionnaire and her response to the answers. A range of questions were asked based on her knowledge on breastfeeding, immunization, pre-natal care and institutional delivery and its importance. A positive correlation could be seen between mothers with better knowledge and low infant mortality in our fieldwork. Mothers are the important health decision makers of their children, their Knowledge, Attitude and Practices in general have a great impact on survival status of their child. Nisar et al., (2010: 183-86) in his study in Karachi, Pakistan also reported a positive correlation between a mother's knowledge, attitudes and practice and children's immunization and survival. Our observations indicate that increased use of prenatal care results in better health of infants. Prenatal care which is initiation during gestation may lead to lower infant mortality, since these foetuses will be healthier in the sense that they survived to that period of gestation (Wolpin, 1997). In a study based on case-fatality ratio by feeding mode, it was observed that breastfed infants benefit from increased protection from death given illness, compared with formula-fed infants (Feachem and Koblinsky, 1984: 271-91). The knowledge of the mother can be seen to have an indirect correlation with her education. Little awareness has been a major reason for their ignorance on child healthcare and therefore was facing difficulty in ensuring the survival of her newborn.

Infant mortality is mostly a concern among poor people because children and infants are very vulnerable to bad living conditions. Hence, increase in inequality cause the poor to be poorer, which results in increasing infant mortality. Even though no study yet has developed a direct correlation

of income and infant mortality, but an indirect affect can be seen. The impact of income on infant health may be through its impact on consumption of food, housing, sanitation, medical care and education (Flegg, 1982: 441-58). Countries with more equal income distribution experience lower infant mortality rates that the countries with similar per capita income levels but unequal distribution. Such conclusions could also be derived during the survey and from the data.

On surveying, it was found out that the village had no healthcare services within its proximate reach and the residents had to especially travel outside the village to nearby suburban dispensaries and health care centres to avail the services. It was analysed how the distance affects the decision making in approaching the doctor for different type of cases. For regular checkup during pregnancy it was found out that the respondents avoided visiting the doctor due to the distance constraints. A huge impact of distance was seen on respondents as they avoided going to the doctor if the infant suffered mild discomforts like fever etc. Such decisions based on round the clock availability of the service was seen to be playing a hindsight role in the affecting the health of both the mother and the infant (Sastry, 1997). Therefore, it can be said that urbanization, in general, leads to modernization and more development; higher literacy, availability or accessibility to health services, awareness about health care, more contraceptive use, and all these factors play a significant role in lowering infant mortality (UN, 1953;). Hence it is evident that the proximity of the healthcare services increases the chance of survivability of the infant.

Conclusion

Education, socio-economic factors, knowledge of the mother, income and distance of healthcare centres, all affect the rate of infant mortality either directly or indirectly. The study observed that two most important factors with a direct impact on IMR are education and socio-economic status of the mother. It can be concluded that the benefits of the mother's education in reducing infant death plays an important role even when other socio-economic factors are taken into account. The findings reached with the help of this project emphasize to provide education to the mothers of such backward regions like Bundelkhand, which are crucial for reducing infant mortality. Besides education, attempt should also be made to increase the scope of getting mass media exposure and higher level of socio-economic empowerment of the mother (two factors that are closely related with education) to reduce the infant mortality in India.

Declaration*: the paper is original, not submitted anywhere for publication and has not been published before.*

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The Youth of Particularly Vulnerable Tribal Groups (PVTGs) and their Livelihood Practices in India

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Particularly vulnerable tribal group, primitive tribes; youth; Livelihood Practices; Entrepreneurship; Development

ABSTRACT

This research paper presents the livelihood practices and opportunities of the youth of particularly vulnerable tribal groups (PVTGs) living in Andhra Pradesh, India. The PVTGs are a group of tribes under the scheduled tribes of India. There are 75 PVTGs communities living in India, of which 12 PVTGs communities are living in the state of Andhra Pradesh. PVTGs youth are different in many aspects compared to urban youth and rural youth. PVTGs youth are the less developed among tribal groups, more vulnerable, marginalized, live in remote forest areas and hill tracks with poor connectivity and access. This study used two sampling methods i.e. stratified multistage sampling method and systematic random sampling method and conducted with 240 PVTGs youth between the age group of 18-34 years through a structured interview schedule. The study found that the major livelihood practices of PVTGs youth are agriculture or podu cultivation, daily wage, collection and selling of forest products, farm animals and livestock and small scale entrepreneurship. Still, the PVTGs youth are backward because of low income, poverty, poor connectivity, and living in remote forest areas. The PVTGs youth need separate reservations, separate welfare corporation to access the government employment and other welfare or developmental schemes.

1.0 Introduction

Youth is the embodiment of strength and courage of every Nation. Youth is an age between the childhood and adulthood. The Ministry of Statistics of India (2017) adopted population between 15-34 years as the age group of youth. According to the Government of India (2011), this age-group constitutes 34.8 per cent of India's total population. Presently, India has the largest share of the youth population in the world and will continue to hold so for the next 20 years.

1.1 Scheduled Tribes

India has the world's second-largest concentration of tribal population next to Africa. The term tribe has been derived from the Latin word 'tribus' which means a social group (H. Ashok Kumar & T.M. Mahesh. 2014). A tribe is a group of people in a primitive and barbarous stage of development, acknowledging the authority of a chief and usually regarding themselves as having a common ancestor (Oxford Dictionary, 2020). The Scheduled Tribes (STs) are the indigenous people of India and are among the most vulnerable and marginalized groups of the country. They are considered the oldest ethnological groups, referred to as *Adivasis* or original inhabitants of India. There are 705 schedule tribe groups living in India. Among them, 75 tribal groups are primitive tribal groups (PTGs)/ particularly vulnerable tribal groups (PVTGs). The Government of India and Government of Andhra Pradesh have

lot of concentration on the development as an empowerment of scheduled tribes for better living.

1.2 Definition of Scheduled Tribes

The Constitution of India does not define scheduled tribes, but Article 366 (25) refers to the scheduled tribes as those communities who are scheduled by Article 342 of the Constitution. According to Article 342 of the Constitution, the scheduled tribes are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the President of India through a public notification (M Nageswara Naik and G Savaraiah, 2017). Scheduled tribes are spread across the country mainly in forest and hilly regions (Jatinder Singh, 2016). The major characteristics of these tribes are a common family name, common language, common territory, and common descent from a mythical or historical ancestor. They have their own political organization. They have developed a well-assessed system of mutual obligations. They are relatively isolated in hills, forests and limited worldview. They practice their traditions, cultures and values.

1.3 Scheduled Tribe Population

According to 2011 census, the scheduled tribes' population in India is 104.3 million (8.7%), accounting for about one-fourth of the total tribal population of the world (S. Devanna & B. Suresh, 2017). There are about 705 ethnic groups in the country categorized as scheduled tribes in the constitution of India and they live in all 29 States and Union territories of the country (K. Mohan Rao, 2016). Andhra Pradesh state has seven per cent of between 15-34 years tribal population.

Table 1: Scheduled Tribe Population in India since 1951

Year	Tribal Population	Percentage of Total Population	Decadal Growth Rate
1951	19,111,498	5.29	41.19
1961	30,130,184	6.86	33.84
1971	38,015,162	6.94	24.80
1981	51,628,638	7.83	24.69
1991	67,658,638	8.08	23.79
2001	84,326,240,	8.20	22.7
2011	104,545,716	8.61	23.7

Source: Ministry of Tribal Affairs (2008)

The data in the above table show that the percentage of between 15-34 years tribal population has been growing in India. According to between 15-34 years 1951census, the ST population in India was 5.36 per cent and in 2011 census, the ST population in India was 8.61 per cent in the total population of India. The growth rate of ST population is much lower in comparison with between 15-34 years Scheduled Castes, other Backward Castes and Other Castes of India.

According to census (2011) report, the state-wise scheduled tribe population in India is as follows: Madhya Pradesh stands first with 14.7%, followed by Maharashtra (10.1%), Odisha (9.2%), Rajasthan (8.9%), Gujarat (8.6%), Jharkhand (8.3%), Chhattisgarh (7.5%), Andhra Pradesh (5.7%) and West Bengal (5.1%). The states of Karnataka (4.1%), Assam (3.7%), Meghalaya (2.5%), and the remaining States represent 11.6% of the tribal population. The proportion of ST population in the rural areas is 11.3% and in urban areas is 2.8%. More than half the Scheduled Tribe population is concentrated in the States of Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Gujarat, Chhattisgarh, and Jharkhand. The state of Andhra Pradesh contributes to seven per cent of between 15-34 years total scheduled tribes' population. The below table presents the district-wise scheduled tribes' population

in the state of Andhra Pradesh:

Table 2: District-wise Scheduled Tribe Population

S. No	Name of the District	Percentage of ST population in total district population
1	Srikakulam	6.1
2	Vizianagaram	10.0
3	Visakhapatnam	14.4
4	East Godavari	4.1
5	West Godavari	2.8
6	Krishna	2.9
7	Guntur	5.1
8	Prakasam	4.4
9	Nellore	9.7
10	Chittore	2.6
11	Kadapa	2.0
12	Kurnool	3.8
13	Anantapur	3.8

Source: Andhra Pradesh Planning Department, 2014

The data in the above table show that Visakhapatnam, Vizianagaram, Nellore and Srikakulam contribute more per cent of scheduled tribe population in the state of Andhra Pradesh. It may be the reason that geographical locations of these districts are associated with forest and agency areas.

1.4 Primitive Tribes in India

In 1975, the Government of India initiated Dhebra commission to identify the most vulnerable tribal groups as a separate category called Primitive Tribal Groups (PTGs) and that committee declared 52 communities as PTGs. In 1993, Government of India added another 23 groups to the PTGs category, making it a total of 75 PTGs out of 705 Scheduled Tribes, spread over 18 states and one Union Territory (UT), in the country (2011 census). In 2006, the Government of India renamed the PTGs as Particularly Vulnerable Tribal Groups (PVTGs) (G Muralidhar (2014). The main criteria adopted for identification of such tribe are: 1) forest-dependent livelihoods, 2) pre-agricultural level of existence, 3) stagnant or declining population, 4) low literacy rates and 5) a subsistence-based economy. According to the 2001 census, the PVTGs population is approximately 27,68,322 in India (Virginius Xaxa et.al. 2014).

At present, there are 75 tribal groups identified and categorized as Particularly Vulnerable Tribal Groups (PVTGs), (earlier known as Primitive Tribal Groups). In Andhra Pradesh, there are 12 primitive tribes living in the agency areas of Andhra Pradesh.

Table 3: Major PVTGs Communities in Andhra Pradesh

Andhra Pradesh	1.Chenchu
	2.Bodo Gadaba
	3.Gutob Gadaba
	4.Dongria Khond
	5.Kultia Khond
	6.Kolam
	7.Konda Reddi
	8.Kondasavara

	9.Bondo Porja
	10.Khond Porja
	11.Parengi Porja
	12.Thoti

Source: Prof. T. Subramanyam Naidu, 2020

Among them, Gutob Gadaba, Parengi Porja, Konda Savara and Dongria Khond groups are living in the study area i.e. pats of Visakhapatnam and Vizianagaram districts. They are simply called as Gadaba, Porja, Savara and Kodhu in the study area.

Gadaba: the Bodo or Gutob Gadabas are predominantly found in the Scheduled Areas of Vizianagaram and Visakhapatnam districts of Andhra Pradesh. The total Gadabas' population according to 2011 Census reports is 37,798. They live in huts. Gadabas speak their own dialect called 'GADABA'. At present the Gadabas are cultivators and agricultural labourers and collect Forest Produce.

Kodhu: the Kondhs are called Kodhu in the study area. They are predominantly distributed in the densely wooded hill slopes in the Scheduled Areas of Visakhapatnam district. They are also known as 'Samantha', 'Kodu', 'Kodi', 'Kodhu', 'Kondu' and 'Kuinga' (Indira Dutta and Meera lal, 2016). Their population according to the 2011 Census is 1,02,378. The Khonds mainly subsist on cultivation and they are experts in *Podu* cultivation. They are adept in hunting and fishing and also specialized in basket making, mat weaving, oil extraction, etc.

Porja: the Porja living in Andhra Pradesh belong to the Parengi Porja who belong to Austro Asiatic linguistic family were recently migrated from Orissa. Their population as per 2011 Census is 36,143. They have their own dialect but also speak Telugu as well as Adivasi Oriya. Most of the Porjas who are living in the interior are largely subsisting on *podu* cultivation on hill slopes and collects forest produce. The landless sections work as agricultural labourers.

Savara: the Savara community is found inhabiting mainly hill slopes and near hill streams particularly in the mandals of G.L.Puram and Kurupam in Vizianagaram District. Their population is 1,37,613 as per 2011 Census. They speak their own Savara dialect besides Telugu. The Savara tribes are usually living in the interior and hilltops areas. The main occupation of the community is agriculture, horticulture and gathering of minor forest produce.

1.5 Background of PVTGs Youth

Tribal youth, particularly PVTGs youth are different in many aspects and cannot be compared with urban and rural youth in India. The PVTGs are vulnerable, marginalized and less developed tribal communities leading poor quality of life (QOL) in India. There are 75 PVTGs communities living in India and among them four PVTGs communities are living in the study area. PVTGs youth lives in remote forest areas, hill tracks and hill slopes. They get married at an early age and choose a livelihood to run the family. They are dependent on the forest for food and livelihood. Poor health care facilities, lack of transportation, poor connectivity and access, and impact of Naxalism are the major challenges to them. The Governments of Andhra Pradesh and India initiated many schemes through the Integrated Tribal Development Agency (ITDA) for the development of PVTGs youth like income generation support, education to children, basic health facilities, agricultural support, and awareness on various human rights and health problems. But these schemes are not reaching the PVTGs both in quantity & quality and still, they are backward in society leading a poor quality of life (QOL).

Livelihood is very important for every human being to engage with some work in their day to day activity. It provides them with the basic needs i.e. food, shelter and cloth. People with scant livelihood opportunity may migrate from that place, undergo extreme poverty, and they may face more health problems for the self, family and older people. Studies reported that the migration is very high in tribal areas due to lack of livelihoods including income generation programmes (IGPs). Some of the youth turned towards Naxalism and some of them are involved in the smuggling of Ganja and other unhealthy activities. There are a few studies conducted on livelihood opportunities, income sources and problems of PVTGs youth. Based on the above conditions, the present study has been conducted on PVTGs youth.

2.0 Review of Literature

Santanu Panda (2017) conducted a study on 'Development Scenario among the PVTGs: A Case Study of Birhor'. In this study, the researcher found that most of them for their livelihood depended on forest produce collection and non agricultural day labourer. The findings revealed that the reasons behind of the non utilization of the development inputs are following points. The government had given goats under a goatery scheme and pig under a piggery schemes to all the Birhor families in Purulia district to improve their socio-economic condition. But after 10 to 15 days the entire goat population died after suffering from diseases, because the beneficiaries had no knowledge of how rearing goats. The major reason behind the non-utilization of funds for house building lay in the poor and non-participatory nature of the planning the construction of the houses by the concerned department of the government. The major reason behind the non-utilization of *patta* land was that the government gave pople *patta* record but the Birhor beneficiaries have not seen the actual plot, let alone right to cultivation in his/her plot.

Bhattacharjee Suchiradipta et al (2018) conducted a study on 'Dynamics of Livelihood Diversification: A Study on Rural Tribal Youth in North Indian state Tripura'. The study found that the tribal livelihood has always been more or less dependent on land, but with the redistribution of forest land consequent to introduction of Forest Rights Act, increased restriction on traditionally practiced jhum cultivation, and distinct signs that over the time solely agriculture-based livelihood has been becoming to be non-remunerative, there is a need to rethink on the issue of the use of the land by the tribal communities, especially tribal youth.

3.0Methodology

3.1 Aim of the study

The present study is an attempt to study the livelihood practices, opportunities and challenges of PVTGs youth and suggest alternative livelihoods, schemes, programmes for the empowerment of PVTGs youth living in parts of Andhra Pradesh. This study has focused on PVTGs youth in the age group of 19-34 years.

3.2 Objectives of the study

1. To study the socio-economic, demographic and educational profile of PVTGs youth of Visakhapatnam and Vizianagaram districts of Andhra Pradesh; 2.To understand the traditional livelihood practices and challenges of PVTGs youth; and 3. To provide appropriate suggestions to promote the development of PVTGs youth.

3.3 Research Design

A descriptive research design is formulated for the present study with a view to describe, compare and analyze the perceptions of the PVTGs Youth towards their livelihood opportunities in an agency area of two districts of Andhra Pradesh.

3.4 Sample

The researcher used two sampling methods for the present study. The first sampling method is a *stratified multistage sampling method*. The researcher selected two high populated and two low populated mandals from each selected districts. The total mandals selected for the present study is eight mandals. From the selected each mandal, the researcher selected two high populated and two low populated villages. The total selected villages for the present study are 32 villages. The second sampling method adopted for the present study is a *systematic random sampling method*. The researcher prepared a list of PVTGs youth between the ages of 19-34 years in the selected villages. The total youth living in these 32 villages is 2407. Every 10th number has been selected for the present study and the sample size for the present study is 240 youth from 32 villages.

3.5 Data Collection and Analysis

The data were collected at the houses of PVTGS youth between the months of April – June 2019. The data were collected from 240 PVTGs youth through a structured interview schedule which was tested through a pilot study. The researcher also interacted with 25 government officers and NGOs to get more clarity on the issues related to PVTGs youth. The data were analysed through MS Excel 2007 version and SPSS 17th version.

3.6 Limitations of the study

The data were collected between April – June Months. It is a summer season in India. Majority of the livelihood practices are related to the summer season. Another limitation is that the study conducted with the youth of four PVTGs. The livelihood practices belongs to these four PVTGs only.

4.0 Results of the Study

4.1 Age of the respondents

Age is very important for every research study. It is a independent variable influence many factors of the life. The below table presents the age of the respondents of the present study:

Table 4: Distribution of the respondents by their Age

Age	Frequency	Percentage
19-22	15	6.3
23-26	46	19.1
27-30	76	31.7
31-34	103	42.9
Total	240	100.0
Mean 27.70 years Median 28.00 years Mode 32.00 years Range 19-34 years		

Source: field work, 2019

The data in the above table show that the larger percentage (42.9%) of the respondents belonged to 31-34 years age group, followed by 31.7 per cent respondents belonged to 27-30 years age group. The class interval is four years. The mean age is 27.70, the median is 28.00 and mode is 32.00. The age range of the respondents is from 19 years to 34 years. The below table presents the caste of the respondents.

Table 5: Distribution of the respondents by their Caste

Caste	Frequency	Percentage
Gadaba	62	25.8
Kodhu	113	47.1
Porja	28	11.7
Savara	37	15.4
Total	240	100.0

Source: field work, 2019

The data in the above table show that 47.1 per cent of the respondents belonged to the Kodhu community, 25.8 per cent of the respondents belonged to the Gadaba community, 15.4 per cent of the respondents belonged to the Savara community and 11.7 per cent respondents belonged to the Porja community. It is observed that the Kodhu and Gadaba communities lives in both the districts i.e. Visakhapatnam and Vizianagaram, the Savara community lives in Vizianagaram districts and the Porja community lives in Visakhapatnam districts only. It may be a reason that the Gadaba community and Kodhu community have more representation in the sample

4.2.0 Major Livelihoods of Tribal Population in India

The PVTGs depend on various livelihoods such as the collection of forest products and selling in the nearby markets, agriculture or shifting cultivation, livestock rearing, daily wage work, MGNREGS and artisan works. Most of their livelihoods depend on the forest. The forest is their life and livelihood.

4.2.1 Agriculture

The PVTGs depend on forest lands and hill slopes for *podu* cultivation. *Podu* is a local word which means shifting cultivation. Under this cultivation, they select a piece of land and cut the trees and bushes, partially or fully. After cutting the bushes and trees they leave it to dry and then burn them. In those lands, they plant the seeds without using ploughs into holes. Depending on the altitude, they grow maize, millets, pulses, rice, potatoes, vegetables, chillies, beans, sweet potatoes, mustard, sugar cane, sesame, pineapples, citrus, bananas and jackfruits. After some years, when they find that the crop yield is decreasing, they leave that land and move to another land. After 5 to 20 years, they restart cultivation in their previous lands. This cultivation is practised by PVTGs in Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh and Odisha states of India. But the government declared their shifting lands as reserved forest areas and forced the PVTGs to prepare new lands for shifting cultivation *(G Muralidhar, 2014).* The following table presents the information about the agricultural landholding status of tribal youth:

Table 6: Distribution of the respondents by having Land

Having Land	Frequency	Percentage
Yes	225	93.8
No	15	6.2
Total	240	100.0

Source: field work, 2019

The data in the above table show that 93.8 per cent of the respondents have agricultural land in

their villages while 6.2 per cent of the respondents do not have agricultural land. The respondents stated that the land is inherited from their parents, some of them reported that the government has given banjar lands and some of them are benefited from the Forest Rights Act 2006.

About 70 per cent of the population mainly depends on rain-fed agriculture characterized by low productivity, un-predictive weather and calamities, degraded soil with low fertility, unproductive irrigation and degraded natural resources *(Mohammad Ajaz-ul-Islam, 2012).* Recently, PVTGs youth started the cultivation of commercial crops like turmeric, cashew, coffee, pepper and silver trees which gives more income with less amount of agricultural work.

4.2.2 Forest Collection and Fishing

Forest is a primary resource for the PVTGs youth. Collection of forest products and selling in the near markets is one of the livelihood practices for PVTGs youth. Forest provides various products such as fuel-wood, the timber for house construction, vegetables, fruits, and medicinal herbs, etc. The household members have engaged in a full day work of collecting forest produce *(Prayas, 2005).* It is a seasonal activity. This work is available between the months of March to June. The following table presents the percentage of respondents involves in the collection of forest products.

Table 7: Distribution of the respondents by Collection of Forest Products

Collection of Forest Products	Frequency	Percentage
Yes	97	40.4
No	143	59.6
Total	240	100.0

Source: field work, 2019

The data in the above table revealed that there is 40.4 per cent of the respondents are collecting the forest products and selling at their homes and at near markets. It is a seasonal activity and they earn Rs.1000/- to Rs.1500/-. They collect various NTFP items such as tamarind, curry leaves, Adda leaves, soap nut, tree moss, bamboo, honey, gum, amla, fuel-wood, sprouts, medical plants, roots and tubes. But today, they have a lot of restrictions on their movement in the forest because of the National Forest Policy of 2006 which regulates the movements of people with traditional rights, for several reasons, of which one is for helping to regenerate the forests. Still, some of the people use their traditional rights to go into the forests for collecting Minor forest products (MFP) and travel considerable distances over a period of time for collection of forest produces. The following table presents the association between the caste and collection of forest products.

Table 8: Distribution of the respondents by their Caste and Collection of Forest Products

Caste		Collection of Forest Products		Total
Yes		No		
Caste	Gadaba	5 (5.1) (8.1)	57 (39.8) (91.9)	62 (25.8) (100.0)
	Kodhu	62 (63.9) (54.9)	51 (35.7) (45.1)	113 (47.8) (100.0)
	Porja	21 (21.6) (75.0)	7 (4.9) (25.0)	28 (11.7) (100.0)
	Savara	9 (9.3) (24.3)	28 (19.5) (75.7)	37 (15.4) (100.0)
Total		97 (100) (40.4)	143 (100) (59.6)	240 (100) (100)
Pearson Chi-Square		54.631(a)	3	.000

Source: field work, 2019

Analysis of the data on the caste and collection of forest products by the respondents show that there is an association between two variables as it is evident from the data that majority of the Kodhu and Porja community people are collecting the forest products. As both communities' lives very near to forest, they collect NTFP. Remaining two communities like the Savara and Gadaba are dependent on daily wage work and other sources of livelihoods. It is proved in the statistics as the Pearson Chi-Square 54.631(a), Df.3, Significance is .000.

4.2.3 Daily wage work

Daily wage work is another livelihood source for the PVTGs youth. They attend the daily wage work for the other tribal communities like the Kondadora, Baghata, and Valmiki in the nearby villages. It is one of the seasonal livelihood sources for the PVTGs youth. Both men and women attend daily wage work. The following table presents the attendance of daily wage work of the respondents:

Table 9: Distribution of the respondents by the Attendance of Daily Wage Work

Daily Wage Work	Frequency	Percentage
Yes	196	81.7
No	44	18.3
Total	240	100.0

Source: field work, 2019

The data in the above table show that majority 81.7 of the respondents are going for the daily wage work, while 18.3 per cent of the respondents are not going to the daily wage work. Daily wage work is seasonal work in PVTGs villages and it is available in the months of June – January (rainy season). Daily wage work is available at their villages and another nearby villages. Most of the time the Kondadora, Bagata and Malludora communities invite them for daily wage work in their agricultural lands. They earn Rs. 200-300per day through daily wage. They work from morning to evening. It is also observed that some people who came from the plain area took the land of 30-40 acres for lease and are doing the agriculture in the PVTGs villages. PVTGs youth get daily wage work in those lands. The study observed that the people who have completed higher education are also attending the daily wage work due to lack of employment in agency areas. The following table presents the association between education and daily wage work.

Table 10: Distribution of the respondents by their Education and Daily Wage Work

Education Yes		Daily Wage		Total
		No		
Education	Illiterate	112 (57.1) (88.9)	14 (31.8) (11.1)	126 (52.5) (100.0)
	1-5	33 (16.8) (91.7)	3 (6.8) (8.3)	36 (15.0) (100.0)
	06-10	30 (15.3) (75.0)	10 (22.7) (25.0)	40 (16.7) (100.0)
	Intermediate	17 (8.7) (56.7)	13 (29.5) (43.3)	30 (12.5) (100.0)
	Degree	4 (2.0) (57.1)	3 (6.8) (42.8)	7 (2.9) (100.0)
	PG and Above	0	1(2.3) (100.0)	1(0.4) (100.0)
Total		196 (100.0)	44	240
Pearson Chi-Square 27.771(a)		5	.000	

Source: field work, 2019

Analysis of the data on the Education and Daily wage work of the respondents show that there is an association between Education and Daily wage work as it is evident from the data that majority of the illiterate respondents and literate respondents are attending the daily wage work. The people who have good education like intermediate and degree are also attending for the daily wage work. It may be reason that there are no job facilities in tribal areas. It is proved in the statistics that the Pearson Chi-Square 27.771(a), Df.5, Significance is .000.

4.2.4 Entrepreneurship

Entrepreneurship is another source of livelihood for PVTGs youth. Entrepreneurship is the process of initiating, designing, launching and running a new business, which is often initially a small business. Some of the PVTGs youth initiated a business, gather all resources, undertake risks, face challenges and manages the business independently in the tribal villages. Most of the time these entrepreneurships in PVTGs is based upon the agriculture, forest-based products and other tribal related activities. The following table presents information about the existing entrepreneurs in PVTGs villages.

Table 11: Distribution of the respondents by Finding of any Entrepreneurship in their Village

Entrepreneurship in Your Village	Frequency	Percentage
Yes	36	15.0
No	204	85.0
Total	240	100.0

Source: field work, 2019

The data in the above table show that majority (85 per cent) respondents stated that they did not find any entrepreneurship in their villages, while 15 per cent of the respondents stated that they did find some entrepreneurs in their villages running by their PVTGs youth. The major entrepreneurships are a petty business, goat raring, village poultry programme, honey making, photography at tourist places, and selling of forest products. Majority of the respondents have the interest to start the business but the guidance, capacity building and financial support are required by the Government and the NGOs.

4.2.5 Farm animals and Livestock

The PVTGs rear different types of farm animals and livestock such as goats, sheep, cows, donkeys, horses, bullocks, buffaloes, and chickens. They use farm animals for the cultivation of the land because there is no other machinery available in the hill areas. The tractors may not reach the agricultural lands due to lack of road transportation facility and the land is on hill slopes. The major farm animals in tribal areas are buffaloes, cows, bulls, donkeys and horses. The following table presents the information about the number of farm animals is available with tribal youth:

Table 12: Distribution of the respondents by having Farm Animals

Farm Animals	Frequency	Percentage
Yes	125	52.1
No	115	47.9
Total	240	100.0

Source: field work, 2019

The data in the above table show that the majority (52.1 per cent) of the respondents have farm animals, while 47.9 per cent of the respondents not have the farm animals. It is also found that the majority (84.8 per cent) of the respondents have 1-2 bullocks/cows. The remaining livestock rare by the PVTGs is chicken, goats, sheep, etc. Livestock is a major source of milk and meat to the PVTGs. They

used to get nutritious food and income from livestock. Previously, PVTGs youth hunt livestock from the forest. But after an inception of the Forest Conservation Act, 1980, Wildlife Protection, Act, 1972 and other Policies of the government of India are prevented the hunting of livestock in the forest. Then PVTGs youth started the raring of livestock at their houses. They also catch fishes in streams, tanks, ponds, seashore, lagoons and rivers for consumption (G Muralidhar, 2014). Majority of the respondents are not getting any income from the livestock. There is one government programme i.e. village poultry programme reached many PVTGs youth. They received 20-30 chicks which are forest friendly, gives more eggs in a year. It is a useful programme for nutritious development and income generation.

5.0 Suggestions

Scarcity of water for cultivation is a major problem in scheduled areas. *Podu* cultivation is dependent on rain. The Government and the NGOs should initiate the programmes related to the construction of tanks, canals, and the micro irrigation watershed development projects to provide water for agriculture.

Collection of the forest products is another important livelihood source for PVTGs youth. It provides the income and fulfils the daily home needs of fuel and fodder of PVTGs families. Generally, PVTGs youth collects the forest products between the months of March – July. PVTGs women also play an important role in the collection of forest products for the home. Regular training should be given on collection of forest products based on the demand and season. The daily wage is very less in the tribal areas when compared with the rural and urban areas. It should be increased; otherwise tribal families cannot save any money for basic survival.

Equal pay for equal work should be practised by the farmers at PVTGs villages. The daily wage amount and days of work in MGNREGS should be increased in tribal areas because they work in hard / rock soil. It is difficult to work in tribal areas than the rural areas. PVTGs youth have an interest to start the village friendly entrepreneurship like goat rearing, small business (kirana and fancy) at their house, vending of food material, honey processing units, poultry, milk dairy, and basket making which are suitable entrepreneurship ideas in the tribal area. Making pickles is one of the livelihood practices for tribal youth. The fruits are available in the forest at free of cost. Self Help Groups (SHGs) and other village-based associations should be trained as entrepreneurship units because they are interested and trained in many aspects. Special attention is required to create basic infrastructure facilities, like roads, transportation, and electricity on a priority basis in the interior hill tracts where the PVTGs generally reside.

The PVTGs are more backward communities than other non-PVTGs communities living in scheduled areas. Hence, PVTGs required separate reservations & schemes for their growth and development. Saving habit is very less among PVTGs youth because of their remoteness. Some of the PVTGs youth have invested their money in some false organizations like agri-gold and welfare because of the field visits by the agents. Bank and post-office employees also conduct the field visits to promote the savings among the PVTGs in bank accounts and post offices. PVTGs youth do not have proper security documents for their house and agricultural lands. Banks should provide loans to PVTGs youth without any security documents. It may help them to increase their income through entrepreneurship. Awareness among PVTGs youth should be promoted on Government Welfare Programmes and acts related scheduled tribes in India ex: PESA Act, Forest Rights Act and SC&ST Atrocities Act. Separate Corporation for the welfare and development of PVTGs should be initiated by the Governments or bifurcation of ITDA should be done. The separate corporation may provide the services to the PVTGs.

5.1 Steps to empower the PVTGs Youth

The figure presents the steps to empower the PVTGs youth in India. The steps were developed based on the experience gained in the present research study. PVTGs youth require sustainable livelihoods. The work should be available for 365 days at their villages. Initiation of the new livelihoods through skill development gives more income to PVTGs youth. Agency friendly entrepreneurships should be developed and cultivation of commercial crops should be promoted among PVTGs youth. PVTGs youth should increase their strengths, capacities in education, business and access the new marketing strategies to promote their products. All these steps help PVTGs to reduce the migration and increase the healthy and happy life.

6.0 Conclusion

Overall, the study discussed the livelihood practices of the youth in PVTGs. the youth of PVTGs are traditionally dependents on the forest and natural resources. Over the decades, the tribal economy and the livelihood strategies have undergone substantial changes. The development of PVTGs is very poor. They have a poor quality of life. The influence of the concepts globalization, urbanization and privatization not very strong on the day to day life of PVTGs youth. They need more financial support from government and NGOs to start entrepreneurship. They need separate corporations to access the government schemes. Media should publish the conditions of PVTGs youth. The academicians should do research on the economical problems of PVTGs youth. They need more support to improve their quality of life.

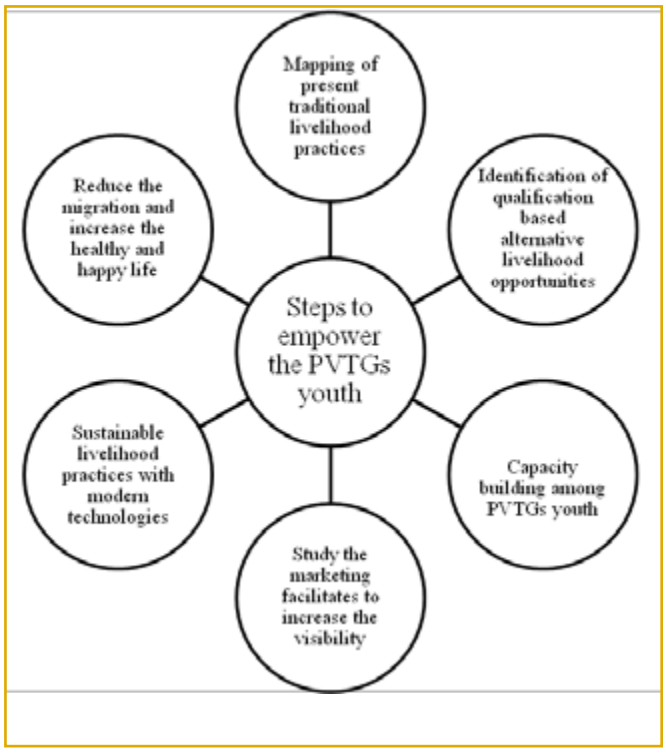

Figure 1: Steps to empower the PVTGs Youth.

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Socio-economic and Demographic Determinants of Double Burden of Malnutrition among Rajbanshi School-going Children aged 9-14 Years from North Bengal, India

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KEYWORDS

Anthropology, BMI, Overweight, Public Health, Thinness

ABSTRACT

The Double Burden of Malnutrition (DBM) is a recent phenomenon in the nutritional situation among populations belonging to the low-middle-income countries. Socio-economic, demographic factors with adoption of western lifestyle, unhealthy diets and physical inactivities are the main cause of DBM. The study aims to evaluate the socio-economic and demographic determinants among school-going children belonging to the Rajbanshi population of North Bengal, India. Prevalence of dual burden of undernutrition and overweight were among tha Rajbanshi adolescents children 9-14 years. The DBM has associations with sex/gender, age, birth order and house type. Higher associations were seen among higher age groups and those living in pakka houses.

Introduction

The "Double Burden of Malnutrition" (DBM) refers to the prevalence of both under- and overnutrition within an individual or household or population (Doak *et al.* 2005; Keino *et al.* 2014; Tzioumis and Adair 2014; Wong *et al.* 2015; Gubert *et al.* 2017; Yang *et al.* 2019). The DMB is an important health issue in many of the developing countries such as India. With rapid socio-economic, demographic and nutritional transitions, these countries are portrating an increases in incidence of overweight-obesity with relative risks of associated non-communicable diseases within the population. The DBM co-exists with an increasing incidence in a number of non-communicable diseases in many of these countries (Kavle *et al.* 2016; Nethan *et al.* 2017; Ayogu *et al.* 2018; Modjadj and Madiba 2019) including India (Khor 2008; Mondal *et al.* 2015; Kulkarni *et al.* 2017; Bharali *et al.* 2017; Tigga *et al.* 2018; Debnath *et al.* 2019). Studies have observed that such prevalence were usually confined to the urban socio-economic groups, the principal reasons being adoption of western lifestyles and physical inactivities (Subramanian *et al.* 2007; Tzioumis and Adair 2014; Ranjani *et al.* 2016; Jaiswal *et al.* 2017; Mondal *et al.* 2017; Yang *et al.* 2019). Studies have also reported certain socio-economic and demographic variables that are associated with an increase in DBM among Indian populations (Subramanian *et al.* 2007; Regma *et al.* 2015; Mondal *et al.* 2017; Bharali and Mondal 2019; Dev *et al.* 2020; Bose and Sen 2020). Several researchers have reported a high prevalence of thinness or stunting along with overweight within the same population/household (Popkin *et al.*

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1996; Doak *et al*. 2005; Keino *et al*. 2014; Tzioumis and Adair 2014; Mondal *et al*. 2015; Pereira *et al*. 2017; Ahmad *et al*. 2018; Varghese and Stein 2019; Debnath *et al*. 2019) are mentionable. The cut-offs of overweight and obesity among adults as recommended by the International Obesity Task Force (IOTF) or WHO reference (Cole *et al*. 2000) are BMI >25.0 kg/m^2 and 30.0 kg/m^2. In Africa, it has been documented that the prevalence of stunting hovered unchanged at 40 percent over the past few decades. Projections of stunting for 2020 painted the same picture for Africa. However, stunting rates decreased in Asia and Latin America. Moreover, the incidence of obesity has increased at a high rate among children (Black *et al*. 2013; Biswas *et al*. 2017; Sagbo *et al*. 2018; Dali *et al*. 2018; de Onis *et al*. 2019). de Onis *et al*. (2010) reported that 43 million children <5 years during the year 2010 were overweight- obese, with another 93 million children being at risk of being overweight, thus the global prevalence of overweight/obesity increased from 4.2 percent in 1990 to 6.7 percent in 2010. Studies have indicated a slight decrease in undernutrition along with a simultaneous acceleration of overweight-obesity, thus showing existence of a DBM (Subremanian *et al*. 2007; Khor 2008; Kapil and Sachdev 2012; Mondal *et al*. 2015; Ranjani *et al*. 2016; Song *et al*. 2018; Dali *et al*. 2018; Modjadj and Madiba 2019). Although, prevalence of overweight/obesity had slightly increased during the past decade, it is relatively high among some urban and high socio-economic groups. This could be attributed to the adoption of western food habits and lifestyles (Khadilkar and Khadilkar 2004; Sidhu *et al*. 2006; Subremanian *et al*. 2007; Laxmaiah *et al*. 2007; Sharma *et al*. 2007; Mondal *et al*. 2015; Regma *et al*. 2015; Pawar *et al*. 2016; Sagbo *et al*. 2018; Popkin and Reardon 2018; Min *et al*. 2018) However, the published literature from the country continued to demonstrate that undernutrition still remained a significant public health issue due to substantial socio-economic and demographic disparities, nutritional insufficiencies and environmental conditions (Bose *et al*. 2007; Chowdhury *et al*. 2008; Subramanian *et al*. 2007; Sen and Mondal 2012; Rengma *et al*. 2015; Debnath *et al*. 2018, 2019; Levin *et al*. 2019). Higher socio-economic status, demographic factors, lifestyle modification and higher education are strongly associated with prevalence of a greater risk of overweight-obese among Indian populations (Subremanian *et al*. 2007; Wang *et al*. 2009; Sen and Mondal. 2013; Keino *et al*. 2014; Mondal *et al*. 2015; Rengma *et al*. 2015; Pandita *et al*. 2016; Mishra 2017; Ahmad *et al*. 2018; Debnath *et al*. 2019). The period of adolescence (9-18 years) is a period of transition between childhood and adulthood which is characterized by an exceptional rapid growth and development. There are great individual variations that present difficulty in defining normality among children. Based on current estimates, adolescents contribute to 1.2 billion individuals of the global population and make up one of the largest cohorts (243 million) of the Indian population (Roy *et al*. 2016). The rapid growth and maturation, demand extra nutrients and energy-rich foods which make them potentially nutritionally vulnerable group. Studies have revealed that diets that are not adequate in nature, along with unfavourable environmental and socio-economic conditions adversely affect their physical growth and nutritional status (Roy *et al*. 2016; Tigga *et al*. 2018; Debnath *et al*. 2018). The nutritional status of adolescent girls warrants special focus as they are the 'future mothers' and they contribute significantly to the overall nutritional status and health of the concerned population (Chowdhury *et al*. 2008; Mondal and Sen 2010a; Rengma *et al*. 2015; Jeyakumar and Ghugre 2017; Kunwar *et al*. 2018; Tigga *et al*. 2018; Varghese and Stein 2019; Debnath *et al*. 2019). It is a major area of concern as these girls have the potential to be associated with many concurrent and future adverse health outcomes, such as poor reproductive outcome or intra-uterine growth retardation, thereby contributing to the vicious cycle of malnutrition (WHO 1995; Roy *et al*. 2016). It has also been observed that adolescents in India often attained lower growth than their reference counterparts (Sen *et al*. 2015; Bharali *et al*. 2017; Varghese and Stein 2019; Debnath *et al*. 2019). It is only recently that efforts have been made to include adolescents as beneficiaries in some of the countrywide healthcare and nutritional intervention programmes of the country (Mondal and Sen 2010a; Kapil and Sachdev 2012; Samal and Dehury 2017; Debnath *et al*. 2019).

It becomes imperative to investigate the effects and implications of both overweight-obesity occurring simultaneously with undernutrition in the individual level and/or in the same household and community. The objectives of the present investigation are to assess the coexistence of overweight-obesity, and associations of different socio-economic and demographic variables that have the potential to affect DBM among adolescents belonging to the same ethnic population and residing within the same geographical area.

Materials and Methods

North Bengal popularly refers to the northern part of the state of West Bengal, India and is made up of 8 districts (Darjeeling, Kalimpong, Jalpaiguri, Cooch Behar, Alipurduar, North Dinajpur, South Dinajpur and Malda). The region is the homeland of large number of populations who speak different languages and dialects, having diverse ethnic origins and varied cultural traditions. The populations of the area include the Lepcha, Nepali, Bhutia Toto, Rajbanshi, Mech, Drukpa, Sherpa, Bengalee Speaking Hindu Caste and Bengali Muslim population. Studies have consistently reported that these populations are affected by undernutrition (Mondal and Sen 2010b; Sen and Mondal 2012; Debnath *et al*. 2017; Tigga *et al*. 2018).

The present cross-sectional study was carried among 350 school-going adolescent indigenous Rajbanshi children (boys: 175; girls: 175) aged between 9-14 years and residing in a rural area in the district of Darjeeling, West Bengal. The children were the students of one Rajbanshi dominated school located in Mulaijote located in Block Matigara of the district. The Rajbanshis are mainly located in some districts of North Bengal and the state of Assam. Ethnically they are related to the Koch population of Assam and it is believed that they belong to a mixed ethnicity of Austroasian/Dravidian and Mongolian. Kumar *et al*. (2004) utilizing the genetic markers reported that the Rajbanshi were a semi-Hinduized caste group located in-between the clusters of the Caucasoid caste and Mongoloid tribal populations.

The children were selected using a multi-stage stratified random sampling method. Initially 388 children (boys: 190; girls: 198) were approached to take part in the study investigation. Thirty eight of them (boys: 15; girls: 23) were subsequently excluded from the investigation as either they did not belong to the age group selected or they did not being to the Rajbanshi population. The final sample size consisted of 350 children (boys: 175; girls: 175). All the children were observed to be free from any physical deformities, nutritional deficiency symptoms and did not suffer from any disease at the time of data collection. Permission for the study was taken from the school authorities and Department of Anthropology, North Bengal University prior to data collection. Age and ethnicity of the children were determined from the school records. The work was conducted in accordance with the ethical guidelines for human experiments as laid down in the Helsinki Declaration of 2000 (Touitou *et al*. 2004).

Anthropometric Measurements Recorded

Anthropometry is a useful, non-invasive and easy-to-use technique to determine the nutritional status and body composition of an individual or population (WHO 1995; Rysha *et al*. 2017). The measurements of height and weight were recorded following standard procedures. The height of the children was recorded using an anthropometer rod to the nearest 0.10 cm. Weight of the children wearing minimum clothing and with bare feet was taken using a portable weighting scale to the nearest 0.10 kg.

The technical error measurement (TEM) was calculated using the standard method (Ulijaszek and Kerr 1999) so as to determine the accuracy of the anthropometric measurements. To calculate TEM, a total of 50 children, other than those covered in the present investigation were measured by two of the authors (PT and AB). The TEM was calculated using the following formula:

$TEM=\sqrt{(\Sigma D2/2N)}$ [D=difference between the measurements, N=number of individuals measured].

The co-efficient of reliability (R) was subsequently calculated using TEM by the following equation:

$R= \{1- (TEM)2/SD2\}$, SD= standard deviation of the measurements.

The intra-observer and inter-observer TEM were recorded to be within the cut-off value (R=0.95) as specified (Ulijaszek and Kerr 1999). Hence, the anthropometric measurements recorded by PT and AB were considered to be reliable and reproducible. All the anthropometric measurements in the course of the present study were subsequently recorded by one of the authors (AB).

Assessment of Nutritional Status

Nutritional status has been assessed in terms of Body Mass Index (BMI). The BMI was calculated following the internationally accepted standard equation (WHO 1995) which is as follows: BMI= Weight/Height^2 (kg/m^2).

The BMI is considered to be the most widely utilized and reliable indicator of both undernutrition and overnutrition (overweight-obesity) in both epidemiological and clinical investigations. The World Health Organization proposed age-sex specific reference values of BMIAZ among the children for the age group of 9-14 years (WHO 2007) were used to calculate the age-sex specific thinness and overweight. The age-sex specific z-score values were calculated by utilizing the L, M, S values of the respective growth references given for the children. Those children exhibiting z-scores values of <-2SD and $\geq+1$SD were categorized under 'thinness' and 'overweight-obesity', respectively (WHO 2007).

Socio-economic and Socio-demographic Data Recorded

A structured schedule was used to collect the data on socio-economic and socio-demographic and lifestyle variables recorded following household visits. The data were collected from parents of the children by adopting face-to-face interview and household survey methods. The variables recorded were birth order, mother's occupation, father's occupation, toilet facility, water facility, house type and household income. Ample precision and care was taken into consideration while briefing the questions and recording the data.

Statistical Analysis

The data was statically analyzed using the Statistical Package of Social Sciences (SPSS, Version 17.0). One way analysis of variance (ANOVA) was used to assess age-sex specific mean differences in the anthropometric variables. A binary logical regression (BLR) analysis using maximum livelihood estimation model was fitted to estimate the odds of being affected by thinness and overweight. The BLR model allowed the creation of categorical depended variable dichotomously and the odds were obtained by comparing with the reference categories. The prediction variables of sex, age, birth order, mother's occupation, father's occupation, toilet facilities, water facilities, house type and household income were used to assess the odds ratio. A child observed to be undernourished (e.g., thinness) in any of the categories of mild, moderate and severe thinness and overweight were coded separately as '0' and those being normal as '1'. Similarly, the predictor variables were entered in the BLR

model as a set of dummy variable separately for each regression model. The results obtained were subsequently compared with the reference categories. An odds ratio of 1 indicated that the odds of being undernourished (e.g., thinness) or overweight were not different from the reference category. If the estimated odds ratio was greater than 1, then the likelihood of being affected by undernutrition was higher relative to the reference category. If the odds were observed to be lower than the reference, then the probability of being undernourished was lower relative to the reference category. The p-values of <0.05 and <0.01 was considered to be statistically significant.

Results

Descriptive Statistics

The mean and standard deviation of height, weight and BMI with respect to age of both boys and girls are depicted in Table 1. Overall mean BMI among boys and girls were 21.67 ± 3.94 kg/m² and 18.38 ± 3.94 kg/m². Using ANOVA, it was observed that there were significant difference between ages among boys in height ($F = 17.84$; $p<0.05$), weight ($F = 4.76$; $p<0.05$) and BMI ($F = 1.92$; $p<0.05$). Similar differences existed among girls in height ($F = 23.42$; $p<0.05$); weight ($F = 17.96$; $p<0.05$); BMI ($F = 12.15$; $p<0.05$). Overall mean height was 138.01 ± 7.95 cm, weight was 31.88 ± 6.57 kg and BMI was 22.55 ± 3.81 kg/m² of the children. Height of both sexes increased from lower to higher ages, but weight and BMI did not. The weight and BMI of both boys and girls also increased from lower to higher ages except among boys aged 12 years and 14 years, among girls aged 14 years. The BMI of 14 years old boys and girls were lower than in the other ages. It is evident from Table 2, that majority of boys and girls were overweight (49.14% and 56.57% respectively). On the other hand, prevalence of thinness among boys was 13.71 percent and that among girls were 10.85 percent. Overweight was highest among boys aged 12 years (86.11%) followed by those aged 13 years (75%). Thinness was documented to be highest among boys aged 10 years (23.68%) followed by those aged 14 years (26.32%). Thinness was observed to be highest among girls aged 14 years (26.32%) followed by those aged 10 years (23.68%). Overweight was observed to be highest among boys than girls. The percentage prevalence of thinness and overweight among the children is depicted in Table 2.

Effects of Socio-economic and Socio-demographic Factors on Prevalence of Thinness and Overweight

Results of the multinomial logistic regression portraying the effects of different socio-economic and socio-demographic on overweight sand thinness are depicted in Table 3. Girls were observed to exhibit significantly 1.172 times thinness and 1.268 times overweight than boys ($p<0.01$). The odds were found to be significantly lower among thinness children (1.257 times) of age group 11-12 years ($p<0.05$). The odds were also significantly lower among both thinness and overweight children (1.101 times; 1.215 times) aged 13-14 years ($p<0.05$). The results showed that children belonging to <3 birth order exhibited (1.302 times; $p<0.05$) lower risk of overweight whereas 1.351 times higher risk of thinness was observed among children of <3 birth order. Significant risks were observed among children residing in pakka houses in cases of both undernutrition (1.208; $p<0.05$), and overnutrition (0.524 times).

Discussion

The present investigation has reported the overall prevalence of thinness (boys: 13.71%; girls: 10.85%) was lower that the prevalence of overweight (boys: 49.14%; girls 56.57%) (Table 2). This

could be indicative of the fact that overweight-obesity was more pronounced than undernutrition (i.e., thinness) among these adolescents. Several researchers have reported that populations living in poverty, poor socio-economic status and rural environments were affected with greater incidence of undernutrition while those residing in urban environments and a higher socio-economic status were associated with overweight/obesity (Keino *et al*. 2014; Tzioumis and Adair 2014; Mondal *et al*. 2015; Biswas *et al*. 2017; Sagbo *et al*. 2018; Tigga *et al*. 2018; de Onis *et al*. 2019). The prevalence of undernutrition is usually attributed to long-term relative physical growth retardation, physiological and developmental delays, impaired immune function and reduced cognitive functions (Bose *et al*. 2007; Sen and Mondal 2012; Keino *et al*. 2014; Song *et al*. 2018). The present investigation has observed that boys were more undernourished than girl, even though several research investigations have observed instances of nutritional discrimination against the girl child in India (Bose *et al*. 2007; Mondal *et al*. 2015; Biswas *et al*. 2017; Tigga *et al*. 2018; Bharali and Mondal 2019). Several research investigations have observed that there was a significant increase in age-specific undernutrition among girls in the country (Bose *et al*. 2007; Mondal and Sen 2010b; Mondal *et al*. 2015; Gubert *et al*. 2017; Bharali and Mondal 2019). The prevalence of thinness (low BMI-for-age) in the present investigation was lower than that reported among Malaysian children (26.10% underweight) (Marjan *et al*. 1998), children from Karnataka (31.20% underweight) (Joseph *et al*. 2002), Pakistani children (29.50% underweight) (Mian *et al*. 2002), Tibetan children (24.70% underweight) (Dang *et al*. 2004), tribal children from Madhya Pradesh (61.60% underweight) (Rao *et al*. 2005), Rajasthan (60.0% underweight) (Singh *et al*. 2006) and Santal children of Purulia district of West Bengal (33.70% underweight) (Choudhary *et al*. 2008). Amha and Girum (2018) reported 12.6% prevalence of thinness among adolescents girls from Ethiopia, which was comparatively higer than the present study.

Poverty, poor socio-economic status, and environmental conditions, and ethnic and demographic disparities are the major determinant factors of undernutrition among children in India (Mondal and Sen 2010b; Mondal *et al*. 2015; Ahmad *et al*. 2018). A number of research investigations have focused on the associations of different socio-economic and demographic variables among children (Mondal *et al*. 2015; Sen and Mondal 2012; Tigga *et al*. 2018). The results of the BLR analysis in the present investigation revealed that adolescent girls (Odds 1.172 times) exhibited higher risk of undernourishment. A study observed a similar significant result where the 11-12 years (Odds 1.257 times) and 13-14 years (Odds 1.101 times) age groups exhibited greater odds (Sen and Mondal 2012) and also those children living in pakka house odds showed higher (1.208 times) than those living in kaccha houses. Results of the BLR analyses showed insignificant lower odds in case of mothers' occupation, fathers' occupation, toilet facilities, water facilities and income categories. However, several research investigation have reported significant association of these variables with undernutrition among children (Mondal *et al*. 2015; Debnath *et al*. 2018).

The present investigation revealed that overall prevalence of overweight was 52.84 percent (boys: 49.14%; girls: 56.57% respectively) (Table 3). Several studies have reported that the prevalence of population-specific overweight-obesity has increased among Indian children. It was documented to be 19.9 percent from Pune (Khadilkar and Khadilkar 2004), 22 percent among those residing in urban areas of Delhi (Sharma *et al*., 2007), 14.31 percent from Punjab (Sidhu *et al*. 2006), 7.22 percent from Andhra Pradesh (Laxmaiah *et al*. 2007), 21 percent from a pooled sample from North-India (Bhargava *et al*. 2016) and 25.30 percent from Mumbai (Pawar *et al*. 2016). A comparison showed that the magnitude of overweight-obesity in the present investigation was relatively higher than those reported among Indian children. A study among adolescent school children in Ludhiana revealed that the prevalence of overweight was 12.7 percent (Aggarwal *et al*. 2008) which was lower than that reported in the present investigation (17.75%). Such acceleration in the prevalence of overweight-obesity prevalence could be attributed to an obesogenic environment, rapid urbanization, changes in

socio-economic, demographic situations, dietary patterns and sedentary lifestyle factors (Khadilkar and Khadilka 2004; Sharma *et al*. 2007; Sen *et al*. 2013; Bhargava *et al*. 2016; Yang *et al*. 2019) The present investigation showed that girls were observed to be 1.268 times ($p<0.01$) at greater odds than boys to being overweight in Table 3.The risk was significantly greater in higher age groups of 11-12 years (1.223 times), and 13-14 years (1.215 times) for being overweight, respectively ($p<0.01$) (Table 3). Several studies have reported that age exhibited significant effects on the prevalence of overweight-obesity (Sharma *et al*. 2007; Keino *et al*. 2014; Mondal *et al*. 2015; Bharali *et al*. 2017; Ahmad *et al*. 2018; Tigga *et al*. 2018; Bharali and Mondal 2019; Bose and Sen 2020). The present investigation also revealed that children belonging to higher birth order (e.g., ≥2nd Order) had significantly 1.352 folds ($p<0.05$) higher risk of overnutrition than those born with lower birth orders. It may be summarized here that childhood overweight-obesity along with undernutrition could be a major public health challenge for the healthcare providers and certainly contributes to several non-communicable diseases and related consequences of mortality and morbidity in the foreseeable future generation (Mondal *et al*. 2015).

Conclusion

The present investigation indicates the co-existence of a dual burden of undernutrition (e.g., thinness) and overweight among Rajbanshi adolescents children aged 9-14 years. There is strong evidence to suggest that the proportion of children/adolescent categorized as thinness and overweight increased in same environment/population over last two decades, either rural or urban area. Furthermore, it must be mentioned here that due to the cross-sectional design of the present investigation, lack of information on food and dietary consumption, diet diversification, physical activity measurement, resource allocation, cultural practices and disease prevalence, it is difficult to draw a major conclusion and/or identify the actual cause(s) of DBM. Several socio-economic and demographic variables significantly influenced the prevalence of undernutrition and overweight. The DBM is seen to be associated with sex/gender, age, birth order and house type. The prevalence of the dual burden was higher particularly among those belonging to the higher age group and those living in pakka houses. The increase of DBM can lead to risks of morbidity and mortality including risks of developing non-communicable diseases in later life.

Recommendations

Prevalence of overweight-obesity among children residing both in rural-urban settings may also be indicative of poor prioritization and commitment to different nutritional and public health issues. Hence, an appropriate nutritional intervention programme remains necessary among the target population to ameliorate the DBM. The dissemination of nutrition-related knowledge and awareness among parents and community levels could be helpful to reduce the future possibility of childhood overweight-obesity prevalence and related consequences of mortalities and morbidities among populations. More research is needed to find out the associations between thinness and overweight with socio-economic and demographic variables in population to address the phenomenon. A comprehensive intervention approach has been proposed to prevent DBM and should be integrated into the development of healthcare systems to control the effect of DBM among the vulnerable segments in populations.

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Tables

Table 1: Age and gender specific mean (±SD) of height, weight and BMI

Age (in years)	Boys (N)	Girls (N)	Height (cm)		Weight (kg)		BMI (kg/m^2)	
			Boys	Girls	Boys	Girls	Boys	Girls
9	16	12	132.41 ±04.47	131.84 ±08.43	27.55 ±04.70	25.14 ±04.37	21.48 ±02.78	21.91 ±02.77
10	38	15	133.54 ±04.87	132.40 ±04.13	28.93 ±05.67	24.18 ±04.11	21.60 ±03.80	21.96 ±02.55
11	50	32	135.00 ±03.82	136.00 ±06.50	21.47 ±06.43	18.28 ±06.05	23.05 ±04.15	22.00 ±03.51
12	36	49	136.97 ±05.64	138.88 ±06.07	18.30 ±06.67	18.01 ±05.67	18.29 ±04.08	18.80 ±03.40
13	19	48	141.98 ±05.27	142.02 ±04.88	18.48 ±07.19	18.75 ±04.46	23.25 ±03.75	25.84 ±02.76
14	16	19	158.07 ±01.03	147.65 ±06.66	18.25 ±02.50	17.60 ±02.76	19.92 ±01.24	18.47 ±01.52
Total	175	175	134.91 ±06.69	141.11 ±07.66	21.65 ±06.56	17.55 ±06.16	21.67 ±03.94	18.38 ±03.49
F value			17.84**	23.42**	4.67*	17.96**	01.92	11.33**

Table 2: Prevalence of overweight and underweight among the children

Age (in years)	Girls				Boys			
	N (175)	Thinness (<- 2 SD)	Normal	Overweight-obesity (≥ 1 SD)	N (175)	Thinness (<- 2 SD)	Normal	Over-weight-obesity (≥1 SD)
9	12	2 (16.67)	3 (3.33)	7 (58.33)	16	2 (12.50)	7 (43.75)	7 (43.75)
10	15	2 (13.33)	7 (46.67)	6 (40.00)	38	9 (23.68)	16 (42.10)	13 (34.21)
11	32	6 (3.13)	16 (50.00)	10 (31.25)	50	5 (10.00)	29 (58.00)	16 (32.00)
12	49	5 (10.20)	13 (26.53)	31 (63.27)	36	3 (8.33)	2 (5.55)	31 (86.11)
13	48	4 (8.33)	8 (16.67)	36 (75.00)	19	2 (10.53)	3 (15.79)	14 (73.68)
14	19	5 (26.32)	5 (26.32)	9 (52.63)	16	3 (18.75)	8 (50.00)	5 (31.25)
Total	175	19 (10.85)	52 (29.71)	99 (56.57)	175	24 (13.71)	64 (36.57)	86 (49.14)

*p<0.05; **p<0.01

Table 3: Results of multinomial logistic regression analysis showing association of underweight and overweight with socio-economic, socio-demographic and lifestyle related factors

Category	Sub-category	N (350)	Thinness (<-2SD)(N=33)			Overweight-obesity (>+1SD) (N=185)		
			Odds	Significant	95% CI	Odds	Significant	95% CI
Sex	Boys	175	-	-	-	-	-	-
	Girls	175	1.172	0.002**	(0.058-0.511)	1.268	0.00**	(0.131-0.549)
Age	9-10 years	81	-	-	-	-	-	-
	11-12 years	167	1.257	0.007**	(0.113-0.618)	1.223	0.003**	(0.071-0.760)
	13-14 years	102	1.101	0.004**	(0.014-0.404)	1.215	0.010**	(0.589-3.277)
Birth Order	1-2	248	-	-	-	-	-	-
	Above 2	102	1.302	0.435	(0.599-3.287)	1.351	0.001**	(0.187-0.661)
Mothers Occupation	Housewife	187	-	-	-	-	-	-
	Manual worker	163	1.164	0.882	(0.471-2.401)	0.654	0.617	(0.459-1.588)
Fathers Occupation	Manual worker	267	-	-	-	-	-	-
	Other/Service	83	0.393	0.352	(0.198-1.780)	1.323	0.479	(0.610-2.869)
Toilet Facility	Yes	326	1.198	0.815	(0.265-5.412)	1.064	0.304	(0.304-3.718)
	No	24	-	-	-	-	-	-
Water Supply	Piped	338	0.165	0.210	(0.075-1.77)	0.592	0.620	(0.075-4.696)
	Well/Others	12	-	-	-	-	-	-
House Type	Kaccha	57	-	-	-	-	-	-
	Pakka	293	1.208	0.008**	(0.129-0.737)	0.744	0.524	(0.300-1.847)
Income (Rupees)	Below 2000	64	0.169	0.184	(0.085-1.606)	1.286	0.564	(0.300-1.847)
	Above 2000	286	-	-	-	-	-	-

p<0.05;p<0.01*

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Reproductive Profile of Two Lesser-Known Tribes of Arunachal Pradesh – Miji and Sartang

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KEYWORDS

Fertility, Mortality, Reproductive compensation, Lesser-Known Tribe

ABSTRACT

Identifying and understanding the factors affecting fertility and mortality is important to maintain a balanced, healthy, and prosperous population. The present study is an attempt to understand the reproductive profile of two lesser-known tribes of Arunachal Pradesh, India – the Miji and the Sartang, and to comprehend the relationship between fertility and mortality. The study able to establish a range of factors affecting fertility and mortality. The average age at marriage is below the legal age of marriage for both the populations and affecting fertility. The educational status of the mother and age at first conception is also found to affect the fertility. However, occupation, religion, and uses of birth control measures show no impact on fertility in this study. The maximum prenatal mortality is found in the form of miscarriage. However, the study could not establish any factor influencing prenatal mortality except antenatal checkups. The study also found the impact of mortality on fertility in the form of reproductive compensation.

Introduction

The size and composition of a population is determined by three components – fertility, mortality, and migration. While migration is more a social issue, fertility and mortality are more a biological issue. Mortality, though influenced by scientific development up to some extent, is far beyond human control. Fertility, on the other hand, can be manipulated using advanced scientific knowledge. Fertility is the means for biological replacement of human species, and human beings continue to prevail on earth through fertility. Since mortality is an inevitable phenomenon, fertility is the counteractive force to overcome the loss and hence to continue its existence. However, taking full advantage of the human potential for fertility leads to the exponential growth of its population. Hence, it is not a sensible phenomenon considering the limited natural resource available for its survival. Therefore, measures are being taken up to control the fertility rate. Besides, fertility is not free from various other factors which may be either biological or social. Factors like age at marriage, education, occupation, income, age at menarche, age at menopause, religion, etc. have been found to impact the overall outcome of fertility and are studied across the populations including few in Northeast India (Mukhopadhyay 2001; Singh 2006, Asghar *et al*. 2014, 2016, Kameih and Kshatriya 2016).

Similarly, mortality is also affected by various biological and social factors. Factors like age at first

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conception, number of total conceptions, education and occupation status level of the parents, per capita annual income, religion, consanguineous marriage, place of delivery, etc. are studied in many populations worldwide. Of the various types of mortalities, mortality before the reproductive age is important as it eliminates the individual before being able to participate in the reproductive scheme of the population. It is also one of the main factors affecting the health of mothers. Further, mortality also affects the overall fertility of the population. Studies reported that parents tend to produce more offspring to replace the lost ones (Asghar and Devi 2016). This phenomenon is popularly known as reproductive compensation (Gowaty *et al*. 2007, Gowaty 2008).

Since every community has its own gene pool and are exposed to a different environment with a different set of cultures, the factors influencing fertility and mortality vary from community to community. Identifying and understanding the factors affecting fertility and mortality is important to maintain a balanced, healthy, and prosperous population. For this reason, the study of the reproductive profile always takes the central position in the population studies. The present study is an attempt to understand the reproductive profile of two lesser-known tribes of Arunachal Pradesh – the Miji and the Sartang, and also tries to comprehend the relationship between fertility and mortality.

Populations and Methods

The Miji, also known as Sajolang or Damai is one of the lesser-known tribes of Arunachal Pradesh. With a population of less than 40,000, they inhabit the districts of West Kameng, East Kameng, and Kurung Kumey. The name Miji is believed to be derived from the words *mai* (fire) and *ji* (giver) which means fire giver. It is believed that in the olden day the Mijis used to help Aka by giving fire. They are mainly animist but recently some of them have started following Christianity. The Sartang is another lesser-known tribe of Arunachal Pradesh. Their population is less than that of the Miji with not more than 5000 people in total. They inhabit Nafra and Dirang Circle of West Kameng District. Due to the influence of the Monpas, a neighboring tribe, the majority of the Sartang population follows Buddhism. However, still, a few of them continue to follow their traditional religion.

To get a detailed account of the reproductive profile of the studied population a pretested schedule was used. The schedule consists of two sections. The first section is on the general profile of the woman and her husband which include age at marriage, age at menarche, occupation, educational status, religion, etc. The second section focuses on the reproductive history of the woman which includes age at conception, number of conceptions, number of live births, pre and postnatal mortality, uses of birth control measures, etc. In total, 207 ever married women were interviewed (100 Miji and 107 Sartang) using this schedule. For the Miji, samples were collected from in and around Nafra circle and for the Sartang, from Rahung and Selery village. The collected data were entered in the MS Excel and analyzed.

Findings and Discussions

Fertility and Associated factors

Fertility is influenced by various social and biological factors, directly or indirectly. Age at menarche is one of the biological factors that directly affected fertility. It is the indication that a woman is biologically ready for reproduction, and in many societies, there are rituals to mark this passage of life. So, age at menarche is an important factor that influences fertility. Age at menarche is further influenced by many other factors like environment, topography, socioeconomic conditions, and genetic (Abelson 1976, Bangham and Sacherer 1980). In the present study, Miji women have

an earlier age at menarche as compared to the Sartang ones. The average age at menarche among the Miji is 12.98 years. It is observed from Table 1 that the highest number of Miji women (52 %) get their menarche at the age of 13 years. The average age at menarche for the Sartang is 13.61 years. Comparing with other neighboring populations, Sartang women have a higher age at menarche than that of the Adi (12.12 year) and the Hills Miri (13.92 Years), but lower than that of the Galo (13.92 years). But Miji women have lower age at menarche than that of these populations except that of the Adi (12.3 years) (Asghar *et al*. 2016)

Table 1 shows the relationship between age at menarche and fertility. Here, mean live birth, calculated as the number of children per woman is considered as fertility. From the table, it is observed that the lowest fertility is among the women with 13 years as the age at menarche in both the studied populations. Among the Miji the highest is found when the age at menarche is less than or equal to 12 years and among the Sartang the highest fertility is among women with 14 years as the age at menarche. From this distribution pattern, it can be inferred that though it is one of the important indications for the onset of fertility, among the Miji and Sartang fertility is not determined by the age at menarche.

Table 1: Relationship of age at menarche, age at marriage and age at first conception with fertility

	Miji			Sartang		
	Woman %	*Mean Conception*	*Mean Live Birth*	*Woman %*	*Mean Conception*	*Mean Live Birth*
Age at Menarche (year)						
≤12	30	5.03	4.07	26.17	3.53	3.07
13	51	3.45	2.78	27.1	3.14	2.55
14	12	3.91	3.25	24.3	3.81	3.46
≥15	7	4.71	3.43	22.43	3.46	2.87
Age at Marriage (year)						
≤14	35	4.68	3.77	28.97	3.81	3.39
15-19	52	3.9	3.12	58.89	3.54	3.02
20-24	13	3.16	2.46	8.41	2.44	1.89
≥25	0	0	0	3.73	2.25	1.75
Age at first conception (year)						
≤14	22	5.09	4.09	11.21	3.25	3.08
15-19	54	4.26	3.37	61.68	3.56	3.02
20-24	22	2.95	2.4	22.43	3.79	3
≥25	2	2.5	3	4.68	2.6	2.2
Pooled	100	4.07	3.26	100	3.57	2.98

Childbirth before marriage is considered as taboo in most societies. Therefore, age at marriage is an important factor for fertility. In India, the legal age at marriage is 18 years for women and 21 years for men. In both the study populations, it is found that most women get married before the legal age. Among the Miji 67% and among the Sartang 62.62% of women are getting married before 18 years of age. The average age at marriage among Miji women (16 years) is almost similar to that of the Sartang (16.48 years). In a study from the same state, Asghar *et al*., (2016) also reported that among the Hills Miri the average age at marriage for women (17.33 years) is below the legal age. However, among the Galo and the Adi the average age at marriage for women is above the legal age (Asghar *et al*. 2016).

In the present study, age at marriage has a positive impact on fertility in both the populations (Table 1). The mean conception and mean live birth are found to be the highest among the women

who marry at or before 14 years. With the increase in age at marriage, the mean live birth decreases. So, age at marriage is inversely proportionate with fertility. Thus, it indicates that the women who get married at an early age are more capable of bearing children than that of women who get married at a later age. A similar relationship is also reported among the Adi, Galo, and Hills Miri of Arunachal Pradesh (Asghar *et al*. 2016).

Age at first conception is also one of the important factors for fertility. In the present study, the average age at first conception is 17.3 years among the Miji and 18.27 years among the Sartang. Similar to the case of age at marriage, the age at first conception is also inversely proportionate with fertility. The highest mean live birth is found among women with the earliest age at first conception and it goes on decreasing with the increase in age at first conception. A similar pattern is also found among the Adi, Galo, and Hills Miri (Asghar *et al*., 2016). In overall, the Miji have a higher fertility compared to the Sartang with a mean live 3.26 among the Miji and 2.98 among the Sartang (table 1).

The study found that Miji women are more literate compared to the Sartang. Among the Miji, most (60%) are literate, while among the Sartang most (70.09%) are illiterate. The educational status of the mother plays a very important role in fertility. Besides getting married late due to their higher education and careers; educated women are usually more conscious about the size of the family. The impact of education is clearly visible in the present study. In both populations, the mean number of conception and mean live births is higher among the literate woman compared to illiterate women. The difference in both populations is statistically significant at 0.05. Among the Miji, the mean live birth is 4.43 for the illiterate, compared to 2.48 for literate women. In the same way, among the Sartang, the mean live birth is 3.28 for the illiterate, compared to 2.28 for literate women. A similar pattern of relationships between education and fertility is also reported among the Hills Miri, Galo and Adi of Arunachal Pradesh (Asghar *et al*., 2016) and also some populations in Manipur (Choudhury and Devi 1997, Singh 2006, Asghar *et al*. 2014).

Table 2: Relationship of education, occupation, religion and birth control measures with fertility'

	Miji			Sartang		
	Woman %	*Mean Conception*	*Mean Live Birth*	*Woman %*	*Mean Conception*	*Mean Live Birth*
Education						
Illiterate	40	5.63	4.43	70.09	3.85	3.28
Literate	60	3.03	2.48	29.91	2.59	2.28
p-value for t test			*<0.00001**			*0.00899**
Occupation						
Housewife	49	3.86	3.27	16.82	2.94	2.22
Working	51	4.27	3.25	83.18	3.58	2.13
p-value for t test			*0.97714*			*0.052875*
Religion						
Animism	49	3.95	3.22	8.41	5.33	4.78
Buddhism	10	4.1	3.4	87.85	3.35	2.84
Christian	41	4.19	3.26	3.74	2.25	2.25
Birth Control Measures						
Users	53	3.88	3.07	75.7	3.11	2.8
Non-users	47	4.27	3.46	24.3	4.62	3.54
p-value for t test			*0.278898*			*0.073816*

Occupation of the woman is also another important factor that affects total fertility. Women engaged in some job usually have lower fertility compared to housewives. In the present study, the number of working women outnumbered the housewives in both populations. The mean number of conception is higher among working women compared to housewives. Among the Miji, the mean conception is 3.86 for the housewives and 4.27 for the working women. Among the Sartang, it is 2.94 for the housewives and 3.58 for the working women. However, the mean live birth is found higher among the housewives compared to the working women, though it is not statistically significant at 0.05 in both populations. The mean live birth is 3.27 for the housewives, and 3.25 for the working women among the Miji. Among the Sartang, the mean live birth is 2.22 for the housewives and 2.13 for the working women.

Table 2 also shows the distribution of women on the basis of religion and its relation with the fertility. It is noted among the Miji, 49% of mothers are animists, 41% are Christian and only 10% of women are Buddhist. Among Sartang, 87.85% of women are Buddhist, 8.41% are animist, and only 3.74% are Christian. The relation between religion and mean live birth is found contrasting between the Miji and the Sartang. Among the Miji, the highest mean live birth is found among women following Buddhism, and the lowest among the animists. Among the Sartang it is vice versa. The highest mean live birth is found among animists and the lowest among the Christians.

The use of the Birth Control Measure is one of the important social factors that plays an important role in determining total fertility. In both the study populations, the numbers of BMCs' users are higher than those of the non-users. Comparing the two populations, the users of BCMs are larger among the Sartang (75.7%) than among the Miji (53%). Analyzing the impact of BCMs on fertility, it is observed that both mean conception and mean live birth are higher among the non-users compared to the users. However, the difference is not statistically significant at 0.05.

Mortality and associated factors

Mortality is also one of the important components of demography that shape the structure of a population. Unlike fertility, mortality cannot be controlled directly by the humans. Mortality can be prenatal or postnatal. Again, prenatal mortality can be of three types – miscarriage, abortion, and stillbirth. The most prenatal mortality in the present study is in the form of miscarriage. Comparing the two populations, cases of miscarriage are higher among the Sartang (78.3%) than among the Miji (70%). In an opposite pattern, abortion is higher among the Miji (13.3%) compared to the Sartang (4.3%). The frequency of stillbirth is almost equal in both populations.

Like fertility, mortality is also influenced by many factors. In the present study, among the Miji mean miscarriage and mean abortion is the highest among women who get married at the age of 14 years and below, and stillbirth is also found only in this group of women. On the other hand, among the Sartang, the highest mean miscarriage is found among women who get married in the age group 20 – 24 years, and abortion is also found only in this group of women. The mean stillbirth is the highest among women with age at marriage 25 years and above.

Comparing literate and illiterate women, the mean miscarriage and abortion are the highest among the illiterate women, and stillbirth is also found only among illiterate women in both populations. While among the Sartang, the mean miscarriage is the highest among literate women, and abortion is also found only among literate women among the Sartang. Comparing working women and housewives,

the mean miscarriage and mean stillbirth show no difference among the Miji, and abortion is found only among working women among Miji. Similarly, among Sartang, the mean miscarriage shows no difference between housewives and working women. Unlike the Miji, among the Sartang abortion is found only among housewives and stillbirth among working women.

Table 3: Relationship of age at marriage, education, occupation, birth control measures and antenatal check up with prenatal mortality

	Miji			Sartang		
	Mean Miscarriage	*Mean Abortion*	*Mean Still Birth*	*Mean Miscarriage*	*Mean Abortion*	*Mean Still Birth*
Age at Marriage (year)						
≤14	0.28	0.80	0.14	0.13	0	0.06
15-19	0.15	0	0	0.16	0	0.02
20-24	0.23	0.07	0	0.33	0.11	0
≥25	0	0	0	0.25	0	0.25
Education						
Illiterate	0.28	0.08	0.13	0.16	0	0.05
Literate	0.17	0.02	0	0.19	0.03	0
Occupation						
Housewife	0.22	0	0.08	0.17	0.05	0
Working	0.20	0.08	0.08	0.17	0	0.04
Birth control measures						
Users	0.21	0.06	0.09	0.14	0.01	0.04
Non-users	0.21	0.02	0	0.27	0	0.04
Antenatal check up						
Regular	0.02	0.02	0	0.12	0.01	0.01
Irregular	0.08	0	0	0.17	0	0
Never	0.26	0.07	0.13	0.26	0	0.09
Pooled	0.21	0.04	0.05	0.17	0.009	0.04

Similar to mortality and occupation of women, the relationship between mortality and birth control measures show some mixed pattern. Among the Miji, the mean miscarriage and abortion show no difference between BCM users and non-users. Stillbirth is observed only among BCM users among the Miji, while it is found in both BCM users and non-users without any difference among the Sartang. Abortion is found only among BCM users among the Sartang and the mean miscarriage is the highest among the non-users. As far as antenatal check-up is concerned, among the Miji almost half (49%) of the married women get it done regularly, but 39% of them never get any antenatal check-up. Among the Sartang also, 31.78% of them never get any antenatal check-up, but most (62.62%) get regular antenatal check-ups during their pregnancies. The impact of not taking regular antenatal check-ups is visible in the relationship with mortality. In the study populations, mean miscarriage and stillbirth is the highest among the women who never get any antenatal checkup (Table 3).

Relation between fertility and mortality

Table 4: Relation between mortality and fertility

No. of Mortality[a]	Miji			Sartang		
	Woman %	*Mean live birth*	*p-value for t test*	*Woman %*	*Mean live birth*	*p-value for t test*
Nil	58	2.86	*0.0087**	69.16	2.97	*0.944*
At least one	42	3.81		30.84	3.00	
1	27	3.52		20.56	2.73	
2	5	4.20		6.54	3.28	
2+	10	4.40		3.74	4.00	

[a]*this includes prenatal mortality and mortality of child up to 10 years of age*

The impact of mortality on fertility is shown in table 4. The mean live birth is compared between women with no case of offspring mortality and women with at least one case of offspring mortality. Among the Miji, 42% of women lost at least one offspring, while it is 30.84% among the Sartang. In both populations, the mean live birth is higher among the women with at least a case of offspring mortality, compared with women with no such cases. The difference is statistically significant at 0.05 in the case of the Miji but not significant in the case of the Sartang. However, among the Sartang, the mean live birth increases with the increase in the number of offspring mortality. A similar trend is also observed for the Miji (table 4). This finding supports the reproductive overcompensation hypothesis. The reproductive overcompensation hypothesis says that parents have a tendency of producing more offspring to compensate for the lost one. So, in this process the overall fertility increases (Nobles *et al*. 2015, Asghar and Devi 2016).

Summary and Conclusion

The present study was conducted among two lesser-known tribes of Arunachal – the Miji from Nafra Circle and the Sartang from Rahung and Selery village of West Kameng District. The study establishes a range of factors affecting fertility and mortality. The average age at menarche occurs earlier among the Miji (12.98 years) as compared to the Sartang (13.61 years), however, it doesn't affect the fertility in both populations. The average age at marriage is below the legal age of marriage for both populations (16 years for the Miji and 16.48 years for the Sartang) and it affects fertility. Fertility is higher among women who get married early. A similar trend is also observed for age at first conception in both population. The Miji are more literate (60%) compared to the Sartang (30%) and this aspect affects fertility. Fertility is significantly higher among the illiterate compared to the literate in both populations. However, occupation, religion, and uses of birth control measures show no impact on fertility in this study.

The highest prenatal mortality is found in the form of miscarriage and is higher among the Sartang compared to the Miji, but abortion is higher among the Miji compared to the Sartang. However, the study could not establish any factor influencing prenatal mortality except antenatal checkups. Women who never got any antenatal checkups have the highest frequency of miscarriage and stillbirth in both populations. The study also found the impact of mortality on fertility in the form of reproductive compensation. Hence, the present study highlights the reproductive profile of these populations and their associated factors. This is the first of its kind in these populations. So, this finding will be the baseline information for any further related studies.

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Anthropometric traits, Body Composition and Physical Fitness Index: A Micro Level Study Among College Students of Haldia, Purba Medinipur, West Bengal

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KEYWORDS

Anthropometry, Body composition, BMI, Harvard Step Test, Footballers and Non-sports persons.

ABSTRACT

Anthropometric traits, body composition and physical fitness are considered as important indicators of health and generally executed in different sports to achieve the goal. In view, the objectives of the present study are to evaluate anthropometric characteristics, body composition components and physical fitness index (PFI) of the young college students, to assess nutritional status, and also to find out relationship between anthropometric traits, body composition and PFI of the participants of Haldia, Purba Medinipur, West Bengal. Present cross-sectional study was conducted among 42 college students including 18 College level footballers and 24 non-sports persons. Different anthropometric and body composition traits were measured following standard methods and instruments. Body Mass Index (BMI) was used to assess nutritional status of the study participants. PFI was measured by Harvard Step Test (HST). Descriptive statistics, t-statistics and correlation were used to analyze the data. BMI values indicate that the majority of the footballers were normal weight, while higher percentages of non-sports persons were underweight and overweight. Significantly lower mean values were observed among footballers in anthropometric traits like skinfold thicknesses; bi-iliac diameter; total fat and regional fat percentages than non-sports persons. However, PFI performance was 'poor' for both footballers and non-sports persons. PFI shows significant correlation with different anthropometric and body composition traits among non-sports persons, while sports persons show significant correlation between different anthropometric and body composition traits. The study shows the trend that footballers possess better health traits than non-sports persons but footballers have scope for improvement in PFI values.

Introduction

Biological anthropology is concerned with anthropometry, body composition and genetic background of the individuals associated with different sports activities. Knowledge of biological anthropology especially, nutritional anthropology, could be effectively utilized in sport activities to achieve the most favourable benefit in the desired direction. It appears that there exist some sort of relation between body composition, limb proportion, other anthropometric traits and sport activities (Jaiswal 2019).It is well reported that anthropometry is an essential, non-invasive and inexpensive tool to assess physique or nutritional status of individuals or populations (Baumgartner 1995; WHO 1995). Anthropometric and body composition characteristics are related to the genetic makeup, socio-economic status (Perissinotto *et al.* 2002), physical environment, lifestyle and health conditions of sports persons, which are regarded as essential components to get success in any sports events. Different anthropometric measurements such as height, weight, limb proportion, chest circumference, waist circumference (WC), hip circumference, and computed indices like body mass index (BMI), waist-to-hip ratio (WHR), body fat percentage, body muscle percentage, somatotype etc. are not only useful for the selection of sports person for a particular sport event but also essential for maintaining or

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upgrading performance in the specific sports events. BMI is good for the assessment of underweight or overweight/obesity, while WC and WHR are good indicators of abdominal fat distribution. Physical Fitness Index (PFI) is one of the important criteria to assess the cardio-respiratory efficiency of an individual (Das and Mahapatra 1993). Physical fitness is always prejudiced by anthropometric and body composition characteristics such as height, weight, BMI, fat percentage and muscle percentage. It is found that underweight and overweight/obesity has a negative impact on physical fitness parameters (Hasanbegovic *et al*. 2010; Tishukaj *et al*. 2017). Studies reported that changes in anthropometric and body composition traits during adolescence are important for sustainable physical fitness and positive health outcomes on later stage of life (Brooke *et al*. 2014; Ried-Larsen *et al*. 2015). Adolescence is a period when the growth and development of the body speed-up and also different health-related habits are formed (Patton and Viner 2007). Healthy habits during the adolescence period may lead to healthy lifestyles in adulthood and affects health both in adulthood as well as in the later phase of life (Bélanger *et al*. 2015). Saunders and colleagues (2016) reported that regular physical exercise have beneficial effects on health. At the same time, sedentary lifestyle may lead to several diseases like obesity, diabetes, and other cardio-vascular diseases (WHO 2002; Lavie *et al*. 2019). However, studies that focused health benefit of physical activity of non-sports as well as sport persons are still inadequate. Majority of the studies have focused either on few anthropometric traits or physical fitness of school students/ young adults or body composition of sports person. Studies that evaluate anthropometric traits, body composition and physical fitness of sports as well as non-sport youth are still scanty in the context of this particular area. In view of the above the objectives of the present study are:

To evaluate anthropometric characteristics, body composition components and physical fitness index (PFI) of the young college students;

To explore the nutritional status of the study participants, and

To find out relationship among anthropometric traits, body composition traits and PFI of the participants of Haldia, Purba Medinipur, West Bengal.

Materials and Methods

Study area and participants

The present cross-sectional study was conducted among the students of the Haldia Government College, Purba Medinipur, West Bengal. This paper is an outcome of a dissertation project on 'Sports and Nutritional Anthropology'. The project was supposed to be conducted among the individuals who involved in sports activities and another group of individuals who never participated in any competitive sports activities. In search of sports person, communication had been made with different sports club in Haldia. Unfortunately, due to busy schedule of the players, they could not participate in the data collection process. Due course, the author approached to a faculty of Physical Education Department of the College and managed to collect the data from the university level Football team of the college. No sampling procedure was adopted to select the participants. All the footballers were approached before collection of data, the aims and objectives of the study were explained to all the footballers as well as non-sports students. The individuals who voluntarily participated in the study were incorporated as study subjects after taking prior informed consent. A total of 42 young students participated in the study, of whom 18 male footballers and 24 non-sports participants including 13 males and 11 females. All the selected footballers have been playing football for at least 3 years and their control counterpart i.e. non-sports persons have never participated any competitive sports. The study was conducted in accordance with the ethical guidelines for human experimental research.

Data

Data types include socio-economic characteristics of the student participants like name, age, sex, class of education, and monthly household income. Anthropometric and body composition data have been collected from 24 young non-sports participants of both sexes and 18 male footballers. The anthropometric and body composition traits have been measured for the present purpose following standard methodology and instruments (Weiner and Lourie 1981). All skinfold thickness measurements were taken by Harpenden skinfold calliper and all circumference measurements were taken with a flexible, non-stretchable tape in close contact with the skin, but without indenting the soft tissue. Body Composition data were obtained by Omron Body Fat Monitor, which works on the principles of Bioelectrical Impedance to measure a person's relatively accurate body fat content in percentage. The methods Bioelectrical Impedance is considered to be one of the standard techniques as stated in many literatures (Chumlea and Baumgartner 1989; Kushner *et al*. 1990). Participants' resting heart rate was taken before physical fitness test and after the test again heart rate measured for three times following measurement protocol. The list of measured traits are given below –

Sl. No.	Anthropometric Traits	Sl. No.	Body Composition Traits
1.	Height (cm.)	1.	Body Mass Index
2.	Weight (kg.)	2.	Total Fat Percentage
3.	Waist circumference (cm.)	3.	Whole Body Fat
4.	Hip circumference (cm.)	4.	Visceral Fat Percentage
5.	Mid upper arm circumference (cm.)	5.	Muscle Whole Body
6.	Normal chest circumference (cm.)	6.	Arm Fat Percentage
7.	Inhale chest circumference (cm.)	7.	Arm Muscle Percentage
8.	Exhale chest circumference (cm.)	8.	Trunk Fat Percentage
9.	Calf circumference (cm.)	9.	Trunk Muscle Percentage
10.	Bi-acromial diameter (cm.)	10.	Leg Fat Percentage
11.	Bi-iliocristal diameter (cm.)	11.	Leg Muscle Percentage
12.	Bi-condylar humerus (cm.)		
13.	Bi-condylar femur (cm.)		Physiologic Traits
14.	Biceps skinfold thickness (mm.)	1.	Heart Rate (Bits/Min.)
15.	Triceps skinfold thickness (mm.)		
16.	Subscapular skinfold thickness (mm.)		
17.	Supra-iliac skinfold thickness (mm.)		

Nutritional status and classification of data

Body Mass Index (BMI) is considered to be the most useful population-level measure of nutritional status, and it is a simple index to classify underweight, normal weight, overweight and obesity in adults (WHO 1995). BMI is computed using the formula, **BMI = Weight (kg)/ Height (m^2)**

The World Health Organization's (2004) recommended universally accepted body mass index (BMI) cut-off values have been used for the screening and assessment of underweight and overweight

status of the study participants (Table 1).

Table 1: Body mass index cut-off values for the assessment of nutritional status

BMI (kg/m2) categories	Cut-off values	Reference
Underweight	<18.50	WHO 2004
Normal weight	18.50 - 24.99	
Overweight	25.00 – 29.99	
Obese	≥ 30.00	

Physical Fitness Index

Physical Fitness Index (PFI) was measured by Harvard Step Test (HST). HST is a good measurement of the fitness of a person and it measures the ability of that person to recover after a strenuous exercise or physical fitness test by checking the recovery rate (Brouha 1943). The Index value is high when the heart rate returns to its normal rhythm in quick succession, that is why, it is called a kind of cardiovascular endurance test. The HST is a type of cardiac stress test for detecting and diagnosing cardiovascular disease.

The subject was asked to steps up and down on a platform (50.8 cm or 20 inches high) in a cycle of two seconds. A stopwatch and metronome used to ensure the right speed of 30 steps per minute for five minutes or until exhaustion. On completion of the test or exhaustion (cannot maintain the stepping rate for 15 seconds), the subject was instructed to sit down immediately, and the heartbeats counted for 1 to 1.5, 2 to 2.5, and 3 to 3.5 minutes. Therefore, the equation and rating categories of physical fitness index are as follows:

$$\textbf{Physical Fitness Index} = \{(\{\displaystyle t_{e}\}t_e) \times 100\} / \{(\{\displaystyle t_{e}\}h_b \times 2\}$$

Where, t_e is the test duration in seconds and h_b is sum of heart beats during the recovery periods.

Rating categories	Physical Fitness Index	Reference
Poor	< 54	Brouha 1943
Low average	54 – 67	
Average	68 – 82	
Good	83 – 96	
Excellent	≥ 97	

Statistical analysis

After collecting the data, transcription was done in computer for analysis of different anthropometric, body composition and physical fitness traits. Descriptive statistics were computed to describe anthropometric and body composition characteristics of the study participants. Independent sample t-statistics were used to compare mean differences in anthropometric and body composition traits between footballers and non-sports persons (males only). Pearson correlation coefficient was computed to find out relationship among different anthropometric, body composition measures and physical fitness index values. All statistical analyses were done using SPSS 16.0 (SPSS Inc., Chicago, IL, USA) and Excel 2010 software packages.

Results

Socio-demographic profile of the student participants

Out of total 42 participants, sports group represented by 18 male footballers and non-sports group represented by 13 male and 11 female students. All the participants' ages ranges between 18 years and 21 years and mean age is 19.12 ± 1.60 (Sd.) years. A higher percentage of participants belonged to the graduation 1st year classes (54.76%), followed by 2nd year classes (33.33%) and 3rd year classes (11.90%). Most participants' monthly household income is Rs.10000.00 – Rs.19999.00 (42.86%), followed by Rs.20000.00 & above (35.71%), below Rs.10000.00 (30.95%), and another 14.29% participants did not want to disclose their household's monthly income. (Table not presented)

Table 2: Mean comparison of Anthropometric traits between Footballers and Non-sports persons

Anthropometric characteristics	**Footballers**			**Non-sports Persons**			**t value**	**Non-sports Persons**		
	MALE			MALE				FEMALE		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**		**N**	**Mean**	**SD**
Height (cm)	18	167.10	4.89	13	168.75	6.42	0.81	11	153.45	5.53
Weight (kg)	18	57.27	6.61	13	58.31	14.52	0.27	11	49.32	12.16
Circumferences (cm)										
Waist	18	69.77	4.91	13	74.90	13.57	1.48	11	72.02	11.17
Hip	18	85.11	3.96	13	88.01	10.99	1.05	11	87.64	8.35
Mid-Upper Arm	18	85.11	3.00	13	25.48	3.70	0.01	11	23.43	3.50
Normal Chest	18	84.74	5.16	13	84.88	7.98	0.06	11	70.60	6.52
Inhale Chest	18	88.73	5.44	13	88.65	7.42	0.03	11	72.58	6.73
Exhale Chest	18	83.20	4.55	13	83.41	8.04	0.09	11	68.72	6.39
Calf	18	32.58	2.04	13	32.44	3.80	0.14	11	31.56	4.27
Diameters (cm)										
Bi-acromial	18	37.42	1.75	13	37.36	1.43	0.09	11	33.39	2.16
Bi-Iliac	18	23.39	1.06	13	24.56	1.58	**24.85**	11	24.85	2.17
Biepicondylar Humerus	18	6.29	0.33	13	6.37	0.53	0.52	11	5.45	0.58
Biepicondylar Femur	18	8.49	0.58	13	8.78	0.60	1.36	11	8.06	0.62
Skinfold Thicknesses (mm)										
Biceps	18	3.46	1.30	13	5.63	3.44	**2.46***	11	6.10	3.20
Triceps	18	7.13	3.43	13	9.18	5.90	1.21	11	13.14	5.80
Sub-scapular	18	10.23	2.93	13	13.38	4.98	**2.21***	11	16.25	5.89
Supra-iliac	18	7.27	3.18	13	11.92	6.12	**2.76****	11	13.08	5.90

*$p \leq 0.05$; ** $p \leq 0.01$*

Table 2 shows the mean comparison of anthropometric traits between footballers and non-sports persons. Independent sample t-test was performed to compare mean differences in the anthropometric traits between male footballers and male non-sports persons. Significantly lower mean values were observed in the traits like bi-iliac diameter, biceps skinfold thickness, sub-scapular skinfold thickness, and supra-iliac skinfold thickness among the footballers than the non-sports persons. The data on anthropometric traits of non-sports person females could not be compare due to paucity of data of the sports person females.

Table 3: Mean comparison of Body Composition components between Footballers and Non-sports persons

Body Composition components	Footballers			Non-sports Persons			t value	Non-sports Persons		
	MALE			MALE				FEMALE		
	N	Mean	SD	N	Mean	SD		N	Mean	SD
Body Mass Index	18	20.26	2.42	13	21.25	4.58	0.78	11	20.91	4.10
Total Fat Percentage	17	13.32	3.92	13	22.45	16.21	2.25*	11	28.45	3.91
Visceral Fat Percentage	16	3.97	1.94	12	5.29	4.09	1.14	11	2.91	2.65
Whole Body										
Fat	17	9.40	2.65	13	12.18	5.71	1.78	11	23.79	4.26
Muscle	18	37.15	2.33	13	35.25	3.24	1.91	11	25.27	3.51
Regional Fat Percentage										
Arm	17	15.54	3.68	13	19.96	6.45	2.38*	11	40.65	4.27
Trunk	16	8.19	2.48	12	11.55	4.77	2.42*	11	20.02	4.09
Leg	17	14.16	3.64	13	19.18	7.06	2.53*	11	35.96	4.80
Regional Muscle Percentage										
Arm	18	42.24	1.91	13	41.00	2.94	1.42	11	30.00	3.54
Trunk	17	31.55	2.34	13	28.18	5.26	2.36*	11	21.71	1.82
Leg	18	54.24	2.24	13	52.42	3.12	1.90	11	37.56	2.25

*$p \leq 0.05$

Table 3 shows the mean comparison of body composition components between footballers and non-sports persons. Here, independent sample t-test was computed to compare mean values of body composition components among the male footballers and non-sports persons. Significantly lower mean values were observed in the traits like total fat percentage and fat percentages of all regional areas like arm, trunk and leg of the footballers than the male non-sports persons. On the contrary, male footballers possessed significantly higher trunk muscle percentage than the male non-sports persons.

Table 4: Physical Fitness Index status of the participants in terms of Harvard Step Test (HST)

Physical Fitness Index Status	Footballers		Non-sports Persons			
	MALE (N=15)		MALE (N=13)		FEMALE (N=10)	
	Mean	SD	Mean	SD	Mean	SD
Before HST Heart Rate (Bits/Min.)	81.33	13.58	90.62	12.53	84.60	11.70
After HST Heart Rate (Bits/Min.)	128.93	19.78	149.38	27.69	136.20	26.34
After HST Heart Rate (Bits/Min.)	111.73	16.53	137.54	24.82	113.60	19.70
After HST Heart Rate (Bits/Min.)	101.73	15.56	123.23	21.79	108.40	17.93
Physical Fitness Index (HST) Score	44.89	7.87	31.41	11.34	29.90	10.66
	n	%	n	%	n	%
HST Step Up Time (300 Sec.) Completed	15	100	9	69.23	5	50.00
Physical Fitness Index (HST) Category Poor (HST Score < 54)	13	86.67	13	100	100	100
Low Average (HST Score 54-67)	02	13.33	-		-	
Average (HST Score 68-82)	-		-		-	
Good (HST Score 83-96)	-		-		-	
Excellent (HST Score >97)	-		-		-	

Table 4 reveals the physical fitness index status of the participants in terms of Harvard Step Test (HST). Mean Heart rates of the footballers were relatively lower than the non-sports persons in both cases i.e. before and after HST. Out of 24 non-sports persons, 9 participants (including 4 males

and 5 females) were exhausted before completion of their stipulated 300 seconds HST step-up time, although all the footballers completed the said duration. It may be mentioned that three footballers and one female non-sport participants could not step-up the test due to their busy sports and academic schedule respectively. PFI performance was 'Poor' for both footballers and non-sports persons. Only two footballers' HST scores were categorised as "Low Average".

Table 5: Nutritional status of the student participants

Nutritional Status	Footballers		Non-sports Persons			
	MALE		MALE		FEMALE	
	No.	**%**	**No.**	**%**	**No.**	**%**
Underweight	4	22.22	5	38.46	3	27.27
Normal weight	13	72.22	5	38.46	6	54.55
Overweight	1	5.56	3	23.08	2	18.18
Obese	-		-		-	
Total	**18**	**100.00**	**13**	**100.00**	**11**	**100.00**

Table 5 shows the nutritional status in terms of body mass index categories of the study participants. Most footballers had 'normal' BMI values (72.77%), followed by 'underweight' (22.22%) and 'overweight' (5.56%) categories. Most male non-sports person belonged to 'normal weight' (38.46%) and 'underweight' (38.46%) categories, followed by 'overweight' (23.08%) category. Similarly, most female non-sports person showed 'normal weight' (54.55%), followed by 'underweight' (27.27%), and 'overweight' (18.18%). None of the participants belonged to 'obese' category.

Table 6a: Pearson correlation coefficient among anthropometric traits, body composition traits and Physical Fitness Index of the Footballers (males)

Pearson Correlation Matrix for Footballer Males											
Variables	Weight	Waist Cir.	Hip Cir.	Chest Cir.	Calf Cir.	MUAC	BMI	Total Fat	Body Muscle	Heart Rate	PFI
Height	0.461	0.294	0.434	0.165	0.363	0.207	-0.012	-0.179	0.259	-0.080	-0.101
Weight	1	**0.819**	**0.919*****	**0.849*****	**0.794*****	**0.827*****	**0.882*****	0.465	-0.335	-0.149	0.148
Waist Cir.		1	**0.696****	**0.733****	**0.557***	**0.575***	**0.762*****	**0.619****	-0.338	0.068	0.144
Hip Cir.			1	**0.816*****	**0.722****	**0.782*****	**0.807*****	0.285	-0.194	-0.212	0.057
Chest Cir.				1	**0.617****	**0.842*****	**0.866*****	**0.493***	-0.306	-0.123	0.183
Calf Cir.					1	**0.631****	**0.701****	0.239	-0.258	0.026	0.124
MUAC						1	**0.822*****	0.239	-0.194	0.052	-0.144
BMI							1	**0.612****	**-0.512***	-0.132	0.214
Total Fat								1	**-0.940*****	-0.147	0.341
Body Muscle									1	0.044	-0.418
Heart Rate										1	**-0.516***
PFI											1

Cir. = Circumference; MUAC = Mid Upper Arm Circumference; BMI = Body Mass Index;
p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Table 6a shows the Pearson correlation coefficient among anthropometric traits, body composition traits and physical fitness index (PFI) of the footballers, which indicates that physical fitness index is significantly correlated only with the heart rate of the participants. None of the anthropometric and body composition traits were found to be significantly correlated with PFI of the footballers group.

Table 6b: Pearson correlation coefficient among anthropometric traits, body composition traits and Physical Fitness Index of the Non-sports person (males and females)

Pearson Correlation Matrix for Non-Sport Person Males											
Variables	**Weight**	**Waist Cir.**	**Hip Cir.**	**Chest Cir.**	**Calf Cir.**	**MUAC**	**BMI**	**Total Fat**	**Body Muscle**	**Heart Rate**	**PFI**
Height	0.457	0.306	0.136	0.088	0.215	0.235	0.130	-0.356	0.246	0.093	-0.235
Weight	1	**0.919*****	**0.882*****	**0.846*****	**0.935*****	**0.865*****	**0.939*****	0.006	**-0.693****	0.349	**-0.672***
Waist Cir.		1	0.891***	**0.951*****	**0.921*****	**0.859*****	**0.914*****	0.078	**-0.813****	0.357	**-0.878*****
Hip Cir.			1	**0.892*****	**0.947*****	**0.806****	**0.927*****	0.234	**-0.859*****	0.418	**-0.697****
Chest Cir.				1	**0.894*****	**0.848*****	**0.920*****	0.076	**-0.867*****	0.351	**-0.781****
Calf Cir.					1	**0.859*****	**0.968*****	0.012	**-0.831*****	0.272	**-0.691****
MUAC						1	**0.876*****	0.106	**-0.761****	0.094	**-0.658***
BMI							1	0.091	**-0.865*****	0.335	**-0.660***
Total Fat								1	-0.383	0.261	**-0.279**
Body Muscle									1	-0.283	**0.722****
Heart Rate										1	-0.326
PFI											1
Pearson Correlation Matrix for Non-Sport Person Females											
Height	**0.651***	0.529	0.579	**0.617***	0.582	0.464	0.461	-0.264	0.242	-0.006	0.091
Weight	1	**0.950*****	**0.952*****	**0.901*****	**0.970*****	**0.929*****	**0.972*****	0.397	-0.065	0.262	0.011
Waist Cir.		1	**0.929*****	**0.837****	**0.932*****	**0.959*****	**0.948*****	0.396	-0.104	0.311	0.000
Hip Cir.			1	**0.803****	**0.942*****	**0.915*****	**0.943*****	0.429	-0.227	0.049	-0.028
Chest Cir.				1	**0.945*****	**0.862****	**0.852****	0.382	0.171	0.176	-0.115
Calf Cir.					1	**0.950*****	**0.956*****	0.424	-0.020	0.145	0.008
MUAC						1	**0.947*****	0.457	0.025	0.179	0.036
BMI							1	0.540	-0.161	0.294	0.031
Total Fat								1	-0.470	0.026	-0.417
Body Muscle									1	0.033	0.340
Heart Rate										1	0.205
PFI											1

Cir. = Circumference; MUAC = Mid Upper Arm Circumference; BMI = Body Mass Index;
p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Table 6b shows the Pearson correlation coefficient among anthropometric traits, body composition traits and physical fitness index (PFI) of the non-sports person males and females. This table reveals that in the case of non-sports person males, the physical fitness index had a negative significant correlation with different traits like weight, waist circumference, hip circumference, chest circumference (normal), calf circumference, mid upper arm circumference and body mass index. While PFI had a significant positive correlation with the whole body muscle mass of the non-sports person males. In case of non-sports person females, the physical fitness index had a significant correlation neither with

anthropometric and body composition traits nor with heart rate of participants. It is also indicated that a significant correlation existed between different anthropometric and body composition traits of both non-sports person males and females.

Discussion

The present micro-level study was conducted among young college students of Haldia, Purba Medinipur to explore their anthropometric characteristics, body composition components and physical fitness index (PFI) and to find out the nature of the relationship among the anthropometric, body composition traits and the physical fitness of the participants. This cross-sectional study also attempted to compare the collected data between footballers and non-sports person groups. Due to the non-availability data from female footballers, the present study restricted its data comparison among the male groups only. The socio-economic background of the students showed that all participants were young adults, aged 18-21 years, most of them belonged to the graduation I and II year classes and the monthly household income of majority of the student participants was below Rs.20000.00.

The anthropometric data indicated that the footballers possessed significantly lower mean values in the traits like bi-iliac diameter, biceps skinfold thickness, sub-scapular skinfold thickness, and supra-iliac skinfold thickness than the non-sports persons. Similarly, body composition components like total fat and regional fat distribution in the body like arm, trunk and leg of the footballers showed significantly lower mean than the non-sports person males, which is supported by some other studies (Kubo *et al*. 2006; Qureshi and Khan 2019). On the contrary, the male footballers possessed a significantly higher trunk muscle percentage than the male non-sports persons. The data on anthropometric traits of non-sports person females could not be compared due to paucity of data of the sports person females.

The nutritional status in terms of body mass index categories of the study participants showed that an overwhelming majority of the footballers had 'normal' BMI values and this may be one of the reasons that sports persons were active with sports training and sport activity as stated by Saunders and colleagues (2016). However, their non-sports person counterpart showed a relatively high prevalence of 'overweight' as they spent sedentary lifestyle and consume highly caloric food, which may enhanced disease risk in a later stage of life (WHO 2002). In a research article, Ode and Colleagues (2007) reported that a BMI based classification of overweight/obesity is not always effective on population fatness, especially when it classifies fatness in young college level athletes and non-athletes. Although, none of the participants belonged to the 'obese' category and it is quite obvious as these particular age groups are physically active due to their daily journey to the campus.

Results of physical fitness index in terms of Harvard Step Test revealed that the said performance category was 'Poor' for both footballers and non-sports persons. All the footballers completed their stipulated 300 seconds HST step-up time but around 40% non-sports participants (both male and female) were exhausted before the completion of the said duration. The present study used the Harvard step height (i.e. 50.8 cm), and it may be one of the reasons behind the poor performance in the test. Several studies suggest modified step height especially for the female participants and for them lower step height should be used by ensuring valid test results (Das and Mahapatra 1993; Parmar *et al*. 2016). Although, there is a variation between individuals in bio-mechanical characteristics, but the participant's height and weight have shown to be a factor for poor performance in PFI, which is also corroborated by other study as well (Parmar *et al*. 2016).

Footballers show higher PFI score values than the participants who never participated in any competitive sports. It was a very tough task for non-sports persons to step-up a 50cm high platform because they are untrained and possess lower fitness than their footballer counterparts. On the contrary, footballers perform regular physical exercise and training to get success in the football field and their result was comparable with other studies (Chatterjee and Mitra 2001). Physical exercise helps to achieve maximum physical fitness through the development of muscle, cardio-respiratory strength and endurance of the sports person (Pansare 1986). However, the present study footballers' group may have scope to enhance PFI value. It may happen due to the fact that the majority of the footballers came from poor families, where they did not get adequate nutrition to meet the requirements of such a high intensity physical activity demanding game. Again, it also may happen if the footballers were amateur and not serious enough with the game. A study among Korean children and adolescents reported that their physical activity decreased and the rate of obesity increased (Oh *et al*. 2008) and this may happen due to the use of smart phone and internet addiction (Heo *et al*. 2014). The present study also observed a similar trend.

A significant correlation was observed between the physical fitness index and heart rates among the footballers when other anthropometric and body composition traits remained non-significant. While Pearson correlation between anthropometric and body composition traits and physical fitness index among the non-sports person males indicated that the physical fitness index had a negative significant correlation with weight, waist circumference, hip circumference, normal chest circumference, calf circumference, mid-upper arm circumference and body mass index. PFI had a significant positive correlation with the whole body muscle mass of the non-sports person males. In case of non-sports person females no significant correlation exited between the physical fitness index and anthropometric and body composition traits.

Studies show the physically active youth can manage to the stressful conditions easily and they show less neuromuscular tension than the inactive youth. Adequate physical activity helps to digest food which provides the necessary energy, vitamins and minerals for the growth and development of children, adolescent and youth. However, in recent decades we witnessed a decreased trend of physical activity and an increasing trend of consuming high fat processed food or spicy food. The present study participants are getting acquainted with the modern amenities that require less energy to perform tasks at a very fast rate and the young generation of the society more prone to the problem. They are neglecting habitual physical activities and sedentarily spend the day in social networking sites. Participants play cricket, football, and many other games not on the real field but on mobiles or computer screens. The present day education system has helped to improve the educational standards among students; unfortunately it left a very limited scope to be active in field or sports activities. The present study showed an indication of poor physical fitness even among sports person (footballers), and they aim to enhance physical fitness through proper training. Therefore, the time has come to consider physical fitness and exercise in the adolescent or young age group in order to plan a proper course curriculum.

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Reproductive health of the early married Muslim women in India: A study at Contai, Purba Medinipur, West Bengal

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KEYWORDS

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ABSTRACT

The reproductive health of women has become one of the priority public health concerns since the Cairo conference in 1994. Early marriage of girls has serious implications not only on their own reproductive health but also on the health of the next generation. But till now, early marriage is probably the most significant health and rights concern for women in the developing countries. Surprisingly in India, research on reproductive health of the early married women, particularly among the Muslims, is a neglected area. In the present study we tried to examine the reproductive health behaviour of the early married Muslim women with particular reference to those in the Contai Municipality of West Bengal. The study finds highly significant association between the socioeconomic conditions (like education, poverty, awareness about family planning method) of the early married women and their different reproductive health constraints like abortion, miscarriage, under-weight of babies, etc.

Introduction

Since the UN International Conference on Population and Development (ICPD), held at Cairo in1994, women's reproductive health has become one of the priority public health concerns (Harrison and Montgomery 2001). The conference highlighted the need for global monitoring of women's reproductive health and reproductive rights status and tried to redefine the discourse of reproduction aiming at empowering women and eliminating social inequalities and constraints for women. But till now early marriage is probably the most significant health and rights concern for women in the developing world, particularly in the lower and middle income countries (LMICs) (Jensen and Thomton 2003; Nour 2006; Rumble *et al.* 2018). Marriage practices and reproductive health behaviour are deeply embedded within the socio-cultural fabric of an ethnic group. Ethnographic study on socio-cultural perspectives of reproductive health behaviour is, therefore, very important to understand the reproductive behaviour of an ethnic group as every ethnic group has its own set of complex belief systems associated with puberty, menstruation, sexuality, marriage, pregnancy and childbearing (Kleinman 1980; Ngubane 1981; Martin 1989; Preston-Whyte 1993; Castaneda *et al.* 1996; Boyden *et al.* 2012). But, such study is very scanty excepting a few researches in Africa (M'bede 1985; Boyden *et al.* 2012; Woden *et al.* 2016), Mexico (Castaneda *et al.* 1996) and Indonesia (Rumble *et al.* 2018). There are only a few studies on women's perceptions about reproductive health in India (Gittlesohn *et al.* 1994; Sing and Sharma 1996; Raj *et al.* 2009). Surprisingly, such study is hardly available on the Muslim women, the largest ethnic minority in India. In India, early marriage of Muslim women is very frequent and such women are subjected to greater risks in connection with socioeconomic inequalities and health constraints.

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Objectives

In this study, we have tried to examine the reproductive health behaviour of the Muslim women in India with particular reference to the early married women of the community in Contai Municipality of West Bengal in India and to highlight the effects of early marriage on the reproductive health of the women concerned.

Materials and Method

Study Area: For the present study, Contai Municipality under the Contai-I block of Purba Medinipur district in West Bengal was selected for the first author had social access to conduct fieldwork in the area. Contai is located about 160 km south of Kolkata, the State capital, and 31 km north of the beach town of Digha on the Bay of Bengal. The Contai municipality consists of 18 municipal wards. Out of these wards only five wards, *viz*., ward Nos. 1 - 5 were purposively selected due to the high concentration of Muslim population in these wards.

Study group: Fifty Muslim households from each of the wards were selected through simple random sampling irrespective of the number of Muslim households in the wards. Thus, 250 households were selected. This gave a total population of 987 including 494 females and 493 males. The ward-wise distribution of population in the selected households is given in the Table-1. There are altogether 267 families living in these households. This is because some households consist of more than one family. The total female population was considered for socio-demographic analysis. For understanding reproductive health behavior of the early married women, all the women who were married at their early age were taken into consideration. There were altogether 265 early married women in the study population.

Table-1: Ward-wise age-sex distribution of the population

Ward No.	No. of household selected	Female N (%)	Male N (%)	Total N (%)
1	50	99 (10.03)	112 (11.35)	211 (21.38)
2	50	104 (10.54)	92 (09.32)	196 (19.86)
3	50	99 (10.03)	107 (10.84)	206 (20.87)
4	50	93 (09.42)	96 (09.73)	189 (19.15)
5	50	99 (10.03)	86 (08.71)	185 (18.74)
Total	250	494 (50.05)	493 (49.95)	987 (100.0)

Approach: The ethnographic approach has been the primary approach of understanding the reproductive health behavior of the study group (Castaneda *et al*. 1996; Boyden *et al*. 2012). This is because it provides the window onto social perception about practices of marriage and the belief pattern associated with menstruation, puberty, marriage, womanhood and pregnancy rites of women (Bernard 1988).

Conceptual dimensions: The reproductive health of women is generally viewed from social as opposed to biomedical perspectives to women's health as it is deeply oriented towards the socio-cultural practices of an ethnic group (WHO 1998; Kazanjian 1998). This usually refers to a state of complete physical, mental and social well-being and not merely the absence of illness or infirmity, in all matters relating to the reproductive system and its function and processes. This implies that women are able to have a satisfying and safe sex life and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so (United Nations 2014). For the women's reproductive health, the focus is on their ability to survive the reproductive years and beyond with the

reproductive choice, dignity and successful childbearing, and to be free from gynecological diseases and risks (Zurayk *et al.* 1994). For the present case, early marriage means marriage before attaining the prescribed age for marriage, *i.e.*, 18 years.

Methods and techniques adopted: The primary methods of data collection were observation, interview and case study. Data on demographic aspects including age, sex, marital status, education, family income, etc. were obtained by using household survey schedules. Data on the reproductive health aspects, *i.e.*, age at first marriage, age at menarche and menopause, fertility preference, awareness and use of family-planning methods, breastfeeding practices, infant mortality, maternal and child health (for the first birth in particular), reproductive morbidity, etc. were obtained through the use of pretested questionnaires developed for the purpose. This was a cross-sectional study among the women in various age groups. Self-declared responses of the informants were recorded without any verification since there was no government record available on the issues. Symptoms and health problems were recorded as reported by the respondents. These were not verified by a doctor or through a doctor's prescription which was not available. Correlation of different variables was calculated through the SPSS 16.0. The fieldwork for the study was carried out in different phases within 2016-2019.

Findings and Analysis

Reproductive health and selection of reproductive strategies are different in women and men (Kilbourne-Brook 1998; Abadi Farahani *et al.* 2012; Ray *et al.* 2013). Girls' and women's health is, WHO observes, critically affected by socioeconomic factors like access to education, household wealth and place of residence (WHO 2009). Socioeconomic status of the present study group is demonstrated in various charts. Fig.1 shows that 34.62 per cent women are illiterate and 30.97 per cent of them left schooling in their primary level of education, who are now unable to read and write. Thus, about 62 per cent women are practically illiterate. The marital status of the women shows that about 62 per cent of them are married and 38 per cent are unmarried (Fig.2). Most families do not have any fixed monthly income. They are engaged as daily wage labourers and/or rickshaw pullers. The average monthly income of the families was calculated by adding up estimated income of earning members in the families for a period of three consecutive months. As per the Government of India estimation, a family with a monthly income up to INR 2250 falls under the Below Poverty Line (BPL) category (Balchand and Sunderarajan 2016). Though there was hardly any family under the BPL category, Fig.3 shows that about 48 per cent families have a monthly income of INR <5001 and 37.74 per cent families have that of INR 5001-7500. Only 1.50 per cent families have a monthly income of INR >10000. So, most families are in economically vulnerable situation.

Fig.1: Educational status of the Muslim women (n_w = 494)

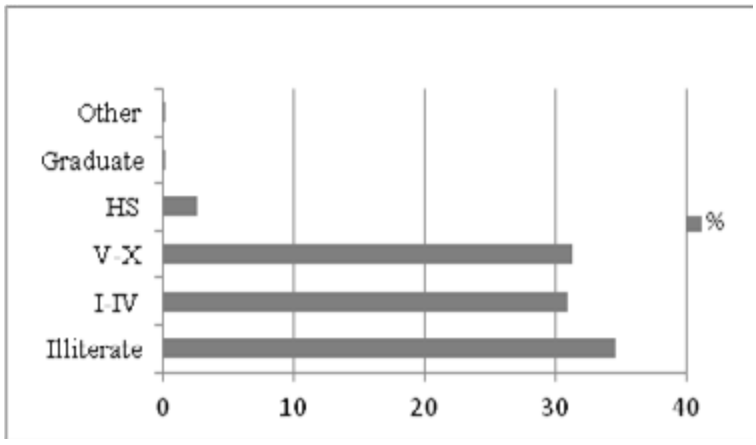


Fig.2: Marital status of the Muslim women (n_w = 494)

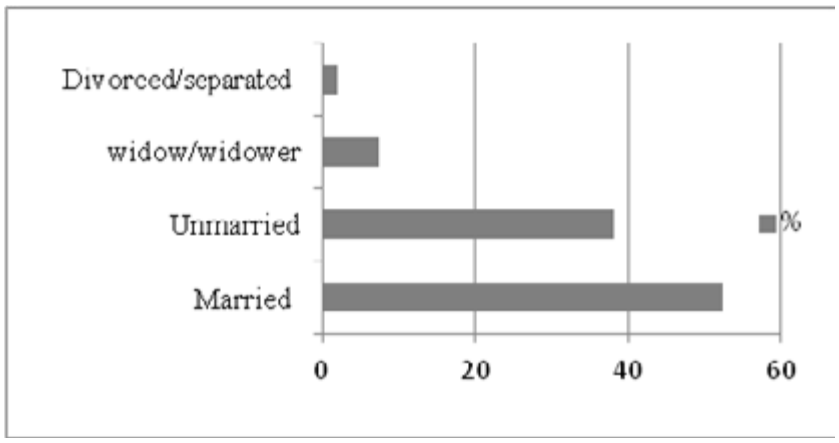
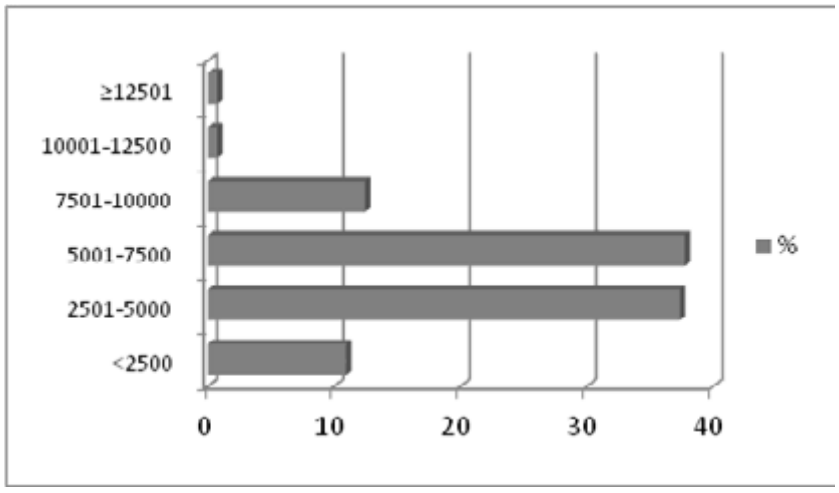


Fig.3: Monthly family income (INR, n_f = 265)



WHO observes that women's health during the reproductive years (i.e., from 15 to 49 years) is not only important to women themselves but to the health and development of the next generation and that complications of pregnancy and childbirth are the leading cause of death in young women aged between 15 and 19 years in the developing countries (WHO 2009). In the study group, there are 265 women who were married in their early ages ranging from 7 to 17 years. So, the rate of early marriage in this Muslim group is 53.64 per cent. It was reported that 30.19 per cent of them were married at the age of 16 years, whereas 12.45, 24.53 and 16.61 per cent of them were married at the age of 14, 15 and 17 years respectively. Some of them were married as early as at the age of 7 (0.75%), 12 (6.79%) and 13 (8.68%) years. The most obvious social consequence of early marriage is drop out. The study shows that association between early marriage of girls and their education is highly significant (X^2 =49.19**, df=30, P<0.01) [Table-2].

Early marriage usually results in early pregnancy among most underprivileged communities. The Muslims under study are against adopting any family planning methods, since pregnancy is seen as the sign of fertility of woman and it completes womanhood. However, some women, mostly of the younger generation, were reportedly using contraceptive pills (43.77%), condom (3.40%) or adopting withdrawal technique (8.30%) in order to reduce the family burden. As practising contraceptive method by the females were not seen in good spirit, 61.21 per cent of the pill users were using this without their husband's knowledge. No family planning method was adopted by 44.53 per cent women. Most of them were not allowed to do that by their husbands and some thought that having a baby was the gift of the almighty Allah. The words of a woman aged 42 years reflect the belief against the use of family planning method:

I have given birth to five children, including two boys and three girls. I am not using any method because it is a sin to control the birth of a baby. Getting pregnant is a natural phenomenon which comes at the wills of Allah.

It was also reported that 83.02 per cent women (including many young ones) were in habit of using old cloth. This was the traditional practice of the women in the study area. Only 16.98 per cent women were lucky to use napkins. A woman of 42 years at the Ward No. 3 revealed her preference in the following words:

I had menarche at the age of 13 years. When it happened for the first time, I leaned about this from my mother. She arranged some used cloth for me and guided me how to use it. Till now, I do use cloth. Now-a-days, sanitary napkins are available in market. But I never used napkins because I feel very uneasy to purchase napkins and my husband also feels uncomfortable to buy them.

It is found that association between family planning awareness and the frequency of the act of conceiving is highly significant (X^2=63.91, df=10, P<0.0001) [Table-3]. The study further shows a highly significant association between women's education and family planning method adopted (X^2=44.38***, df=15, P<0.001) [Table-4]. A significant factor that contributed against the use of pills was the social learning about the side-effects from the user women. Out of 116 pill users, the problems of headache, weight gain, nausea, weakness, weight loss and even menstrual problem were reported by 28.45, 10.34, 10.34, 2.59, 6.03 and 12.07 per cent early married women respectively. Reported cases of anaemia were alarmingly high among the early married women. Whereas 46.42 per cent women had no idea about anaemia, 30.94 per cent women reported that they had anaemia. One of the serious health effects of early marriage is the low birth weight of the babies. In the present case, 56.23 per cent women had their first baby with a low birth weight. Only 30.94 per cent women reported that they had babies with a normal weight, whereas 12.83 per cent of them had no idea about their baby's weight. The poverty of the family is also an influencing factor. The early marriage of girls is a socioeconomic consequence of poverty. The study shows that the association between women's education and the monthly family income is highly significant (X^2=1.93***, df=25, P<0.001) [Table-5].

Among the early married women, 23.40 per cent experienced the trauma of abortion whereas 76.40 per cent did not. However, none of them had got multiple abortions. Fifty per cent of the women who experienced abortion opted for early termination of pregnancy as their previous babies were too young. Other causes of abortion included having many (usually 3-4) children (17.74%), overage of the mothers (14.52%), weakness of the mothers (8.06%), and other (including the cases like pressure from husband, etc.). The Muslim women did not like to disclose the incidence of abortion as their orthodox society was very sensitive about it. They, therefore, took the decision at a very early stage of pregnancy. The words of a woman aged 32 years expressed the compulsion and agony of such premature termination of pregnancy:

I have a very big family. There are my husband, children, father-in-law, mother-in-law and brother-in-laws. I have already two babies, and now have conceived again. We had no plan for another baby, but it happened. My husband told me that he was the only earning member in the family. If the baby was born the expenditure of family would go high and nurturing the baby would be very tough. Although my father-in-law was a rickshaw puller, his income was just nothing to say. All responsibilities in the family were on my husband's shoulder. That's why my husband asked me for the abortion. A world of fear surrounded me at once. Keeping aside all agonies and hesitation, we visited a doctor. Doctor gave me some medicines for abortion. I could not close my eyes that night. After taking the medicines my menstruation started. It was

not right what we did. We did not disclose the incident to anybody till now.

One of the gravest consequences of early marriage is miscarriage. In the study group, 22.26 per cent early married women experienced miscarriage. About 49 per cent of them failed to identify the cause of miscarriage. However, 16.95 per cent of them attributed this to the fact that they felled down somehow and 33.9 per cent to the act of misdeed in past or may be in their previous birth. It is found that there is highly significant association between early marriage of women and miscarriage (X^2= 55.45***, df=24, P<0.0001) Table-6]. Thus, early marriage brings in various socioeconomic as well as reproductive health constraints in the life of women. But, among the Muslims the rate of early marriage is alarmingly high.

Table-2: Association between women's education and their early marriage (n_w=265)

Women's education	Age at first marriage (years)							X^2
	7	12	13	14	15	16	17	
Illiterate	0 (0.00)	9(23.68)	4(10.53)	6(15.79)	10(26.32)	6(15.79)	3(7.89)	49.19**
Only Can sign	2 (3.08)	5(7.68)	9(13.85)	6(9.23)	16(24.62)	21(32.31)	6(9.23)	
I-IV	0 (0.00)	2(3.08)	3(4.62)	9(13.85)	16(24.61)	19(29.23)	16(24.61)	
V-X	0 (0.00)	2(2.22)	7(7.78)	12(13.34)	22(24.44)	31(34.44)	16(17.78)	
H.S	0 (0.00)	0(0.00)	0(0.00)	0(0.00)	1(16.67)	3(50.00)	2(33.33)	
Graduate	0 (0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	1(100.0)	

(**)=P<0.01, df=30 (Figure in parenthesis indicates per centage) Source: Fieldwork data, 2016-19.

Table-3: Association between family planning awareness and frequency of the act of conceiving.

Family planning awareness	Frequency of the act of conceiving										X^2
	1	2	3	4	5	6	7	8	9	15	
Yes	6 (14.63)	29 (70.73)	5 (12.20)	1 (2.44)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	60.61***
No	37 (16.52)	36 (16.07)	48 (21.43)	42 (18.75)	14 (6.25)	26 (11.60)	10 (4.46)	7 (3.13)	3 (1.34)	1 (0.45)	

(***)=P<0.0001, df=10 (Figure in parenthesis indicates per centage). Source: Fieldwork data, 2016-19.

Table-4: Association between women's education and adoption of family planning methods (n_w=265).

Women's education	Family planning method adopted				X^2
	Pill	Condom	Withdrawal	None	
Illiterate	6 (15.79)	1 (2.63)	2 (05.26)	29 (76.32)	44.38***
Only can sign	21(32.31)	0 (0.00)	4 (06.15)	40 (61.54)	
I-IV	33(50.77)	2 (3.08)	7 (10.77)	23 (35.40)	
V-X	52(57.78)	6 (6.67)	9 (10.00)	23 (25.56)	
H.S	4 (66.67)	0 (0.00)	0 (0.00)	2 (33.33)	
Graduate	0 (0.00)	0 (0.00)	0 (0.00)	1 (100.0)	

(***)=P<0.001, df=15; (Figure in parenthesis indicates per centage) Source: Fieldwork data, 2016-19.

Table-5: Association between women's education and monthly family income (n_f=167).

Women's education	Monthly family income (INR)						^{2}
	≤2500	2501-5000	5001-7500	7501-10000	10001-12500	≥12501	
Illiterate	12 (31.58)	16 (42.11)	9 (23.68)	1 (2.63)	0 (0.00)	0 (0.00)	1.93***
Only can sign	7 (10.77)	26 (40.00)	26 (40.00)	5 (7.69)	1 (1.54)	0 (0.00)	
I-IV	7 (10.77)	29 (44.62)	21 (32.31)	8 (12.31)	0 (0.00)	0 (0.00)	
V-X	3 (3.33)	28 (31.11)	40 (44.44)	18 (20.00)	0 (0.00)	1 (1.11)	
H.S	0 (0.00)	0 (0.00)	4 (66.67)	1 (16.67)	0 (0.00)	1 (16.67)	
Graduate	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (100)	0 (0.00)	

(***)=P<0.001, df=25 (Figure in parenthesis indicates per centage); Source: Fieldwork data, 2016-19.

Table-6: Association between early marriage of women and incidence of miscarriage (n_w=265)

Age at 1st marriage (yrs)	Causes of miscarriage				Not experienced miscarriage	X^2
	Result of misdeed	Falling down	Other#	Not known		
7	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (100.0)	
12	8 (44.40)	1 (5.60)	0 (0.00)	0 (0.00)	9 (50.00)	55.45***
13	3 (13.04)	1 (4.35)	0 (0.00)	2 (8.70)	17(73.91)	
14	1 (3.03)	0 (0.00)	2 (6.06)	4 (12.12)	26(78.79)	
15	4 (6.15)	3 (4.62)	3 (4.62)	4 (6.15)	51(78.46)	
16	2 (2.50)	5 (6.20)	0 (0.00)	10 (12.5)	63 (78.80)	
17	2 (4.50)	0 (0.00)	1 (2.30)	3 (6.80)	38 (86.40)	

(***)=P<0.0001, df=24 ,(Figure in parenthesis indicates per centage),# The category includes the causes like overage of the woman, hard work, thyroid and asthma. Source: Fieldwork data, 2016-19.

Conclusion

In India since 1961, there is a declining trend of child sex ratio (CSR). It declined from 945 in 1991 to 927 in 2001 and then to 918 in 2011 (Govt. of India 2020). At the same time, the rate of illiterates among the females is almost double the rate among the males (34.54 and 17.86 per cent respectively) as per the Census report 2011(Census of India 2011). These are seen as major indicators of women disempowerment. In order to curb these menaces, the Government of India has introduced Beti bachao beti padhao (meaning save the girl educate the girl) scheme in 2019. The State Government in West Bengal also has come forward with the Kanyashree scheme in order to incentivize girls to continue education and disincentivize their early marriage (Govt. of West Bengal 2020). This has been very successful in reinforcing the positive impact of increased education and delayed marriage in West Bengal and earned international fame by winning the UNPSA Award 2017 of the United Nations. But it appears that these schemes have failed to cut the ice among the Muslims in the country as the findings of the present study suggest. This study shows that early marriage very high (53.64%) among the Muslims. It further shows that poverty and early marriage of the Muslim women has a highly significant association. Otoo-Oyortey and Pobi (2003) have also found the link between poverty and early marriage.

It was also found that there is a highly significant association between educational backwardness and early marriage of women. The very low literacy rate of the Muslim women (about 65 per cent) acts as a crucial factor toward social disempowerment. The Muslim women are traditionally not in favour of adopting any family planning measure. Sometimes husbands influence the decision. Similar evidence was also obtained in South Africa (Varga 2003). However, 55.47 per cent of them, mostly belonging to the younger generation, are using different family planning measures in order to reduce the economic burden. A highly significant association is found between family planning awareness and the frequency of the act of conceiving. The women under study are in general lacking the desirable awareness about hygienic health practices as 83.02 per cent of them are using old cloth as sanitary napkins.

The study further shows that early married women witnessed severe reproductive health hazards in the form of abortion and miscarriage. More than 23 per cent of such women had to opt for abortion for various causes. The level of correlation between women's early marriage and miscarriage is high ($P<0.0001$). Maternal mortality rate was not calculated as the data could not be verified with reliable records or the informants.

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The Pattern of Livelihood: A Study of Fishing Community Living Along Wular Lake, Jammu & Kashmir

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KEYWORDS

Livelihood pattern, Fisherfolk, Kashmir valley, Community, Wular Lake

ABSTRACT

The increasing impact of fish and fisheries products on socioeconomic standpoints, in terms of income, employment generation, nutrition value, and many more, benefit the livelihood patterns of many fishing communities in the world. But this is not in the case with the fishing community of the Kashmir valley living along the shores of Wular Lake. This fishing community has always remained differentiated and suffered low esteem in the social hierarchy. This community forms the artisanal/traditional fisheries of the Kashmir valley and supplies the bulk of fish consumed by the native residents. This artisanal fishing community forms a most neglected group and often finds itself outside the mainstream of economic, social, and political activities. This research was carried out to study the present livelihood status of the fishing community of the Kashmir valley. The data was collected from two villages, Zurimanz, in the Bandipora district and Ghat, in the Baramulla district.

Introduction

Livelihood possesses different meanings and can be used in different ways altogether. A livelihood comprises the capabilities, the assets (natural, physical, human, financial, and social capital), the activities and the accesses to these (mediated by institutions and social relations) that together determine the living gained by the individual household (Chambers and Conway, 1992). A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in future, while not undermining the natural resource base (Chambers and Conway, 1992).

Presently, India is facing various kinds of crises, which are directly or indirectly influencing undesirably the livelihood patterns of rural areas, employment sectors, human development indicators, rights of residents, environmental and ecological sustainability. As this paper tracks around the core concept of livelihood, it is important to elaborate, what livelihood is. Different scholars describe livelihood in different ways; Chambers and Conway (1992) define a livelihood as "adequate stocks and flows of food and cash to meet basic needs". The Oxford Dictionary defines livelihood as "a means of earning money to live" (Oxford Advanced Learner's Dictionary of Current English, VIIIth Edition). The Dorling Kindersley Oxford Dictionary defines livelihood as "a means of living; sustenance". Niehof and Price (2001) depict "Livelihood" generation as an entity that encompasses all activities undertaken by people to meet their basic needs and for the "results or outcome of

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those activities the term livelihood is used". Livelihood is here conceptualized as going beyond income, not only to include both cash and kind, but also other factors, such as social institutions, gender relations, and property rights (Ellis, 2000). More or less the livelihood encompasses all the assets, resources, institutions, organizations, outcomes, claims, capabilities of a community, society, or a group of people persisting a common niche.

An estimated 93-97 million people were directly involved in fishing, processing, and marketing in small-scale fisheries in the developing world in 2008, 51 million of whom were associated with inland fisheries (BNP 2008). Indian fisheries and aquaculture are an important sector of food production providing nutritional security, besides livelihood support and gainful employment to more than 14 million people, and contributing to agricultural exports. With diverse resources ranging from deep seas to lakes in the mountains and more than 10% of the global biodiversity in terms of fish and shellfish species, the country has shown continuous and sustained increments in fish production since independence. The total fish production during 2017-18 is estimated to be 12.60 million metric tonnes, of which nearly 65% is from the inland sector and about 50% of the total production is from culture fisheries and constitutes about 6.3% of the global fish production (NFDB, 2020).

The Fisheries sector of Jammu and Kashmir occupies an important place in the socio-economic development as it contributes about 16.05 % to the Gross State Domestic Product (GSDP), allied with Agriculture and Forestry, for the year of (2018-19), (J&K ENVIS Centre). Besides being an allied activity with agriculture, fisheries represent an influential segment into the economy and generate a massive spectrum of self-employment. "Fishing is one of the oldest means of subsistence of mankind. Many nations now compete to exploit the virgin areas of the oceans with modem fishing fleets. But, despite modem technology and increasing innovations in the fishing industry, it remains, by and large, in its traditional form even today", (Pramanik, S.K, 1993:1). Fisheries in Kashmir are roughly forked into artisanal and culture-oriented fishing practices. On the whole they form the 'fishing community' of the Kashmir valley, which is natively labelled as *Haanz*. They work together with their common niche of traditional fishing, without any gender disparity to satisfy economic subsistence.

This artisanal fishing community always remained discriminated against and has a low position in the ladder of social hierarchy. This community girdles in the most neglected groups and more often finds itself outside of conventional socio-political and economic activities. Since, in many societies, people indulgein the occupation as a source of income and livelihood, one cannot overlook the fact that the growth of other sectors has deeply challenged the traditional and primary sectors such as fishing. Although, the increase of capitalistic income, has immensely affected the sustainability of the traditional fishing practice.

This paper tries to elaborate the basic livelihood assets, livelihood outcomes, strategies, resources, livelihood institutions, and organizations of the fishing community of the Kashmir valley.

Methodology

Objective: The objective of this study was to assess the livelihood pattern of the fishing community living along the Wular Lake in District Bandipora and Baramulla.

Area of the study: This research was conducted in '*Zurimanz*' a village, in the Bandipora district and in '*Ghat*' a village in the district Baramulla of Jammu and Kashmir. The livelihood of both villages is directly involved with the traditional fishing practices across Wular lake.

Data Collection Methods: This research started with a survey to get general quantitative data about the villages. Primary data was collected through different anthropological data collection techniques such as observation method, structured and unstructured interviews, focused group discussion, case studies, and genealogical method. A very little amount of secondary data was used, that have been collected from various, books, magazines, journals, online blogs, and various websites (Fig. 1).

Results and Discussion

Livelihood encompasses numerous domains of an individual or a group; hereafter cannot be detailed in a single window. This study divides the livelihood pattern of the fishing community into various sub-themes so that detailed information can be portrayed.

Livelihood backgrounds

Historical

As per many historical and literary sources, initial habitations in the Kashmir valley settled on the fringes of the water bodies, such as Dal Lake, Jhelum river, or Wular lake. Living nearby the water bodies must have benefited the inhabitants in multiple ways. For their livelihood, they preferred the prime niche of fishing, along with some kind of settled agriculture. As time passed, many of them shifted to the mainland and opted for different occupations. But in contradiction to the developing world, these traditional fisherfolk remained bound to their traditional fishing practices and stayed isolated from the rest of the mainstream world. Their social and economic status gradually started mortifying and affecting their life forms.

Cultural

This fishing community of Kashmir valley forms a substantial group of people, living along the riverside banks in *Khannabal* in District Anantnag of South Kashmir, where the river Jhelum flows through Wular lake and goes to *Khadniyarin*, in Baramulla District of North Kashmir. All-over India, fishing is considered a low-grade profession, and it is also the case of this community. Individuals belong to backward families, who are largely illiterate, superstitious, and live in extremely poor economic conditions. They possess various endemic cultural traits, which make them different from the fishers of the Indian subcontinent and form a distinct cultural and ethnic identity.

Infrastructure

These two villages are located at the periphery of their districts, with just a few kilometers from the gap between the two. Road facilities are available, connecting them with the main markets. But due to the surface variation of the lake, roads remain submerged for most of the time. Main town markets are almost 18 km away from the habitual area, making it tough for 80% of the fisherwomen to reach and sell the catch. Residents are provided with gas, electricity, and telecommunication services. There is only one primary school, one high school, four mosques, and some small shops (Fig. 2).

Education

Education is one of the essential factors for the development of any civilization. It is a vehicle, which can bring sustainability, feasibility, and practicability to society. The Education status of this fishing community is not that good. About 7.1 % can read and write, 11.7 % have primary education, 8.6 % have a secondary level of education while as 4.9 and 3.8 have reached graduation and post-graduation respectively. Almost 63 % of individuals approximately are illiterate. In the only Government primary school in the area, there are 5 teachers, with the student engagement of approximately 300. There are more boys than girls attending the schools, because of the stereotype that, girls need to look after the household chores rather than attending schools (Graph. 1).

Health

These inhabitants live almost 20 km away from a district Government hospital and major private clinics. As a result, it becomes hard for the residents to reach the hospital on time in case of any emergency. A New Type Primary Health Centre (NTPHC) has been allotted and the building has been under construction for the last

three years. Common diseases included fevers and colds, dysentery, diarrhoea, and other water-borne diseases presently treated in an unsatisfactory building, which has been hired from a local fisherman. The drinking water facility is provided by the government via pipelines. The individuals are very much aware of family planning, most of the couples understand the importance of using different birth control measures.

Livelihood Resources

Human labour

As per the revenue records, the estimated population of these villages is approximately 1686, out of which 973 are males and 713 are females. A major part of the people, with almost about 73 % are directly involved in fishing, which includes fish catching, fish drying, and fish selling, whereas the second-highest percentage is made of daily wage labours (14%). There were (4%) respondents who were doing Government jobs. The rest were engaged in Carpentry (2%), Masonry (2%) Drivers (1%), and others (4%) which includes bus conductors, salesmen, electricians, barbers, etc. Most of the daily wage labours work in the paddy fields, apple orchids, construction works of the nearby villages (Graph. 2).

Social

Being in a community, creates intangible relations, in the form of social ties, mental ties, and personal relationships. They possess a psychological identity, that bonds the community in unit within a common niche. Most of the time, they go fishing in groups, so that in case of any emergency, they can help each other. In winter times, when the fish catch remains low, they fish jointly. All the individuals together catch fish, with the help of dip nets, and share the catch equally. A good symbiotic relation is found between the market fish retailers and the fishermen families. In hard times, retailers provide all the home essentials to these fisherfolks, and get fish from them in the good fishing seasons. Marriages are mostly done within the community. Trends of divorce and second marriages are found in this community.

Physical

There are approximately 190 families in these villages. Almost 80 % people live close to the shores of Wular lake. About 28 % live in tin-sheds, 48 % live in single-level pucca houses, 14 % in double story pucca houses, and 10 % in kutcha houses. Middle-class individuals possess more than one boat and several nets. Only 28% families have a television set, while about 86% families owned radios and tape recorders. Almost all the families used cell phones. There are about 20 small shops owned by the villagers. Nearly, all the families possess boats, nets, harpoons, and other traditional fishing gear.

Economics

Small-scale fisheries contribute significantly to the local economy and culture and are important for the survival of many coastal fishing communities. More than 90% of all fishers across the globe rely on small-scale fisheries for their livelihoods (Chuenpagdee, 2011) however it generates reasonably less income than large-scale fisheries do. The nearest commercial bank is almost 6-7 km away. So, the people often take credits from the local fish traders with a high rate of interest. These local fish traders provide these fisherfolks money, home groceries, medical emergency funds, etc., but in give-and-take get fish from them at low-cost rates. More often, these fisherfolks spend what they earn daily. Only 19 % of the individuals have some kind of savings in banks or other co-operative systems. Many of them have taken loans from the banks to improve their livelihoods, but are now unable to pay them back, leading them to economic crises. This fishing community is following a trend of an occupational shift to withstand with the developing world.

Natural

These villages are located on the shore of the Wular Lake. About Six different varieties of fish are wedged from the lake. Besides fish, cattle foods, chestnuts, lotus roots, etc. are also foraged. About 68 % of these dwellers live on the government land. As these fisherfolk are overexploiting the lake ecosystems, this inimitable resource is under threat, influencing their socio-economic conditions severely.

Health

There are many health issues, which are hampering the capacity of work for these fisherfolks. Working for almost 13 hours a day affects their health recklessly. Waterborne diseases like Cholera, Scabies, Typhoid, Hookworm infection, Ring Worm, or Tinea and other skin related infections are prominently found in these fisherfolks. With fewer security measures in their traditional boats, there is always a high risk of drowning, as tides rise about 4- 5 feet in winds. These fisherfolks hardly care about the minor illness of cough, cold and fevers, and continue their work in such cases.

Livelihood approaches and results

Major risk and coping strategy

The degradation of the lake both biotically and abiotically is the major concern for the villagers. As the lake is changing its topography into a wetland, the risk of floods increases. Oversupply of fish during the good fishing seasons leads to a price drop, which affects economically these fisherfolks. Boat and other fishing gear damages are also key risk factors for the poor fisherfolks. The sickness or death of an earning member of a family can be a major risk.

On-farm and off-farm income

Fishing is the main occupation of this community. These villagers catch fish in almost all the seasons, with the peak season of June- September, which is also facilitated by selling chestnuts. During the season of fish spawning, they shift to off-farm activities including labor working in construction sites, agricultural fields, apple orchids, etc. Some of them take agricultural lands on lease from the neighbouring villagers and work there, to support their livelihood.

Mutual sustenance

There are hardly any conflicts between the individuals, so more often they support each other physically, economically in various functions like house construction or maintenance, marriage, boat making, fishing gear maintenance, etc. The government also provides financial assistance for the construction of houses for those who can fulfil all the multifaceted requirements.

Food Security

These fisherfolks continuously adjust their diets according to their income throughout the year. Most of these fisherfolks are not food secured, as environmental and economic influences are directly proportional to their food safety. Usually, rice is a staple food with pulses, vegetables, and fish. Eggs and meat are consumed twice or thrice a month. Food security has a direct link with poverty, susceptibility, and livelihoods.

Protagonist women

Empowerment is a course of acquiring rights, self-development and self-realization through self-regulating decision making. Thus, when we speak of women empowerment, it means providing social, economic, political, educational rights, so as to give them a status in par with men. The average Indian fishing family today finds it difficult to earn a livelihood throughout the year. Therefore, the vast potential available among the unemployed fisherwomen needs to be tapped, which can be done by making them capable of doing something remunerative on their own. This however requires that the women are motivated, have a degree of awareness, the ability to think critically and take decisions and above all possess a measure of self-esteem. This power has to be acquired, sustained and exercised.

In contrast to the dominating male attitude, at present times the women of this fishing community have an important role to play in terms of market sellers. Along with being engaged from dawn to

dusk in the household chores, these fisherwomen play a significant role in retailing, sorting, chestnut harvesting, weed gathering, child caring, chestnut drying processing and household upholding.

They are setting an example and breaking the stereotypes, refraining from staying at home. With the help of their male counterparts, they are equally responsible and making efforts to empower themselves.

Marketing strategies

Three kinds of markets are available for these fisherfolks to sell their catches, which are: the local village market, town markets, and wholesale markets. All three are important in one or another way. Local village markets encompass the periphery of about 5 km to 7 km of the neighbouring village area, which men visit on their bicycles. So, they can sell their catch as early as possible and save time for further fishing. Town markets are usually visited by women, which covers 15 km to 20 km of the access area. Individuals, who are the only earners in the family, sell their catch directly to the wholesalers in the lake at cheap prices.

Conclusion

From this study, it was found that this fishing community survives on a very deprived state of livelihood. Wular lake is the foremost natural resource for them. Their subsistence is directly influenced by the dynamic relationship with the lake. For the livelihood upliftment of this community, multifaceted approaches are the need of the hour. From food security to health care, economic upliftment to developmental policies, education facilities to infrastructure, etc., all these aspects need special considerations. These fisherfolks should be made aware of sustainable development, through various campaigns, and mass media communication resources. Subsequently, various government organizations and other NGO's should come forward in creating employment opportunities, so that these fisherfolk can earn throughout the year. These fisherfolks are suffering from huge psychological trauma, steep economic decline, plunging social status, adverse health issues, illiteracy, underdeveloped mechanization, and many more.

The government should build different fishing colonies, around the lake, which can benefit this community and can get some help in improving their social and economic conditions. There is a need for immediate health care facilities like Primary Health Centres, well-being conveniences like wells, eco-friendly toilets, and approachable roads to fishing villages.

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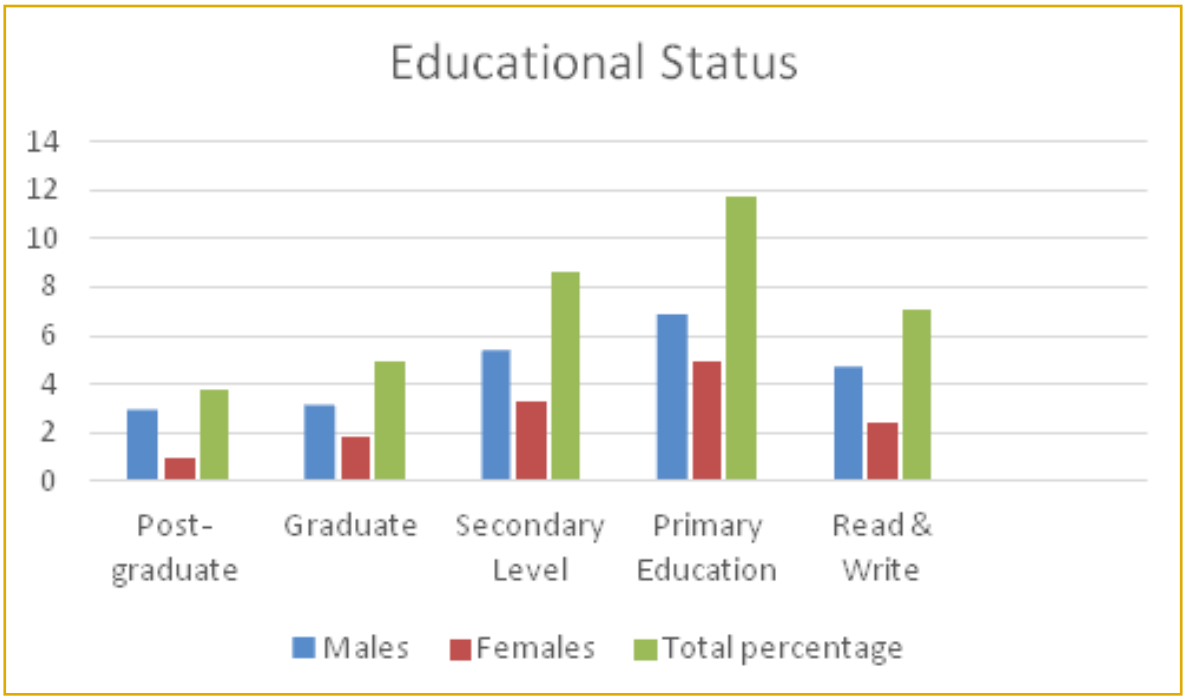
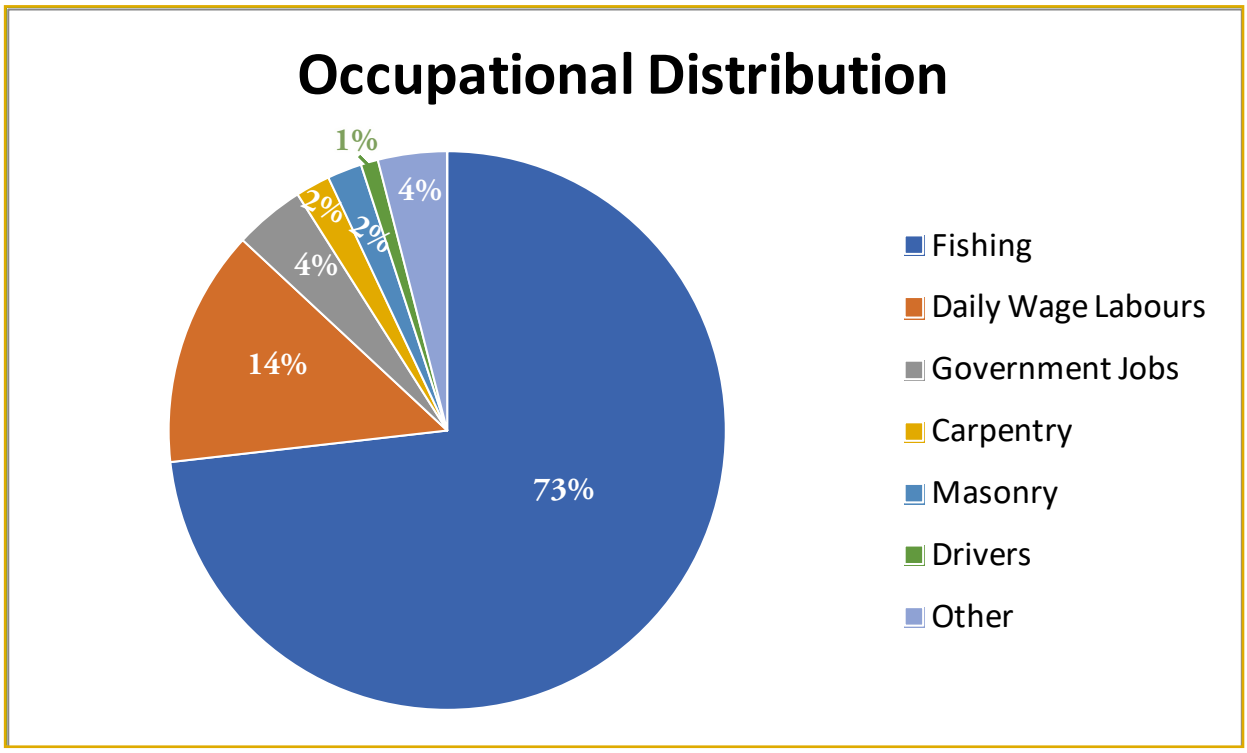
Graph- 1 - Educational Status.



Graph 2 - Occupational Distribution



Pictures

Figure. 1 - Map of the area (Source: Google maps)

Figure 2 - Road submerged underwater.

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Tourism in Arunachal Pradesh: Evolution of Tourism Area and its Effects on the Guest-Host Interactions

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KEYWORDS

Arunachal Pradesh, Tourism, Tawang, Ziro, Menchukha

ABSTRACT

Arunachal Pradesh is a land-locked frontier state of India. It lacks a robust industry and is deficient in infrastructure and other amenities. One of the ways mooted by the state government and entrepreneurs to overcome this challenge was to give an impetus to the tourism sector in the state. It is physically non-invasive unlike other traditional industries and blends in comfortably with the natural and cultural features of the local people. Many clusters of destinations were chosen all over the state to implement tourism policies. Yet, only three of them, namely- Tawang, Ziro and Menchukha has managed to attract and retain some tourists and tourism-based economy. The present paper is based on fieldwork done in the three sites. It seeks to analyse the guest-host interactions and understand how the stage of the tourism industry according to the Butler's Tourist Area Cycle of Evolution affects the behaviour of both. And also, how it in turn affects the kind of tourism growing in the three sites.

Introduction

People have travelled for as long as humanity existed, but the concept of people travelling solely for leisure which is also known as tourism is a relatively recent phenomena in humankind's long history. Tourism can be both domestic (within the traveller's own country) or international, that is across borders. This has become an important industry which can be gauged from the fact that in 2011, it accounted for 30% of the world's trade in services and 6% of the overall export of goods and services in the world (WTO, 2011). It generates cash and employment, so much so that some countries are entirely dependent upon it, which is especially true of the small island nations. The flipside to so much reliance on tourism can be that, it erodes the very cultural and natural features on which it was based upon over time through overuse or mismanagement of resources. Depending on the visions and policies of the implementers, tourism can be a boon or a bane for the communities involved.

Tourism as an industry is warmly welcomed in most places to generate revenue and employment. It is technically less invasive than traditional factories and other large-scale industries. It is also espoused globally as being sustainable and culturally friendlier, although the situation may go reverse along with its progress. Since tourism is hugely labour intensive in nature, WTO (1998) suggest that developing and least developed countries are in great advantage with a strong potential for tourism.

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To tap on in this phenomenon, and cash on in the traveller's curiosity about hitherto unknown people and places, the government of Arunachal Pradesh, is also giving a push to the tourism sector in the state. From being the feared locals of an obscure frontier state in the North Eastern tip of the country, locals have witnessed the gradual rise in the number and types of visitors that visit their natal villages, towns and state. As much as the visitors are fascinated by their tribal customs, traditions and the natural landscape; the locals are fascinated by the sight of curious guests and visitors foreign to their land. However, the share of tourist flow in the state, Arunachal Pradesh is only about 3.71% of all the tourist flow in North Eastern India, in spite of its great potential; at the country level, the share of tourist flow of the state is absolutely insignificant (Baruah and Goswami, 2017).

The government to cash on in the traveller's quest for hitherto unknown destinations, has set up a department solely devoted to tourism and its affairs. The state sells under the brand- "*Arunachal Pradesh: A Paradise Unexplored*". The whole state has been divided into twelve circuits to cash in on the uniqueness of each destination. Yet, only three regions- Tawang, Ziro and Menchukha attract some tourists and visitors. In these three regions, the government as well as the local entrepreneurs have had a big role in attracting and developing the tourist industry. The economies in the three areas are not entirely dependent on tourism, and the market for tourism has not developed yet. But more and more entrepreneurs and the general population are taking to the idea of an employment based on tourism.

This paper is an attempt to understand the evolution of three tourist areas – Tawang, Ziro and Menchukha – and its effect on the guest-host interactions. The methods used were intensive interviews and participant observation spread longitudinally over three years of fieldwork in these three sites. Secondary sources were relied on, which were obtained from libraries, catalogues, advertisements, websites and archives. Emic and etic perspectives of the tourism phenomenon were taken into account while trying to understand the phenomenon as taking place in this sites. Guest-host interactions and its narratives were observed and recorded.

Conceptual framework

Butler (1980) put forward the concept of 'tourist area evolution': according to him, a tourist area evolves or grows in a pattern, which can be plotted on a curve, which follows six stages of growth. At the first stage there is the exploratory stage, wherein a new tourist site is discovered, and which is devoid of standard facilities and has limited access with the wider world. During this stage visitors are less in number and interactions with locals are intimate. After that, the site progresses into the involvement stage, as facilities grow and more people get involved in the tourist business. Next comes the development stage, where non locals get involved in the growing tourism market in the site, and tourist numbers grow as well. After that comes the consolidation stage where the tourist market becomes fully developed. It is followed by stagnation, where maximum number of visitor potential is reached. After that either a decline of the tourist site occurs or a rejuvenation of the site with newer attractions occurs. Thus, a basic asymptomatic curve in the evolution of a tourist area is followed.

The 'Guests' are the visitors, travelers or tourists who travel to an area other than their usual residential places for a visit, pleasure or leisure. The term 'Hosts' means the community, person or persons that receive the tourists coming to their village, town or locality. They are the locals who may or may not be a part of the economic activities that occur due to tourism at the destinations. The study of guest and host interactions and the changes in them have always formed an integral part of tourism studies since its inception. Many studies have focussed on tourism from the viewpoint of the tourists' (Graefe and Vaske, 1987; Murphy et al. 2000, Pizam et al. 1978). Also studies have focused

on tourism from the hosts' viewpoint (Thyne et al. 2006). Though colloquially the term 'Guests' and 'Hosts' may imply a very genial and receptive tone to the uninitiated, the fact is a multitude of factors work in both directions between hosts and guests. The type of response elucidated from the guest or the host depends largely on the attitude, behaviour, status, age, experience and knowledge of both, and also to a large extent on the penetration of tourism into the local economy.

The stage of penetration of tourism into the local economy can be gauged by the fore mentioned attributes as described by the tourist area cycle of evolution. The stage at which a tourist area stands can thus speak volumes on the type and nature of interactions that may or might be occurring between guests and hosts. The complex problem of the development of a tourist area or site are influenced by the relationship between tourists and hosts. This relationship either in its positive or negative form may boost or curtail the further growth of tourism in that area.

The host communities in the three study tourist sites are - the Monpa tribes in Tawang, the Apatani tribe in Ziro and five smaller tribes (Ramo, Bokar, Pai Libo, Tagin and Memba) in Menchukha. The Monpas of Tawang are agriculturists and traders; they have religious and cultural ties with the Buddhist religion and regimes of Tibet. The other mentioned tribes are animists and agriculturists, who have traditionally followed the tenets of nature worshipping now termed- '*Donyi-Poloism*'. Along with education, health and infrastructural development, and contact with other cultures, many have taken to Christianity. They have ventured into salaried government jobs, horticulture, business and entrepreneurship. Tourism has been introduced in the three areas to capitalise on their unique cultural and natural attributes.

Findings and Discussion

In all the three tourist sites under study, visitors often come on a very short tour, often as a stray visit of some other holiday plans, when they happened to chance upon the three sites, more so the latter two sites of Ziro and Menchukha. The study or analysis of guest-host interactions can be described as an undeniable fact that – "*Tourism is an industry which uses the host community as a resource, sets it as a product, and in the process affects the lives of everyone involved*". (Murphy, 1985). As observed in the field, the response of the locals to the guests, and also the initial impression of the first few visitors upon the locals have had a long lasting impact on the growth and number of visitors. Along with it, the stage of development of tourism in the three sites clearly exemplifies the types and nature of interactions taking place between hosts and guests.

At the beginning of the tourism per say in the state, only a few, mostly Euro-American, visitors, of the wanderers and researchers type attracted by the tribal land came to visit the place. These were mostly the middle-aged or the retired professionals visiting at the behest of politicians or the pioneering few. The locals were very innocent about the economics of hospitality back then, and they were also not very educated and had little knowledge about the world outside their own. The interactions were of amazement and curiosity from both sides. Despite the infrastructural bottlenecks, responses were warm and encouraging. The sight of faraway visitors amidst them emotionally overwhelmed the locals and they would freely welcome the visitors, lavishly entertain them and give away souvenirs as gifts for the visitors to take back home, who came to take stock of the curiosities in their homes. This impression of the tall, white tourists has impinged upon many, especially the older, rural folks who do not consider or know of the fellow Indian plainsmen as tourists.

The younger folks and the entrepreneurs realised the potential of this section of tourists though, which often forms the bulk of tourists that visit the state, as the foreign tourists visiting the state are very few. Over the years, a trend is being observed in the guest-host interactions based on the degree of the penetration of tourism in the local economy, the number of visitors, the extent of visits, the number of establishments in the neighbourhood that caters to tourists, the degree of involvement of the government and private stakeholders, and the cultural and natural imagery preformed in the visitors minds by virtue of marketed imagery or experienced reality preformed in a similar setting elsewhere. This can be illustrated and graphed on for the three sites on the basis of Butler's Tourism Area Cycle of Evolution (1980) in the following figure.

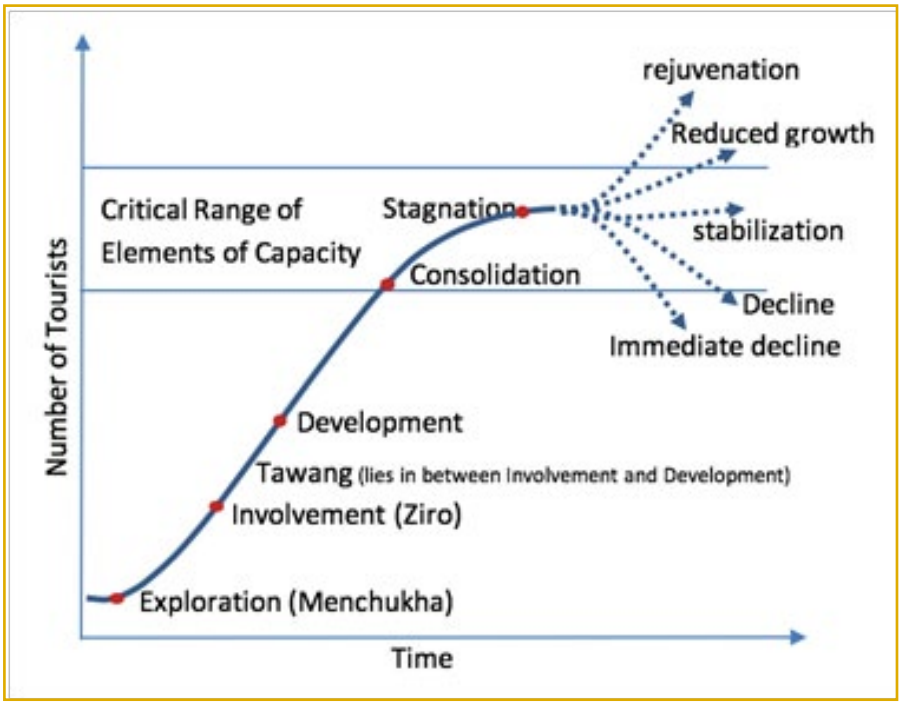

Figure: Position of the three tourist sites under study on Butler's Tourism Area Cycle of Evolution (adapted from the Butler, 1980)

Menchukha

In Menchukha, tourism was introduced by way of *Adventure@Mechukha* in 2014, an annual festival which happens in November every year. It has managed to attract some domestic tourists and few international tourists since then. The place is famous for its culture, religiosity and gentle, rolling mountain tops. Here the tourist season starts with the onset of winter and continues till spring. During the summer and the monsoons the tourism business is almost nil, as the roads and communication are in a bad shape due to landslide and heavy rain. Homestays are being run by some entrepreneurs, they and the locals have high hopes from tourism. The expectations from tourism range from too high to low in Menchukha. It reflects in their interactions with the tourists who are highly deemed or lowly condemned. This is directly related to the amount of income they bring or do not bring to the establishment owners and non-involved locals. There occurs a difference of mannerism and worldview between the locals who have only recently been connected to the wider world via all-weather road and communication and the tourists. And this sometimes is a cause of conflict between hosts and guests. The low- budget backpackers are especially chided for their thrifty attitude, which stands in stark contrast with the tribal notions of generosity and lavish entertainment.

The guest-host interactions are still at an exploratory stage, interactions are of curiosity and awe, and the locals are shy respondents. The idea that tourism is a business like any other, with its own

rules and ethics of bargaining, haggling, striking deals and overlooking differences has still not sunk in among the majority of locals. Some respondents complained that among all the foreign tourists the Israelis were the thriftiest and most aloof of all, that they do not respect the local culture and ethos. Many tourists who were interviewed expressed their thrill at discovering a place still unexplored and innocent, that they had anticipated that it would be far and low on infrastructure. Yet, they wished that the roads, electricity, communication and transport could have been better. From this exploratory stage in the tourist area cycle of evolution, Menchukha still stands a long way to go on the path of tourism development. Also reports of violent clashes between the locals and the tourists due to misunderstandings were reported in an event recently.

Ziro

Ziro saw an earlier arrival of tourists than Menchukha. It receives more tourists than Menchukha and the number of tourists especially the domestic ones, visiting it each season, is growing every year. The tourist season in a year encompasses the sowing, harvesting and festive season spread over the summer, autumn, winter and spring months. Tourism was introduced to Ziro by some entrepreneur locals and NGOs collectively. Among all the study three tourist sites, Ziro is the closest to the state capital, Itanagar and acts as a weekend getaway for the city dwellers of the steamy foothills especially during the summers. The local culture and the man made landscape are the main attractions here. In addition to the traditional festivities, newly introduced festivals like the Ziro festival of Music, meetings and conventions and trekking expeditions are other sources of attracting visitors to the place.

More people are getting involved in the business of tourism in Ziro, both directly and indirectly. The idea of economising on tourism to supplement their main income is readily being picked up by the locals. Tourism is also an opportunity for the educated youngsters to communicate and gather information from the visitors about people and places. When interviewed both the locals and the guests reiterated that it was a rich learning experience for both. But for the villagers, elders and non-involved locals in the business of tourism, they happen to be just passive onlookers of the phenomenon of tourism growing around them. They do not benefit from tourism but are actively marketed and advertised to bring tourists to Ziro. The place is self-sufficient economically as of now, but the pressure on limited land and resources is being felt with each growing generation. And tourism happens to be one of the alternative employment avenue open for many. As such the educated entrepreneurs are trying to reign in professionalism and business ethics in their interactions with their guests. The maintenance of the culture and landscape by the locals have been capitalised on. The interactions of the guests with them are innocent, cordial and in a few instances hostile. This has been due to misunderstanding and miscommunication about the local culture and ethos, wherein the guests often cross the boundary between private and public ceremonies, religious affairs or by treating the locals as antics or curiosities themselves. Also the hosts have been in the eye of conflict due to their non professionalism in dealing with the guests and their issues.

Tawang

The last tourist site, that is Tawang is the westernmost district of Arunachal Pradesh bounded by Tibet (China) to the north, Bhutan to the West and South West, and West Kameng district to the South. The level of evolution of tourism here can be said to be lying somewhere between involvement and development. The place sees the maximum number of visitors in any season of the year in Arunachal Pradesh. Tourism here is a more organised and recognised activity than in the other two places. A whole network of services and establishments cater to tourists and their needs. Many

hotels, homestays, restaurants, caterers, cabs, drivers, bike and equipment rentals abound in the place. A network of well-established logistics and holiday companies operate in the area. Every day sees a bunch of tourist vans and vehicles carrying tourists on package tours from the plains of neighbouring states and beyond making its way into Tawang.

Among all the three sites it is the most well-known among the domestic tourists by virtue of its Buddhist culture and political history. The interactions observed here are balanced, of proper business exchanges and mutual interactions. Unlike Menchukha and Ziro where interactions are either innocent or straightaway hostile, the interactions observed here are warm and cordial. There exists more professionalism in the way tourists are dealt with here. It is also the most involved and dependent on tourism among all the three places. It is steadily moving up the curve towards development in the Butler's tourist life-cycle as more and more outsiders are getting involved in bringing tourists and business to this place.

Tawang lacks a robust agricultural economy, but this is complemented by huge activities in infrastructural development and construction. Many households are entirely or partly dependent upon tourism. Fees are collected for viewing curiosities like in the Tawang Monastry, and it is not chided upon by the guests and guides unlike in Menchukha and Ziro where guests are escorted into private ceremonies and celebrations by guides; and food, photos, and souvenirs are often expected to be given freely.

Conclusion

It can thus be concluded that Menchukha and Ziro lies in the exploratory and involvement stage along Butler's Tourist Area Cycle of Evolution. Here, interactions are innocent or of repulsion between the host and the guest as both are new to each other. Each of them have discovered new culture and people, and interactions are of curiosity, awe, amazement or repulsion at ideas and behaviour not in consonant with the ideals and mannerisms of hosts and guests. Gradually, however the economics of hosting guests and visitors are setting in these places, and more people are getting involved in tourism. The interactions as such are also likely to change in nature, as more people gets educated and comes in contact with the wider world and professionalism required of tourism.

In Tawang, the keen sense of a people who were historically traders and agriculturists has lent itself easily into the professionalism demanded from the hospitality business. Here both tourists and hosts know the purpose and economics of tourism and behave as such. Curiosity about the religion and culture has been diligently cashed on. This however is lacking in many instances in Ziro and Menchukha, where the locals are treated as curiosities themselves. Guides are seen escorting tourists into traditional homes, ceremonies and even death rituals freely, especially in Ziro, which many natives find intimidating. The overlapping of tourism as business and discovery of a new place in Arunachal Pradesh is often the source of conflict between hosts and guests, which leads to discord in interactions. The guests expect humble, tribal folks unaffected by the vices of modernity and the hosts expect too many benefits too soon from tourism. Thus the development and sustenance of tourism in Arunachal Pradesh will depend not only on the infrastructure and amenities provided for tourism, but also on the kind of response that interactions between hosts and guests elucidates.

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Family Caregiving in Dementia: Caregivers' Mental Health and Nature of Caregiving

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KEYWORDS

Dementia caregiver, mental health traits, stress, depression, anxiety, activities of daily living, factors of caregiving, India

ABSTRACT

Family caregivers are the main lifeline of a person with dementia. In India, research on caregivers' health is rarely attempted. Present study aims to examine the relationship between selected mental health traits of family caregivers and the duration and level of caregiving focused their care recipients. A cross-sectional empirical study was conducted in Kolkata and Howrah districts of West Bengal. 131 family caregivers of demented person participated, and data were collected using pre-tested questionnaires. Care recipients' incompetence to perform daily activities predicted the mental health condition of the caregivers. Significant association was found between anxiety and level of support provided by the caregivers. When involved in caregiving for many years and providing caregiving for 9 hours or fewer per day, caregivers are likely to experience adverse mental health condition. Caregiving is very challenging and it affects the psychological health of the caregivers. The health management of dementia caregivers should get priority in health system research.

Introduction

Dementia is characterised as a progressive loss of brain function giving rise to many cognitive malfunctions, along with physical, emotional and functional disabilities (Alzheimer's Disease International, 2009). The decline of cognitive ability along with physical disability necessitates the need for a high level of care and surveillance even during the early stage of dementia, and care recipients become fully dependent upon caregivers as dementia progresses (Alzheimer's Disease International, 2013). The burden of dementia is not only limited to persons with the condition, but also has immense social, psychological and economic consequences on their family members.

Currently, dementia is one of the major health problems of elderly people all over the world. Almost 41 million people are living with dementia around the world; it is expected that the number will reach nearly 115 million by the year 2050 (World Health Organization and Alzheimer's Disease International, 2012). In India, the number of people with dementia is increasing day by day. The prevalence of dementia in Eastern India, varies from 0.8% to 1.28%, 2.44 to 4.1% in Western India, 1.83% in Northern India and 3.6% in Southern India (Das et al. 2012). According to a report by Alzheimer's & Related Disorders Society of India (2010), it has been estimated that, in the state of West Bengal, around 20,000 to 40,000 people will be living with dementia by the year 2036. The risk

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of having dementia increases with age. The chance is about 1% among individuals under the age of 65 years; but almost 40% among people aged 85 years or older. Therefore, more family members will become engaged in providing care for incapacitated relatives (Ferrara et al. 2008).

It is well documented that caring for a person with dementia creates a health burden among family caregivers, and it becomes a common challenge in both developed and developing countries (Chan et al. 2010). A study based in the UK and USA reported that the prevalence of depressive disorder is high among dementia caregivers (Gallo and Lebowitz, 1999). Gender difference in caregivers' mental health has been documented in many studies. The literature reveals that male caregivers experience lower level of burden and depression than females (Ormel et al. 1994; Harris, 1959; Garrido and Paulo, 2004). A study in Brazil found that women with higher education experienced a higher level of burden associated with caregiving (de Moraes and da Silva, 2009).

In Asian societies, the family forms the preliminary support system for someone with dementia, and this support may influence family functioning in many ways. A study found that presence of behavioural problems among people with dementia has enormous impact on caregivers' psychological health (Chi-Chan et al. 2009). A study in Taiwan emphasised that diminished psychological health may continue among caregivers even after institutionalization of the person receiving care (Lau et al. 2008).

In India, the cost of treatment as well as the dearth of specialized hospital facilities usually means that a person with dementia remains at home and receives daily care from their family members (Shaji and Reddy, 2012). The type of help or support a caregiver usually provides depends on the specific needs of a person with dementia, which often changes with the progression of the disease (Alzheimer's Disease International, 2013). For many caregivers, caregiving becomes a full time responsibility that demands much of their time and efforts (Ferrara et al. 2008). The adjustment in caregiving responsibilities may compel caregivers to reduce their other activities and to balance their role as caregiver along with other commitments (i.e. career, social relationships and many more) (Shaji and Reddy, 2012) Earlier studies reported that insufficient social interaction and limited financial resources may lead to worse psychological health among caregivers (Tomoko et al. 2003; Das et al. 2010).

Providing care to people with dementia is an extremely challenging work, and is associated with higher levels of psychological morbidity (Chi-Chan et al. 2009). It is observed that longer period of caregiving may give rise to negative health outcomes, such as stress, depression, anxiety and consequently many physical health complications (Schulz et al. 1995; Schulz and Martire, 2004).

In view of the above, the present study aims to examine the relationship between the mental health traits of caregivers (in terms of stress, depression and anxiety) and the level of support (in terms of daily and instrumental activities, in years and hours/day) they provide to care recipients.

Materials and methods

Selection of study participants

The present study is cross sectional in nature, conducted in Kolkata and Howrah districts, West Bengal, during 2016 - 2018. Contact details of 450 family caregivers who provided daily care for person with dementia, were obtained from the Alzheimer's and Related Disorders Society of India (ARDSI)-Calcutta Chapter, Kolkata, West Bengal. Those addresses were mainly distributed in various localities of Kolkata and Howrah. The caregivers were contacted over telephone, and the purpose of

the study was explained. On the basis of telephone conversations, a list of willing participants was made. Out of 450 caregivers, 267 declined, and 183 agreed to take part in the study. The inclusion criteria were (1) he/she must be a primary family caregiver of a person with dementia; (2) he/she should be an adult, aged 20 years or above; (3) he/she should have provided care to the person with dementia for at least 1 continuous year at the time of interview. 131 primary family caregivers satisfied these conditions, and were included in the present study. Later, we visited each willing caregiver's residence as per their preferred time. Informed consent was obtained from each participant before filling out the questionnaires. Participant interviews lasted for an hour, during which we collected socio-demographic information of caregivers and care recipients, along with data on ADL, IADL, stress, depression and anxiety of caregivers.

Instruments

A questionnaire was developed to elicit the socio-demographic profile of caregivers, and designed to be filled out by the participants. It included questions about the caregiver's sex, age at the time of interview, education, occupation, marital status, relationship with care recipients, family types, and monthly house hold expenditure [in Indian Rupees (INR)]. Information on care recipient's sex, age at the time of interview, type of dementia and duration of suffering from dementia was also collected.

The Kartz Index of Independence in Activities of Daily Living Scale (ADL) (Wallace And Shelkey, 2007) and Lawton Instrumental Activities of Daily Living Scale (IADL) (Graf, 2008), Cohen's Perceived Stress Scale (PSS) (Cohen et al. 1983), Patient Health Questionnaire-9 (PHQ-9) (Kroenke, 2001), Hamilton Anxiety Rating Scale (HAM-A) (Hamilton, 1959) were also used for this study.

ADL and IADL both were filled out by caregivers, and produced information on the kind of help they provided to care recipients. ADL includes activities like bathing, proper dressing, proper toileting, ability to move independently, self-control over urination and defecation, ability to take food. IADL includes information about the care receiver, such as the ability to operate telephone, taking care of shopping needs, planning or preparing meals, performing light daily household tasks, laundry tasks, taking proper medicines on time, ability to travel independently outside home and ability to handle day to day finances. Lower ADL scores indicate higher dependency and higher scores indicate high independence. We denoted the caregiver's level of support as maximum and minimum depending upon whether when the care recipients ADL score indicated a high or low rate of dependence.

The Cohen's Perceived stress scale (PSS) has been administered to caregivers to measure perceived stress level. PSS is a multiple-choice questionnaire which has 10 sets of questions. The score of each question ranges from 0 to 4. Thus, the total score ranges between 0 and 40. A score of below 20 indicates lower level of stress and a score of 20 and above indicates higher level of stress.

The Patient Health Questionnaire-9 (PHQ-9) is the psychological instrument widely used to measure level of depression. It was used to elicit the thoughts and feelings of the caregivers during last 2 weeks prior to the date of survey. PHQ-9 consists of nine questions with four response choices. Each response ranges from 0 to 3 with total score ranges between 0 and 27. A score equal to or below 9 indicates mild depression, 10 to 14 indicates moderate depression, 15 to 19 indicates moderately severe depression and a score of 20 and above indicates severe level of depression. In the present study PHQ-9 has been used to measure the level of stress.

The Hamilton Anxiety Rating Scale (HAM-A) was used to measure level of anxiety among

caregivers in the present study. In HAM-A, 14 sets of questions were represented with five response choices. Each response ranges from 0 to 4, and the total score ranges between 0 and 56. A score equal to or below 17 indicates mild anxiety, a score of 18 to 24 indicates moderate anxiety, while a score of 25 to 30 indicates severe anxiety and a score above 30 indicates extreme level of anxiety.

Most of the participants understand Bengali and English languages. However, a Bengali version of all instruments duly translated by professional translators was kept ready for those who were not very proficient in English. In order to check validity, the same individual answered each version of the same question. The Institutional Review Board of the Indian Statistical Institute, Kolkata, checked the participant information document and the relevant informed consent form, and duly issued the certificate of ethical clearance.

Statistical analysis

Descriptive statistics were used to analyse the socio-demographic profiles of the caregivers and care recipients. A Chi-square test was applied to show the association of caregiver's mental health traits (in terms of stress, depression, anxiety) with duration of caregiving (in terms of hours/day and in years) along with level of support (in terms of ADL scores) provided to care recipients. Because almost every care recipient was found to be dependent upon their caregiver in many ways, no statistical analysis was not applied to IADL data. A correlation matrix was used to identify links between socio demographical variables and mental health traits, based on Pearson's correlation coefficients for significance. A p-value of ≤0.05 was considered statistically significant. Data were analysed using Power of Advanced Statistical Analysis version 18.0 (IBM Corporation, 2009).

Results

Table 1 presents socio-demographic information about the study participants (i.e. the family caregivers). The number of female participants (74.8%) was greater than males (25.2%). The mean age of caregivers was 61.11 years (SD 14.034). More than half of the participants (51.9%) had education up to graduate level. It was observed that more than 67% of the participants were unemployed and over 80% of the caregivers were married. Most commonly (54%), caregivers were the spouses of care recipients. More than 60% of the caregivers lived in nuclear families. It was observed that 71 % of the caregivers had an average monthly household expenditure of about Rs. 50,000. Additionally, it was found that 53% of the caregivers were engaged in caregiving for about 9 hrs per day, and 45% of the caregivers had provided care for more than 5 years. There were more female care recipients (50.4%) than males (49.6%). It was found that about 76% of the care recipients were older than 70 years of age. Only 3.1% of care recipients were aged below 60 years. More than 50% of the care recipients had suffered from dementia for about 5 years. Alzheimer's type of dementia (above 76%) was the most common type found among care recipients followed by vascular dementia (above 15%) and frontotemporal dementia (above 4%).

Table 1: General information about caregivers and care recipients

❖ Caregivers [N=131]			
Variables	Category	n	%
1.Demographic Characteristics			
Sex	Male	33	25.2
	Female	98	74.8
Age group (in years)	<30	4	3.1

	30-59	47	35.8
	60+	80	61.1
	Mean age (yrs±sd)	61.11±14.034	
Marital status	Single	23	17.6
	Married	108	82.4
Education	Up to secondary	24	18.3
	Graduate	68	51.9
	Post graduate and beyond	39	29.8
Occupation	Employed	42	32.1
	Unemployed	89	67.9
Relationship With	Spouse	72	54.0
Care-recipient	Daughter/Son	34	25.9
	Others*	25	19.1
Family type	Joint	49	37.4
	Nuclear	82	62.4
Monthly Household	≤26,000	35	26.7
expenditure	26,001-50,000	71	54.2
	50,000 and beyond	25	19.1
2.Caregiving related			
Duration of	≤ 9	70	53.4
Caregiving (hrs/day)	>9	61	46.6
Duration of	≤ 5	71	54.2
Caregiving (years)	>5	60	45.8
3.Mental health status			
Stress	Lower	68	51.9
	Higher	63	48.1
Depression	Mild	78	59.5
	Moderate	31	23.7
	Mod. severe	18	13.7
	Severe	4	3.1
Anxiety	Mild	59	45.0
	Moderate	42	32.1
	Severe	16	12.2
	Extreme	14	10.7
❖ **Care recipients [N=131]**			
Sex	Male	65	49.6
	Female	66	50.4
Age group (in years)	≤ 60	4	3.1
	61-70	27	20.6
	71-80	64	48.9
	>80	36	27.4
	Mean age (yrs ± sd)	75.74±7.960	45.8
Duration of Suffering (in years)	≤ 5	71	54.2
	> 5	60	45.8
Types of dementia	Alzheimer's	100	76.3
	Vascular dementia	21	16.0
	Lewy body dementia	2	1.5
	Fronto-temporal dementia	6	4.7
	Others	2	1.5

**Others: sister, brother, daughter-in-law and son-in-law.*
#Others: Mixed Dementia, Parkinson's Dementia

Table 2 describes level of support provided by caregivers towards care recipients in terms of daily and instrumental activities, including the ability to operate telephone, planning for shopping or preparing meals, performing daily household tasks, taking proper medicines on time, the ability to travel independently, and the ability to handle day to day finance. Daily and instrumental activities were organized into two categories (independent and dependent). "Independent" indicates no or minimal levels of supervision, direction or personal assistance while "dependent" indicates supervision, direction and personal assistance from others. In other words, the care recipients who were categorised as "independent" needed minimum assistance whereas care recipients who were categorised as "dependent" required more assistance from their caregivers. In the present study however, each care recipient required substantial assistance in daily activities like bathing, dressing, toileting, transferring, continence and feeding. It was found that more than 50% of the care recipients required maximum level of support for toileting, transferring and continence, and more than 80% of the care recipients required help for bathing and dressing. It was found that almost 90% of the care recipients required assistance from their caregivers in the performance of instrumental activities.

Table 2: Level of support provided towards care recipients (in terms of daily activities and instrumental activities)

	Level of support provided towards care recipients	
Activity	Maximum support n (%)	Minimum support n (%)
1. Daily activity		
Bathing	99 (75.57)	32 (24.43)
Dressing	106 (80.92)	25 (19.08)
Toileting	89 (67.94)	42 (32.06)
Transferring	61 (46.56)	70 (53.44)
Continence	82 (62.60)	49 (37.40)
Feeding	49 (37.40)	82 (62.60)
2. Instrumental activity		
Using telephone	97 (74.05)	34 (25.95)
Shopping	131 (100.0)	0 (0.0)
Food preparation	129 (98.47)	2 (1.53)
House keeping	124 (94.66)	7 (5.34)
Laundry	127 (96.95)	4 (3.05)
Mode of transport	129 (98.47)	2 (1.53)
Taking own medicine	130 (99.24)	1 (0.76)
Ability to handle finance	131 (100.0)	0 (0.0)

Table 3 describes types of support caregivers offered to care recipients relative to the level of caregiver stress, depression and anxiety. Approximately 18% of caregivers provided maximum support and about 29% provided minimum support. Caregivers who provided maximum support showed moderate-to-severe levels of depression (25.95%), compared to those who provided minimum level of support (14.51%). Over all, about 40% of the caregivers showed moderate-to-severe levels of depression. The level of anxiety among caregivers also varied with the level of support they provided to care recipients. Chi-square tests indicate that the level of support was significantly associated only with the level of anxiety.

Table 3: Association between caregivers' mental health status and level of daily activity support provided to care recipients

Category	Level	Minimum Support	Maximum Support	X^2 - value	p-value
Stress	Lower	28 (21.37)	40 (30.53)	0.252	0.616
	Higher	39 (29.77)	24 (18.33)		
Depression	Mild	33 (25.19)	45 (34.35)	0.934	0.817
	Moderate	11 (8.40)	20 (15.27)		
	Mod. Severe	6 (4.58)	12 (9.15)		
	Severe	2 (1.53)	2 (1.53)		
Anxiety	Mild	26 (19.85)	33 (25.19)	9.229	0.026*
	Moderate	15 (11.45)	27 (20.61)		
	Severe	2 (1.53)	14 (10.68)		
	Extreme	9 (6.87)	5 (3.82)		

*$p<0.05$

Table 4 describes the association between duration of caregiving (in terms of hours/day and years) and the mental health status of caregivers. The level of stress reported by longer and shorter term caregivers was about evenly divided between higher and lower levels of stress. Likewise, most caregivers reported mild-to-moderate levels of depression and mild-to-moderate levels of anxiety, regardless of whether they provided longer or shorter period of care giving. No significant association was found between mental health and duration of caregiving, either in terms of years or hours of the day.

Table 4: Association between mental health and duration of caregiving (in years and hrs/day)

Variable	Category	Duration of caregiving (in hrs/day)		p-value	Duration of caregiving (in yrs)		p-value
		Short term (≤9)	Long term (≥9)		Short term (≤5)	Long term (≥5)	
Stress	Lower	37 (28.24)	30 (22.90)	.675	36 (27.48)	31 (23.66)	.913
	Higher	33 (25.19)	31 (23.67)		35 (26.72)	29 (22.14)	
Depression	Mild	41 (31.29)	37 (28.25)	.921a	42 (32.06)	36 (27.48)	.333a
	Moderate	16 (12.21)	15 (11.43)		14 (10.69)	17 (12.98)	
	Mod. severe	11 (8.39)	7 (5.37)		13 (9.92)	5 (3.81)	
	Severe	2 (1.53)	2 (1.53)		2 (1.53)	2 (1.53)	
Anxiety	Mild	33 (25.19)	26 (19.84)	.619	36 (27.48)	23 (17.55)	.453
	Moderate	19 (14.51)	23 (17.55)		19 (14.51)	23 (17.55)	
	Severe	10 (7.64)	6 (4.58)		8 (6.11)	8 (6.11)	
	Extreme	8 (6.11)	6 (4.58)		8 (6.11)	6 (4.58)	

a Fisher exact test

Table 5 presents the correlation analysis for the impact of caregiver's socio-demographical factors on their mental health status. There was a mild-to-moderate relationship between caregiver's socio-

demographical factors and their mental health traits. Caregivers who were male, older, married and serving their spouse experienced poorer mental health conditions than those who were female, young, unmarried and providing care for someone other than a spouse. Caregivers who had lower educational qualifications, who lived in nuclear families and had lower monthly household expenditures showed higher levels of depression. A significant relationship with the level of anxiety was found only in case of marital status ($r = .172$, $p<0.05$).

Table 5: Pearson's correlation for the impact of caregivers' demographical and caregiving-related factors on caregivers' mental health status

	Stress	Depression	Anxiety	1	2	3	4	5	6	7	8
1. Gender	-.027	-.115	-.078	-							
2. Age	.039	.039	.069	-.295**	-						
3. Marietal Status	-.006	.069	.172*	-.055	.218*	-					
4. Education	-.086	-.003	.149	-.109	-.137	.068	-				
5. Occupation	.011	-.057	-.091	.110	.318**	.146	-.345**	-			
6. Relationship	-.051	-.010	-.009	-.092	-.570**	-.047	.307**	-.351**	-		
7. Monthly Expenditure	.022	-.040	.029	-.149	-.063	.678	.471**	-.120	.075	-	
8. Family type	-.032	.024	.006	.024	.128	.005	.176*	.006	-.192*	.033	-

**p <0.05; **p <0.01*

Discussion

The present cross-sectional study attempted to examine mental health traits (in terms of stress, depression and anxiety) of a group of caregivers related to factors involved in caregiving. It also attempted to evaluate the relationship between the mental health traits of caregivers and factors that influenced caregiving. The study findings suggest that, overall, more than half of the caregivers suffered from higher level of stress, depression and anxiety. The caregivers who provided maximum level of support (in terms of daily and instrumental activities) towards their care recipients showed higher level of stress, depression and anxiety compared to those who provided less support. Another striking finding was that the caregivers who engaged in caregiving less than or equal to 9 hours/day showed higher level of stress, depression and anxiety compared to those who provided care for more than 9 hours per day. Similarly, the caregivers who were involved in caregiving less than 5 years experienced worse mental health condition.

The number of elderly living with dementia is increasing gradually and it has become one of the leading health problems worldwide. In future, persons with dementia also will create a growing burden for family members (Das et al. 2010). Studies have revealed that persons with dementia need assistance to do their basic activities such as bathing, dressing, feeding, taking own medicine, managing finance etc. (Arango-Lasprilla et al. 2010; Basu et al. 2019). Our study, also revealed that care recipients remain mostly dependent on their caregivers to carry out basic minimum daily activities. Dressing and bathing were the two most common activities that required the assistance of caregivers. They also need help performing other daily activities, such as those associated with toileting. The findings of the present study corroborates the observation that providing continuous assistance for a considerable period of time gives rise to excessive mental pressure, which leads to poor mental health (Arango-

Lasprilla et al. 2010; Basu et al. 2019).

The present study provides data on the level of stress, depression and anxiety of the caregivers. Mental health comparisons were made between two groups of caregivers, on the basis of the level of support they offered to the daily activities of care recipients. It was found that about 40% of the caregivers showed higher level of stress. Among caregivers, 18% showed that their stress level increases with their increasing level of support to the care recipients. More than 40% of the caregivers reported moderate-to-severe levels of depression irrespective of the level of support they offered. Although the caregivers who provided maximum level of support showed somewhat higher levels of depression compared to those who provided minimal levels of support, differences were not statistically significant. A significant association was found between level of anxiety and level of support caregivers provided towards care recipients. More than 50% of the caregivers reported experiencing moderate-to-extreme level of anxiety; and these caregivers were observed also to provide maximum level of support. Thus, results from the present study corroborates the study by Leggett et al. (2011).

Studies have revealed that caregiving is a challenging job that demands considerable time, energy and financial support, which leads to adverse mental health conditions (Hughes et al. 1999). In our study, a comparison was made between two groups of caregivers, based on the time (in hours/day and in years) they spend with the care recipients. More than half of the caregivers who engaged in caregiving for 9 or fewer hours/day reported experiencing some level of stress, depression and anxiety compared to less than half of those who were engaged with caregiving for more than 9 hours per day. However, association between mental health status and duration (in hours/day) of caregiving was not statistically significant. Nevertheless, the study findings do suggest that caregivers who were engaged in caregiving for fewer hours per day may have engaged in other family responsibilities which demanded additional time and labour along with caregiving. But other studies have found that adverse caregiver mental health was associated with more hours committed to caregiving (Serrano-Aguilar et al. 2006; Kim et al. 2012; Alfakhri et al. 2018). Another interesting finding of the present study is that about 54% of the caregivers who were engaged in caregiving for 5 or fewer years experienced higher level of stress and depression compared to those who had engaged in caregiving for more than 5 years. Possibly, during the early stage of dementia, symptoms are newer to caregivers; but over time they might become more accustomed to dealing with the adverse situation. Additionally, they might consider it to be their moral responsibility to provide care for their relatives with dementia.

Some studies have reported that caring for a person with dementia is an important and additional source of stress on the part of caregivers (Annerstedt et al. 2000; Papastavrou et al. 2007). It is well documented that symptoms of dementia are associated with the progressive decline of memory and other cognitive abilities, including orientation. Wandering is the most problematic and perilous symptom of people with dementia. It was found that fear of being lost may lead to other psychological problems among people with dementia like anxiety, delusions and agitation. One of the most common behavioural problems is a lack of interest in doing their usual activities. The prolonged uneasiness in dealing with usual behavioural problems of a person with dementia may increase the level of stress among caregivers (Pearlin et al. 1990; Gaugler et al. 2000; Leggett et al. 2011; Basu and Mukhopadhyay, 2019).

Some studies found that insufficient social interaction, the inability to pursue activities of interest and the inability to remain socially active are significantly associated with higher levels of depression among caregivers (Coen et al. 1997; Cummings et al. 2004; Mohamed et al. 2010). Our results are consistent with the results of these studies. At times, in order to pursue an independent life, the younger members of a household live separately, leaving the responsibilities of caring on the shoulders of senior

family members. Those members suffer from loneliness and thereby develop depression of various levels. A few studies have also reported that high anxiety level is a common mental state found among dementia caregivers (Schulz et al. 1995; Mahoney et al. 2005). This finding is also corroborated by the present study. One of the most striking findings of the present study was the significant association between caregivers' level of anxiety and level of support provided towards care recipients.

Other than caregiving related factors, several studies reported that with increasing age (Serrano-Aguilar et al. 2006), female caregivers experience a greater burden than those male and young (Papastavrou et al. 2007). The type of relationship between caregivers and care recipients also has been studied. It was found that a greater level of stress occurred when the caregiver was a spouse of the recipient. In our study it was found that older, spousal caregivers experienced poorer mental health than younger, non-spousal caregivers. But, male caregivers experienced more adverse mental health conditions than females. A significant relationship was found between marital status and level of anxiety. The married caregivers showed higher levels of anxiety and depression compared to unmarried caregivers.

Limitations

The present study has certain limitations as well. Data were collected from a particular urban ethnic group (Bengali) thus information of other ethnic groups remain under represented. Moreover, the study was cross sectional in nature, and therefore fails to document the change of caregivers' mental health traits over time. However, this type of research is not very common in the Indian context; so the findings may lead to develop several other research issues in future in other areas of India.

Conclusion

The job of caregiving is very demanding and it affects psychological health of the caregivers. It is evident from our present study that providing care for person with dementia is extremely onerous and may lead to adverse psychological morbidity (i.e. stress, depression, anxiety) among the caregivers. The major reason is the increased dependency of care recipients on caregivers for daily living activities. The caregivers who started caregiving recently showed poor mental health conditions. In India, studies about caregivers of people with dementia are very rare. The increasing cost of institutional and formal care compels family members to arrange for home based care for their affected family member, and the situation will be more challenging in the coming days. Our findings suggest that, in India, proper support and care management should be adopted for caregivers in view of the increasing trend of the disabilities.

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Author contributions *IB designied the study, carried out the data collection, dataset tabulation, analysis of the data, and drafted the manuscript; SM designed the study and helped to draft the manuscript and NM as Secretary of ARDSI Calcutta Chapter helped to contact family caregivers.*

Conflicts of interest *The authors declare no conflict of interest.*

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Prevalence of Thinness among tribal preschool children of West Bengal: An assessment measured by BMI cut off points

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KEYWORDS

Anthropometry, BMI, Thinness, Tribal, Preschool children.

ABSTRACT

Thinness is a major underlying problem among tribal preschool children in the developing countries including India. To assess the prevalence of low body weight/ thinness based on age and sex specific new international BMI (proposed by Cole et al.2007) cut-off points, among 2-5 years tribal preschool children of West Bengal, India. A total 643(328 boys and 315 girls) tribal preschool children were studied from 36 villages using the stratified random sampling method. Commonly used indicators, that is, height, weight, and BMI were used to evaluate the nutritional status. The present study revealed that the nutritional status of the studied tribal preschool children was poor with a very high rate of thinness in boys and girls (69.5% and 69.2%, respectively). Significant age differences in mean height, weight and BMI (p= <0.001) among boys and girls were observed. The results of the present study clearly indicate that the nutritional status of these children is unsatisfactory. Very high prevalence of thinness was present among the pre-school children and this was indicative of major nutritional deprivation. The proposed values may be useful in evaluating growth and nutritional status of tribal preschool children. It may also be used for comparisons with other ethnic groups.

Introduction

Preschool children are one of the most nutritionally vulnerable segments of the population. Nutrition during the first five years has not only an impact on growth and morbidity during childhood, but also acts as a determinant of nutritional status in adolescent and adult life. Global comparative data indicate that contrary to common perception, the prevalence of undernutrition (a deficiency of calories or of one or more essential nutrients) is the highest in South Asian children (SCN, 2004). India has the highest occurrence of childhood malnutrition in the world (Bamji, 2003). Several types of nutritional programs are also being run in India, but the result of this progress has failed to improve the nutrition status of the children (Shahnawaz and Singh, 2014).

Preschool children are in the developmental stage (functional) of life any impairment in their growth can reduce physical, mental and intellectual potential. The prevalence of under nutrition is generally considered to be a major public health issue among tribal children and is a principal cause of ill-health condition and leads to causes premature mortality and morbidity among children of the developing countries such as India (Nandy et al., 2005; Svedberg, 2011).It has been estimated that approximately 70 percent of the world's malnourished children live in Asia, and 800 million individuals being reportedly undernourished worldwide, a little under one-third (258 million individuals) are

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concentrated in South Asia (Ahmed et al., 2012). Many studies have shown that the tribal populations in India are experiencing a state of under nutrition especially among pre-school children and their nutritional status was assessed by using anthropometric characteristics (Mitra et al., 1993; Kumar et al., 1993; Mitra and Tiwari, 1997; Rao et al., 1994; Rao et al., 2005; Mitra et al., 2007).

Malnutrition is an abnormal physiological condition caused by inadequate, imbalanced or excessive consumption of the macronutrients (carbohydrates, protein and fats) that provide dietary energy and the micronutrients (vitamins and minerals) that are essential for physical and cognitive growth and development. Given recent statistics, undernutrition continues to be the major cause of ill-health and premature mortality and morbidity of the children in developing countries including India (Nandy et al., 2005; Black et al., 2008; Measham et al., 1999; Pelletier DL, 1998). Undernutrition among preschool children may be the result of faulty feeding practices rather than scarcity of the food. It was also assessed that the low status of women and their lack of nutritional knowledge are important determinants of high prevalence of underweight children (Antomy et al., 2008).

Several previous studies have also been undertaken to assess the prevalence rate of thinness among tribal children (Bisai et al., 2010; Das and Bose, 2011; Das et al., 2012; and Mandal and Bose, 2014) from different districts of West Bengal state utilizing the internationally accepted BMI cut offs developed by Cole et al., (2007). Numerous researchers have conducted investigations among tribal children (Sikdar, 2012; Singh and Mondal, 2013; Longkumar, 2013; Singh et al., 2014; Mondal et al., 2016; Singh et al., 2015; Das et al., 2016; Bharthi et al., 2017; and Bartwal, 2017) from different states of India to assess the nutritional status of the children using same cut-offs (Cole et al., 2007). The aim of the present study was to evaluate different grades of thinness using age- and sex specific body mass index (BMI) among tribal preschool children using international cut-off points (Cole et al.,2007).To compare the prevalence of thinness with different tribal and non-tribal preschool children of India.

Materials and Methods

The present community based cross sectional study conducted at 36 different villages of three blocks, among the 643 (328 boys; 315 girls) tribal (Santal and Bhumij)preschool children aged 2 to 5 years. Data were collected from three blocks of two districts (Dantan- I and Keshiary block from Paschim Medinipur district and Nayagram block from Jhargram district). This study was carried out from April, 2018 to February, 2019. Data were collected after obtaining the necessary approval from the village authorities. Parents of the children were informed about the objectives of our study before the commencement of measurement. Information on age, ethnicity, height and weight were collected using a pretested questionnaire by house-to-house visits following interview and anthropometric measurements. Age of children was documented from their birth certificates provided by the nearest Primary Health Centre (PHC) or polio vaccination card provided by the teachers of Anganwadi (an integrated child development program by the Government of India) and also confirmed by their parents. Formal ethical approval was obtained from Vidyasagar University and ICDS authorities before initiation of the study. Anthropometric measurements such as height and weight were made by a trained investigator (BM) following the internationally accepted standard techniques (WHO, 1995). The BMI was computed following the standard formula:

$$BMI = \text{Weight (kg)} / \text{Height (m}^2\text{)}$$

The BMI was used to evaluate the nutritional status of the subjects (Cole et al., 2007). BMI cut-off point was followed to define thinness. The cut-off values are present in Table 1.

Anthropometric Measurements and Assessment of Nutritional Status

Anthropometric measures have been widely used because of its simplicity, reliable, non-invasive, portable, inexpensive and universally accepted technique to assess child undernutrition (WHO, 1995; Bose et al., 2007). Height was recorded with the subject standing erect in a flat platform and head was oriented in the Frankfort horizontal plane from floor to vertex using an anthropometer, nearest to 0.1 cm. The weight was measured wearing minimum cloth and being bare footed with the help of a portable weight scale nearest to 0.5 kg. The prevalence of thinness was assessed using the recently proposed international reference and cut-offs proposed by Cole et al.,(2007). The prevalence of thinness was categories in three categories include Grade I (Mild thinness), Grade II (Moderate thinness) and Grade III (Severe thinness).

Statistical Analysis

The statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS, version, 16.0). The anthropometric variables of weight, height and BMI were depicted using descriptive statistics. Independent sample t-tests were performed to observe the age specific sex differences in mean height, weight and BMI. One-way ANOVA (F test) tests were done to see significant age variations in mean anthropometric values for both sexes. The Chi-square analysis was used to assess the age group wise sex differences in the prevalence of different grades of thinness.

Results

Table 2 and 3 shows that age and sex wise mean and standard deviation of height (cm), weight (kg), and body mass index (BMI in kg/m^2) of the 2-5 years tribal preschool children. The mean height, weight and BMI are found to be higher among boys than girls. There was a significant sex differences found in mean height (only 5years age), weight (only 3years, 5years and age combined), and BMI (only 3 years and age combined) at the level of significance <0.05. The age specific mean values of height and weight were gradually increased with age in both boys and girls. The age specific mean BMI values are gradually decrease with increasing age among boys and girls. Significant age difference was observed in mean height, weight and BMI for boys (height: F=362.50, weight: F= 149.51and BMI: F= 6.75) and as well as girls (height: F= 307.28, weight: F= 117.10and BMI: F= 5.30)at the level of significance<0.001.

Table 4 presents the age and sex wise prevalence of thinness among 2-5 years tribal preschool children of West Bengal. Results revealed that the age combined prevalence of under-nutrition (Grades I, II, III and combined) among boys and girls was 69.5% and 69.2% respectively. Overall, 30.5% boys and 30.8% girls of studied tribal children were found to belong to the normal category. The age-sex specific prevalence of overall thinness was ranged among boys from 66.2 percent (in 5 years) to 74.2 percent (in 3 years) and girls from 61.8 percent (4 years) to 77 percent (3 years). Using χ2-analysis, there is no significant association found between the sex with prevalence of thinness, except 4 years age (χ2= 9.35; p <0.01).Age wise thinness (Grades I, II, III and Overall) are presented in boys and girls separately (figure 1 and 2).

Table 5 show that statistically significant thinness wise mean differences are found in all the anthropometric variables (p <0.001) except height. So, this table clearly indicate that thinness (low BMI for age) directly or indirectly effects the others anthropometric variables of the tribal preschool children.

Discussion

Undernutrition is a significant problem and continues to be a cause of morbidity and mortality among children in developing countries like India (UNICEF, 2006).The recent study of Cole et al., (2007) has stated that undernutrition is better assessed as thinness (low BMI for age) than as wasting (low weight for height). Child growth monitoring is universally used to assess nutrition, health and development of individual children, and to estimate the overall nutritional status and health of populations (WHO, 1995). Good quality of nutrition is essential from the very early stages of life for the proper growth, development of young children, and if they do not get a proper diet, it can affect the later period of life and can have short and long-term effects (Singh and Sadhu, 2014). Between 8 to 11 million under five years of age children die each year globally (Singer et al., 2011).

In our study, the mean BMI among boys was 14.21 ± 1.25, and that among girls was 13.92 ± 1.35. The mean BMI significantly decreased with increase of age and it is statistically significant among boys ($F = 6.75, P < 0.001$) and girls ($F = 5.30, P < 0.001$). Similar trends are found in previous study on preschool children (boys and girls) such as, rural preschool children (Bose et al., 2011); Preschool children in rural area (Nayak et al., 2015); Preschool children of North Bengal (Tigga et al., 2015).

Our investigation assessed the nutritional status based on BMI cut offs among tribal preschool children of Jhargram and Paschim Medinipur Districts, West Bengal, India. It was observed from present study that overall prevalence of thinness in our study was 69.4%. The results of the present study clearly indicated that the nutritional situation of tribal preschool children was poor with high rates of thinness of 69.5% and 69.2% in boys and girls, respectively. Age and sex combined category wise high rates of thinness found from grade I (33.3%), to grade II (20.1%) and grade III (16.0%). Similar trends are found in many tribal children studies such as Santal preschool children of Purulia district (Das and Bose, 2011a); Tribal children in Assam (Singh and Mondal, 2013); Karbi tribal children (Mondal et al., 2016) and nontribal children such as Nepali speaking preschool children (Das and Banik, 2011c); Rural Bengalee children of Hooghly district (Pal and Bose, 2020).

High prevalence of thinness is reported in the present study when compared with other tribal studies in India such as Kora-Mudi tribal children of West Bengal (67.2%; Bisai et al., 2010), Santal pre-school children of West Bengal (56.4%; Das et al., 2011a), Santal children of West Bengal(41.3%; Das et al., 2011b), Tribal children in Assam (25.99%; Singh et al., 2013), Bhaina tribal preschool children of Bilaspur (45.45%; Singh et al., 2014), Karbi tribal children of Assam (18.9%; Mondal et al., 2016). Previous tribal children studies have reported high rate of thinness such as Kolam preschool children of Telangana (Bharathi et al., 2015), overall, 72.6% thinness than the present study (Table 6).Nutritional status of the children remains very poor for most of the states, especially in the tribal population and lower socioeconomic groups among urban populations.

It has also been observed that high prevalence of thinness is a major nutritional problem among both tribal and non-tribal pre-school children of the country. It has been estimated that more than half of the children in the age group of below 5 years remained nutritionally affected by thinness (Biswas et al., 2009; Bisai et al., 2010; Mandal et al., 2014) and they require immediate attention in terms of nutritional interventions. Several studies have showed that the tribal children were more vulnerable to being affected by thinness when compared with those from the caste populations (Mondal and Sen, 2010; Sen and Mondal, 2012; Som et al., 2006).

The present study shows very high (69.4%) (critical situation) levels of under-nutrition. To

overcome such problems of under-nutrition more state specific policies should be designed on a priority basis to size the level of under-nutrition among children and improve the nutritional status of children. There are many factors responsible for undernutrition of tribal preschool children. Parents have lack of awareness of their children, no idea about children health, hygiene and nutritional status, they are poor hygienic habits, insufficient food intake, lack of food availability, illiteracy, parity, socio economic and cultural factors, parents' occupation etc (Mandal and Bose, 2013). Therefore, the proper dissemination of knowledge and awareness level related to nutritional requirement, use of energy dense food, feeding practices and appropriate dietary modification among nutritionally vulnerable segments would be helpful to reduced such prevalence. Poor nutritional status among mothers has significant impact/influence on the child including low birth weight, preterm, nutritional deficiency, higher death rate, and so forth which finally contributes in shaping demographic structure of the population (Allen, 2006).

Conclusion

The present study clearly indicates that the high prevalence of undernutrition in terms of thinness among pre-school children aged 2-5 years from West Bengal, India. In conclusion, the present analyses indicated that tribal preschool children under-nutrition still remains a significant and urgent public health issue in West Bengal. The present study revealed that the nutritional status of the preschool children of tribal community of these villages was poor with very high rate of thinness of 69.5% &69.2% in boys and girls. To overcome this problem there is an immediate requirement for appropriate steps to be taken to improve nutritional status of this ethnic group in West Bengal. It is therefore recommended that nutritional supplementation programmes be initiated within this community. However, it needs to be mentioned here that due to the cross-sectional design of the present study, lack of information related to dietary intake, resource allocations and cultural practices, it was difficult to draw major conclusions and/or identify the actual cause(s) of such higher prevalence of thinness among the tribal children. Our investigation stated that tribal children were experienced very high prevalence of malnutrition. Regular periodic surveillance of growth and nutritional status of children are required for early detection of malnutrition and growth faltering. This specific information is valuable for national nutrition policy planning. It can also serve as a resource and evidence base for information of future research on child health and nutrition interventions of the study area. Community specific intervention programs should be recommended to fight with the problem of malnourishment.

The results of the present study undoubtedly shall be useful for policy makers in their endeavour to formulate various developmental and healthcare programmes and appropriate nutritional interventions and proper monitoring of the ongoing intervention programmes. Priority interventions are necessary in terms of appropriate complementary feeding, supplementation with proper balance food, micronutrient, breast feeding promotion and acute undernutrition and related morbidity management.

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Author's contributions *BM carried out data acquisition, dataset tabulation, statistical analysis and draft the manuscript. KB helped to designed the study, analysed the data and finalized the manuscript.*

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Ethical clearance *Ethical clearance was obtained from the Institutional Ethical Committee prior to conduct the research work.*

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Pictures

Figure No. 1: Prevalence of Thinness among tribal preschool children (boys).

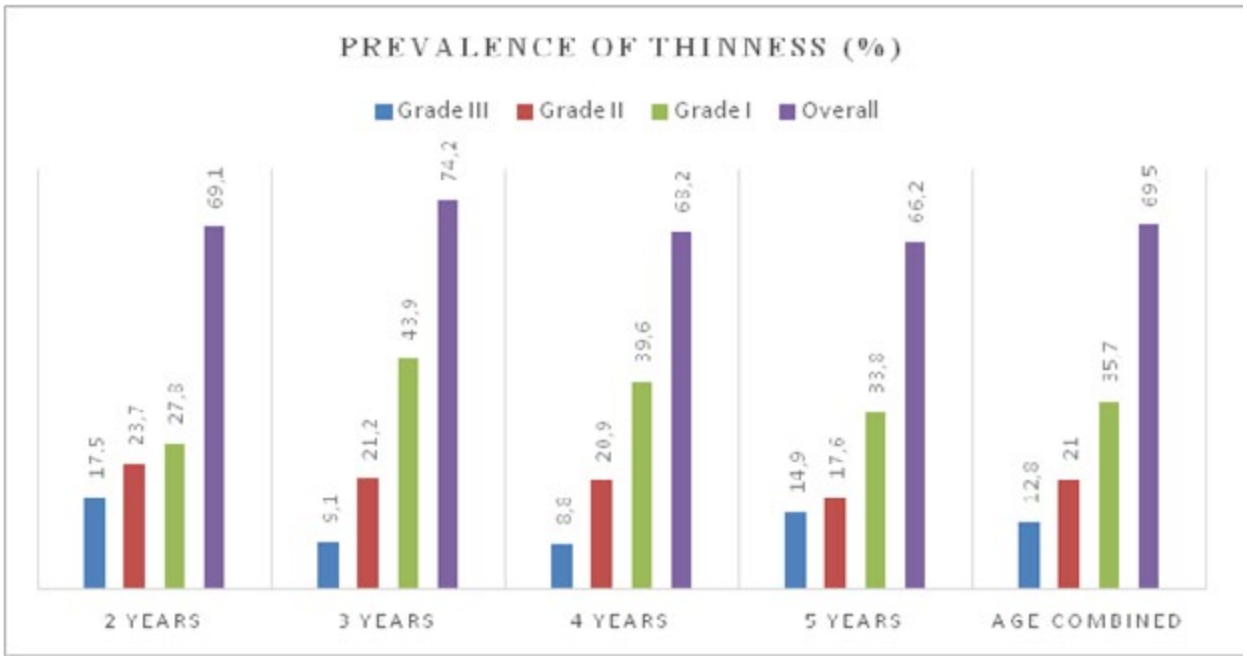

Figure No. 2: Prevalence of Thinness among tribal preschool children (girls)

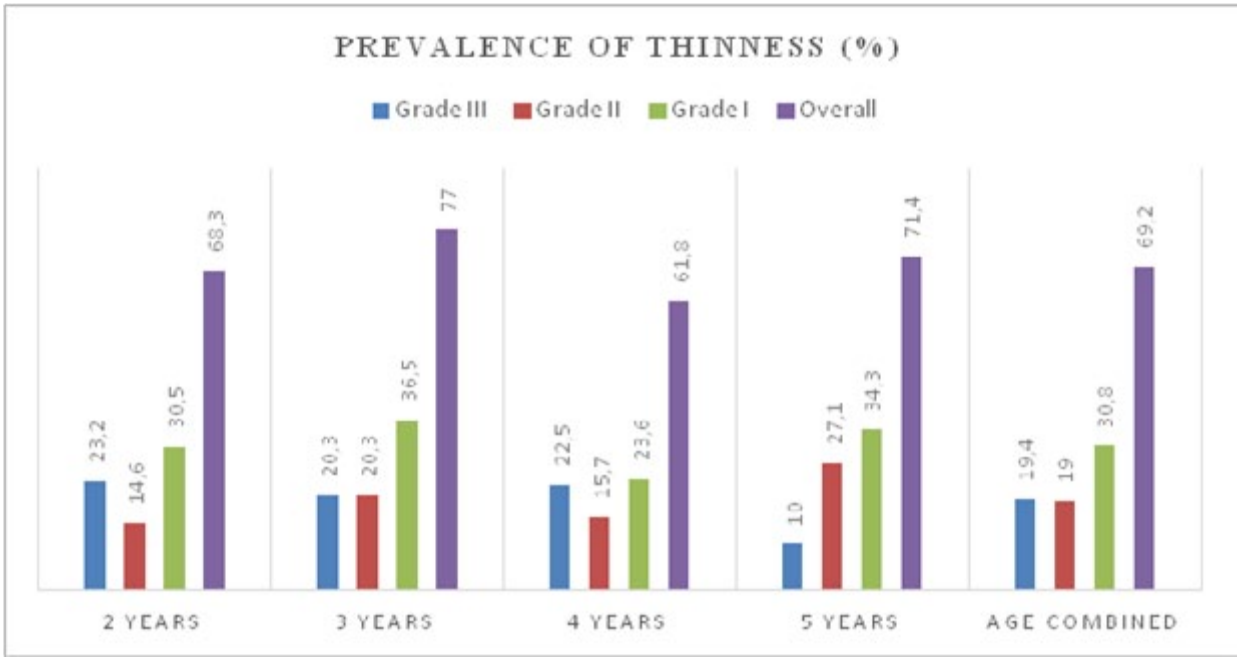

Table 1. Age and sex specific internationalCut Off points of BMI (kg/m2) for assessing thinness among children (based on Cole et al., 2007)

Age in years	Boys thinness			Girls thinness		
	Grade-III(<16.0)	Grade- II (16- 16.9)	Grade- I (17-18.5)	Grade- III (<16.0)	Grade- II (16- 16.9)	Grade- I (17-18.5)
2	13.37	14.12	15.14	13.24	13.90	14.83
3	13.09	13.79	14.74	12.98	13.60	14.47
4	12.86	13.52	14.43	12.73	13.34	14.19
5	12.66	13.31	14.21	12.50	13.09	13.94

All values are in kg/m².

Table 2.Age specific sex differences of Height and Weight among tribal preschool children

Age in years	Sample size Boys		Height			Weight		
			Girls	t- value Mean (SD)	Boys	Girls	t- value Mean (SD)	
	Boys	Girls	Mean (SD)			Mean (SD)		
2	97	82	84.50 ±4.39	83.36 ±3.85	1.85 ^{NS}	10.42 ±1.52	10.00 ±1.34	1.93^{NS}
3	66	74	92.52 ±4.42	91.85 ±4.94	0.85 ^{NS}	12.33 ±1.50	11.78 ±1.74	2.00 *
4	91	89	99.28 ±4.24	98.92 ±4.55	0.55 ^{NS}	13.92 ±1.60	13.53 ±1.88	1.49^{NS}
5	74	70	105.45±4.49	103.91 ±4.63	2.02 *	15.32 ±1.76	14.66 ±1.61	2.32 *
Age combined	328	315	94.94 ±9.09	94.32 ±8.90	0.88 ^{NS}	12.88 ±2.46	12.46 ±2.41	2.21 *
ANOVA (F test)			F=362.50***	F=307.28***		F=149.51***	F=117.10***	

** means p <0.05, ***means p <0.001, N.S= Not significant.*

Table 3.Age specific sex differences of BMI among tribal preschool children

Age in years	Boys			Girls			t- value
	N	Mean	SD	N	Mean	SD	
2	97	14.54	1.38	82	14.38	1.55	0.71^{NS}
3	66	14.39	1.33	74	13.92	1.37	2.05 *
4	91	14.10	1.09	89	13.78	1.22	1.82^{NS}
5	74	13.75	1.01	70	13.57	1.11	1.00^{NS}
Age combined	328	14.21	1.25	315	13.92	1.35	2.76 **
ANOVA	F=6.75***			F=5.30***			

** means p <0.05, **means p <0.01, ***means p <0.001, N.S= Not significant.*

Table 4. Prevalence of age and sex wise nutritional status/ thinness among studied tribal children according to Cole et al., (2007) cut offs of BMI

Age in years	Sex	Prevalence of thinness				Normal(%)	Sex differences (χ^2)
		Grade- III (%)	Grade- II (%)	Grade- I (%)	Overall (%)		
2	Boys	17 (17.5)	23 (23.7)	27 (27.8)	67 (69.1)	30 (30.9)	χ^2= 2.68^{NS}
	Girls	19 (23.2)	12 (14.6)	25 (30.5)	56 (68.3)	26 (31.7)	
3	Boys	06 (9.1)	14 (21.2)	29 (43.9)	49 (74.2)	17 (25.8)	χ^2= 3.38^{NS}
	Girls	15 (20.3)	15 (20.3)	27 (36.5)	57 (77.0)	17 (23.0)	
4	Boys	08 (8.8)	19 (20.9)	36 (39.6)	63 (68.2)	28 (30.8)	χ^2= 9.35**
	Girls	20 (22.5)	14 (15.7)	21 (23.6)	55(61.8)	34 (38.2)	
5	Boys	11 (14.9)	13 (17.6)	25 (33.8)	49 (66.2)	25 (33.8)	χ^2= 2.02^{NS}
	Girls	07 (10.0)	19 (27.1)	24 (34.3)	50 (71.4)	20 (28.6)	
Age combined	Boys	42 (12.8)	69 (21.0)	117 (35.7)	228 (69.5)	100 (30.5)	χ^2= 5.78^{NS}
	Girls	61 (19.4)	60 (19.0)	97 (30.8)	218 (69.2)	97 (30.8)	
Age & Sex combined		103 (16.0)	129 (20.1)	214 (33.3)	446 (69.4)	197 (30.6)	

***means p <0.01, N.S= Not significant*

Table 5.prevalence of overall thinness (Grade I, II and III) wise difference of anthropometric variables among the tribal preschool children.

Anthropometric variables	Prevalence of thinness			Normal n= 197	F value	p value
	Grade III n= 103	Grade II n= 129	Grade I n= 214			
Height	93.15 ±9.24	95.00±8.99	94.80±8.45	94.99 ±9.44	1.13 NS	.335
Weight	10.83 ±2.07	12.04 ±2.06	12.66 ±2.00	14.05 ±2.48	54.18***	.000
Head circumference	45.34 ±1.64	46.33 ±1.37	46.35 ±1.81	46.90 ±1.81	18.93***	.000
Neck circumference	21.09 ±0.93	21.61 ±1.00	21.85 ±0.95	22.32 ±1.19	33.89***	.000
Mid upper arm circumference	12.76 ±0.75	13.29 ±0.79	13.53 ±0.76	14.14 ±0.93	71.10***	.000
Chest circumference	45.66 ±2.45	46.69 ±2.83	47.64 ±2.50	48.59 ±2.76	31.75***	.000
Thigh circumference	22.69 ±2.11	23.14 ±2.13	23.69 ±2.08	24.80 ±2.26	27.54***	.000
Medial calf circumference	16.99 ±1.36	17.50 ±1.25	17.87 ±1.24	18.60 ±1.53	36.78***	.000
Biceps Skin fold	4.68 ±0.83	4.74 ±0.77	4.88 ±0.84	5.24 ±0.90	14.13***	.000
Triceps Skin fold	6.83 ±1.22	7.23 ±1.11	7.35 ±1.09	7.72 ±1.14	14.57***	.000
Sub scapular Skin fold	5.88 ±0.86	6.07 ±0.87	6.33 ±0.98	6.78 ±1.01	25.08***	.000
Supra iliac Skin fold	4.61 ±0.85	4.53 ±0.87	4.72 ±0.94	5.18 ±1.05	15.89***	.000
Medial calf Skin fold	7.56 ±1.26	7.56 ±1.20	7.80 ±1.11	8.20 ±1.02	11.58***	.000
Elbow girth	3.63 ±0.26	3.76 ±0.26	3.82 ±0.27	3.95 ±0.30	32.73***	.000
Body mass index	12.40 ±0.57	13.27 ±0.34	14.02 ±0.44	15.52 ±1.08	527.86***	.000

****means p <0.001, N.S= Not significant.*

Table 6. Comparison of the prevalence of thinness of present study with other tribal studies fromIndia (Thinness evaluation method as per Cole et al., 2007 cut-offs).

Study children	Study area	Age groups in year	Sample size (n)	Prevalence of thinness			References
				Boys	Girls	Overall	
Kora-Mudi tribal children	Paschim Medinipur, West Bengal	2-13	119	67.8	66.7	67.2	Bisai et al., 2010
Santal preschool children	Purulia, West Bengal	2-6	251	59.5	53.3	56.4	Das et al., 2011(a)
Santal tribal children	Purulia, West Bengal	7- 18	421	-	-	41.3	Das et al., 2011(b)
Tribal children in Assam	Dibrugarh, Assam	6-18	1343	28.08	23.92	25.99	Singh etal., 2013
Bhaina female tribe	Bilaspur	2-5	11	-	45.46	45.45	Singh et al., 2014
Kolam preschool children	Adilabad district, Telangana	2-5	284	72.91	72.14	72.6	Bharathi et al., 2015
Karbi tribal children	Anglong district, Assam	5- 12	480	17.15	20.75	18.9	Mondal et al., 2016
Tribal preschool children	Jhargram & Paschim Medinipur	2-5	643	69.5	69.2	69.4	Present study

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Social Networking Sites' Addiction and its ill-effects: A study among youths of Delhi

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KEYWORDS

Youth, Social Networking Sites, Social Media Addiction Scale (SMAS), Internet Addiction Test (IAT), ill-effects

ABSTRACT

With the onset of Web 2.0 technologies, dynamic user-generated content and growth of social media was seen in the society. Social Networking Sites (SNS) have become an inevitable part of our life. Despite its numerous advantages, uncontrolled extensive usage of social media has resulted in increasing the levels of addiction among the youth. Through quantitative methodology, the present study delineates social media usage among the youth, its levels of addiction and ill- effects caused due to social media usage. A self-designed questionnaire comprising of items from the Social Media Addiction Scale (SMAS) and the Internet Addiction Test (IAT) was used to gauge SNS addiction among youth. 50% of the research participants were found to be 'somewhat' addicted to social media platforms which pertains to the threshold of addiction and if preventive measures are not taken it may lead to extreme addiction. 73.3% of the population claimed deteriorating academic performance due to high SNS usage. 63.3% participants showed compulsive behavior when told to part from SNS.

Introduction

The use of mobile phones has increased over the past decades; they are now an essential part of business, commerce and society. They are often perceived as an emblematic technology of space-time compression, touted as a tool for anytime, anywhere connectivity. (Ito, 2005) Social networking sites (SNSs) are increasingly used by young people, to engage with others. There are SNS such as Myspace, Facebook, Whatsapp, Instagram, Skype, Tumblr, LinkedIn, Pinterest, TikTok, and many more. These sites provide specified services in different domains, for example, LinkedIn caters to professional networking. On account of its multifarious application, social media networking has increased, especially among young people and has become a driving force for the internet with their strong social presence.(Fuentes et al., 2015). However, uncontrolled usage of SNS can cause addiction and be detrimental to the young generation.

Such excessive usage promote addictive behavior among young adults. With a faster internet, there lies an elevated risk of SNS addition among young adults. The International Classification of Diseases (ICD-11) affirms mental and behavioural disorders to be syndromes that may cause clinical disturbances in an individual's cognition or emotional regulation reflecting a dysfunction in developmental processes. Various researches show a rise in SNS addiction among youth leading to

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behavioural changes such as loneliness, anxiety and stress. Hence, the present research gives a miniature understanding of a significant behavioral issue that needs immediate attention in the near future. The present study not only ascertains the usage of SNS among youth and their addiction levels but also explores the ill-effects caused due to excessive media usage.

Review of literature

Due to the rapid growth of technology, the use of internet is vital in most individual's daily routines. The introduction and increased usage of SNS such as Facebook, Instagram, Twitter, WhatsApp, Hike, Orkut, Tumblr, etc; have revolutionized the way of communication. (Raj et al., 2018). The Global Digital Report (2019) estimates an annual addition of 288 million (9.0%) population as active media users across the world. The same report established a 24% annual growth of social media users, in the Indian context. A study in this context, has outlined that the rate of increase in internet usage from 2000-2017 was 933.8% (Sahin, 2018).

In a similar study conducted by the Pew Research Centre (2016), adult internet users access the web "several times a day." Once online, 76% of internet users across the 40 countries surveyed used social networking sites. In addition to social media use, another common internet activity is online gaming (Kuss and Griffiths, 2012; Kuss et al., 2014). The International Classification of Diseases in its latest version has included gaming disorders as an emergent behaviourial issue. Social Network Games (SNGs) over social networking platforms have become popular and spawned a whole new subculture. (Shin and Shin, 2010).However, on in light of the current COVID-19 pandemic, World Health Organisation (WHO) has encouraged the 'Play Apart Together' campaign. The campaign involves the gaming industry to help people stay connected while maintaining social distance by organizing special gaming events and rewards (Mastrota, 2020).

Focusing specifically on social media addiction, Andreason and Pallesen (2014) defined it as a strong urge to use SNSs, impairing other social activities – studies/job, interpersonal relationship and psychological health and well-being. Individuals who use social media for longer duration have a desire to be notified of anything immediately.(Sahin,2018) In a study conducted among Norwegian adults, internet use was strongly dependent on the age of the population with the highest frequency of users in the youngest age group (99.4%).The proportion of Internet usage was slightly higher among men than among women. A lower duration of Internet use was reported among people with low educational level and an unsatisfactory financial situation. Internet use was not correlated with marital status (Bakken et al., 2009).

Related literature has also reported that individuals demonstrate deficient self-regulation of internet use; tend to engage online to overcome negative moods such as loneliness or anxiety. Communicating online alleviates negative moods (known as mood alteration), which then reinforces online use. (Ryan et al., 2014) Another study established that some online affairs can evolve to real life meetings. It has been found that in the process of sharing sexual fantasies online, can alter patterns of sexual interest in real life (Young, 2004).

Research has consistently shown that various online activities such as online gaming and social media use may be potentially addictive to a small minority of individuals particularly adolescents and emerging adults (Cheng and Li, 2014; Kuss and Griffiths, 2012; Kuss et al. 2014; Ryan, et al., 2014).

Objectives of the Research

In wake of the above discussions, the present study would try to understand, 1. The internet usage and SNS addiction among youth, 2. To outline the relation between SNS addiction levels and demographic details, 3. To explore the relation between SNS addition and its ill-effects.

Methodology

A total of 118 participants (64 males and 54 females) in the age group of 20 to 28 years were recruited for the present study from universities in Delhi. A self-constructed questionnaire was developed for collecting demographic data, internet and SNS usage.

All 29 items from the Social Media Addiction Scale (SMA- Scale) were used to ascertain the addiction level of the sample. The scale developed by CengizŞahin is a 5-point Likert type scale consisting of 29 items. The validity of the data obtained from the scale items for the factor analysis was determined by using the Kaiser Meyer Olkin (KMO) and Bartlett test. The values have been obtained as KMO test value, 965; Bartlett test value $\chi 2 = 18304.06$; df=400 (p=.00). The reliability of the scale was calculated using the Spearman-Brown formula and Cronbach Alpha, which was found to be 0.91 and 0.93 respectively. (Sahin, 2018) The Internet Addiction Test was used to assess the ill-effect cause due to social media usage. The test was developed by Dr. Kimberly Young, to analyse symptoms of internet addiction and compulsivity in a variety of test setting. (Widyanto and McMurran, 2004). Out of 20 items on the scale, 10 items were used for the present study to narrow down the scope of the study.

The questionnaire was developed in Google forms. The data collected was analyzed using SPSS version 20. The data was evaluated through mean, percentages, correlation and a chi-square test. The statistical results thus obtained were interpreted as below.

Results

The mean age of the sample population was found to be 22.77 years with a standard deviation of 2.86. Majority of the participants in the present study were male participants. Most participants were married. The sample consisted of more graduates than post graduates and above. Around 93% of the families of the sample population, belonged to the low income group (≤2 lakhs per annum).

Table 1: Demographic Details of the sample population.

		Number of Participants	Percentage of Population
Gender	Male	64	54.2
	Female	54	45.8
Education	Graduation	74	62.7
	Post-Graduation or further	44	37.3
Marital Status	Single/Unmarried	114	96.6
	Married	4	3.4
Occupation	Student	79	66.9
	student and part time job	8	6.8
	Employed	31	26.3

Personal Income (per annum)	≤2 lakhs	93	78.8
	2-6 lakhs	19	26.1
	≥ 6 lakhs	6	5.1
Place of Stay	Residence (with family)	71	60.1
	Rented Accommodation (Hostel, paying guest, etc)	47	39.8

99.2% of the participants showed availability on social networking platforms and used internet for at least 3 hours/day. 87.3% of the participants were present on more than 2 SNS. 88.1% of the sample population owned/carried one cell phone, while the rest owned more. 42.4% of the respondents spent less than 3 hours per day on SNS, 52.5% spent 4 to 7 hours on SNS each day while 5.1% spent more than 7 hours on SNS. (Data not shown) The present study showed 7.60% of the participants were 'not at all addicted', 36.44% had a 'slight' addiction score, 50% were 'somewhat' addiction, 5.08% were 'moderately' addicted score and 0.85% were 'extremely' addiction to social media. (Data not shown)

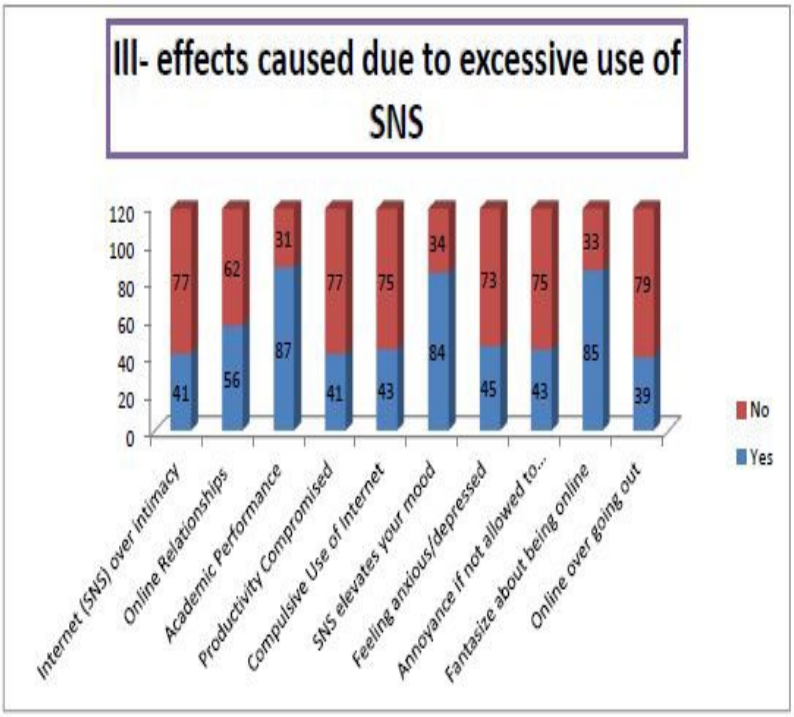
Table 2: Levels of Addiction viz-a-viz demographic details

Not at all/ Slightly Addicted		Levels of addiction among sample population			
		Somewhat Addicted	Moderately/ Extremely Addicted	Pearson's Chi-Square (p-value*)	
Gender	Female	24 (20.3%)	29 (24.6%)	1 (0.8%)	3.071
	Male	28(23.7%)	30(25.4%)	6 (5.1%)	(p:0.215)
Education	Graduation	29(24.6%)	40(33.9%)	5(4.2%)	1.952
	Post-Graduation or further	23(19.55%)	19(16.1%)	2(1.7%)	(p:0.377)
Occupation	Student/Unemployed	31(26.3%)	43(36.4%)	5(4.2%)	2.908
	Student and Part time job	5(4.2%)	3(2.5%)	0(0.0%)	
	Employed	16(13.6%)	13(11.0%)	2(1.7%)	(p: 0.573)
Marital Status	Married	3(2.5%)	1(0.8%)	0(0.0%)	1.662
	Single/Unmarried	49(41.5%)	58(49.2%)	7(5.1%)	(p:0.435)
Personal Income (per annum)	≤ 2 lakhs	38(32.2%)	50(42.3%)	5(4.2%)	3.564
	2-6 lakhs	10(8.4%)	7(5.9%)	2(1.6%)	
	≥ 6 lakhs	4(3.4%)	2(1.7%)	0(0.0%)	(p: 0.468)
Place of stay	Rented Accommodation (Hostel, Paying guest, etc)	24(20.3%)	19(16.1%)	3(2.5%)	2.308
	Residence (with family)	28(23.7%)	42(33.9%)	4(3.4%)	(p:0.315)

**p< 0.05, data is significant.*

Male participants exhibited higher 'extreme' addiction as compared to the female ones. A similar trend was seen between participants in the graduation and post graduate groups. Students were found to be more addicted to SNS than participants who were employed. Participants in the lower income group, those unmarried and those residing with family showcased higher levels of addiction.

Figure: Ill-effects caused due to excessive mobile phone usage.



The present study recorded responses as a 'Yes/No' with respect to ill-effects caused due to excessive social media usage. The participants responded negatively when they were asked if they preferred internet (SNS) over intimacy. A similar trend was seen, when the participants were gauged for compromise in productivity, online relationships and compulsive use of the internet.

On contrary, the participants responded positively to mood elevation with the usage of SNS.A similar response was recorded for academic performance; the participants showed no signs of deterioration in academic performance due to social media usage. The participations did not report a feeling of anxiousness and annoyance when not allowed to use the internet. It was also found that participants preferred going out over using the internet.

Discussion

Social media contributes to the transformation of users from passive listeners to active content producers and it makes it easier to stay connected and to produce content by providing applications for different mobile devices and operating systems. (Sahin, 2018)There has been a positive correlation between the severity of internet addiction and the level of impulsivity. Evidences have shown that impulse control disorder and that trait impulsivity are markers for vulnerability to develop internet addiction. (Lee et al., 2012) The heightened use of social media and internet reported in the present study is in accordance with earlier research findings estimating a 933.8% increase in internet usage from 2000-2017 and increased use of SNS among youth (Sahin, 2018; Romero and Centallas, 2008; Balakrishnan and Griffiths, 2017; Ahmed and Qazi, 2015).

.The minimum duration of internet usage per day according to the present study has increased to 3 hours which in earlier research was found to be 30 minutes.(Khan, 2008) Currently, the main biological factors related to the Internet Addiction Disorder remain unclear (Lee et. al., 2012) likely factors include the imbalance of functional levels of dopamine (DA), serotonin (5- HT) and/or norepinephrine (NE), which are associated with the onset of mood and anxiety disorders as is the imbalance of serotonin and norepinephrine neuronal axon rearrangement.(Lee et al.,2012).Such long durations of internet usage can be justified as a result of the increased audio-visual content on SNS which the young generations are able to watch and share. It was reported individuals spending more time on social networking sites scored higher on the SMA-Scale showing higher levels of addiction. The present study shows men to be more addicted than women, similar to the findings of a study conducted in West Bengal, India. (Raj et. al., 2018) Single/unmarried participants are more addicted to SNS than the married population. Graduated participants were found to be more addicted than post graduated individuals; this could be due to increased responsibility with increased educational qualification. The lower annual income of the participants is related to a higher addiction level to SNS (Raj et. al., 2018).

The present study shows 65.3% of the population would prefer intimacy over internet (SNS) which is in contrast to earlier studies which establish that the process of sharing fantasies online can alter patterns of sexual interest of a person.(Young, 2004) As to online relationships, participants preferred face-to-face relationships in contrast to researches which conclude the younger generation is more susceptible to getting into an online relationship.(Krishnamurthy and Chetlapali, 2015) The present research shows an extensive use of SNS as a factor for deteriorating academic performance as in contrast to a similar study among university students of Pakistan.(Ahmed and Qazi, 2011) The participants responded negatively to the effect of productivity, supporting previous studies which concluded, technology enhances a person's productivity.(Ahmed and Qazi, 2011)Anxiety disorders are associated with pronounced functional impairments and reduced quality of life across the lifespan and importantly are linked with sleep- related problems (SRPs) in youth populations (Zhang et. al., 2013).

The present study showcased 63.6% of the sample population did not show compulsive behavior for the use of internet, this is in contrast to findings which delineates compulsive behavior if an individual is not allowed to use the internet.(Demetrovics et al., 2008) The results furtherindicate that the participants experienced elevation in mood after SNS usage substantiating earlier findings. With regard to feeling anxious/depressed and getting annoyed if not allowed to use internet, the participants responded negatively in accordance to earlier studies.(Christakis et al., 2011; Griffiths et al., 2014) The study showed participants preferred going out with family and friends over going online in contrast to conclusions which state more friends on SNS lead to avoid going out with friends.(Christakis et al., 2011) Research participants responded positively to fantasizing about being online in contrast to similar literature which establish that the younger generation rarely or occasionally fantasizes about going online (Christakis et al., 2011).

Conclusion

Overall the study acknowledges increasing use of internet, specifically social media, in the contemporary world and among youths in Delhi. From daily weather forecasts, news, information of public interest; to education, shopping and entertainment; people have taken to the social media to stay updated.

Systematic preventive measures must be taken to curb the increasing menace of SNS addiction among youth. Preventive measures should be taken to reduce social media use like turning off

notifications to certain apps to prevent the urge to keep checking the phone time and again, uninstalling irrelevant apps which otherwise increase the possibility of browsing one's phone more often. There can be boundaries fixed for phone usage for example- not using phones while eating, during leisure time with family and not browsing the phone after a set time at night. Avoid looking at your phone and checking social networking platforms, as the first thing in the morning. Restrictions at school, colleges, classrooms, hospital, workplaces, libraries, place of worship, etc could help in overcoming the ill-effects of excessive social media usage. Since the modern world must have social networking platforms as essentials, further research in causes related to its addiction and preventive measures is a must.

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Gender and Violence in a Domestic Space During COVID-19 in India: Insights from Anthropology

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KEYWORDS

gender, domestic violence, pandemic, anthropology

ABSTRACT

In the last few decades, gender issues have received importance from scholars across disciplines. The literature on the pathophysiology and epidemiology of domestic violence is extensive but an increase in domestic violence has led the academicians to seek epistemological answers from society. Further, the surge in domestic violence cases during the COVID-19 necessitated quarantine posed challenges for the government in terms of policy, governance and crisis management. In this view, the present article reviews the efficacy in implementation of fast track interventions during the lockdown period (March to August 2020) and their coherence in dealing with domestic violence at the micro and macro levels. The multifaceted aspects responsible for domestic violence have been discussed which have aggravated during the current pandemic. The paper analyzes the scope of the existing government strategies in intercepting violence against women especially during the management of the current crisis. The paper draws majorly from newspaper and government reports since research articles on the social impact of COVID-19 are limited. Studies based on theoretical frameworks from the discipline of anthropology can give an in-depth understanding of domestic violence in a varied socio-cultural context, and reflect upon the structuration of gendered male-female relationships.

Introduction

Violence against women (VAW) is globally considered to be social pandemic. It is a prevalent issue not only in terms of public health but also from a human rights perspective. According to the World Health Organization (WHO 2017) 35 per cent of the total women population experience different forms of violence once in their lifetime. The most common form of violence is either physical or sexual (when committed by the partner is known as intimate partner violence, IPV) where sexual abuse is generally not reported. This is because until quite recently it was neither even discussed by the women nor considered an abuse by the society at large, stating it to be a matter of conjugality in marriage. Though the Protection of Women against Domestic Violence Act (PWDVA), 2005 defines sexual abuse, 'marital rape' has not been criminalized nor is given any legal relevance in India. There are many such gaps in the laws pertaining to domestic violence which are outside the scope of this paper. Where verbal abuse has been normalized, psychological or mental abuse is not realized by the survivor herself. The effect of violence has been established to have negative physical, mental, sexual and reproductive consequences on the women's health. Some causal factors related to intimate partner violence (IPV) are the low education of the spouses, exposure to abuse during childhood (direct victim of violence or witnessing mothers being abused by their partners), unequal gender norms, acceptance of violence and a sense of entitlement (of women by men, and women's subordination). Even though

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literature suggests that advocacy programmes and counseling interventions to reduce IPV should be formulated, in some cases they might aggravate the problem for a person.

Methodology

The article presents an abstraction of qualitative data extracted from secondary literature. Since due to the lockdown only a few studies have been conducted on the given issue, the paper draws information from various sources of mass media and has majorly relied upon articles from reputed newspapers of India and abroad. Statistical data provided in newspaper articles was corroborated with authentic sources like government reports, government websites, non-government organisations etc. Collaborative studies by organisations like the World Health Organisation (WHO), the United Nations Population Fund (UNFPA), the UN Women, and others were used to situate the issue in the wider anthropological context. Theoretical and conceptual pinning was informed using relevant monographs and research articles. The paper delineates various factors that have contributed towards the rise of domestic violence in India, especially during COVID-19 pandemic. A thorough literature review of articles, books, survey reports and research by scholars from disciplines such as sociology, anthropology, psychology, economics, law and other allied fields have greatly contributed in understanding the various socio-economic determinants of domestic violence. These sources gave an overview of the grassroot reality of the different states in India.

An Age of Pandemics

The year 2020 witnessed the outbreak of a public health crisis caused by SARS-CoV2 (COVID-19). It was accompanied by unprecedented events in terms of an overall decrease in the growth of the country and the well-being of people making it what Anthony Fauci called as a 'pandemic era' (Farmer 2020).

As per the national and international advisories to prevent and control the spread of infection from coronavirus, social distancing was implemented. In early February, the National Disaster Management Authority (NDMA) of India identified the need to take preventive measures due to the spread of novel coronavirus (nCoV) outbreak in Wuhan city of China. As per the guidelines issued under the Management of Biological Disasters (biological and public health emergencies) and National Disaster Management Plan (NDMP) 2019, the lockdown period was initiated in the late March 2020 and was extended till May 2020 with subsequent limited yet phased-relaxations thereafter (NDMA 2020). This involved restricted public access to most social and cultural centers; and other open and closed public spaces. A decrease in physical activity due to the lockdown had concurrent effects on people of different age groups which added to the physical stress. Recent literature suggests that physical inactivity and sedentary behavior are one of the causative agents in various illnesses and is another pandemic the world is facing for almost a decade (Kohl, Craig and Lambert 2012; Ozmek 2019; Pratt et al. 2019; Hall et al. 2020). It has been associated with poor physical and mental health including an increased risk of type 2 diabetes, obesity, cardiovascular diseases, respiratory issues and co-morbidities like depression and anxiety (Anjana et. al. 2014; Koyanagi, Stubbs and Vancampfort 2018; NHP 2018). The fear of contracting the disease curtailed leisure time and other major as well as minor physical activities (for example play time; planned exercises in residential parks; going to a *sabzi mandi* (vegetable market) etc.). Patients with chronic diseases were affected as their vulnerability to other health issues increased since wellness centers and physiotherapy clinics were also not open. Cumulatively, the reverberations of COVID-19 on the physical health of the population is estimated to be prolonged if the pandemic is not eradicated by the coming year.

Further, as physical distancing inadvertently meant restricted mobility and self-isolation at home, this impacted the mental health of the individuals. Additionally, the idea of being isolated at the hospital or in a room once an individual is found to be COVID-19 positive (without any contact with family or friends), eventually led to depression and anxiety issues. The associated stigma further spiraled mental health issues. Shiller (2020) reflected on another mental health issue, that is, the *pandemic of anxiety* corresponding to the negative economic impact of COVID-19 pandemic on the families. Unemployment, loss of livelihood, closure of business caused financial anxiety in people who in a desperate search for work may have become ignorant of precautions required to prevent the spread of the disease. In addition to the health and economic disparities, the pandemic had an inordinate impact on the marginalized people in terms of social inequalities (migrant workers, domestic helpers, women and children in particular). In some countries (like the USA and India) it took the form of racial discrimination where racial minorities were stigmatized and were blamed to be the carriers of the disease (Haokip 2020; Kipgen 2020; Manning 2020).

Taking account of the present situation, Yong (2020) tried to prognosticate the eventuality of a double pandemic across the world. Yong referred to the potential pandemics of the year 2013 when an outbreak of H7N9 bird flu in China and that of MERS (caused by a coronavirus) spread from Saudi Arabia to other countries. Since new diseases are emerging rapidly, it is difficult to predict the potentiality of such events. Where a single pandemic has led to strained international alliances, scarce resources and demoralized experts, one could imagine the situation if two pandemics strike together in addition to the natural disasters happening all over the world.

The macro issues stated above have indefinitely impacted the personal lives of the people. As urban women carry the double burden of waged work outside the home and that of a caregiver at home; rural women find themselves doing domestic work both at private and public spaces. The normalization of violence and fixed gender roles and responsibilities when challenged require certain coping mechanisms to fulfill the ideological expectations of Indian families from women. Moreover, the added stress caused by COVID-19 health crisis took the form of disproportionately increased violence against women in the domestic spaces. Recently in their awareness campaign, the UN Women (2020a) termed domestic violence as a *shadow pandemic*. The subtle existence of domestic violence as a phenomenon in the lives of the women crosses all structural barriers (class, caste, religion) whereas its lived experiences are subjective as the lived realities of the women may vary from one another. In this view, the following sections of the article will try to discuss the impact of the double pandemic i.e. the intersection of domestic violence with COVID-19 and the way agencies have tried to handle the situation amidst crisis.

COVID-19 and Domestic Violence : Statistics

The rapid spread of COVID-19 instigated the governments to declare lockdowns all across the world. The 'knock-on effects' were realized within a month when the number of domestic violence cases reported increased in developed countries like the United States, the United Kingdom, France, Spain and other western nations (Graham-Harrison et. al. 2020). Following the trend, the cases tripled in China and increased by 40-50% in Brazil (Shivakumar 2020).

According to a recent study it was found out that in cases of emergencies (including epidemics or disasters) there is a manifold increase in violence against women (UNFPA 2020; WHO EMRO 2020). This is majorly due to the crisis induced stress and the absence of social and protective networks. Financial predicaments and limited access to services worsen the risk for women suffering violence.

The COVID-19 necessitated lockdown restricted the movement and communication of women with their social support systems (families, friends, employers and others). The proximity of family members and increased stress due to everyday household negotiations exposed women and children to violence. The risk is greater in cases where the chances of losing employment by either of the partners (husband or wife) or other economic support was high. For example in West Africa 60 per cent of total deaths in the 2014 year Ebola virus outbreak were women. Following the Canterbury earthquake in New Zealand, there was a 53 per cent rise in domestic violence (Scotland 2020, UNFPA 2020).

In India, during the first phase of lockdown (22 March- 14 April, 2020) the National Commission of Women (NCW) reported 250 domestic violence complaints. The statistics provided by Delhi Police (in the capital of the country) showed that by the second week of April approximately 66 per cent of distress calls registered by women were related to domestic violence (Ratnam 2020). NGOs with shelter homes like the one based in Delhi Shakti Shalini reported receiving 77 calls in April and 114 in May since the lockdown. Assuming that the family members are asleep at the time women mostly contacted between 9pm to 10am (Roy 2020). Another Delhi based NGO Jagori reported a 50 per cent drop in the calls received within a month of lockdown. A similar pattern was observed for states like Rajasthan, Madhya Pradesh and Telangana where the number of domestic violence cases reported declined. Contrary to this, Punjab reported a twofold increase in the cases. In another article, a contradictory picture of Rajasthan was depicted where the state was reported to have witnessed a spike of 76% in domestic violence cases for the month of June-July (The Times of India, 24 August 2020). The data compiled from 18 police stations in urban and rural areas of Ghaziabad (a part of the national capital region -NCR of Delhi) depicted a 50 per cent tail off in the domestic violence cases during the first lockdown phase as compared to the pre-lockdown period in March (Ratnam 2020; Chandra 2020). The figures provided in these newspaper articles were reported in person by the authorities to the media.

Similarly Radhakrishnan, Sen and Singaravelu (2020) reported that the period of 25 March- 31 May, 2020 had the highest complaint rate compared to the data of last 10 years. 1477 complaints were recorded, that is, about 32 complaints received per 1 million women in Delhi. The rate was the highest with 600 complaints for Uttar Pradesh as compared to all other states. Total complaints from women rose from 116 in the first week of March (2-8 March) to 257 in the final week of March (23 March-1 April). Cases of domestic violence increased from 30 to 69. Police apathy towards women's complaints increased threefold as NCW received 16 complaints on this issue as police was busy enforcing lockdown due to COVID-19 (Chandra 2020).

Punjab's Directorate General of Police revealed a 21 per cent increase (from 4709 to 5695) in cases of crime against women (CAW) in a three month period (1 February-20 April) where the average number of calls received per day increased by 34 per cent in one month (20 March-20 April) as the daily average calls for three months before that was 99.33 for domestic violence cases. Complaints from lactating mothers were also received where the mother was separated from their newborn babies after domestic violence. Henceforth, the state government of Punjab asked the law officers (advocates) to counsel families where domestic abuse against women was registered during the lockdown period (*The Tribune*, 21 May 2020).

The Ministry of Women and Child Development provided month-wise and state-wise data indicating number of complaints registered with NCW under the category "protection of women against domestic violence" for March, 2020 till 20 September, 2020. According to this data, total number of domestic violence cases registered with NCW are 4350. The highest number of cases

were received from Uttar Pradesh followed by Delhi and Maharashtra. Moreover, the total number of cases registered/ received by NCW under the category of 'crime against women' and 'deprivation of their rights' since March 2020 is 13,410 with the highest in Uttar Pradesh, followed by Delhi and Maharashtra. The number of complaints related to domestic violence registered through WhatsApp was 1443. Ironically, analysis of the data shows highest number of cases in the month of July in both the categories i.e. Data Set 1: 660 cases, Data Set 2: 2914 cases. The data for table 1 was extracted from the Press Information Bureau (2020) and data for table 2 was extracted from Oxfam India (Arora and Jain 2020).

Table 1 Complaints registered with NCW for Domestic Violence and Crimes against Women for some states.

Data Set 1: Number of complaints registered with NCW under the category "Protection of Women against domestic violence", received during the last six months, i.e. from March 2020 till 20th September 2020.		Data Set 2: State-wise data of complaints (crime against women-CAW) registered/ received by NCW since March 2020.	
State	No. of DV cases received	State	No. of CAW cases
Uttar Pradesh	968	Uttar Pradesh	5470
Delhi	784	Delhi	1697
Maharashtra	458	Maharashtra	865
Bihar	254	Haryana	731
Haryana	229	Bihar	659
West Bengal	182	Rajasthan	572
Rajasthan	173	Madhya Pradesh	479
Madhya Pradesh	149	West Bengal	342
Tamil Nadu	137	Tamil Nadu	341
Karnataka	137	Karnataka	322
Punjab	103	Punjab	281

Table 2 Nature wise report of the complaints received by NCW for the period of January-27th September 2020.

Nature of complaint	Total No. of cases
Harassment of Married Women/Dowry Harassment	2283
Protection of Women Against Domestic Violence	3604
Dowry Death	236
Total Number of Complaints Received	15640

Table 3 State wise report of domestic violence cases in which legal aid was sought.

States	No. of cases reported for legal aid and assistance
Uttarakhand	144
Haryana	79
Delhi	63
Chandigarh	50
Tamil Nadu	48
Punjab Uttar Pradesh	47
West Bengal	46
Odisha	37
Chhattisgarh	31
Bihar	21
Kerala	18
Jammu & Kashmir, Arunachal Pradesh Mizoram	17

Maharashtra	12
Himachal Pradesh	10
Madhya Pradesh	8
Tripura	7
Rajasthan	4
Manipur	3
Andhra Pradesh	1

According to a recent article, a total of 694 domestic dispute cases were resolved through family counseling and mediation in the period of April-June 2020 nationwide. In addition to this, National Legal Services Authority (NALSA) provided legal assistance to 2878 cases of domestic violence, with petitions filed in 452 cases under the Protection of Women from Domestic Violence Act (PWDVA), 2005 (*The Hindu*, 17 September 2020). The interim data on the legal aid provided during the lockdown period was presented by NALSA (table 3). It depicted that 727 domestic violence related cases were reported to the legal authorities across the country during the lockdown with highest from Uttarakhand, followed by Haryana and Delhi (Mandhani 2020; Mahapatra 2020).

Setbacks and Impact: Women Survivors of Domestic Violence during pandemic

The incident rate of domestic violence cannot be estimated through the data which is provided by various agencies as the ability of women to a complaint or report an incident is dependent on various factors. The experiences of violence are influenced by various socio-cultural, economic and environmental factors. The opportunity to reach out for help through phones becomes difficult in a situation created by the lockdown where there is a lack of privacy as women share domestic spaces with their perpetrators. Services of most state run and non-governmental organizations (NGOs) maintained shelter homes available for women, *anganwadis* (child care centers), ASHA (Accredited Social Health Activist) workers, *Mahila Panchayats* (female jury) were bound to the nationwide lockdown guidelines. Even though helplines were working, most of them could not help the women due to the same. The help extended by social workers, counselors, para-legal staff were limited to telephonic counseling. In the initial phase of lockdown, the public transport services were temporarily shut down with only few buses available for emergency purposes. Because of this women facing domestic violence could not travel to their natal homes (Chandra 2020). The social workers could not commute to women's houses or make travel arrangements for them. Coming out of their homes and going to a police station amidst a lockdown was not possible. Since the police were directed towards COVID-19 duties, investigating domestic disputes by making home visits was not the priority. But in cases where police had to mediate, the case could not be interrogated further until the lockdown was lifted. Furthermore, as domestic violence is considered a civil dispute, cases could not be filed in the lower courts as courts were closed and most case hearings were postponed or addressed virtually in emergency cases. Also, this meant that various abusers returned home as 'remission of sentence' 'parole' and 'interim bail' was granted to perpetrators under trials and convicts to reduce the overcrowding of prisons and prevent an outbreak of virus among the inmates (DSLSA 2020a:2; DSLSA 2020b:12).

According to the United Nations Population Fund (UNFPA), the current pandemic has exacerbated the global financial inequality between men and women. During the existential financial crisis, women are more vulnerable in terms of precarity or stability of jobs, especially for women who are single parents (Beech 2020). Women survivors of domestic violence have become more susceptible to 'financial' abuse which may extend to restrictions in terms of access to job and education opportunities. In Indian societies, the family is mostly headed by a male authority figure. Even in joint families, with

shared household units, the wife of the male authoritative figure in the house may share a power dynamic with other women of the household (for example, mother-in-law). In such cases the abused women are at financial risk if there is a lack of control over finances as financial information (bank passwords, accounts and other related activities) and sources (like jewelry) may be under the control of the spouse. Women tormented for dowries, or financially exploited by depleting her savings amidst the pandemic such that no money is left for escape has increased the risk of domestic abuse.

Pandemic exacted solitary confinement has also impacted the health of pregnant women in many ways. Access to healthcare was restricted since most hospital services were directed at providing treatment to coronavirus positive patients. Due to the fear of contracting the disease people avoided the visits to hospitals or clinics. The healthcare professionals were also not advising the patients to get admitted unless necessary. Outpatient department or outpatient clinic (OPDs) were also not active in hospitals during the phased lockdown. The decrease in transport services, limited healthcare facilities and restricted movements affected the access to maternal and child healthcare services by pregnant women.

The women do not have autonomy over their sexual or reproductive lives. The loss of sexual health agency of women and pregnancy due to forced carnal desires during the lockdown increased the burden on women's physical, sexual and reproductive health. The inadequate access to financial resources to travel to hospitals for checkups or barriers to acquire safe abortion services further aggravated their situation (Shivakumar 2020; Beech 2020; Bhattacharya 2020). It was predicated that many women missed the 24 week abortion window due to the lockdown restrictions. Though the Ministry of Health & Family Welfare (MoHFW) had released the guidelines enabling the delivery of health services especially to reproductive, maternal, newborn, child, adolescent health plus nutrition (RMNCAH+N) services wherein 'abortion' is marked as an essential service, women faced obstacles to attain them (MoHFW 2020). The stigma associated with abortion and miscarriages in the Indian societies, even though the former achieved the legal status a few years back, along with the inability to visit a local pharmacy for pregnancy kits, modern and emergency contraceptive methods need to be considered (Srivastava 2020; Beech 2020).

The Surge in Domestic Violence : Reasons

The prime reason in the escalation rate of domestic violence at present seems to be 'confinement' where men take out their frustrations on women (Deb Roy 2020). Stereotypes related to fixed gendered roles in relationships and domestic work (like cooking, cleaning, washing, caring) is another major reason where men are not used to/ do not want to help with the domestic chores. Financial stress on men as the 'breadwinner' of the house and the uncertainty associated with jobs, businesses and other modes of employment damage the notion of hegemonic masculinity that is embedded in the Indian society. Middle class working women are stressed as they have to manage household responsibilities with those at the workplace (work from home), with patriarchal expectations from a woman to prioritize needs of the family members and household chores. Thus the fear of economic precarity, forced isolation and stressed households led to increased domestic conflicts (Chandra 2020).

The India Inequality Report 2020 links women's unpaid care work with domestic violence they face. According to the UN Women (2018), women spend 2.6 times more time doing unpaid care and domestic work as compared to men which leaves them less time to do paid work, upskill themselves or concentrate on their careers (OECD 2018). The study revealed that in many cases women have internalized their husband's violent attitudes to an extent that they justify their husband's anger and

violence against them as they, the women, feel they have been unsuccessful in fulfilling their household responsibilities. This is because the social conditioning of the girls and women makes unpaid care work central to women's selfhood (symbolically and otherwise) and their ascribed 'identities' as daughters, daughter-in-law, wives and mother. It rationalizes violence placing the sole accountability on women to do these tasks. Triggers like 'mistakes' in the household work or skills (not cooking well, not taking care of children, not preparing meals on time, food and tea not properly cooked), refusal to sexual intercourse, disobedience to husband's instructions, back talking (arguing is disrespectful) to husband or in-laws, spending money without asking, leaving the house without permission are some of the reasons identified that caused infliction of violence against women by their partners (Nandy and Dutta 2020).

In Punjab (a north Indian state) most domestic violence cases where Punjab State Commission of Women (PSCW) was directly approached was by working women (aged 30 to 35) from the educated class of families. These women, who under normal circumstances were working at offices were now facing harassment at home. Work, as an escape and a coping mechanism to deal with violence was no longer available. There is a stigma attached to coronavirus (labelling of households by authorities when a family is infected with COVID-19) where neighbors and other may avoid a specific household. This added to the hesitation of women survivors in approaching to the police as police presence may give an impression that it is a COVID positive case. Besides this, a significant number of cases have also been reported from the rural areas of Punjab by housewives who are of above the age of 40 (Sareen Kumar 2020). The unavailability of alcohol amidst lockdown has also been correlated to the increase in domestic violence, primarily due to withdrawal symptoms (Vijayalakshmi and Dev 2020). Also, high stress environments has led to increased consumption of caffeine, and substance abuse. The latter is also responsible for increase in domestic abuse (Vijaykumar and Chauhan 2020).

The literature on domestic violence suggests that when men and/or women get employed, domestic violence tends to fall as interactions between couples reduce. Under a lockdown, interaction time has increased and families have been left with little access to the outside world. The literature also suggests that violence is a way for the man to assert his notion of masculinity. The current atmosphere of fear, uncertainty, food insecurity, and unemployment may create feelings of inadequacy in men. All these factors are likely to aggravate tensions at home and make women victims of those tensions. The lack of access to friends, family and support organizations is expected to aggravate the situation for abused women further (Vijayalakshmi and Dev 2020).

The global gender gap report for the year 2020 assessed the gender gap performance across 4 dimensions (economic participation; educational attainment; health and survival; and political empowerment) which intersect with each other and are major causative agents of domestic violence. According to the report economic opportunities, economic participation (active engagement in labour market i.e. working or looking for work), literacy rate, access to health, estimated earned incomes, and political representation of females is extremely low in India. The huge gender gap in India is closely connected to violence, forced marriages and health inequities (World Economic Forum 2019).

The gender norms in India govern many aspects of women's lives. These norms applicable before and after marriage limit women and girls engagement with mobile phones. It includes maintaining purity for marriage; patrilocal exogamy; subservience and prioritization of caregiving. Norms, income and education are central to women's empowerment and affect women's use of digital technology (Barboni et al. 2018). In India, most households have only one phone which is generally kept by a man. This is especially the case in rural areas and that of the economically weaker section (EWS). Even

when women have their phones, running out of prepaid currencies is common. Many women do not have the knowledge to use a smartphone, internet and other related services, and may be dependent on their spouses or other family members for even making a phone call. This fact was established by the GSMA Intelligence Consumer Survey in 2018 where a significant gender gap in the use of technology was found in low and middle income countries. In India, women are 26 per cent less likely than men to use mobiles, and 56 per cent less likely than men to use mobile internet services (GSMA 2018). Factors deterring women to own mobile phones are in the order of affordability, literacy and skills, safety and security issues and relevance. Similarly, the same factors are also responsible for the low use of the internet by women but the lack of literacy and skills (do not know how to use a mobile or internet) required to use it is the foremost concern. Thus, the reporting rate of domestic violence cases is concomitant to this digital gap.

Social norms in a patriarchal society like India and the attitudes of both men and women who consider marriage and family as institutes of sanctity make it difficult to come out of unhappy and abusive relationships. Defying the belief in these systems goes against the concept of 'honour' and comes with feelings of shame, guilt and embarrassment. These idealized representations of home and family confine women survivors of domestic violence as they have to think of consequences before reaching out for help or to take action to counter abusive and controlling family life (Bradbury-Jones and Isham 2020).

Initiatives and Response Mechanism

The global struggle with COVID-19 pandemic and consequent upsurge of domestic violence cases was resisted with a series of stratagems undertaken by countries at national levels. Countries like Brazil, Germany, Greece and Italy started new helplines for women which received a larger number of emails and text messages than calls (Anjali and Ranganathan 2020). Countries have come up with official codeword schemes that are operating in countries from Argentina to Italy to alert the agencies that the woman is a victim of domestic violence. The codewords vary from a 'mask' to an 'eyeliner' but are useful only when the other person is aware of it. It started from the original codework project where a survivor simply had to ask for a 'Mask 19' from a pharmacy (a campaign devised by Kika Fumero of Canary Islands Institute of Equality) the use of which can extend beyond the pandemic (Elks and Davies 2020). In Argentina, pharmacies were declared 'safe spaces' for reporting domestic abuse. Grocery stores in France came up with 'pop-up' support services including availability of 20,000 hotel rooms for women who are unsafe at home. The government of Spain exempted women from lockdown in case they needed to escape from their houses. Integrating the measures as national plans, countries like Canada and Australia channeled their resources and funding to counter the effects of COVID-19 (UN News 2020).

At the international level, a collaborative initiative was made by the WHO with the United Nations' specialized health agency and FIFA (football's world governing body) for the promotion of violence free healthy lifestyles. FIFA, the European Commission with the WHO launched a #SafeHome campaign to support people at higher risks from domestic violence (WHO 2020). However, the appeal of the Government of India (GoI) to 'Stay Safe, Stay Home' did not hold the ground for women survivors of domestic violence as 'safe' and 'home' are not necessarily synonymous to one another. This is because even the reporting of a husband may lead to torture by natal as well as marital family members (Shivakumar 2020).

Measures taken at state level in India

In the Indian context, the lockdown led to increased household responsibilities for women especially since domestic helpers were not available. This was more so for working women as the workplace entered the domestic space. As discussed before, this is one of the causes of increased violence against women at homes. In this view, as a part of wider awareness campaign against domestic abuse by the Whistling Woods International (WWI), *Laadli* (a girl child initiative of Population First) and the UNFPA, #ShareTheChores campaign was started by promoting families to advocate gender equality in household chores (Tahseen 2020). Also, as an emergency response mechanism the NCW launched a special WhatsApp helpline number on 10 April, 2020. This was done for women survivors to alert and sought help from the authorities. Even so the tendency to seek help decreased due to the presence of potential perpetrators in the immediate vicinity, approximately 199 complaints were received via WhatsApp in the month of April alone (NCW 2020).

From Central India, *Gaurvi,* a one-stop crisis center of Bhopal (the capital city of Madhya Pradesh) collaborated with organizations like Udaan, Action Aid and others for a programme '*Bol ki lab azad hain tere*' [your lips are free to speak] which gave voice to 600 survivors of domestic violence. These women were trained to drive, licensed and given subsidies to e-rickshaws as a mode of employment (Jha 2020).

Further, in the national capital region of India (at Noida) a special mobile counseling unit for the rural belt was made active as the area reported a lower number of domestic violence and dowry death cases due to lack of safety and protection facilities. The police also launched a mobile patrolling unit for women constables. In this area, 15 women had committed suicide over issues of domestic discords, harassment by husband or in-laws, fights with spouses and prolonged illness between 24 March- 27 June, 2020 (Salaria 2020).

In the western region of the country, the Tata Institute of Social Science (TISS) in Mumbai and the Maharashtra government set up six helplines under the '*Mala Bolaayche Aahe*' [I want to speak] initiative in which 8000 domestic violence complaints were received in three months (Jain 2020). Such initiatives helped in estimating the reporting percentage of domestic violence cases.

In 2019 the legislative assembly of Andhra Pradesh (a state in south eastern region of India) had passed Disha Act (AP Special Courts for specified offences against women and children act, 2019) and AP Disha Act-Criminal Law (AP Amendment) Act, 2019 for speedy trials and capital punishment for convicts of rape. Even though Disha SOS App was launched by Andhra Pradesh Police with a view to help women and children in general, the nature of complaints (approximately 39 per cent) reported on this app has been of harassment of wives by husbands (*The Times of India*, 15 May 2020).

As it came to the notice of the authorities that women may not be able to step out of their homes to lodge complaints, the Jammu and Kashmir (in the north of India) high court passed an order on 18 April taking *suo moto* cognizance of domestic violence cases during the lockdown (Ratnam 2020). The order prescribed some guidelines and directed a special fund to be created for activities undertaken to help the women in need. Informal safe spaces like grocery stores and pharmacies were ordained where women could report their issue without alerting the family members. Similarly, the high court of Karnataka (a state in the south western region of India) stipulated information from the state government regarding available helplines, shelter homes, counselors, protection officers and other measures taken on domestic violence complaints.

On 12 April, 2020 the Delhi government had informed the courts about the working procedure that will be followed for the cases received during the lockdown. As per this, once a survivor has reached out to the agencies through the helpline number 181, the tele-caller takes the complaint and the necessary details which are then forwarded to a counselor. The counselor is supposed to get in touch with the survivor via telephonic communication on the account of the lockdown. The counselors are empowered to conduct counseling sessions with the woman, her spouse and family members. In cases of sexual or physical assault, the tele-caller is liable to inform the police about the case and assist the survivor in filing a First Information Report (F.I.R). Further, the counselor is to inform the protection officer for an incidence report to be filed. On 25 April, 2020 Delhi high court reviewed the status reports of national and state commissions of women as to the actions taken against domestic violence in terms of awareness about helpline numbers, shelters, one-stop homes as well appointments of protection officers. The state and central government were directed to administer relevant measures and take control of the situation on this front (Ratnam 2020).

Next, the Delhi State Legal Services Authority (DSLSA) activated a new 24*7 toll free help-line number (9667992802) in addition to their helpline 1516 to receive distress calls, messages or missed calls from victims of domestic violence. The office order was passed to help women, children and senior citizens who may require free legal aid, advice or assistance (DSLSA 2020c). The DSLSA also collaborated with a network of Mother Dairy booths, pharmacies and social workers (*anganwadi* and ASHA workers) in Delhi to extricate survivors of domestic abuse who otherwise could not reach out for help due to the lockdown. They also launched an app '*Vidhik Sewa*' (legal service) on Google Play Store to deliver free legal aid to domestic violence victims as well as for matrimonial disputes; offences against senior citizens, women, children; and other civil disputes (Mandhani 2020).

By the state government of Tamil Nadu (the southernmost part of country), a response mechanism was actuated to address the escalation in domestic violence cases during the lockdown by setting up police tele-counseling centers. District rescue teams were formed and the *anganwadi* workers were also engaged. Since *anganwadi* workers are closer to the communities, they were asked to work with community women at the grass-root level and were provided with smartphones for better communication with senior officials. The protection officers across the state reported to have rendered services to 92 women survivors of domestic violence. Most of these women requested that the abusers should only be warned or counseled, and most of them were disinterested in legal remedies (*The Hindu*, 25 April 2020). In an article recently published in *BBC News*, the same issue was brought up as to how most women survivors of domestic abuse seeking help do not want to leave their abusive spouses. They want the authorities to only warn the spouses against violence, teach them a lesson, or ask how to make them behave better. This tendency of women to tolerate abuse is due to the stigma attached to divorce in India. Especially if children are involved, very few natal families support their daughters and advocate them to seek legal separation (Deshpande 2020).

Social media platforms like WhatsApp, Twitter, Instagram, YouTube and Facebook play a crucial role in creating awareness on sensitive issues like domestic violence. For example, Indian celebrities helped the Society for Nutrition, Education & Health Action (SNEHA), an NGO in Mumbai to raise funds and resources for the fight against domestic violence with the help of a campaign #LockDownMeinLockUp through Instagram (Deshpande 2020; SNEHA 2020). Women find digital platforms like *Hidden Pockets* (on Instagram and Facebook), and online support groups like *Invisible Scars* on Facebook approachable. Women with access to smartphones and internet services approach online support groups to voice their experiences and seek support, advice or sisterhood on social media building their digital social support systems. The provision of keeping your identity anonymous

on online support systems can help women feel safe from their perpetrators in addition to avoiding judgements.

Certain non-profit organizations aided women who needed help in the lockdown. For instance, Women Entrepreneurs For Transformation (WEFT) Foundation started a 'Red Dot' campaign. Through this campaign, it was advertised that a 'red dot' on the palm is an SOS call from the victim for help. Since this campaign, WEFT received 189 calls from women survivors of domestic abuse, and 73 women were rescued amidst this lockdown from places like Jind in Punjab, Silao in Bihar and Jhunjhunu in Rajasthan. People were made aware of gestures like 'Ring the Bell' and 'Knock the Door' to extend indirect support to the survivors of household violence (WEFT 2020).

Post-COVID Strategies: Countering Domestic Violence

Scholars across disciplines have suggested ways to empower women and prepare them for adversities in different ways. The government oversighted the requirement of strategies to prevent or rather counter domestic violence during the pandemic. The lack of vigilance is evident from the issues that have been confronted above. There was a failure to formally integrate domestic violence and its impact on the mental health of women into the emergency response plans (crisis/disaster management) and public health preparedness against the pandemic (Kumar, Mehta and Mehta 2020).

Crisis like COVID-19 pandemic must entail responses that are practical and applicable at the national level. The social costs of the measures taken to contain a situation should contemplate the gender related dimensions (like domestic violence) and related needs must be rendered as 'essential services' by the government (Anjali and Ranganathan 2020). Emphasis should be laid on Gender Responsive Budgeting (GRB), a global framework which involves planning and management of resources by the government to achieve gender equality and women's empowerment (GEWE). Such that the exigencies of the pandemic are addressed in terms of response plans, resource budgeting, recovery packages with a gendered lens (ADRI 2020).

The UN Women (2020c) estimated the global cost of violence against women and girls (private, public and social) to be USD 1.5 trillion approximately, that is 2 per cent of global GDP (gross domestic product). The domestic violence pandemic has estimated to add to the economic impact of COVID-19 pandemic. And to counter this, the UN Women and Women 20 (W20) entreated the G20 members to acknowledge "women as drivers of economic recovery and resilience during COVID-19 and beyond" (UN Women 2020d). Financial dependence on the spouse is one of the key reasons that force women to suffer and survive abusive relationships. Since the social network of women generally includes family and kin, which are more into domestic and community affairs, women tend to have fewer viable economic resources. Further, social norms restrict women's mobility and engagement with informal networking opportunities, thus reinforcing gender segregated networks (Kim and Sherraden 2014; World Bank 2020:45). Thus, there is a pressing need to dedicate funds to the informal sector and support women-led micro, small and medium sized businesses. This will ensure financial independence and can help women to escape violent situations on the domestic front. One way to do this is by fostering women-led self-help groups (SHGs). The government and other stake holders must try to create ways of directing additional funds and resources to organizations working to support survivors of domestic violence such that services and operations can successfully continue. The phenomenon of domestic abuse is a global one and should be understood by the agencies by creating opportunities for scholars to engage with the issue by researching and conferring to intercultural competence. Collaborations or partnerships between organizations and innovative

business ventures should be promoted as an alternative to provide space to shelters for the victims. Since a domestic violence case may undergo several mediations, the different forms of abuse during and after divorce also need to be considered. Under the present state of affairs, the provision of virtual hearings and access to legal advice is a service that should be deemed vital such that survivors can acquire justice. Tracking systems and follow-ups should be conducted in a way as to ensure the safety of the survivor (Scotland 2020).

According to the International Center for Research on Women (ICRW 2020), there is a need to close the gap of gender inequality which will indirectly safeguard the economic well-being of women. A perusal of skills (soft and hard skills), building economic ties and strong social networks will shape women's professional as well as personal growth. The interventions need to be inclusive of 'socio-emotional' tools (assertiveness, leadership, motivation, self-confidence, resilience and risk taking ability) (OECD 2017). Even though these initiatives were suggested to encourage women into entrepreneurship, they can capacitate women to come out of abusive relationships as well. Gender-sensitive social safety nets like direct cash transfers, tax relief and food vouchers for women and children must be incorporated into the relief plans. Since children are often caught between domestic violence, the effect on their mental health needs equal consideration, given their social network outside home was also restricted during lockdown since schools were closed (Vijaykumar and Chauhan 2020). Public and private banks should bring schemes that increase women's account handling and matters related to the same. The bank staff should be trained to identify and help survivors of domestic violence.

Special consideration should be given to other vulnerable groups, including women living with disabilities, who are at increased risk of domestic violence and may face further barriers in reaching the services they need, such as social assistance and home care, due to curfews and social distancing or restrictions on movement. Displaced or refugee women, and women living in conflict-affected areas are also particularly vulnerable due to high population density, proximity in living conditions; poor water, sanitation and hygiene; limited health, social and protection services (WHO EMRO 2020).

The European Union-United Nation Spotlight Initiative's Safe and Fair Programme suggested certain interventions in the context of COVID-19 and domestic abuse which were categorized under service provision, policy advocacy and information sharing. According to these guidelines, the course of action taken should generally be evidence based and adapt a survivor centric approach and must consider the ethics and potential safety concerns that might emerge (Spotlight Initiative 2020a, 2020b). However, due to the pandemic, it is not possible to collect new evidence and therefore lessons need to be learnt from our past and present experiences. Since most countries have ratified to the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), it needs to follow through into the national policies and response plans. The involvement of stakeholders (government, civil society organizations-CSOs, NGOs, employers, women rights' groups) into advocacy in legislation, policy framework at national and local level, strategizing awareness in local languages should be obligatory. Capacity development of front line responders of gender based violence (GBV) and strengthening their support by resource allocation such that better facilities (women shelters, resource centers, CSOs, one-stop centers, safe places, health, police, psychological counseling, hotlines, social and justice services, legal aid) can be provided (UN News, 6 April 2020). Gender inclusive services should be deemed essential especially during a crisis (for example-services required by women in case they have survived gender based violence, sexual and reproductive health, sanitary hygiene, food etc.) Training and gender sensitization at all levels need to be promoted. Enforcement of PSEA (Prevention of sexual exploitation and abuse) policies, policies governing social protection and improved systems

of coordinated response during emergencies. Women who were marginalized during an emergency due to their class or caste status (for example- migrant women workers, domestic helpers in the current pandemic) should be assisted in finding jobs/ employment and debt management such that they have a financial backup to fall upon in case they become the victims of domestic violence. It is a necessity to initiate a social dialogue by engaging with social media, radio, TV programmes for those who have access to it. The aim should be to support community reporting of violence and remote services like chat groups, remote counseling and legal aid. Data collection at root levels should be institutionalized not only for the documentation, but to conceive the socio-economic deterrents of vulnerability which can help in the formulation of plan of action (Spotlight Initiative 2020b).

Interventions such as the formation of *Mahila Arogya Samiti* (MAS) or women health committees under India's National Urban Health Mission (NUHM) targeted at community based peer group education in slum and urban poor population can prove to be useful. MAS is generally a group of 8-12 women (for every 100 households) who are local residents in urban vulnerable settlements. The best example of its working was set by SNEHA (Society for Nutrition, Education & Health Action), a non-profit organization in Mumbai city. SNEHA as the mother NGO, collaborated with communities, local NGOs, urban local bodies (ULBs), ASHAs, governments and public health systems to form MASs in Mumbai. They established crisis centers and OPDs in public hospitals to train and help women. These groups of women can then be involved after proper training into health planning, locate social determinants of health, and monitor local services. Further to prevent violence against women and children, an android app "the Little Sister" was launched such that the community women volunteers (called as *sanginis)* could identify and report the cases of domestic violence and raise an alert incase support is required. Further, TARA (Take Action Reach All) Trial was also started to study the effect of community mobilization through such groups and volunteers. Such strong and replicable community level interventions and networks between various stakeholders can build resilience of the communities to handle the issues without an external support, and can address the deluge of public health concerns due to violence against girls and women.

Hospital based crisis centers called *Dilaasa* (which means 'reassurance') is another example which is a joined initiative of Centre for Enquiry Health and Allied Themes (CEHAT, the research centre of the Anusandhan Trust) and the Municipal Corporation of Greater Mumbai (MCGM). It has been offering psycho-social support to survivors of violence against women and children even during the pandemic. Initially established as an OPD, *Dilaasa* centers have now been established in other hospitals of Mumbai city. They are connected to legal aid agencies, police stations and shelter homes. Through counseling, women are empowered to make decisions, informed about self-care strategies, resources and services at their disposal. CEHAT (2011) has been engaging at the state level to deem *Dilaasa* centers as an essential health service. These centers carry out safety assessments for every survivor to make sure they are safe to go home, have access to smartphones or are able to reach out for support (Rege and Shrivastava 2020). Adapting the *Dilaasa* model in public hospitals at the national level and educational interventions among the healthcare professionals is imperative to substantiate domestic violence as a public health issue (Alshammari, McGarry and Higginbottom 2018).

During the COVID-19 pandemic, cautionary messages against coronavirus were set as default ringtones (pre-call announcements) to all outgoing calls by the Indian government. Mass messages (SMS) in local languages related to the same were also being sent. Adapting the same strategies for the awareness of domestic related services (helpline numbers) could be beneficial for those women who are unable to read/write, or do not have the immediate access to phone facility. The government could engage the agencies to relay messages on television and radios for those families with access to it.

Anthropological Insights: Discussion

In anthropology, domestic violence in the south Asian and middle East context is generally inculpated to religious, traditional beliefs and practices, cultural ideologies in general. However the understanding of domestic violence by nations like the United States do not recognize it as a cultural phenomenon (McCue 2008:88; Nanda and Warms 2018: 230).

It has been established that societies are deeply conflicted by domestic violence due to socio-economic factors such as unemployment, gender disparities, cultural norms etc. The atrocities women have to face, including domestic violence and sexual abuse, has led to an increase in the number of broken families. At times women adopt certain coping mechanisms that involve consumption of alcohol, tobacco and substances that further harm their physical, psychological, sexual and reproductive health. The neglected children of such families also suffer in terms of poor health and hygiene. The focus remains more on women as a community and the problems they face, but a structural analysis of the community responses elucidates how structures of kinship, marriage and family relations have weakened the latter as a unit of solidarity. Furthermore, the impact of globalisation, the role of technology and a hedonistic culture are other precipitating factors. From the review of existing literature it can be concluded that even though various studies have been carried out that delineate the causative agents leading to the aggravation and persistence of domestic violence, ethnographic studies reflecting upon the changing social and political dynamics that may help in informing strategies to deal with this issue are lacking. An expanded role of state machinery and non-governmental organisations (NGOs) in dealing with this menace could well enhance and enable better governance strategies.

Anthropological studies on domestic violence have discussed the significance of concepts like self-identity, power relations, political dynamics involved, sexuality, reproductive power of women and so on. Different kinds of research have been carried out to understand the nuances of domestic violence ranging from feminist ethnography, auto-ethnography to experiential ethnography. However, a cross cultural and inter-disciplinary perspective is required since methodological and cultural differences pervade the issue of domestic violence through variations in meanings to the concept of violence, prevalence, moral standards, and social construction of gender. With the diversity of household units that exist, the everyday negotiations in a domestic space are changing and unfolding in terms of challenges posed when it comes to childcare, parent care, and running a household among other things. For instance, studies reflecting the effect of role reversal or additional roles undertaken in families as the one conducted by Komarovsky (1940), change in socio-cultural perceptions of the partners related to gendered roles and that of the society, expectations from each other, obligations, gendered authority etc. can influence policy frameworks in a positive way. The emotional and moral propensities towards 'domesticity' and inability to move out of abusive relationships need to be analysed in addition to the structural aspects of domestic violence. Explorations on the concept of social capital beyond the neighbourhood or community involvement can greatly inform the interaction of cultural issues with the discourse, practical and symbolic representation of thoughts, beliefs and values.

Anthropological studies on the roles and limitations of NGOs, *Mahila Panchayats,* court mediations, *Mohalla Clinics* (street clinics by Delhi state government to provide access to healthcare facilities), dispensaries etc. in tackling domestic violence need to be undertaken at the national level as these spaces are commonly used by the public. The evidence (as mentioned in the previous sections) suggests that women belonging to economically weaker sections do not have access to or working knowledge of smartphones and internet services. Though most phones offer language settings, the percentage of literate women in rural and semi-urban areas is low. Reaching out to this section becomes important

and strategies / interventions must be developed keeping in mind the limitations of the community, while respecting their social concerns. Thus, the limitations of women not only in terms of physical access to facilities and services, but also due to the cultural aspects need to be explored. It is therefore recommended to understand the conceptual subjectivities related to domestic violence. This is possible only by digging deeper into the lives of the people, the communities and hierarchies of dilemmas that they face via a much needed anthropological lens. However, this is not to provide cultural evidence as a defence to the culture of 'violence' that exists in the society.

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'Blessing in Disguise': A Case Study of Spirit Possession among the Meiteis of Manipur

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KEYWORDS

Culture-bound syndromes, possession, Meitei, Manipur, Maibi.

ABSTRACT

Spirit possession cases are distinct human behaviours and experiences which are associated with the belief that an individual has been taken over by a spirit or deity or other supernatural entities. Diverse cultures and religious systems have their belief and corresponding rituals to deal with these cases. The present paper deals with a particular form of possession among the Meitei people of Manipur, a north-eastern state of India. It tries to highlight how traditional medicine, coupled with indigenous religion, provides a more acceptable and effective treatment mechanism to those cases in the cultural context of the Meitei people. Primary data for this study are collected through observation, interviews, and also with case-studies from one of the villages in Thoubal district of Manipur during the period from 2017 to 2018. The possessed individual becomes a connecting link between the deities, spirits, and mankind. This condition is generally perceived, understood, and dealt with from a religio-cultural perspective rather than from a biomedical one. The need to minimize the gap between cultural understanding and the biomedical perspective while dealing with those cases is also highlighted in this study.

Introduction

The term possession, also known as spirit possession is used to describe a wide range of distinct human phenomena. It is used for an identifiable condition of spirit possession or possession by a deity and also as a label for illness and misfortune (Lewis 2003, Cohen 2008, Winkelman 2009, Mangena and Mhizha 2013). Bourguignon (1976:7) sees possession as 'an idea, a concept, a belief which serves to interpret behaviour'. Jones (1976:1), who studied spirit possession in Nepal, observed that spirit possession could be defined as 'an altered state of consciousness on the part of an individual as a result of what is perceived or believed to be the incorporation of an alien form with vital and spiritual attributes.' Becker (1993:11) also provides a broad definition of possession as 'the phenomena in which persons suddenly and inexplicably lose their normal set of memories, mental dispositions, and skills, and exhibit entirely new and different sets of memories, dispositions, and skills.' In a slightly different way, possession, Boddy (1994:407) says, is 'a broad term referring to an integration of spirit and matter, force, or power and corporeal reality, in a cosmos where the boundaries between an individual and her environment are acknowledged to be permeable, flexibly drawn, or at least negotiable.' While Lewis (2003:57) asserts that 'possession is a culturally normative experience'.... whether or not people are actually in trance, they are only 'possessed' when they consider they are, and when other members of their society endorse this claim or indeed initiate it. The phenomenon of possession is also seen as a condition that gives power to the powerless, gives strength to the marginalized section

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of the society, particularly women. Danforth (1989:44) points out that spirit possession is 'an adaptive response through which they can resolve social and psychological problems in a widely accepted, and sometimes well-respected, cultural idiom.' Lewis (2003:26) also sees these phenomena of possession as 'thinly disguised protest movements directed against the dominant sex.' Bourguignon (2004:559) too argues that 'women's possession trance must be understood as a psycho-dynamic response to, and expression of, their powerlessness.' She (2004:572) continues that '...acting through the spirits, for when the spirits take over, women can do unconsciously what they do not permit themselves to do consciously.' Smith (2006:58) as well, in a similar note, maintains that 'possession is, in virtually all cases including those described in ancient and classical literature, an act of social subversion as well as an act of social confirmation'. Thus, the phenomenon of possession is very diverse and has different forms, different understandings with their associated beliefs and practices in various cultural groups. The question of labelling spirit or deity possession as a form of deviant behaviour or psychologically definable pathology should be answered within the context of the local culture.

The phenomenon of possession is a varied and complex process found in multiple societies since the early period in different forms with different names and associated beliefs. The phenomenon of possession is so varied as Smith (2006:597) also observed that 'it would be fruitless and incorrect to posit its origin in a single event, locality, or religious complex-it has become perhaps the region's most widespread form of spiritual expression, with a vibrant presence in semi-public divinatory practice and public festival.' He (2006:598) continued to maintain that 'possession in South Asia is so varied, multivocal, and ubiquitous-it arises as a result of a large number of possible physical, mental, social, moral, and psychological circumstances-that it is inadvisable to offer a grand theory of possession, in spite of certain consistencies in its narrative logic.' However, Cohen and Barrett (2008) observe that more in-depth analysis reveals that the range of possession beliefs in various cultural groups rests on certain key assumptions, although they are widely varied in nature.

The tradition of culturally mediated use of dissociation is believed to have been there at least as far back as Palaeolithic times. The prehistoric paintings depicting half-human, half-animal figures found in caves around the world are believed to represent Shamans in religious frenzies like those of modern shamanic trance cultures and maybe a part of the symbolic enactment of a religious ceremony (Clottes and Lewis-Williams 1998). It is perceived, understood, and dealt with from both religio-cultural and psychoanalytic perspectives in different societies. The concerned individual acts as if taken by a completely different personality, spirit, deity, or other supernatural force and gets into an altered state of consciousness during this episode. Alterations may occur in memory, mood, perception, identity, and motor functions of the body when it is happening. During this time, loss of control over their actions, strange behaviour from their original selves, loss of awareness of their personal identity and environment, change in tone and voice, even language in some cases, inability to distinguish reality from fantasy, loss of sensitivity to pain, etc. are also generally observed in those possessed individuals. It has different forms, different causal factors, and also various treatment procedures in different cultures.

Possession is a neuro-cultural mechanism of the human organism if we look from a biomedical perspective. It is caused by a combination of the person's natural capacity and propensity for dissociation, cultural beliefs about self and identity, social circumstances such as trauma, abuse or oppression, and neurobiological predispositions that determine the tendency of the individual to suffer from dissociation (Craffert 2015). Dissociation is a term used to describe a person's involvement in the reported dissociative experiences or observed dissociative behaviours. Dissociative is an adjective that attempts to describe reported experiences and observed behaviours that seem to exist apart from, or appear to have been disconnected from, the mainstream or flow of one's conscious awareness,

behavioural repertoire, and/or self-identity (Krippner 1997). It is a complex neuro-psycho-socio-cultural phenomenon reflecting the complex human processes that involve neurobiological, cognitive, and socio-cultural structures of mankind. It can be cultivated or can be the result of unintended spirits or deities or other similar supernatural elements. DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition) described the possession syndrome as a category of the Dissociative Identity Disorder (DID), formerly known as multiple personality disorder (MPD). The manual says,

> *Disruption of identity is characterized by two or more distinct personality states which may be described in some cultures as an expression of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in effect, behaviour, consciousness, memory, perception, cognition and/or sensory-motor functioning. These signs and symptoms may be observed by others or reported by the individual.* (American Psychiatric Association 2013: 295)

The International Statistical Classification of Diseases and Related Health Problems 10th revised edition, commonly known as ICD-10 defined trance and possession disorders as disorders in which there is a temporary loss of the sense of personal identity and full awareness of the surroundings. It includes only trance states that are involuntary or unwanted, occurring outside religious or culturally accepted situations (WHO 2015). However, these identification and classification systems do not fully encompass these varied phenomena. They provide a list of mental health conditions presumed to be universal. But, in reality, there are many cases in different cultures that do not exactly fit into these systems of identification. There are difficulties in assessing mental disorders across cultures because even biological conditions are experienced and evaluated differently by different cultural groups. Whether this phenomenon is perceived as a medical disorder or not is entirely dependent on the cultural milieu of the concerned people.

Possession studies, says Lewis (2003:II), 'indeed tend to mirror the current fashions of anthropological theory and, if we are not careful, the voices of those we seek to report are in danger of being silenced as we pursue our own ethnocentric preoccupations'. He continues, '...this undesirable tendency seems to me to be specially promoted by the vogue for Post-Modernist "interpretative writing" which certainly reveals much about the anthropological writer, but often disappointingly little about his or her informants'. Cohen and Barett (2008:251) also observe that 'anthropologists have focused on the elaboration of interpretive approaches to possession phenomena and have largely turned away from explanatory models of cross-cultural patterns of recurrence and variation.' This study tries not to be absorbed too much in the symbolic and interpretive approach by silencing the voice of the informants, but to give a more balanced picture with adequate voice, beliefs, opinions, and practices of the study population. Smith (2006:98) maintains that under the hegemony of western colonialism and Christianity in South Asia, 'possession was, in general, on the decrease, as was the case in the Pacific islands' however, in the post-colonial period, 'possession has been embraced as an indigenous cultural practice', and oracular possession has been increased in this region. Cohen and Barrett (2008:250) also maintained that 'possession-trance phenomena have been the focus of hundreds of anthropological, medical, psychological, historical, sociological, and neuroscientific studies.' There have been numerous studies on the possession-trance phenomena of Indian population groups. Some of them are Freed and Freed (1964), Chandrashekar (1989), Stevenson, Pasricha, and McClean-Rice (1989), Bhatia (1999), Basu, Gupta, and Akhtar (2002), Snodgrass (2002), Halliburton (2005), Pathapati, Prabhakar, Nallapaneni, and Thatikonda (2014). Smith (2006) also gives a comprehensive account of deity and spirit possession in south Asia. He provides a wide range of possession phenomena among various groups in the Indian sub-continent, both ancient practices from the ancient literature to its contemporary period but he does not mention the Maibis (religious functionaries of the Meitei indigenous religion) and other possession cases among the people of Manipur. This article is an

attempt to cover those possession cases among the Meitei peoples of Manipur. It is based on both primary and secondary data. Primary data was collected through anthropological fieldwork during the period from 2017 to 2018. Data collection was done through different methods such as interviews with unstructured and semi-structured interview schedules, observation, case studies, etc. Fieldwork was conducted in one of the villages called Uyal in Thoubal district of Manipur.

Cultural Framework of the Cases

In this article, I focus on a specific type of possession found among the Meiteis of Manipur while giving brief accounts of other possession cases as well, in which a particular deity reach out to an individual and the chosen individual get possessed by that deity and becomes a medium, the connecting link between mankind and deities. I shall come back to the reasons for such a deliberate focus on one specific type of possession in the following sections. The Meitei, also known as Meetei[1] is a major ethnic group of Manipur, one of the north-eastern states of India bordering Myanmar. Manipur was an independent kingdom until 1891 AD. By the beginning part of the Christian era (33 AD), it became a confederate nation-state comprising different clan principalities under the leadership of the Ningthouja clan which is also known as the Meitei according to the Cheitharol Kumpaba,[2] the Royal Chronicle of Manipur. There are different theories on the origin history of the Meitei people. Regardless of various theories and opinions, it is certain that the Meitei as we see them today as a population group are a heterogeneous group. It is an outcome of a mixture of different population groups in different periods of history from different directions. Before the beginning period of the 1st century AD, there were different clans, seven major clans, and a few other sub-clans[3] who later integrated to form the Meitei nation (Manikchand 1988). It is also very much possible that the valley dweller Meiteis descended from the various ethnic groups in the surrounding hill ranges. It is known that the central valley of Manipur was underwater in a very early period. Human habitation in the valley could have begun in the surrounding hills, and in the flatland only after dry land emerged in the central valley.[4]

Possession Cases among the Meitei People

Possession cases among the Meiteis can be described as culture-bound syndromes if we observe them from a biomedical perspective. A culture-specific or culture-bound syndrome is 'a combination of psychiatric and somatic symptoms that are considered to be a recognizable disease only within a specific society or culture. There is no objective biochemical or structural alteration of body organs or

1 Meitei or Meetei carries the same historical meaning. They are simply free variations of this language like any other language so permits (Budhi 1988).

2 It records the events of the Meitei kings and their nation. It claims to trace the written history of the kingdom back to 33 AD, the reign of Pakhangba and ends with the last king, Bodhachandra, in 1955. The earlier parts of the chronicle are questionable and need to be dealt with healthy scepticism. However, the entries of the chronicle become more comprehensive and reliable from the reign of Kyampa (1430- 1508) onwards. From his period onwards the entries of the Chronicle began to include the year, day and month of each event.

3 Seven major clans were; Ningthouja or Mangang also known as Meitei, Luwang, Khuman, Angom. Moirang, Chenglei, and Khaba-Nganba. Other smaller groups were Manding, Chairen, Khende, Heirem Khunja etc.

4 Human habitation began at the hilltops, particularly in the hill ranges at the north and east of the central valley in all myths and folktales. There is still a big water body, the largest freshwater lake in the north-eastern region of India at the southern side of the Manipuri valley called Loktak Lake which is the remnant of an erstwhile big water body in the central valley. The legend has it that human habitation began in the Koubru hill, at the north of the central valley and came down to valley when dry land started to emerge. And Kangla, the ancient palace of the kingdom was the first dry place in the central valley. Thus, human habitation could have begun in the valley only after the water bodies have dried up significantly forming the current Manipur valley.

functions, and the disease is not recognized in other cultures' (Chhabra, Bhatia and Gupta 2008:15). These symptoms are set of psychiatric symptoms and dysfunctional behaviours that are expressed in a particular way in specific cultures that may or may not be related to other mental and physical disorders already described in other societies or cultures. The term culture-bound syndrome was inserted for the first time as an appendix to the 4th edition of the manual of mental disorders commonly known as DSM-IV published by the American Psychiatric Association in 1994. The manual defined these symptoms as recurrent, locally-specific patterns of aberrant behaviour, and troubling experience that may or may not be linked to a particular DSM-IV diagnostic category[5] (American Psychiatric Association 1994). Understanding and assessment of these cases depend on the cultural background of the examiner, her/his judgment about the case, and also the patient's cultural background, beliefs, ideas, concepts, and ability to understand and communicate what she/he has experienced or is experiencing. There is a high tendency to attribute those experiences to a spiritual cause, in the supernatural realm in the majority of the native cultural domains. In Meitei society also religio-cultural perspective delivers more acceptable causal beliefs and effective treatment methods to the people than modern medicine in dealing with those possession cases.

Hingchabi Changba (Evil eye), Potsem Jadu (black magic), Lai Oknaba (confrontation with the malevolent spirit or deity), Heloi Oknaba (possession by a misleading female spirit), Lai Tongba, (possession by a deity which is associated with the Maibis and symptoms of becoming a Maibi), etc. are different forms of the possession syndrome among the Meitei. In most of these cases, if not all, the spirit or the deity takes full control of the body and mind of the victim and she/he becomes an external manifestation of the spirit or deity. In these cases, the spirit or deity express their will through the victim. There are similar cases in various cultural groups. Herskovits (1948:66-667) writes of the Haitians, 'the supreme expression of their religious experience is a psychological state wherein a displacement of personality occurs when the god "comes into the head" of the worshipper.' The individual thereupon is held 'to be the deity himself' (1948:66–67). Frazer (1958:108) similarly describes possession as the moment when a spirit enters into a person. The person's 'own personality lies in abeyance during the episode,' and all utterances 'are accepted as the voice of the god or spirit.' Lambek (1981:40) also wrote that the spirits are said to 'enter the bodies of human beings and rise to their heads, taking temporary control of all bodily and mental functions.' He continues, '...despite the fact that the body remains the same, it is now occupied by a different person... During the trance, the human host is absent, no one can say where, and is temporarily replaced by the spirit.' Stoller (1989:31) also describes spirit mediumship among the Songhay of Niger as resulting 'from the temporary displacement of a person's double by the force of a particular spirit'. When the 'force of the spirit enters the medium's body, the person shakes uncontrollably. When the deity's double is firmly established in the dancer's body, the shaking becomes less violent. The deity screams and dances. The medium's body has become a deity.' A similar phenomenon is described by Lum (2000:156) saying, 'after an orisha had manifested on a person, it was that orisha who was now animating that person's body... The displaced [host's] spirit only returned when the orisha had left.' Bourguignon (2004:572) also maintained that 'when the spirits take over, women can do unconsciously what they do not permit themselves to do consciously. The demands that are made, the orders that are given, are those of the spirits' doings and sayings. They are neither responsible for nor aware of what is going on and do not remember it after the fact. They have the ultimate deniability.' We can observe similar views from many other scholars about different cultural groups around the world. For example, Firth (1967:312), Kiev (1968:143), Field (1969), Lewis (1971:105), Hitchcock and Jones (1976), Rouget (1985:325), Sharp (1996), Rosengren (2006:812) etc.

5 Culture-bound syndromes have been described as cultural concept of distress in the 5th edition of DSM published in 2013. According to the manual, the cultural concept of distress refers to 'ways that cultural groups experience, understand and communicate suffering, behavioural problems, or troubling thoughts and emotions.'

Three basic methods have been traditionally used for the treatment of possession in different cultures; the first is trying to expel the spirit physically by such means as bleeding, beating or whipping the patient. The second is to transfer the spirit to another body, usually an animal. The third most commonly used method is driving the spirit or deity out by conjurations, prayer or other appropriate rituals like appeasement offerings by an expert practitioner (Palmer 2014). The last method is used in Meitei traditional healing for treating those possession syndromes. Dow (1986) gives a universal structure of symbolic healing, including magical healing and western psychotherapy. He maintains that Shamanism and faith healing are types of magical healing, a type of symbolic healing that involves the ritual manipulation of superhuman forces. Treatments of those possession cases by the Maibis (female religious functionaries) or Maibas (male religious functionaries and traditional healers) are also parts of these symbolic processes.

The Hingchabi Changba (evil eye) is the most common culture-bound syndrome among the Meitei people. It happens to both men and women but it was reported to be more prevalent among women and children. The Hingchabi is a woman who has a spirit that can enter other people's bodies and harm them. However, it was informed that those women who have the quality of the Hingchabi do not know that they have this attribute. The case of the Hingchabi Changba, entering the spirit of the Hingchabi to another person happens when the Hingchabi lady envies something that the person, the victim has. It could be the food the victim was having or could be personal belongings such as clothes, ornaments, etc. Lovely small children are also believed to attract the attention of the spirit of the Hingchabi. When this lady who has the spirit of the Hingchabi envies something, the spirit enters the body of the victim and controls the body and mind of the victim, thus living as the external manifestation of the spirit. If it happens to a small child, different symptoms are reported to occur like uncontrollable cry, epilepsy, convulsion, etc. This trait of the Hingchabi is believed to transmit itself only in the female line. The woman who has this trait passes it to her daughter. The youngest daughter is believed to be more likely to inherit this trait from her mother. If the woman who has this spirit of the Hingchabi does not have a daughter, then it is passed on to granddaughter through her son. The treatment of the Hingchabi Changba is conducted by a Maiba by making appropriate offerings to the spirit. The spirit leaves the body after it is appeased with the offerings, and the victim comes back to her/his normal senses. There are Maibas who are popularly known for the treatment of this possession syndrome, particularly among the children in Meitei villages. It is a common practice of the people to offer a little part of the food they have whenever they eat in public places to avoid the envy of the spirit of the Hingchabi, if there happens to be anyone with the spirit of the Hingchabi. Small children also wear a kind of amulet made of Kurao (coral tree) to avoid the spirit of the Hingchabi. Children also wear a piece of Phanek (female lower garment like a skirt) their mother wore at the time of delivery to protect themselves from evil spirits, evil eye, and any other unwanted incidents in a small copper amulet. This piece of cloth is called Naokal Phee, the cloth which saves the child. It is the cloth the mother wore when the child came to this earth, and it symbolized the mother herself who protects the child since birth.[6]

The Potsem Jadu is a form of black magic. In this, the intending person performs black magic with the help of an expert to harm the other person or her/his family. A family may consider they are under the attack of such magic if they experience a series of bad incidents, bad luck such as failure of crops, prolong illness, failure in business or other endeavours, etc. Those types of magic under Potsem

6 There is a popular story of one Paona who faced the British soldiers in the Anglo-Manipur war of 1891. Paona was a major of Manipuri forces assigned to defend British forces coming from the Burmese side in the Anglo-Manipur war. In that story, the British Soldiers could not defeat him as he was wearing his Naokal Phee tied with his head-dress. After realising all his fellowmen were already dead or injured and they were going to lose any way to the mighty British forces, Paona removed his Naokal Phee and sacrificed his life for the motherland along with other soldiers at the battle of Khongjom.

Jadu are based on the 'rule of contact' and the law of 'like produces like' which are similar to Frazer's (1976) contagious and sympathetic magic. Contagious magic is based on the principle that things or persons once in contact can afterwards influence each other. In other words, it is believed that there is a permanent relationship between an individual and any part of his or her body. And the sorcerer can harm an individual through any detached body parts such as hair, nail, etc. of the individual. Sympathetic magic is based on the principle that 'like produces like', for example, whatever happens to an image of someone or doll, the person will also get the same effect. It is reported, the body parts of the intended person, the person who is going to be the victim, mostly hair or a piece of nail is used in the process of sorcery. The associated believe is, when the sorcerer harms the body parts or the representing doll, the victim will also get the same effects. In some cases, a spirit or ghost intending to harm the individual is reported to be sent by the sorcerer as per the demands of the client. The treatment is to use countermeasures to remove the spirit, spell or any other harmful things with the help of another sorcerer. Unlike other cases, no offerings of appeasement rites are conducted in the treatment process of this case. Treatment processes are taken up to neutralize, counter or confront the threat with counteragents instead of appeasing in this case.

The Lai Oknaba is the contact with the malevolent spirits or divinities. As a result of that unwanted confrontation, the victim may get possessed by the spirit or deity or in another case, get harmful effects without getting possessed. It happens when a person unintentionally comes across those spirits or divinities in restricted areas which are considered as restricted, sacred places or in some cases while travelling alone in odd hours when those spirits or divinities are considered to be active. The spirits or divinities are considered to be active in those time periods such as midnight, dawn, dusk and noon according to the belief system of the Meitei people. These periods are connecting periods, the liminal period like the medium where spirits exist, in between two worlds of living and deaths. The treatment of those unwanted confrontations is to make appeasement offering rites. This type of possession syndrome is like those of pathogenic possession described by Cohen (2008). However, in this case, whether the victim gets possessed or not, she/he always gets some unwanted effects from the encounter. Those effects may be a headache, depression, loss of appetite, developing strange behaviour, etc. In the majority of the cases, the victim develops strange behaviour, completely different from their original selves. In some cases, the spirit or deity takes full control over the mind and body of the victim, and she/he becomes the external self of the possessing spirit or deity until they are removed by performing appropriate rituals. Healing rituals are performed by a Maiba or Maibi by making appropriate offerings to the concerned deity or spirit asking for forgiveness by the performer on behalf of the victim.

Heloi is another supernatural character who is believed to be a beautiful, attractive lady. It is believed among the Meitei people that there are seven Helois, the youngest of them is the most beautiful and attractive. It is said that they usually play in deserted areas, streets and lawns. They wait for the lonely traveller, generally a man and often mislead him to uninhabited areas. During the process, the victim is believed to be completely deceived by the charm of the Heloi and follow her after losing awareness about himself and his whereabouts. The person comes to his senses only after someone meets him and makes him awake or in other cases, after experiencing some significant conditions from his surrounding environments like reaching a water body or having a fall or other similar incidents which would awake his senses. In some cases, appeasement rites are also performed if the spirit does not leave the body automatically after some time. This case happens when the Heloi does not leave the victim for a considerable time, even after the victim is found by someone and brought back to his senses. During this period, the victim is not completely possessed but still struggling to get hold of his mind and body, in the fusion state in which the spirit becomes part of him sharing the mind and body; the oscillation-type in which the spirit and the person, his self, is trying to control the mind and body. 'His spirit must have been lured away by a Heloi' is a commonly heard

saying in the village when the people see a distracted man.

Among those possession cases, the case of Lai Tongba, literally meaning 'sitting on by a deity', a type of possession by a particular deity stands out. It is the only kind of possession that has both negative and positive cultural values. It can also be spontaneous or induced.[7] In the cultural explanatory model of the people, there is nothing wrong with the physical body or mind of the concerned individual in this case of Lai Tongba. It is not a problem or affliction but a sacred privilege. It only becomes a problem and affliction to the person when she/he refuses the sacred call of the deity and tries to suppress it. Otherwise, it is like a blessing from that possessing deity. The person also gets a new status in society by virtue of her/his connection with the deities. Those other forms of possession occur due to the wrath of gods, violation or breach of taboo, confrontation with the spirits or deities in 'bad places' in 'bad timings', evil spirits, malevolent spirits or deities, evil eye, sorcery, etc. They all are loaded with bad intent to harm the victim and are some kind of punishment or ill-intending actions. However, this type of possession (Lai Tongba) does not intend to harm the individual but to give a chance to serve the deities, be a medium through which they can express their will to the people. I believe Lewis (2003:15) had a similar opinion when he observed, 'transcendental experiences of this kind, typically conceived of as states of "possession", have given the mystic a unique claim to direct experiential knowledge of the divine and, where this is acknowledged by others, the authority to act as a privileged channel of communication between man and the supernatural.'

The purpose and mode of treatment of the case of Lai Tongba are quite different from the treatment processes of other possession syndromes. If the possessed individual and her/his family members do not want to accept the sacred call of the deity, they perform certain rites with the help of a Maiba to suppress the call and avoid possession. But, it is not a long-term solution. The symptom may re-emerge and the person may get possessed again anytime. The proper treatment is to undergo a training process of becoming a Maibi under the guidance of an experienced Maibi. Thus, it is more of a training to control and regulate the possession but not to stop or avoid it, that is to control, regulate and channelize the mystic energy they get from the connection with the deity, but not to stop or avoid possession. Only through this process of training they become full-fledged Maibis, what they are chosen for, what they are meant to be, at the same time free from any physical and mental problems from the possession. It is through this cultural mechanism they are dealt with effectively. In this way, by adopting rather than expelling the concerned deity they change the process from an initial traumatic experience into becoming an important religious functionaries in the society. All full-fledged Maibis had physical and mental problems at the beginning. These symptoms go away slowly as they started their training. It was found that they become full-fledged Maibis once they can control and channelize their mystic energy of possession. Unlike other possessed individuals the Maibis transformed themselves into new personalities who serve and help other people with their services and also help in treating other culture-bound syndromes, including possession syndromes after their training.

The Maibis are generally described as priestesses or female shaman of Meitei indigenous religion. However, these translations do not have the total connotation the word carries in the cultural context of the people. They have some similarities with female shamans particularly those of Korea (see Kshetrimayum 2009). They also have some similarities with Burmese Nat Kadaws, spirit mediums, also known as Nat's wife who plays a key role in Nat (spirit) festivals (see Vossion 1891, Brac de

7 Induced possession is seen in the majority of the ceremonies and rituals performed by the Maibis. In this, the Maibi continuously rings the Sharik (small brass bell) and chants covering her head and body with a white cloth. The rhythm of the singing and bell gets more and more intense to a point after which she gets possessed and gets into a trance.

la 2009). However, unlike the Maibis of Manipur, they are considered as Nat's wife but not just a medium through which Nats is connected, communicates to people. They get into a trance and act as an intermediary or medium between the spirits and people as the Shamans do. But they do not wear typically shamanistic dress or decorations, such as animal skins or masks nor do they claim to take away bad luck from their clients. The Maibis also do not seek to solve human problems by organizing a meeting between men and spirits to be mediated by them as shamans do. In shamanism, one's spirit travels while one's body remains unconscious, whereas in possession one's body is temporarily inhabited by another spirit or deity, while what happens to one's own spirit at the time is left undetermined. The term Maibi has no exact equivalent word in the English language. It is better to retain the original term not to lose its cultural meaning. They are at the same time priestesses, invoking the deities and making offerings to them; mediums receiving oracles from the deities and giving them out to the people; they are also ritual singers and dancers. They also act as fortune tellers by communicating with the spirits and deities. They are generally addressed as Ima Maibi, meaning, mother Maibi regardless of their actual age or that of the addressing person. An individual can become a Maibi through two ways; the first, after getting possessed by a particular deity, they are the chosen ones and the second, by training without getting chosen or possessed by a deity. However, the majority of them are chosen ones.

The Maibis have been part of Meitei socio-cultural life since the early period. It has been reported that the institution of the Maibi has been there in the palace as a part of the larger administrative system since the period of Thawan Thaba who reigned the Meitei kingdom from 1195 to 1231 AD. The process of becoming a Maibi goes through three distinctive phases. They all go through the processes of separation, marginality/liminality, and aggregation. In the first phase, the person gets a divine call from a particular deity or decides by herself/himself to become a Maibi. In this first phase, the person leaves her/his previous status. The next phase is the stage of marginality or liminal period where the person undergoes intensive training for months or years. This stage is the doorway between statuses and the novice or trainees are often expected to be obedient, receptive and passive during this period. This is followed by the stage of aggregation. In this stage, the person comes back to her/his state but as a transformed one, as a full-fledged Maibi.

Those who accept the sacred call and become Maibis have significant roles and responsibilities in Meitei society, both in the domestic and community level. Their roles and responsibilities in the socio-cultural life of the people correlate them to the larger cultural context of the people. At the domestic level, they perform various rituals, give oracles and act as a medium between spirits, deities, and mankind. Ancestral worship (Apokpa Khuramba), different forms of appeasement rites (Thoutouba, Khayom Lakpa), healing rituals and offerings, the inauguration of a shrine (Laishang Hongba), etc. are some domestic rituals they perform. They also act as fortune-tellers of their clients. They are also consulted by the people when they lost valuable items or property to find them. Newly possessed Maibis are believed to deliver more accurate information during the fortune-telling and secret finding rituals. Among their various roles and responsibilities, the role they play in Lai Haraoba[8] is the most

8 The Social, religious, philosophical life of the Meitei people is depicted thoroughly in the festival of Lai Haraoba. Tradition, beliefs, perceptions and philosophy of life of the people are also preserved and allowed to continue since the very early period through this ceremony. It depicts the stories of creation of the universe, all the living and non-living beings including mankind on the earth by the god Ashiba as per the instructions of his father, the supreme almighty. The creation of mankind, development of human life form, birth, the beginning of the human habitation, making house, making fire, beginning of cultivation, making clothes etc., are also depicted with different rites and dance forms in this intricate festival. The tradition of Lai Haraoba occupies a special place in the hearts of the people. Every Meitei village in Manipur is under the jurisdiction of one these guardian deities, collectively known as Umanglais. This ceremony also promotes social solidarity among people. It brings people together to a common platform and makes them participate in the collective act, which is for a common cause, i.e. the well-being and prosperity of people. It also helps keep alive and thriving the

significant one. Despite more than two and half centuries of Hindu influence and dominance in the Meitei society and culture, the Maibis and Maibas, largely through this festival have successfully preserved the essence of Meitei civilisation, religion, culture, and worldview. The Maibis have been playing a key role in shaping the Meitei culture that we see today since the very early period. Being the major carriers of indigenous customs and traditions with indigenous religion even during the period of Hinduisation in Manipur, they contributed significantly to the process of developing the present Meitei culture which is the product of syncretism of cultural traits of Hinduism with those of indigenous Meitei religion.

Presentation of the Cases

Sanahanbi[9] is a thirty-five year old married woman. Her in-laws, even her husband did not know her condition before marriage. It was only after her marriage that her condition became more frequent to occur. Her parents recalled that 'the condition' started when she was around eight-nine years old. They said she was 'chosen' by Ekop Ningthou, the guardian deity of their village since that time. From that period onwards, she has been experiencing that condition occasionally whenever the deity visits her. They said she becomes a completely new person during those episodes and does not even recognize her parents whenever it occurs. She speaks unintelligible tongue and shows different symptoms such as trembling, keep murmuring, crying and sometimes laughing with no reason. She also tries to run away from her home when it occurs. At times she becomes violent when her family members try to stop her. Her family members have been trying to suppress the 'sacred call of the deity' by performing appropriate rituals with the help of the Maibas (traditional healers). Her parents did not consult modern medical practitioners. They believe modern biomedicine cannot treat their daughter since her condition has nothing to do with her physical body or mental state. She was chosen by a deity to become a Maibi. But they did not want her to become a Maibi and had been trying to suppress the call by performing appropriate rituals from time to time. Those possession episodes became more frequent after her marriage. Her in-laws tried to treat her with psychiatric treatment even though there was a social stigma surrounding it since they believed her condition could be cured by consulting modern medical practitioners. One popular psychiatrist from RIMS (Regional Institute of Medical Sciences) at Imphal diagnosed her as a patient of Dissociative Identity Disorder (DID) and treated her with appropriate techniques coupled with medications. But it did not succeed in giving her desirable results. On the other hand, her physical conditions became weaker as much as the social stigma grew stronger. Her parents said there was no such social stigma when they took the help of indigenous medical practitioners. Thus, they came back to indigenous healing coupled with offering rituals after their unsuccessful attempts to treat her with psychiatric treatments. Her condition was reported to be stable when a traditional healer began her treatment coupled with offering rituals. They said, her possessing deity was cajoled with offering rituals and it needs to be propitiated occasionally since she does not wish to accept 'the divine call' and become a Maibi.

Sanahanbi is living with her two sons, husband, and in-laws. She has a small shrine near her home, at the extreme left side of the courtyard. There she worships Ekop Ningthou, the guardian deity of the village, the deity who chose her. Every morning she sanctifies the surrounding area of her shrine by mopping the floor. Then she makes the offerings to the deity with some red flowers and incense sticks on a plantain leaf. She makes this offering first thing in the morning before starting other household activities. She said red flowers are Ekop Ningthou's favourite flowers.There is a well-nurtured and

tradition. The earlier tradition created by the ancestors are brought back to the present constantly through this ceremony and thus, making the lives of the people, their tradition connected to the past, to their roots.

9 In the cases presented in this article, all names and identifying information has been altered to protect the anonymity of the concerned individuals.

maintained red China rose plant at the right side of their courtyard. She said it is good that she does not have to look for red flowers every morning for the offering at other people's places since China rose is not a seasonal flower and it blooms throughout the year. She also has some dietary restrictions. She does not eat fish with husks such as catfish, vegetables with vine such as pumpkin, cucumber, watermelon, etc. She also does not take garlic. It was informed that those food items are tabooed by the deity and she gets 'difficulties' if she consumes them, even unknowingly as that would 'anger' the deity. She said only by maintaining her lifestyle, she can cajole the deity which posseses her and avoid any mental and physical problems.

Tombi is another thirty-five year old married woman living with her husband, in-laws and her three children, two sons and a daughter. She is a Maibi. Her family members tried to suppress it by performing rituals with the help of a Maiba when she started to show the symptoms of possession for the first time around five years ago. They also consulted modern medical facilities from where she was referred to a renowned psychiatrist in a leading government hospital in Imphal. However, both attempts, performing appropriate rituals with a Maiba and psychiatric treatment could not yield any desired results. She narrated;

> *My family members did not like it when I first started showing symptoms of possession. They consulted a Maiba and performed many rituals to suppress the call. Everyone thought that it would be difficult for the family if I became a Maibi. We already had three children at that time, two sons and a daughter. But after a few months of treatment with a doctor, the possession became more frequent. All the family members began to worry about my children and me. They brought another senior Maiba from a distant village to perform some rites. For some time, it helped. Everyone in the family was happy. But after two/three months it started again. I cannot recall much of that day. Later my husband told me they could not stop me that night. It was a rainy night. They said I started pulling my hair, trembling, speaking in a different, unintelligible language. Next early morning, they got the news about me in the house of Ima Guru. That night I felt almost nothing despite running more than two hours to the house of Ima. Later I realized some small cuts in my leg. When I came back to my sense I was with my Ima Guru. Since then, I stayed for some months in their house with my mother in law and began my training.*

She stayed there at her mother teacher's house around seven months and continued her training of becoming a Maibi. During this period she learned the specific 'way of life' of a Maibi from her teacher over and above their professional skills. She also learned the ritual oration (Lairon), the use of ritual herbs, making of ritual offerings, songs, and different dance forms of the Lai Haraoba festival, chanting and Senmit Yengba, a kind of fortune-telling by using coins, etc. Over and above those, she also learned to harness and channel the energy of the particular Lai (deity) who possesses her. The ability to get possessed and get into trance according to their will was also learned and ritualized during this training phase. It is like developing a symbiotic relationship with the possessing deity. All interviewed Maibis informed that they had physical and mental problems at the beginning. These symptoms go away slowly as they started their training. It is said that they become full-fledged Maibis once they can control and channelize their mystic energy of possession. She also learned to use the most important divine instrument of their profession, a brass bell called Sharik. Thus, after her training period, her teacher took her to different places of the Lai Haraoba festival to observe and begin to practice her sacred duty. In that way, she gained her experience with her teacher. Eventually, with more experience and practice, she became a full-fledged Maibi. However, their relationship with her mother teacher is life-long. Here, her mother teacher is like her senior Maibi. She was also chosen by the same deity as hers years ago. But the new Maibi addresses her teacher as a mother teacher but not as a sister. Through the process of intensive training under this senior Maibi, the novice gets 'reborn' rather than pushing through to the next stage as a full-fledged Maibi. Thus, the novice considers her teacher

as a mother teacher who gave her a new birth instead of a sister who taught her. Their relationship continued to survive as mother and child even though they become independent full-fledged Maibis staying at different places serving different deities.

Spirit possession commonly refers to the hold exerted over a person by external forces or entities more powerful than her/himself. These entities may be ancestors or divinities, ghosts of foreign origin, or entities both ontologically and ethnically alien (Boddy 1994). Spirit possession has long been an important area of inquiry in anthropological researches across different cultures. The phenomena of possession can be discussed into three categories; the fusion in which the spirit becomes part of the individual sharing the mind and body of the person, the oscillation-type in which the spirit and the person, her/his self, trying to control over the mind and body and third type, which is also the most common case, where the spirit takes full control of the mind and body of the person. In majority cases of possession, another spirit or soul or deity enter an individual and express their will through the person. According to Bourguignon (1974), there are three types of possession; non-trance possession, trance possession, and ritual possession. In non-trance possessions, either the individual or a close observer believes that one is possessed, usually by the devil or a demon. In trance-possessions, an altered state of consciousness the identity of a god or spirit usually alternates with the individual's normal identity. In ritual possessions, trance possession occurs within a ritual, usually religious in nature. Trance possession and ritual trance possession occur in almost all societies. According to Bourguignon's study, trance possession and ritual trance possession have been observed in 90% of 437 cultures in America, Europe, Africa, Asia, the Caribbean and Pacific islands. She also distinguished possession into two forms; one form of possession causes a change in bodily functions, and the other form alters consciousness, awareness, the personality, and will of the individual (Bourguignon 1976).

Cohen (2008) discussed possession into two types, which she called executive and pathogenic possession. In the first case of executive possession the external agent or possessing spirit controls and takes over the beliefs, desire, behaviour, intentions, and actions temporarily. She/he is like an external manifestation of the possessing spirit or deity during this period of possession. The spirit or deity takes over the mind of the host, assuming control of bodily behaviours in this case. Whereas, in the second case, which is known as pathogenic possession, the presence of an external agent or spirit or deity causes physical and mental problems such as hallucination, depression, headache, loss of appetite and other symptoms which may persist indefinitely or until a diagnosis is made and the agent or possessing spirit is removed from the person. There are both executive and pathogenic possession syndromes among the Meitei peoples of Manipur. However, there is no clear cut boundary between those two among the Meiteis as Cohen (2008) maintained. For example, when a person gets possessed, she/he becomes an external manifestation of the spirit or deity. The possessing spirit or deity takes over the mind of the victim assuming control of bodily behaviours. In the case of the Lai Tongba also the possessing deity takes full control over the body and mind of the person. The presence of the deity or spirit also causes physical and mental problems such as hallucination, depression, headache, etc. to the person. Thus, it becomes a combination of both executive and pathogenic possession. What we observe among the Meitei people are similar to trance possessions described by Bourguignon (1974). However, there is no clear distinction between trance possession and ritual possession among the Meitei people as those trance possessions also occur within religious rituals among these people. These two types of possessions, trance possession, and ritual possession, are also thus found to be combined among the Meitei people.

Those previously discussed possession vases in Meitei society are not strictly related to mental disorders in the cultural context of the people even though they may be linked to one of the forms

of DSM categories from the perspective of modern medicine. Those cases cannot be grouped into universal classification systems as one of the types of already classified mental illness categories. They need to be studied and dealt with specifically in the light of their local cultural context. They become meaningless acts and inexplicable phenomena if we tear them from their cultural context. That is one of the reasons why biomedicine often fails to give the desired results in treating those cases among the Meitei people. Those cases are more profoundly perceived, understood, described and dealt with from the religio-cultural perspective by the Meitei people. Those traditional methods are far more acceptable and culturally understandable to the people when it comes to those possession cases because they are equipped with explanatory models and treatment methods which are emerged from the deep religio-cultural lives of the people. The patients are considered as chosen ones or victims, those who happen to come across those spirits or deities. The cause of the problem is, in this perspective, outside the body of the patient, in the supernatural realm. Thus, the cure is also outside the body and mind of the patient and it can be achieved through appropriate offerings, prayers, rituals, etc. to the supernatural elements.

The collective behaviour in the healing process of those culture-bound syndromes is also stronger in the traditional healing than biomedical treatment among the Meitei people. Moreover, the social stigma, the negative attitudes, and beliefs that motivate the people to fear, reject, avoid, even discriminate which are usually attached to the patients of mental health problems in psychiatric treatment under modern medical practice is also much lesser in the case of the traditional healing system. The victim or the patient has nothing wrong with her/his body or the mind in the cultural understanding of the people even though they are considered mentally ill people from the biomedical perspective. For these reasons, the patients, victims from the local cultural perspective of these possession syndromes generally do not seek the help of modern medical practitioners, including psychiatrists. It is also a firm belief of the majority of the people that these cases cannot be treated with modern medicine. Modern biomedicine gives adverse effects and makes the case worse as it was reported. So, the treatment of those cases largely lies in the hands of traditional healers and religious functionaries, the Maiba and Maibis of the indigenous religion. Thus, people are more inclined to the explanatory frameworks and treatment methods provided by traditional medicine which are more concurrent with the cultural understanding of the people.

Possession among the Meitei people can also be discussed in binary categories; malevolent and benevolent possession, spontaneous and induced possession. Schoembucher (1993:242) recognizes categorical pairs in the anthropological record and talks about 'controlled and uncontrolled possession, induced and spontaneous possession... desired and undesired, divine and demonic possession.' Lewis (2003) also develops two contrasting psychosocial loci of possession, which he labels 'central' and 'peripheral'. Central possession, generally highly valued, supports prevailing political, moral, and religious beliefs and views spirits as sympathetic to these. Peripheral possession, an invasion of evil, amoral spirits, is undesirable and dangerous. Thus, peripheral cults involve individuals of low status, particularly women. Possessing spirits are regarded as amoral in these cases that cause illness and misfortune. Whereas in the central cults, the possessed individuals are individuals of power and the possessing spirits are ancestral spirits or other recognized spirits whose aim in possessing is to support traditional morality. Smith (2006:597) also said, 'Possession is sharply divided between positive oracular possession and negative disease-producing possession...The two have occasionally converged, as literary and ethnographic evidence over several millennia amply testifies.' However, there is no such contrasting feature among the Maibis of Manipur. Possession among the Meitei people of Manipur does not fit neatly into either of Lewis's categories of 'central' or 'peripheral' possession or Smith's categories; rather, it combines elements of both. For example, there is no clear cut boundary between the voluntary and involuntary, induced and automatic, possession of high and low social rank, dangerous and desirable possession, oracular possession and negative disease-producing possession. Possession

occurring to a Maibi could also be dangerous if the person does not want to accept the sacred call of the deity and tries to suppress it by performing propitiating rituals. The majority of the Maibis are also females which give the impression of them being 'peripheral' but they also have characteristics of 'central' possession such as playing a lead role in religious festivals, being indispensable functionaries in Meitei indigenous religion, etc.

Possession cases among the Meiteis are also closely connected with the Meitei indigenous religion. Every spirit or divinities associated with the possession belong to the Meitei indigenous religious lore. Those possession cases are perceived as illnesses in Meitei society as well. However, not all possession syndromes are bad or undesirable in Meitei society. Possession in Meitei society can be grouped into two; possession by evil or malevolent spirits/deities and possession by benevolent spirits or deities. Possessions by malevolent spirits or deities are undesirable and harmful as the name suggests. However, possessions by the benevolent spirits give the concerned person a privilege to be an intermediary between mankind and deities, and spirits. By virtue of this, they may get a special status in Meitei society. In many cases, they also get the favour of the people for being the connecting link between the deities and mankind, serving deities on behalf of the people and their clients.

There is a need for a bridge between the collective presentation of the people and the biomedical perspective to avoid any cross-cultural understanding which would lead to a clash between cultural understanding and biomedical perspective. This cross-cultural misunderstanding yields unwanted results to the patients or victims in most of the cases while dealing with those culture-bound syndromes. Those cases arise because of the cross-cultural misunderstanding, the clash of local cultural understandings and that of modern biomedicine. They arise because people have their own understanding and treatment processes in their local cultural tradition which are different and incompatible with those understanding and treatment processes of biomedicine. Thus, those cases are illustrative of the theoretical conflicts between cultural understanding and biomedical perspective. Here, we see the importance of the health providers to be culturally responsive[10] to avoid a clash between spirits/deities and biomedicine, and between cultural perspective and modern medicine. If the healthcare providers are not aware of the cultural frameworks used by the patients to conceptualized and communicate about their ailments, then noncompliance, a patient's failure to comply with medical recommendations is more likely to occur. There is a need to minimize this gap between the patient's cultural understanding and that of modern medicine.[11]

Conclusion

Research on culture-bound syndromes serves strategically to tighten the integration between cultural and clinical knowledge while providing insights into issues of diagnostic universality and cultural specificity. The possession case is one of the forms of culture-bound syndromes. It is a human behaviour and an experience, associated with the belief that an individual is taken over by a spirit or deity or other supernatural entities that are found in many societies since the early period in different

10 Cultural responsiveness is conceptualized as the ability to respond to patient's care needs in a way that is congruent with the patient's cultural expectations.

11 This gap can be seen in many cases where the health providers and patients come from the different cultural backgrounds. The case of 'lost soul' among the Hmong people is also a good example. Biomedicine sees it as epilepsy, a disease, whereas, Hmong people perceive it as a divine calling, a spirit with healing potentials taking abode in a person. If this gap between patient's cultural perspective and that of biomedicine continues to expand, many times, the patient's life gets ruined by cross-cultural misunderstanding. How this cross-cultural misunderstanding can ruin a patient's life is strikingly demonstrated in the widely acclaimed book of Anne Fadiman 'The spirit catches you and you fall down' which was published in 1997.

forms with various associated beliefs. Classification systems such as the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Statistical Classification of Diseases and Related Health Problems (ICD) gave a list of mental health conditions including those possession syndromes and defined them as different forms of mental illness categories. However, it is not ideal to put all of those categories into a specific group without considering their cultural variations. In this article, the focus is given to one of the forms of possession cases among the Meitei people of Manipur, a north-eastern state of India. This particular type of possession is distinguished from other forms by its associated cultural meanings and significance. The 'chosen ones' get chosen and possessed by a specific deity, and the chosen individual becomes a medium, a connecting link between mankind and deities, and spirits. Possession syndromes among the Meitei people are conceptualized, understood, and dealt with from a religio-cultural perspective. And they are treated effectively by traditional medical practitioners and religious functionaries. Those traditional methods of treatments coupled with religio-cultural narratives and perceptions are more acceptable and effective among the Meiteis than modern health practices, including psychiatric therapies.

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Pulmonary Function Test of Coal Miners in Damini Colliery, M. P., India

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KEYWORDS

Coal workers, forced vital capacity, lung function, spirometry test, dust exposure

ABSTRACT

Coal mining is an ancient occupation, long-standing identification as being difficult and responsible due to injuries and disease. Spirometry predicts early damage of pulmonary system and respiratory chronic airway disorders. Exposure of coal dust affects various body systems. The present study focused on coal workers who are constantly exposed to air pollutants such as coal dust. Study was conducted among 400 male coal mine workers. Out of total mine workers, 205 workers were smokers and remaining 195 were non- smokers. Spirometry test revealed 9.75 % of workers were mild (26-30 years of age group), 20% moderate (31-35 and 36-40 years of age group), 6.25 % were moderately severe (41-45 years of age) and 12 % (from 46 years and above) of them was found severe obstruction stage among smoking workers. Non smoking workers were not affected by any types of obstruction, so there was significantly correlation between forced vital capacity and smoking workers. The results suggest that there is a need to improve their health and change their habits because it is more harmful to their health.

Introduction

The objective of coal mining is to extract coal from the ground. Mining is an ancient occupation, long believed to be responsible for injuries and illness. Technological advances nowadays have made coal mining more productive than it has ever been. Modern mining personnel must be trained in the use of highly skilled, well-complex, state-of-the-art equipment to keep up with technology and extract coal as much as possible. Coal mine dust is a mixture containing more than 50 substances (Agarwal, et al. 2015). Coal is a flammable sedimentary rock that is mostly formed 86.2% of carbon and hydrocarbons (Soutar et al. 2004). In mines, we have hardly any choice in deciding the properties of the body of ore or coal, the climate of the surface, the flow of flat water and / or gas, and the physical and chemical properties of the rock. (Wallace, et al. 2015). Coal mine workers face many types of crises that affect their health. The risk of injury is almost constant, with miners often injured by falling objects, equipment and roof collapses. Although the risk of bodily injury is a real concern for many, it is not the only danger that miners face. They also run the risk of respiratory damage through high levels of dust and other chemical particles present in deep coal mining facilities. They are also known as coal workers' pneumoconiosis (CWP) (black lung disease) classified as an industrial disease, which is the result of breathing dust from coal, graphite, or man-made carbon.

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Since the late 1950s, many studies have demonstrated connection among respectable dust exposure development of pneumoconiotic in coal mines diseases. At first, it was considered to be purely the result Exposed to silica present in coal mines, but further Studies indicate that severity was not related Silica content of coal but in total dust Lung (National Institute for Occupational Safety and Health 1995). Dust resides in the body and remains in the lungs where it builds up progressively over time if the person remains in contact for long periods of time as the lungs are unable to expel the dust. This can cause inflammation, fibrosis, and in worst cases necrosis. There are two types of pneumoconiosis of coal workers i.e. simple coal worker's pneumoconiosis (SCWN) and progressive massive fibrosis (PMF) sometimes referred to as complex coal worker pneumoconiosis. Coal pollutants also play a role in the development of chronic obstructive pulmonary disease (COPD), a lung disease characterized by permanent contraction of the airways. Between 2% and 5% exposure to miners Respectable coal dust will have a Category two or greater Coal Workers Pneumoconiosis, Based on their cumulative lifetime risk (Attfield & Moring 1992). Pulmonary function tests are a group of tests that determine how well your lungs are functioning. The tests determine lung volume, flow rate, lung capacity and gas exchange. This includes how capable you are of breathing and how effective your lungs are in taking oxygen to the rest of your body. Pulmonary testing combines with spirometry that measures the amount of breath inside and outside. A spirometry study was carried out to assess the prevalence of pneumoconiosis in miners working in difficult environments of coal mines, with a specific aim to address health and respiratory problems due to coal dust.

Tobacco smoking is the leading cause of premature deaths worldwide. India ranked second in the number of smokers after China, as an estimated 120 million Indian adults smoked here in 2010. Most tobacco smokers in India smoke the bidi, a small cigarette made of tobacco wrapped with a tendu leaf. In 2010 about 1 million people died in India due to smoking, out of which 70 percent in ages of 30-69 years. We examined smoking correlated by age, education level, duration of smoking and workplace environment.

Material and Method

The present study was conducted in Damini Colliery of South Eastern Coal Limited (SECL) which is situated in Sohagpur area approximately 20 kilometers from Burahar block of Shahdol district, MP. All the available workers were covered for the investigation purposively. Designed a semi-structured interview- scheduled for the collection of data of 400 male coal mine workers from different age groups. In the semi structured schedule collected demographical data viz. age, education, duration of mining work, smokers and non smokers, pulmonary function etc. All examination was done according to the Declaration of Helsinki (2013).

Pulmonary function tests

Pulmonary function tests were performed by standard laboratory methods using a spirometer. Spirometric indices help in the diagnosis of both obstructive and restrictive type of ventilatory defects. All these tests were performed on subjects at a comfortable and upright position. During the test, we put a nose clip on the subject's nose and encouraged him to do his best. Trials were repeated three times and the best matching results were considered for investigation. The parameters measured by the instrument were the forced vital capacity (FVC), forced Expiratory Volume in 1st second (FEV_1/ FVC). Normal FVC volume for men is 4.8 L. The forced expiratory volume (FEV) is the volume of air exhaled in a given time (usually 1second , referred to as FEV_1).Yet, another important parameter derived from spirometric data is the FEV1/FVC ratio, Normally, it is reached within 3-4 seconds. It

is a useful index for assessing the magnitude of airway obstruction. The results of spirometry test were done on different categories of workers.

The parameters calculated and recorded includes:

- $vFEV_1$ (Forced Expired Volume in 1 Second) measured in Litres, which is total amount of air exhaled in the 1st second.
- vFVC (Forced Vital Capacity) measured in Litres, which is the total amount of air exhaled during the FEV_1 test.
- $vFEV_1$/FVC is the ratio of the two measures (%) and gives an indication of airflow restraint.

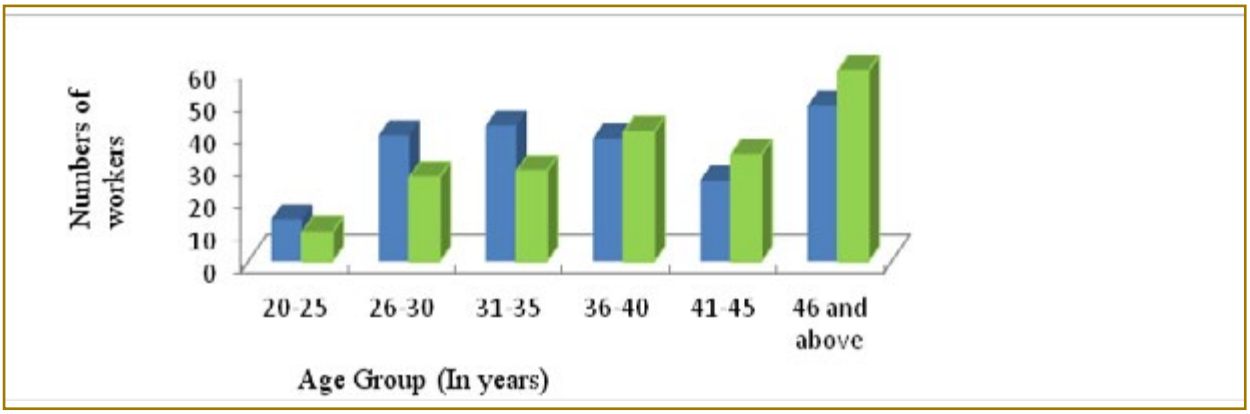
Statistical analysis

The analysis of Mean ± standard deviation for each of the parameter; the two groups were compared and correlated by SPSS software.

Result

In the present investigation out of all workers, 51.25 percent workers were smokers and remaining 48.75 percent were non- smokers. Figure 1 displays the graphical representation of smokers and non smokers according to age group. Figure showing 3.25 percent workers from the age group of 20-25 years were smokers, 9.75 percent workers from the age group of 26-30 years, 10.5 percent from the age group 31-35 years, 9.5 percent from 36-40 years, 6.25 percent from 41-45 years and 12 percent miners from 46 years and above were smokers, similarly 2.25 percent workers were non- smokers from the age group of 20-25 years, 6.5 percent workers from the age group of 26-30 years, 7 percent from the age group 31-35 years, 10 percent from 36-40 years, 8.25 percent from 41-45 years and 14.75 percent miners from 46 years and above were non smokers.

Figure 1: graphical representation of smokers and non smokers according to their age.



The information of pulmonary function tests were showing for each parameter FVC, FEV1 & FEV1/FVC percent in different category of workers were given in Table 1. Before explaining the result of subject workers, one should remember that spirometry tests are only the indications and yet do not necessarily lead to an exact diagnosis; but they correctly define the functional pulmonary abnormalities that are useful for assessing respiratory anomalies.

Commonly used indices, for the purpose of diagnosis are FVC, FEV1 & FEV1/FVC ratio. FEV1/

FVC is a valuable index for estimating the magnitude of airway obstruction. This is so, because timed volumes are reliant on vital capacity and size of body and are therefore variations. As is evident, expressing the amount of timed as the ratio of vital capacity reduces this variability FEV1 in obstructive in FVC in preventive diseases are the excellent parameters for surveillance the progression of these ailments. Spirometric norms are calculated by curves. In general, it is appropriate to record the maximum readings of forced expiratory volume for one second (FEV1), and forced vital capacity (FVC). All the pulmonary parameters shows in Table 2 for different class of workers, a critical examination of these outcome comes to the following observations:

- i) The predicted FEV1 % is commonly usage to grade severity in patients with restrictive, obstructive and mixed pulmonary disadvantage. Pellegrino et al., (2005) given data which can be utilize to rate the level of severity as shown in Table 1.

Table 1: Degree of severity of obstructive airway disease based on the forced expiratory volume in one second (FEV_1). (From ATS/ ERS 1991). Pellegrino et al, 2005, p.957

Degree of severity	FEV_1 % of predicted
Mild	≥ 70
Moderate	60 – 69
Moderately severe	50 – 59
Severe	35 – 49
Very severe	s < 35

** ATS = American Thoracic Society ; ERS = European Respiratory Society*

Table 2: Pulmonary function tests among smoking and non-smoking workers.

Age group of workers (in years)	Workers in different category	FVC (L)	FEV_1 (L)	FEV_1/ FVC (%)	Remarks	*p* Value
		Mean ±SD	Mean ±SD	Mean ±SD		
20-25	Smokers	2.95±0.01	2.26±0.01	76.61±1.02	Normal	0.879
	Non Smokers	2.67±0.01	2.33±0.02	87.50±1.06	Normal	
26-30	Smokers	2.33±0.01	1.65±0.02	70.81±1.08	Mild Obstruction	0.172
	Non Smokers	3.83±0.00	3.35±0.00	87.39±0.95	Normal	
31-35	Smokers	4.01±0.01	2.73±0.00	68.07±0.87	Moderate Obstruction	0.083
	Non Smokers	4.00±0.01	3.50±0.01	87.50±0.08	Normal	
36-40	Smokers	3.83±0.00	2.58±0.01	67.36±1.08	Moderate Obstruction	0.075
	Non Smokers	1.92±0.01	1.67±0.00	86.96±1.13	Normal	
41-45	Smokers	3.67±0.00	2.11±0.03	57.49±1.11	Moderately Severe Obstruction	0.033*
	Non Smokers	1.33±0.01	1.17±0.00	87.50±1.16	Normal	
46 and above	Smokers	4.17±0.00	1.86±0.01	44.60±0.96	Severe Obstruction	0.008*
	Non Smokers	1.83±0.10	1.23±0.02	67.21±1.21	Moderate Obstruction	
Total	Pearson's' correlation between FVC & Smokers/ Non Smokers is 0.046* significant at the 0.05 level (2-tailed).					

- ii) The values of Forced Vital Capacity (FVC) of different categories of workers were observed in the range between 1.33±0.01to 4.01±0.01, which is closer to normal (4.8L for males) value. The deduction in FVC values signifies that there is both restriction and obstruction types of

lungs severity.

- iii) Observed in all pulmonary parameters, the FVC and FEV1 /FVC have been observed significantly declines for the smokers. The reason for this may be that coal dust in combination among SO2, NOX and tobacco smoke, disrupting the air flow to a greater extends in the lungs.
- iv) The FEV1/FVC values in non-smoking workers from the age group of 20-25, 26-30, 31-35, 36-40 and 41-45 found normal (i.e., 86-87%) as compared to workers of age group 46 years and above (non-smokers) having Moderate Obstruction (FEV1/FVC values is near to 67%).
- v) In workers of age group 20-25 years having smoking habit, the FEV1/FVC values were near normal (around 77%).
- vi) Workers of age group 26-30 years and 31-35, 36-40 years having smoking habit, the FEV1/FVC values were found more significantly declining (around 70% to 67%) and were seen Mild Obstruction & Moderate Obstruction
- viii) These results indicate that coal mine workers especially those aged 46 year & above are more likely to be affected by respiratory diseases. Hence, adequate preventive measures to be ensure their safety and prevent health hazards needs to be done.
- vii) The value of FEV1/FVC for workers of age group 46 years and above of age having habit of smoking were found in the category of Severe Obstruction as compared to workers of age group 26-40 years (having Moderate Obstruction).
- ix) Townsend et al., (2011) also elicited the presence of airways obstruction when FEV1/FVC and FVC are below than the lower limit of normal (LLN).
- x) Age group of workers 41-45 years and 46 years and above of age having significantly correlates with declined FVC among smokers and non smokers.

Discussion

The current study stated that long-term exposure to coal dust emphatically less pulmonary function that were exposed to coal dust led to 15 years working experience showed a significant reduction in FVC, FEV1/FVC as compared to non-exposed workers. The causes behind these smokers have a greater chance to developing respiratory problems including the toxic environment of mines. This reduction is also increasing with the age of subjects. It is probable that this reduction of lung function is related to similar factors as exposure to air pollutants like carbon mineral composition may also include traces of elements such as manganese, arsenics, titanium, beryllium, uranium (Sterk et al. 1981). An average cumulative dust exposure, decrease in lung function of miners (Hnizdo et al. 2003). Breathing in coal dust is an important cause of pneumoconiosis in India (Naidoo et al. 2004), and some workers also suffer from silicosis. One of the vital risk factor for chronic obstructive pulmonary disease (COPD) is cigarette smoking. Looking at the published literature of the previous years, 15% of all cases of COPD are working related (Boschetto et al. 2006). Studies of White South African gold miners have shown that the forced expiratory volume in one second (FEV1), and the FEV1/FVC ratio, coordinated with height, age, smoking, tobacco chewing, this decreased along increasing cumulative respirable dust exposure in smokers and non-smokers. The cumulative risk is increasing prevalence of less than 80% forecast. Exposure to coal dust and sulphuric acid also causes miners respiratory disease, which arises from rock waste or deteriorates in piles and when exposed to water and oxygen and also exposure of bed sulphur present in mines (Thomas et al. 2014). The current investigation also observed that 46 years & above of age group has introduce severe obstruction in the lungs. The reason for this is clearly due to the fact that in the underground mining operational environment, the extent of pollutants participated with coal dust is curbed in a limited area, as link-up to open cast environment, where the

pollutants in relatively low concentration spread to the open air.

Conclusion

Numerous epidemiological studies have shown that prolonged exposure to particles adversely affects on health. While so many preventive measures from technological point of view are largely adopted, remedy based on the clinical aspects may be a time-consuming way to control the disease. Findings of the study are summarized below:

- The devastation of lung function was significantly associated with duration of dust exposure, aging and smoking status.
- Reduction in lung function was significantly correlated by increasing age of workers in both smokers and non- smokers.
- Workers not take deep breathing, avoiding prolonged exposure to dust in workplace environment and control breathing with exercise.
- Development of a biometric database of feeble class of workers will help diagnosis of the disease.
- Besides health check-ups at regular interval, strategy to improved heath monitoring workout duration service period and workers age may be further helpful in early diagnosis of disease.

The present study reveals that miners experience significant stressful environment due to dust exposure.

Taking all the points into consideration, it can be concluded that the environment around coal workers needs improvements and they also need to control the smoking habit because exposure to dust and smoking causes more harm to their health.

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Role of Mobile technology in assisting decentralization process among Paniya tribes in Wayanad, Kerala

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KEYWORDS

Mobile technology, de-centralisation, tribes, Paniya, Kerala

ABSTRACT

There has been much discussion amongst academics about the potential of using technology to facilitate greater interaction between the state and its citizens. Associated with the welfare of tribal community government of India has initiated various plans targeted at the uplift of the tribes to the fore front of the society. The present study examines the interaction of the state with the Paniya tribes in Wayanad from the perspective of Communicative Ecology. It discusses the 'social layer' wherein the community is connected to different local government institutions that facilitate 'decentralized governance'. The 'technical layer' addresses the incorporation of technologies, particularly mobile technology, in communication practices that connect the processes to the 'social layer'. It is found that the 'technical layer' has mobilised activities occurring at grass root level and provides new solutions to the issues in ways that was not possible before the advent of mobile technologies in this community. The study further suggests the formation of a mobile app based project that facilitate bottom up conversations, where Paniyas tribal people are able to communicate their needs and grievances to the state. The project aims at receiving feedback from the community related to the implementation of various schemes and enable fruitful analysis of day to day issues of the disadvantaged which helps in the proper execution of the 'tribal welfare programmes' of the state.

Introduction

Information and Communication Technologies, particularly mobile phones have been integrated into the lives of people around the world both in the developed and the developing countries. The spread of mobile phones in low-income countries has spurred widespread enthusiasm and many have predicted that technology will enhance socio-economic development by facilitating the circulation of information. Horst and Miller assessed the impact of mobile phones within the Jamaican 'communicative ecology' (Horst and Miller, 2005:11).

This article examines how 'decentralized governance' works in tribal lives, specifically the Paniyas, with the incorporation of mobile phones from the perspective of Communicative Ecology. This approach advocates that technology can be studied only within the system it is a part of.

Decentralized governance is a process, a meaningful step towards participatory democracy. Under 'decentralization', functions, functionaries and finance are transferred from higher level governments

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to local level governments which remain accountable to people. Hence decentralization is recognised for its unique potentiality for improving the delivery of public services at the local level (Oommen, 2008; GoK, 2009). Decentralization in the form of grama sabha, ward sabha and Oorukutams brings government closer to the people spatially and institutionally The present study focuses on the communication practices happening through technology mediation (mobile phones) within the local bodies of the state working among the tribal sector, particularly among the Paniya tribes residing in Wayanad, Kerala.

Paniyas

It is interesting to note that Indian constitution uses the term 'tribal folk' instead of 'tribe' meaning "people living in a particular place, who enter into marriage relationship among themselves, who have no specific skills in any work, traditionally or ethnically ruled by adivasi leaders, who speak their own language, have own beliefs, customs and tradition". Tribes in India are not a homogeneous group as their culture and values are distinct from each other. The scheduled Tribes (STs) constitutes1.14 percent of total population in the state of Kerala (Census, 2001). Tribes are considered as an excluded community in terms of main economic and non-economic indicators such as, literacy rate, average years of schooling, retention rate and availability of basic amenities (Shyjan & Sunitha, 2008). The tribal population is more concentrated in the district of Wayanad, which houses nearly 37 percent of the total ST population in Kerala. The main demographic feature of Wayanad is the existence of a large scheduled tribe population. The district has cross sections of population from all religions. The present study is focused on the 'Paniya' tribes who constitute 22% of the total tribal population in Kerala, which belongs to one of the backward categories of the tribes in the state.

Anthropologically, the Paniya are agricultural laborers classified as 'Aborigines-Predial, slaves' (Nair, 1911). Ippimala, near to the Tamaracherry Ghats, was believed to be the original home of Paniyars in Wayanad. They work as labourers for the other communities in Wayanad , and the term 'Pani' in 'Paniyar' means 'work'.

Communicative ecologies

An ecological framework called 'Communicative Ecology' – is appropriated in this study. Communicative Ecology Theory is an approach to understanding communication among and between people and groups, from a holistic perspective (Foth and Hearn, 2007). The holistic perspective of communicative ecologies provides a framework for researchers to understand the communication that occurs within the group and between groups, which focus as the term 'ecology' suggests on the broader field of the communication of groups of people who are connected.

To effectively apply the conceptual lens of communicative ecologies, Foth and Hearn (2007) suggest the division of the research foci into three layers: the technology and media layer, the discursive layer and the people layer (Foth and Hearn, 2007; Hearn et al. 2009; Tacchi et al., 2003). The technology and media layer describes the means used to communicate between the different people and groups and includes all communication devices, distribution systems and the technical systems that enable them. The discursive layer is ideational and has a focus on the actual content of communication, in particular the stories, understandings, beliefs and symbols that define the culture and practices involved; here tribal culture and the decentralization governance. The people layer describes the different people and groups who are involved, their social relationships and the social institutions and structures that connect them.

The role of mobile technology in local governance through the lens of communicative ecology theory

Communicative ecologies can be thought of as complex systems that evolve through time. The operation of complex systems in physical, biological, social and economic domains is now well accepted. The technical layer of a communicative ecology affects the evolution of the social layer (Hearn et al., 2003). This is because technologies mediate both the discursive and social layers of communicative ecologies. They can in contradictory ways accelerate change and at other times inhibit change. Here the article specifically focuses around the mediation of mobile technology in the social layer constituting Paniya settlements and local bodies of the government. Figure 1 represents the involvement of local government sectors in the decentralization process among the tribal community in Wayanad.

Figure 1: Representation of decentralization governance surrounding a tribal settlement.

In order to foster a closer public service delivery system spatially and institutionally to the disadvantaged community, a decisive step was taken by the Government of Kerala towards the goal of democratic decentralization in the Annual Plan 1997-98, the Government of Kerala handed over most of the development programmes to local bodies. In Kerala, institutions of public service like primary health centres, schools, anganwadis, and veterinary institution have been transferred to local governments. The decisions of a local government should reflect the felt needs of the community. Baiju (2011) explores the development and welfare programmes addressing poverty, land alienation, exploitation, education, health care, employment, and social development and in their reach out to these target groups and discussion of policy implications and the strengthening of service delivery. The decentralized planning process enabled induction of views of local tribes through the structure of oorukuttams.

Methodology

Semi-structured interviews were conducted with respondents from five different settlements in Wayanad. Stratified sampling technique was adopted. Two members from each settlement who maintained constant contacts with tribal promoters and who involved actively in the activities of local government were selected as participants. Data incorporated secondary sources as well by consulting government document, relevant books, e-journals and research reports that examined the implications of development and welfare programmes in the tribal settlements in Kerala.

Findings

People layer: Oorukoottams

The foremost thing required in strengthening the services delivery mechanism in tribal settlements is harmony between local development planning and the functioning of oorukoottom (Baiju, 2011). Each panchayath conduct a oorukoottam, a meeting comprising Panachayat President, Panchayat Secretary, promoters from the ward and individual members of the households from every settlement

in a ward. A oorukoottam occurs in each ward at least once a year. Many of those who deserve assistance are sidelined in the process and services rendered are criticized for lack of transparency. Elected ward members and oorukoottam leaders are often subjected to pressures to yield to individual requests. In respect to the functioning of an oorukoottam, the involvement of gramasabha and tribal extension leaders, tribal promoters should be made to ensure their participation in the discussion on project formulation and implementation. More participation of tribal households in designing of projects/ schemes helps to reflect the felt needs of the different tribal settlements that assist in decision making in the meeting.

Although oorukoottams do the needful for the tribal settlements as per the request of the residents, it were not effective in the maintenance of the facilities arranged in the settlements. For instance the tribal settlements are yet not relieved from the problems they face of water scarcity. In response to the requests presented in oorukoottam a 'well' was constructed in the area but it was not worthy to use for long.

> *We asked for constructing well here. But it cannot be used now. It's so deep and water can't be used to drink. Now we are getting water through Panchayat. We asked for street light but it's not granted* (Female, 33).

The houses constructed under the 'Life Mission Scheme' are criticized for the lack of cultural sensitivity. Residents havenot maintained their concrete houses, which reflects their lack of 'owning feeling' for these houses. Also some of the members in these houses desired to have better facilities to which government do not provide funding, as one of the respondents said,

> *We need better facilities in house. I asked for this. But they said that for improved facilities we have to spend money by our own. I cannot find enough money for this. My husband won't spend any money for the family* (Female, 32).

Field interviews show that respondents are not satisfied with the remedy measures of the state government. Most of them last for a short period only and won't serve for a longer period.

Government and non government organizations

Thr tribal community is hesitant and not willing to come out into society due to their incompetence factors such as low educational attainment and completely different livelihood (Binoj, Sujatha & David, 2018). However the involvement of government and non-government organizations forms the ecology of communication, which connects them to the people of other communities in the region. Interventions of these institutions made them aware of factors such as education, stop bad and addictive habits like alcohol consumption. Participation in the religious gatherings of other communities has also made a shift in their cultural practices and lifestyle.

The more interactive the respondents with the outside society such as involvement in organizations like church, kudumbasree and thozhilurappu scheme of Kerala government, the more they possessed and maintained a mobile phone with them. Although among the elderly people, possessing a mobile phone is out of initial curiosity, maintaining and having a frequent use of the mobile phone people betters their participation in social and religious gatherings. Mobile phones help them to keep their relationship with church pastors, school and anganwadi teachers, health workers and also with government employees working in the tribal development department. Outside of the direct community experiences, mobile phones mediate their social relations in society that adheres to the ideals of modernity. Among the Paniyan tribes these mediated relationships continue to be through oral communication rather than textual or digital since most of them make calls alone and do not use

messaging. Mobile phone usage reflected the existing structure of social relationships.

Technical and media layer

Various institutions now employ mobile technologies to mediate the communication between actors for the implementation of tribal welfare schemes. Tribal promoters use smart phones and tabs to record their field visits and surveys. In the education sector also mobile technology widely helps teachers to connect with parents and other government employees such as tribal promoters. Various employees of the state in primary health centre, anganwadis (pre-school system in Kerala), schools, and tribal department are connected to one another through this technology they provide assistance and information to one another to carry out the entrusted task by concerned authorities.

There had been regular interventions from the government in the welfare of tribes in the sectors of education, health and housing through implementing various schemes. Promoters (members of the tribal community mostly women) are trained to reach each settlements to check the progress of implemented schemes and also take socio-economic surveys. Promoters are given tabs for recording their surveys and training is also given through workshops conducted at regular intervals. All of them are provided with a tab for work purposes. Two apps are installed : one is regarding the socio-economic survey of tribal families, where they have to enter the details of each person in a family about his/her health, employment, education and all. Once collected, they have to send it to officers, which they have not done yet, since they have been learning on that. It's only about five months that they have been provided with tabs. They have to return them after the job. They have an app for daily work recordings, which they have to send to authorities. For calling purposes they get them recharged monthly. No official numbers are there. One of the promoters respond about the training they received to operate tabs.

> *Last May there was a three day programme in DIET, Batherry and officers from various government departments talked to us. One session was entirely about operating the tabs they provided. It is for job purpose alone, provided with a sim card and Govt bears the recharge expenses. We only call for professional purposes in it, unless we have to make an urgent personal call.*

Discursive layer

There exists a belief that tribal students, particularly Paniya students, are incompetent and uninterested in studies and also that parents have no interest to educate them as well. Paniya families are blamed for excessive alcoholic consumption and regular fights happening in the households. It's observed that interaction with mainstream society has improved awareness among the Paniyas for a need of formal education and to turn away from destructive habits. One of the residents said,

> *Here in this settlement there was vaattu (a process of preparing alcohol at home) in every home about ten years ago, later Kudumbasree came and then it got stopped finally* (Female,33).

Kudumbasree is a state project involving women from neighborhood households who come together every week to encourage their activities such as micro-entrepreneurship, cattle farming, vegetable gardening and such small enterprises. This is a project which actively runs throughout the state of Kerala. In time or a major crisis or disaster the state government used to support economically backward families by releasing fund through Kudumbasree.

One of the tribal settlements in Wayanad has a few families that asserted they educated their children and their children were doing their bachelor degree course. Interviews with their parents

revealed that their relationship with mainstream society motivated them to educate children.

> *I wanted my boys to get educated. The family where I used to go for work has children of my age. I want my children also to learn like them* (Female, 35).

Instead of sidelining tribes citing their backward state there is a need to address the real issues concerning them. This is possible by way of embracing them as our neighbors and fellow beings with an inclusive approach alone.

Tribes need to be given awareness of self-sustainment and to demand their rights provided to them. Awareness classes should be given to parents to educate their children and how education serves the community to sustain in the future. Proper monitoring of classes in schools can find reasons for the backwardness in the performance of tribal students. Also at schools classes are rendered in the tribal languages for students to comprehend better and mentor teacher are appointed for this purpose. One of the mentor teachers responded,

> *I have a whatsapp group of mentors in Wayanad which helps me to do the work effectively. I get updates about the students details from different settlements* (Female, 25).

Conclusion

Mobile phones facilitate bottom up conversation for the effective functioning of the people layer. Implementing a new paradigm, that is the incorporation of mobile technology that support bottom up conversation in the tribal welfare measurements, can assist in the formulation of schemes, implementation, monitoring and evaluation that ensure the involvement of tribal people in support of responsive, transparent, accountable public service delivery system. Oorukootams can bring forth a system of public delivery system ensuring a reasonable and quality service to the disadvantaged tribal community. Challenges in implementing tribal welfare schemes and policies can be overcome through a responsive and bottom up conversation from the tribal settlements.

Mobile technology can be used to co-ordinate the activities involved in institutions concerned with the welfare of Paniya tribes such as schools, anganwadis, health centres, regional tribal department and the residents in the settlement. The study here suggests the formation of a mobile app-based project that facilitates bottom up conversations, where Paniyas tribes are able to communicate their needs and grievances to the state. The project aims at receiving feedback from the community related to the implementation of various schemes and enable fruitful analysis of day to day issues of the disadvantaged which helps in the proper execution of the 'tribal welfare programmes' of the state. Introduction of mobile phones with media facilitating interactive service such as whatsapp shall serve as a mechanism to follow up the beneficiaries of different schemes and enquire whether the assistance has really helped them or improved their lives. The promoters, school and anganwadi teachers and health workers, oorukoottam leaders and the members should be made accountable for this sort of practice.

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Use of mid-upper arm circumference and arm-to-height ratio to estimate overweight and obesity among girls aged 5-14 years

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KEYWORDS

mid-upper arm circumference, arm-to-height ratio, school-aged, BHCP girls

ABSTRACT

Overweight and obesity are major public health concerns that have plagued individuals worldwide pertaining to all age groups. The occurrence of this issue has been skyrocketing among children and adolescents since last few decades. Anthropometric indices such as body mass index (BMI) have always proved to be one of the best parameters in estimating overweight and obesity. However, alternatives such as mid-upper arm circumference (MUAC) and arm-to-height ratio (AHtR) have recently been observed to yield as potential tools in estimating overweight and obesity especially among children and adolescents. The current paper presented a cross-sectional study among Bengali Hindu Caste Population (BHCP) school-aged girls (5-14 years). Height, weight and MUAC were measured. BMI and AHtR were subsequently calculated. The presence of overweight and obese subjects was evaluated according to World Health Organization (WHO) 2007 population references of 5-19 years. Receiver Operating Characteristic (ROC) curve analysis was conducted to check the validity of MUAC and AHtR in determining overweight and obesity among age-groups (5-9 years and 10-14 years). The findings suggest that MUAC and AHtR have potential of proxy measure of overweight (including obesity) among the subjects.

Introduction

The prevalence of overweight and obesity among children and adolescents has become a daunting public health issue worldwide (Choukem et al. 2017). It is rather one of the most serious public health challenges of the 21st century. Reviews had elaborately pointed out several factors that trigger overweight and obesity among school-aged children (Sahoo et al. 2015; Xu and Xue 2016; Tran et al. 2019). The factors listed mainly include genetic, basal metabolic rate, dietary, activity level, environmental, socio-cultural, psychological, etc. Obesity among the children and adolescents has several short-term and long-term adverse effects on health (Reilly and Kelly 2011) as this significantly increases the risk of premature mortality, morbidity (e.g., diabetes, hypertension) and other related outcomes.

Studies regarding overweight and obesity among children and adolescents are of high-priority since overweight (and obese) children and adolescents have a greater tendency to become obese as adults compared to children with normal body mass index (BMI). Moreover, these adults face several challenges in exterminating few kilograms that they had gained during their early life (Pandita et al. 2016). Henceforth, pertinent early-stage diagnosis and treatment intervention for preventing overweight and obesity among this population is vital for curbing the risks of obesity-related complications.

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How do we distinguish between normal and overweight/obese children?

Since a child's BMI varies with age and sex, different age-specific cut-offs have been developed separately for both sexes. Children are termed as being overweight or obese if they have a BMI above the cut-off level for the given age and sex. In accordance with the age and gender-specific BMI criteria used by the World Health Organization (WHO 2007), obesity was defined as BMI > +2 standard deviation (SD) and overweight as BMI > +1 SD. Although there are different methods of pointing out overweight and obese children and adolescents, the sole purpose of mentioning this criterion is that the present study had utilized this criterion for data analysis.

Can mid-upper arm circumference (MUAC) do the same job?

As stated by the term itself, MUAC refers to the measurement of circumference of the mid-upper arm. It is the circumference of the right upper arm (conventionally, left upper arm) measured at the midpoint between the tip of the shoulder and the tip of the elbow (between the olecranon process and the acromium). MUAC measures the circumference of the upper arm which is made up of lean muscle and fat tissue (Brambilla et al. 2000) in addition to cross-section of bones and blood vessels. A recent observational, multinational cross-sectional study inferred that MUAC strongly correlated with adiposity indicators in both sexes (Chaput et al. 2017). Several other studies documented that MUAC has outperformed as an accurate yet simple and widely available indicator of overweight and/or obesity and its related complications in children and adolescents for clinical and surveillance applications (Ozturk et al. 2009; Ma et al. 2015; Kulathinal et al. 2016; Jaiswal et al. 2017; Mramba et al. 2017; Asif et al. 2018; Oyhenart et al. 2019; Talma et al. 2019). A growing body of evidences have also documented that ratio of mid-upper arm circumference-to-height (AHtR) is another accurate tool to screen childhood and adolescent obesity (Lu et al. 2014; Rerksuppaphol and Rerksuppaphol 2017; Jayawardene et al. 2018).

Why is the issue of overweight and/or obesity a major concern for girls?

Several studies concluded that the overall prevalence of overweight and obesity was more in girls compared to boys (Pangani et al. 2016; Desalew et al. 2017). This could be due to the reason that during and/or before the onset of puberty girls have the tendency to accumulate fat in their bodies (Meharda et al. 2017).

Keeping all the issues in mind, the present study aimed to frame the following objectives:

i. to assess the use of MUAC and AHtR for identification of overweight (including obese) children and adolescent girls;
ii. to find whether AHtR performed better than MUAC in discriminating overweight and obese subjects;
iii. to find the best cut-offs of MUAC and AHtR in discriminating overweight (including obese) subjects.

Materials and methods

Area of study

The present cross-sectional study was conducted among 1,000 school-going girls belonging to the Bengalee Hindu Caste Populations (BHCP), aged between 5-14 years and residing under Siliguri sub-division of Darjeeling district, West Bengal. Ethnically, the BHCP is a Bengali-speaking endogamous caste

group of West Bengal and faithful to Hinduism. They are probably a blend of Dravidian and Mongoloid ethnic groups with a strain of Indo-Aryan blood among the higher caste groups (Das Chaudhuri et al. 1993). The study was conducted on four government secondary schools situated at the heart of Siliguri town of West Bengal, India. The selection of the schools was based on population strength, easy road connectivity and accessibility. The study was conducted in accordance with the ethical guidelines for human experiments, as laid down by the Helsinki Declaration of 2000 (Touitou et al. 2004).

Anthropometric measurements recorded

The anthropometric measurements were recorded following the standard techniques of Singh and Bhasin (1989). Height of the subjects was measured with the aid of anthropometer rod (GPM type, Galaxy Informatics, New Delhi) to the nearest 0.1 cm. Their body weight was recorded (with minimum clothing) using a portable weighing machine (Libra®, Edryl-India, Tiswadi, Goa) to the nearest 0.5 kg. MUAC was measured on the left arm of each subject placing Gullick measuring tape (Galaxy Informatics, New Delhi, India) midway between the tip of the acromion and the olecranon process to the nearest 0.1 mm. BMI and AHtR were calculated utilising the above records as follows:

BMI (kg/m^2) = weight in kilograms/(height in metres)^2

AHtR= MUAC (in cm)/height (in cm)

AHtR is unitless since it is a ratio.

A most commonly used indicator of precision or rather accuracy index (Perini et al. 2005) called Technical Error of Measurement (TEM) was utilized. For the calculation of intra-observer TEM, height, weight and MUAC were recorded from 50 BHCP school-going girls, other than those selected for the study. The measurements were taken thrice on each individual. The TEM was calculated by the formula of TEM [$TEM=\sqrt{(\sum D^2/2N)}$ where D=difference between the measurements and N= number of individuals measured] (Goto & Mascie-Taylor 2007).

The coefficient of reliability (R) which estimates the proportion of variance in a measured population (that is free from measurement error) was subsequently measured by the following equation:

$R= \{1-(TEM)^2/ SD^2\}$, SD=standard deviation of the measurements.

Very high values of R (> 0.975) were obtained for the intra-observer TEM analysis. All the values of R were appreciably higher than the accepted cut-off value of 0.95 as suggested by Ulijaszek and Kerr (1999). Hence, the anthropometric measurements recorded were considered to be reliable and reproducible and the TEM values were not incorporated for further statistical consideration.

Statistical Analysis

Evaluation of overweight and obesity was made in accordance with the age- and gender-specific (here, females) BMI-for-age z-scores (BAZ) using WHO Anthro-plus software. WHO Anthro-plus software is a computer program which converts anthropometric data into z-scores of the indices i.e., WAZ (Weight-for-age z-scores), HAZ (Height-for-age z-scores) and BAZ (BMI-for-age z-scores), taking age and sex into consideration using WHO 2007 population reference of 5-19 years. Girls whose BAZ <-5 and >5 were considered as outliers (in other words, whose z-scores exceeded flag limits)

were excluded. Owing to such cases, 8 out of 1,008 were excluded. This yielded a final sample size of about 1,000. For further statistical analysis, Statistical Package for Social Science (IBM SPSS Statistics, version 23.0, SPSS Inc., Chicago, IL) was utilized using relevant statistical constants and relevant statistical tests. The data obtained was tabulated to elucidate descriptive statistics. Receiver operating characteristic (ROC) analysis was used to test the ability of MUAC and AHtR in determining the subjects identified as overweight and/or obesity by BAZ. Here, any subject defined as overweight or obese was coded as 1 and others as 0.The area under the curve (AUC) is a measure of accuracy which is indexed from 0 to 1. The categories used to summarise accuracy in ROC analysis were as follows: 0.9–1 as 'excellent', 0.8–0.9 as 'good', 0.7– 0.8 as 'fair', 0.6–0.7 as 'poor', 0.5–0.6 as 'fail' and <0.5 as worthless test. A value of $p < 0.001$ was considered statistically significant. Sensitivity and specificity were also noted down. The optimal cut-off points were determined by the point of convergence of sensitivity and specificity, by simultaneously maximizing the two. The Youden's Index (J) which is the maximum potential effectiveness of a biomarker was used to determine the optimal sex-specific cut-off levels of MUAC and AHtR to determine overweight and/or obese girls. The likelihood ratios were also calculated. The positive likelihood ratio was calculated by dividing sensitivity by (1-specificity) and the negative likelihood ratio was calculated by dividing (1-senstivity) by specificity.

Results

The subjects were divided into two categories i.e., age-specific child (5-9 years) and adolescent (10-14 years) girls. The groups were formed based on previously published MUAC guidelines (WHO 2009).

Characteristics of the subjects

A total of 1,000 subjects (500 subjects aged 5-9 years and 500 subjects aged 10-14 years) were included in the study. Table 1 depicted the descriptive statistics of the subjects. The mean age of the subjects was 7.42±1.25 years and 12.17±1.38 years for 5-9 years and 10-14 years respectively. The mean MUAC of the subjects was 19.27±2.99 cm and 20.98±2.78 cm for 5-9 years and 10-14 years respectively. The mean AHtR was .159±.019 and .145±.02 for 5-9 years and 10-14 years respectively.

Figure 1 yielded the ROC curve of MUAC and AHtR for the prediction of subjects with higher BAZ. The AUC for MUAC was 0.925 (95%CI: 0.884-0.966; S.E.: .021; p<0.001) and 0.919(95%CI: 0.884-0.953; S.E.: .017; p<0.001) for age-groups 5-9 and 10-14 years respectively. The AUC for AHtR was 0.928 (95%CI: 0.888-0.967; S.E.: .020; p<0.001) and 0.922(95%CI: 0.887-0.958; S.E.: .018; p<0.001) for age-groups 5-9 and 10-14 years respectively.

Table 2 bears the best cut-offs extracted on the basis of maximum Youden's index. MUAC≥ 18.75 cm and ≥22.75 cm proved to be the best cut-offs in discriminating subjects with higher BAZ for age-groups of 5-9 and 10-14 years respectively. AHtR≥ 0.169 and ≥0.157 proved to be the best cut-offs in discriminating subjects with higher BAZ for age-groups of 5-9 and 10-14 years respectively.

Discussion

The mean MUAC in the present study was found to be more or less similar to that of other studies (Lu et al. 2014; Rerksuppaphol and Rerksuppaphol 2017). However, the mean is quite higher than the mean MUAC found in the study of Asif et al. (2018). The mean AHtR for both the age-groups in the present study was found to be higher compared to other studies (Table 3).

Further analysis revealed that MUAC≥ 18.75 cm has best sensitivity (97.44%) and moderate specificity (64.66%) and AHtR≥0.169 has good sensitivity (84.62%) and good specificity (88.72%) in discriminating children (of 5-9 years) with higher BAZ. Additionally, MUAC≥22.75 cm with better sensitivity (88.89%) and specificity (83.11%) and AHtR≥ 0.157 with better sensitivity (86.11%) and better specificity (86.49%) proved to be the best cut-offs in discriminating adolescents (of 10-14 years) with higher BAZ. The findings are in consistent with those of other studies (Table 4, Table 5) where it can be found that the stated cut-offs bear excellent AUC values with high sensitivity and specificity.

The present study found that AHtR had greater AUC compared to MUAC in both age groups [(.928 vs .925) for 5-9 years and (.922 vs .919) for 10-14 years] which eventually proved that AHtR had better predictive ability to discriminate the subjects with higher BAZ compared to MUAC. This finding corroborates with that of Rerksuppaphol and Rerksuppaphol (2017).

Likelihood ratios are used for assessing the value of performing a screening/diagnostic test. Likelihood ratios above 10 and below 0.1 are considered to provide strong evidence to rule in or rule out diagnoses respectively in most circumstances (Jaeschke et al., 2002). In other words, the larger the positive likelihood ratio, the more informative are the tools (here, MUAC and AHtR) and the smaller the negative likelihood ratio, the more informative are the tools. In the present study, positive likelihood ratio for MUAC was 2.76 (for 5-9 years) and 5.26 (for 10-14 years) and for AHtR was 7.50 (for 5-9 years) and 6.37 (for 10-14 years). The negative likelihood ratio was 0.04 (for 5-9 years) and 0.13 (for 10-14 years) in case of MUAC while for AHtR, the ratio was 0.173 (for 5-9 years) and 0.160 (for 10-14 years). Moreover, it is also mentioned that findings whose likelihood ratios equal to 1 lack diagnostic value (McGee, 2002). This further proves that MUAC and AHtR have proved to be better tools in predicting children and adolescent girls with higher BAZ.

Conclusion

The present study concluded that both MUAC and AHtR could be proposed as simple and easy tools to discriminate overweight (including obese) children and adolescent girls. The study also revealed that AHtR showed a better predictive ability (in comparison to MUAC) in classifying subjects with higher BAZ. However, more studies are required to confirm this.

Limitations

As with the majority of studies, the design of the present study is subjected to few limitations. Firstly, the study was conducted on a small though appropriate sample size. Secondly, socio-economic and demographic variables were not taken into consideration. Thirdly, pubertal status was not considered at all. Fourthly, the body fat was not measured directly and was rather evaluated in the terms of the BMI classification of the WHO (2007). Lastly, the study was based upon school-aged girls who possibly belong to affluent families which eventually manifests that the findings of the present study would be imprecise to apply for the whole BHCP girls of the given age-groups.

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Tables and Pictures

Table 1. Descriptive statistics of the subjects.

Age-groups (years)	No.	Age in years Mean (SD)	BAZ Mean (SD)	MUAC in cm Mean (SD)	AHtR Mean (SD)
5-9	500	7.42(1.25)	-.56(1.89)	19.27(2.99)	.159(.019)
10-14	500	12.17(1.38)	-.35(1.37)	20.98(2.78)	.145(.020)

Table 2. Cut-off point, sensitivity, specificity and likelihood ratios of MUAC and AHtR for detecting overweight (including obese) subjects.

Age-groups	Cut-offs	Sensitivity	Specificity	Positive likelihood ratio	Negative likelihood ratio
5-9 years	MUAC ≥ 18.75cm	97.44	64.66	2.76	0.04
	AHtR ≥0.169	84.62	88.72	7.50	0.17
10-14 years	MUAC ≥ 22.75cm	88.89	83.11	5.26	0.13
	AHtR ≥0.157	86.11	86.49	6.37	0.16

Table 3. Comparison of mean MUAC and AHtR of children and adolescent girls from different studies.

Study	Location	Sample size	Age-groups (yrs)	Mean±SD	
				MUAC (cm)	**AHtR**
Lu et al., 2014	Qinhuangdao, China	1372	7-12	20.2±3.2	0.143±0.019
Rerksuppaphol & Rerksuppaphol, 2017	Thailand	1788	6.00-12.99	19.3±3.7	0.143±0.022
Asif et al., 2018	Pakistan	3900	5-14	17.49±2.52	-
Present study	West Bengal, India	500	5-9	19.27±2.99	0.159±0.019
		500	10-14	20.98±2.78	0.145±0.020

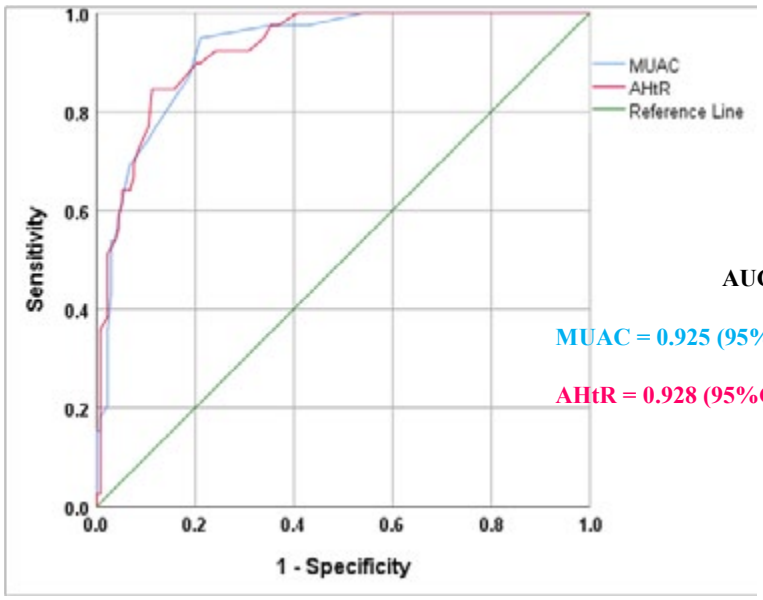
Table 4. Comparison of MUAC cut-offs with sensitivity and specificity from different studies.

Study	Location	Age-groups (years)	Sample size	Cut-offs (cm)	Sensitivity (%)	Specificity (%)	AUCs
Craig et al., 2014	Rural South Africa	5-9	235	18.3/18.85	97.1/94.1	79.1/88.1	0.96
		10-14	269	22.45/22.8	92.9/88.1	78.0/81.1	0.94
Lu et al., 2014	Qinhuangdao, China	7-12	1372	18.9-23.4	83.6-94.5	81.7-94.0	0.934-0.975
Rerksuppaphol & Rerksuppaphol, 2017	Thailand	6.0-12.99	1788	18.0-23.2	73.5-82.5	87.7-95.6	0.905–0.931
Asif et al., 2018	Pakistan	5-14	3900	16.38-20.57	57-90	55-94	0.733-0.912
Present Study	West Bengal, India	5-9	500	18.75	97.44	64.66	0.925
		10-14	500	22.75	88.89	83.11	0.919

Table 5. Comparison of AHtR cut-offs with sensitivity and specificity from different studies

Study	Location	Age-groups	Sample size	Cut-offs	Sensitivity (%)	Specificity (%)	AUCs
Lu et al., 2014	Qinhuangdao, China	7-12	1372	0.15	85.4	87.8	0.935
Rerksuppaphol & Rerksuppaphol, 2017	Thailand	6.0-12.99	1788	0.145	87.6	86.6	0.975
Present Study	West Bengal, India	5-9	500	0.169	84.62	88.72	0.928
		10-14	500	0.157	86.11	86.49	0.922

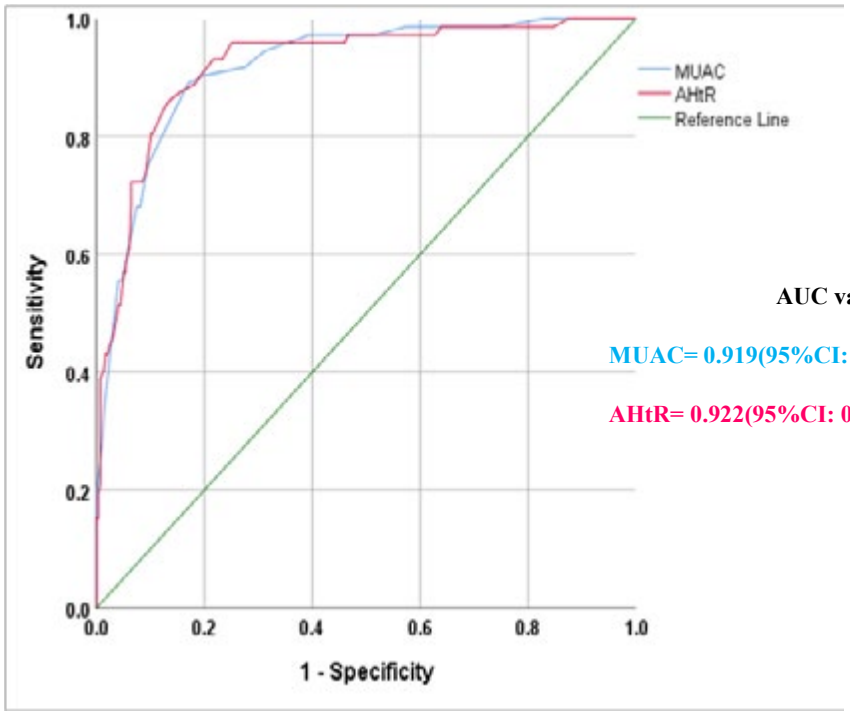
Figure 1. ROC curve analysis showing ability of MUAC and AHtR to predict overweight (including obese) subjects



AUC values for 5-9 years

MUAC = 0.925 (95%CI: 0.884-0.966; S.E.: .021; p<0.001)

AHtR = 0.928 (95%CI: 0.888-0.967; S.E.: .020; p<0.001)



AUC values for 10-14 years

MUAC= 0.919(95%CI: 0.884-0.953; S.E.: .017; p<0.001)

AHtR= 0.922(95%CI: 0.887-0.958; S.E.: .018; p<0.001)

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Socio-demographic Profile and Reproductive Health Status of Slum Women of Bhilai, Chhattisgarh

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KEYWORDS

Developing, India, Reproductive, Slum, Women

ABSTRACT

A slum is a residential area with substandard housing that is poorly serviced and/or overcrowded, and therefore unhealthy, unsafe, and socially undesirable. The aim of the present study is to explore the socio-demographic and reproductive health status of slum dwelling women of Bhilai, Chhattisgarh. A cross-sectional study was carried out to collect data of 388 ever married slum dwelling women of Bhilai city of Chhattisgarh, India. The age ranges from 18 to 45 years. Two slums; Tankimaroda or Maroda tank" and Ruabandha were selected. Purposive stratified sampling method has been adopted to collect the data. Miscarriage was high among studied women. Still birth showed increasing trend with increased age of pregnancy. Percentage of abortion was also high (10.05 %). Majority (97.42 %) of the women are not aware about their proper hygiene. There were significant age-group differences (p=0.007) in the delivery type of the studied women. Education has significant impact on monthly income (0.05); age-at-first birth (0.01); place of delivery (0.01); age at menarche (p=0.01); first marriage age (p=0.01) and first conception age (p=0.01). The present study helps researchers to design their future research in other slums, that will help policy makers and planners to develop plan accordingly, for overall betterment of the State and nation.

Introduction

A slum is a residential area with substandard housing that is poorly serviced and/or overcrowded, and therefore unhealthy, unsafe, and socially undesirable (Harris 2009). Slums grow because people are attracted from the countryside by the opportunities for work afforded by major cities. These workers have insufficient resources to live in the city itself, so they settle on the urban periphery, often in dilapidated and unhealthy conditions. Cities and their wider urban settlements in developing economies are among the most unequal in the world in terms of income, health and well-being (UN-Habitat 2008a).

Gender inequalities in slums have a cyclical effect. Women and girls are often denied formal education, which also affects their children's health, development and skills. Women in many informal settlements spend several hours each day collecting water from a remote source, time which could be invested in building capabilities through education and training (UN-Habitat 2008b). The formation of slums is closely associated with rural-urban migration. People have migrated there from mostly rural areas. Low incomes in rural areas, river erosion of agricultural land, and job opportunities in the city are the main factors behind the migration (Crank and Jacoby 2014). With the rise of migrants in slum and squatter districts who often settle in cheap, substandard housing, a rise in urban

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concentrations of poverty and inequality is predicted and will likely exceed the 32% of the world's urban population (924 million people in 2001) that lives in slums on extremely low incomes (Smith 2000; UN-Habitat 2009).

For the first time since independence, the absolute increase in population is greater in urban areas than in rural areas. The rural–urban distribution is 68.84% and 31.16% respectively. The level of urbanization increased from 27.81% in the 2001 Census to 31.16% in the 2011 Census, while the proportion of rural population declined from 72.19% to 68.84%. The slowing down of the overall growth rate of the population is due to the sharp decline in the growth rate in rural areas, while the growth rate in urban areas remains almost the same (Census 2011).

The slum population was reported from 31 states/union territories in India. Four states/union territories namely, Manipur, Dadra and Nagar Haveli, Daman & Diu and Lakshadweep did not report any slum population in their cities/towns. 2613 towns reported slum population out of 4041 statutory towns. In 2001, 42.6 million populations were lived in slums in India which increased to 65.5 million by 2011. This constituted 17.4% of the urban population of the States/Union Teritories in 2011 (Kumar 2011). Slums have risen dramatically since 1947. There were mainly two reasons for slum development. One is the partition of India and the other one is the Industrial revolution after the independence. Before 1950 slums were predominantly found around mills, factories etc. They were mostly inhabited by industrial workers in one room tenements (Bandhopadhyay and Agrawal 2013). Recently, Indian towns/cities have witnessed a significant increase in their development activities in the form of renewed urban planning and construction, establishment of industries and trade, expansion in transport and communication system, availability of their infrastructure facilities in the post-independence era (Kumar 2015). The condition of the slums in India human well-being is broadly conceived to include not only consumption of goods and services, but also the accessibility of the basic necessities for a productive and socially meaningful life to all sections of the population (Tiwari and Das 2018).

In view of the above background, the purpose of the present study intends to understand the socio-demographic and reproductive health status of womens of the slums of Tankimaroda or "Maroda tank and Ruabandha" of Bhilai city located in Durg district of Chhattisgarh.

Material and Methods

As per the objectives of the study, the present study is cross sectional in nature. Durg and Bhilai nagar are twin cities of Chhattisgarh. Durg district is an adjoining district of Raipur which is state's capital. Tankimaroda is a slum of Bhilai city, with a population of 9929 (2131 households). There are 3 ICDS centres, one primary school, one high school and one higher secondary school. There are 7 ASHA workers. Similarly, Ruabandha Slum is a notified slum of Bhilai city, with a population of 9527 (2221 households) (Municipal Corporation 2013). There are 02 ICDS centres, one primary school and one middle school. There are 11 Asha workers.

Ethical approval was obtained from the DRC (Departmental Research Committee) of the Department of Anthropology and Tribal Development. Written consent was also obtained from block and local authority before the commencement of the study. Verbal permission was also informed and consent from the participants and their in-laws were taken before study. And it has been said to the subjects, that at any time during data collection, subjects were allowed to freely withdraw them from

the study. The investigators had no conflict of interests to declare.

A total of 388 women were considered for the study, the age ranges from 18 to 45 years. The age is divided into 05 age-groups i.e., 18-23; 24-29; 30-35; 36-41 and 42-45. Socio-demographic data like education, occupation, monthly income, age, sex, and reproductive health data like miscarriage, stillbirth, fertility/abortion, hygienic practices, delivery type, place of deliver and education were collected from the studied women. All the data were collected through door to door visit and took the help of anganwadi centres (Integrated Child Development Scheme) using a structured questionnaire. The respective age of women has been recorded from Aadhar Card provided by the Government of India. During fieldwork, all the concerned persons of the household and studied women were informed about our motive, and verbal consent was obtained from them. Data were collected by the trained research scholar (B).

Descriptive statistics were used to analyze socio-demographics and reproductive data. The age-group differences in the mean values of all the discrete variables were compared using chi-square and the statistically significant relation between socio-demographic variable and reproductive characters were shown by correlation statistics. The statistically significant value was considered at $P < 0.05$. All statistical analyses were done using the Statistical Packages for Social Sciences- 21 (IBM SPSS Statistics, IBM Corp. Released 2012, IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp).

Results

Table 1. Age-group wise distribution of occupation among the studied women

Age-group (Years)	N (%)	Occupation					Total	Chi-square
		House wife	Wage labour	Govt. Job	Private job	Others		
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
18-23	54 (13.9)	50(12.89)	0 (0.00)	0 (0.00)	2 (0.52)	2 (0.52)	54 (13.92)	X2=42.98; df =16; p =0.001
24-29	112 (28.9)	81 (20.88)	3 (0.77)	0 (0.00)	14 (3.61)	14 (3.61)	112 (28.87)	
30-35	92 (23.7)	58 (14.95)	11 (2.84)	2 (0.52)	6 (1.55)	15 (3.87)	92 (23.71)	
36-41	94 (24.2)	51 (13.14)	14 (3.61)	0 (0.00)	11 (2.84)	18 (4.64)	94 (24.23)	
42-45	36 (9.3)	23 (5.93)	3 (0.77)	0 (0.00)	2 (0.52)	8 (2.06)	36 (9.28)	
Total	388 (100)	263 (67.78)	31 (7.99)	2 (0.52)	35 (9.02)	57 (14.69)	388 (100)	

**others – Business, Self Employed*

Table 1 shows the age-group wise distribution and frequency of the studied women. Here the highest frequency of women were observed at the age-group of 24 to 29 years that is (28.9%) followed by 36 to 41 years (24.2 %); 30 to 35 years (23.7 %); 18 to 23 years (13.9 %) and similarly lowest frequency were observed at the age-group of 42-45 years, that is (9.3%) respectively. Similarly, Table I also shows the age-group wise distribution of occupation among the studied women. Out of the 388 studied women 263 (67.78%) them were belongs to the house wife category and the highest frequency is observed at the age-group of 24-29 years i.e., 20.88 % and similarly least frequency in occupation status were observed for the women in Government jobs that is 0.52 %. There were significant age-group differences (X^2 =42.984; df = 16;p =0.000) in the occupational status of the studied women.

Table 2. Age group wise distribution of miscarriage, birth/still birth and abortion status among the studied women

Miscarriage 18-23 N (%)	Age group (Years)						Chi-Square
	24-29	30-35	36-41	42-45	Total		
	N (%)	N (%)	N (%)	N (%)	N (%)		
No conceive	17 (4.38)	18 (4.64)	25(6.44)	18(4.64)	7(1.80)	85 (21.91)	X^2=9.911; df =8; p=0.271
Yes	7 (1.80)	23 (5.93)	20(5.15)	16(4.12)	5(1.29)	71 (18.30)	
No	30 (7.73)	71 (18.30)	47(12.11)	60(15.46)	24(6.19)	232 (59.79)	
Total	54 (13.92)	112 (28.87)	92(23.71)	94(24.23)	36(9.28)	388 (100)	
Birth Status/ Still Birth							
No Birth	26 (6.70)	42 (10.82)	50 (12.89)	44 (11.34)	16 (4.12)	178 (45.87)	X^2=17.153; df =8; p =0.29
Yes	3 (0.77)	4 (1.03)	5 (1.29)	13 (3.35)	3 (0.77)	28 (7.21)	
No	25 (6.44)	66 (17.01)	37 (9.54)	37 (9.54)	17 (4.38)	182 (46.90)	
Total	54 (13.92)	112 (28.87)	92 (23.71)	94 (24.23)	36 (9.28)	388 (100)	
Abortion							
No Conceive	17 (4.38)	18 (4.63)	25 (6.44)	18 (4.63)	7 (1.80)	85 (21.91)	X^2=9.051; df =8; p=0.338
Yes	4 (1.03)	13 (3.35)	10 (2.58)	7 (1.80)	5 (1.29)	39 (10.05)	
No	33 (8.51)	81 (20.88)	57 (14.69)	69 (17.78)	24 (6.19)	264 (68.04)	
Total	54 (13.92)	112 (28.87)	92 (23.71)	94 (24.23)	36 (9.28)	388 (100)	

Table 2 presents the age-group wise distribution of miscarriage among the studied women. Out of 388 studied women high percentage 18.30 % of women have miscarriage, in which the highest frequency is observed at the age-group of 24-29 years i.e., 5.93% and the lowest percentage 1.2 % of miscarriage is observed for the age-group 42-45 years. There were no significant age-group differences with respect to miscarriage among the studied women. It also depicts the age group wise distribution of birth and still birth status among the studied women. It has been clear that out of 388 studied women the percentage of still birth increase with the increased age of pregnancy. The table shows that at the age –group of 36-41 years, the highest percentage of still birth (3.35%) has been observed and the chances of still birth is least at the early adulthood 18-23 years (0.77%) than any other age group. There were no significant age-group differences with respect to birth among the studied women. Table 2 also shows the abortion status of studied women. It has been clear that 10.05 % women had gone for abortion in their reproductive age among the studied subjects. At the age group of 24 to 29 years, maximum of the women go for abortion as per the data available. There were no significant age-group differences with respect to abortion among the studied women.

Table 3. Age-group wise distribution of hygienic practices among the studied women

Hygienic Practices	Age group (Years)						Chi-Square
	18-23	24-29	30-35	36-41	42-45	Total	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
Yes	3 (0.77)	3 (0.77)	4 (1.03)	0 (0)	0 (0)	10 (2.58)	X2=6.500; df =4; p=0.165
No	51 (13.14)	109 (28.09)	88 (22.68)	94 (24.23)	36 (9.28)	378 (97.42)	
Total	54 (13.92)	112 (28.87)	92 (23.71)	94 (24.23)	36 (9.28)	388 (100)	

Table 3 presents the age-group wise hygienic practices practised by the studied women. It has been clear from this table that majority of the women (97.42 %) are not aware about their hygiene. Only 2.58 % of them practiced regular hygiene. This is one of the major reasons behind

the reproductive tract infection (RTI), urinary tract infection and other infectious disease around reproductive organs. It has also been clear that the late adults (42 to 45 years) who were at the shore of menopause and the women belonged to the early adulthood (18 to 23 years) are least concern for their hygienic practice as compared to their age group women.

Table 4. Distribution of delivery type age-group wise among studied women

Delivery type	Age group (Years)					Total	Chi-square
	18-23	24-29	30-35	36-41	42-45		
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	
No delivery	5 (1.29)	10 (2.58)	11 (2.84)	14 (3.61)	6 (1.55)	46 (11.86)	X2=13.97; df =4; p=0.007
Normal delivery	28 (7.22)	65 (16.75)	73 (18.81)	79 (20.36)	30 (7.33)	275 (70.88)	
Caesarean delivery	9 (2.32)	29 (7.47)	15 (3.87)	9 (2.32)	5 (1.29)	67 (17.27)	
Total	37 (9.53)	94 (24.23)	88 (22.68)	88 (22.68)	35 (9.02)	388 (100)	

Table 4 shows the distribution of delivery type age-group wise. It has shown that the prevalence of normal delivery (70.88 %) is very high as compared to caesarean delivery (17.27 %). It is very good sign that the rate of normal delivery is high i.e., the health status of studied women is good. But, still the prevalence of caesarean delivery is high. The women belonged to age-group of 24-29 years have the highest frequency (7.47 %) as compared to other age-groups for caesarean delivery and the lowest frequency found at the age-group of 42 to 45 years (1.29 %). There were significant age-group differences (X^2 =13.97; df = 4; p =0.007) in the delivery type of the studied women.

Table 5. Correlation of education with occupation, monthly income, hygienic practice, age-at-first birth, place of delivery and abortion among the studied women

Correlates/ Variables	Education	Occupation	Monthly income	Hygienic practice	Age-at-first birth	Place of delivery	Abortion
Education	1	0.024	0.504*	-0.088	0.368**	0.469**	-0.217**
Occupation		1	-0.131	0.019	-0.026	-0.061	-0.002
Monthly income			1	.[a]	0.064	0.407	-0.299
Hygienic practice				1	-0.050	-0.089	-0.015
Age-at-first birth					1	0.418**	-0.163**
Place of delivery						1	-0.106
Abortion							1

**. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed). a. Cannot be computed because at least one of the variables is constant.*

Table 5 shows the association of education with occupation, monthly income, hygienic practice, age-at-first birth, place of delivery and abortion among the studied slum women. It has been clear from the table that education has greater positive significant impact on monthly income (0.05); age-at-first birth (0.01); Place of delivery (0.01) and it has negative significant relation with abortion (0.01).

Table 6. Correlation of education with Menarche age, First Marriage age, First Conception age and Pill Use among the studied women

Variables	Education	Menarche age	First Marriage age	First Conception age	Pill Use
Education	1	0.263**	0.577**	0.399**	-0.081
Menarche age		1	0.081	0.104*	-0.041
Education	1	0.263***	0.577**	0.399**	-0.081

Variables	Education	Menarche age	First Marriage age	First Conception age	Pill Use
Menarche age		1	0.081	0.104*	-0.041
First Marriage age			1	0.706**	-0.055
First Conception age				1	-0.062
Pill Use					1

**. Correlation is significant at the 0.05 level (2-tailed).*
***. Correlation is significant at the 0.01 level (2-tailed).*

Table 6 shows the association of education with Menarche age, First Marriage age, First Conception age and Pill Use among the studied slum women. It has been clear from the table that education has greater positive significant impact on Menarche age (p=0.01), First Marriage age (p=0.01), first Conception age (p=0.01 except for pill use. Thus it has been clear that educated women experienced early menarche than less educated women. Similarly, the age at first marriage and age at first conception has been also earlier than less educated mother among the studied slum women and it has negative significant relation with abortion (0.01).

Discussion

Developing countries like India presently suffer to the enormous growth of urbanization and the urbanized area similarly carried the problem of slum. Presently, Indian population is 1/6th of the world population. Accelerating urbanization is forcefully effecting the transformation of Indian society. Nearly 21.68% of the urban population lives in slum. Rapid growth of industrialization creates enormous employment opportunity. It attracted the lower income peoples and the unskilled labors from the rural area (Das et al. 2012). Considering today's poor urban environmental quality in India, the majority of families affected by urban development projects are located in slum areas which are under consideration for resettlement and/ or rehabilitation (Bandhopadhyay and Agrawal 2013).

Slum women have various deficiencies, they are anemic. Malnutrition and nutritional anemia are the major health problems of slum women (Hassan and Shukla 2013). In this study we have presented, described and correlate different socio-economic variables with reproductive status of the studied slums women of Bhilai, Chhattisgarh. These issues of women are yet to be holistically redressed from both a research and an implementation viewpoint. Not only that, most of the health surveys mainly focused to reduce or eradicate child and women health issues like National Family Health Survey (NFHS), United Nations Development Program (UNDP) etc. Therefore, it is hoped that the data presented here not only will provide valuable insight for future research but also will help inform governments, NGOs and the public and private agencies at large towards improving our understanding of slums to reduce their problems related to socio-demographic and reproductive health.

Conclusion

Thus, the present study revealed that the Slum women of Tankimaroda or Maroda tank" and Ruabandha of Bhilai, Chhattisgarh experienced a very high percentage of miscarriage and still birth among the studied slum women. One of the major drawbacks of the studied women is that they are not at all concerned for their hygiene, which leads to so many infectious diseases. Education of the women played vital role in shaping socio-demographic and reproductive health of the studied women. However, we can say that the women of the studied slums have are in the worst conditions as to their access to socio-demographic and reproductive health perspectives.

Similar data of various slums in same States and different States of our country should be collected and analyzed so as to get a better understanding of the burden of health issues and their causatives will be clearer and slum specific planning will be developed by the concerns as and when required. Because it is well known that endemic disease is more common in the slums than in the rural and urban cities.

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Nutritional Status and Lifestyle of the Oraon Scheduled Tribe Population of North 24 Parganas, West Bengal, India

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KEYWORDS

BMI, physical activity, wealth index, alcohol consumption, indigenous population

ABSTRACT

Malnutrition (underweight and overweight) is regarded as a risk factor for several cardio-vascular morbidity and mortality. Indigenous groups, due to their daily hardship and poverty, generally remain underweight, but recent studies reported that prevalence of overweight is increasing among them. However, the studies are still scanty. In view, the aims of the study are to know the nutritional status in terms of BMI values and to find out the association between socio-economic status, lifestyle variables with underweight and overweight status of the Oraon of North 24 Parganas, West Bengal. Findings reveal the presence of both underweight and overweight in the population where lifestyle variables play a significant role. The study will contribute to explore the lifestyle of this indigenous group and its role in eradicating malnutrition.

Introduction

Eradicate malnutrition in the recent decade is an important aim for the countries of South-East Asia including India (WHO 2016), as it is well reported that malnutrition in terms of both underweight and overweight are rapidly increasing especially in several low and middle income countries of the region (Popkin et al. 2019) which further causes morbidity and mortality due to several non-communicable diseases globally (UNSCN 2018) and in India (Joy et al. 2017). Further, Indians are facing an increased risk of non-communicable diseases at a lower nutritional status (BMI) compared to white Caucasians (Behl and Misra 2017). To cope with the problem the Government of India formulated a number of strategies (NITI Aayog 2017), but before implementing any action, there is an utmost need to know the prevalence of malnutrition and its associated reasons, especially among the indigenous population, as they still are largely marginalized from mainstream societies with their exclusive way of living. However, data on them were largely lacking.

Globally, the body mass index (BMI) is used widely as a measure of nutritional status including underweight and overweight/obesity (WHO 2004). Using BMI values several studies reported the prevalence of obesity among Indian populations (Little et al. 2016; Girdhar et al. 2016; Chauhan et al. 2015; Rajkamal et al. 2014). These studies reported that the prevalence of overweight and obesity was relatively low in India compared to western countries, except in some urban and high socio-economic groups, while underweight status was high (Wang et al. 2009). However, prevalence of

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overweight status was reported to be increasing and spreading from urban to rural as well as from the rich to rural poor (Sengupta et al. 2015). Again, recent studies reported coexistence of underweight and overweight/obesity status among the Indian population (Dutta et al. 2019; Ravishankar 2012). These studies mostly examined association of socio-economic factors with nutritional status, but largely ignored lifestyle related behaviour. Little and colleague (2016) although documented that economic status, physical activity patterns and substance use habits contribute to the prevalence of underweight and overweight/obesity status among Indians, they omitted ethnic variability between communities, which also causes differences in malnutrition status (Mungreiphy et al. 2012). Again, India is the home of several indigenous population who, according to Sajeev and Soman (2018) are more vulnerable to malnutrition than other populations.

The indigenous populations of India were mostly underweight (Gautam and Adak 2006), but prevalence of overweight was increasing among them and the prevalence greatly varies across different communities (Kshatriya and Acharya 2016). Several other studies also documented malnutrition status and other anthropometric traits among different indigenous populations living in rural areas (Maken and Verte 2016; Ghosh 2015; Das and Roy 2013; Mungreiphy et al. 2012; Chakrabarty and Bharati 2010) and few living in urban areas (Das and Roy 2013; Chakrabarty and Bharati 2010; Ghosh and Bharati 2006). However, the associated reasons for their malnutrition were largely unknown. In view of the above, the objective of the present study are to know the (1) prevalence of underweight and overweight/obesity status in terms of BMI values and (2) to find out the association between socio-economic status, lifestyle variables with underweight and overweight status of the Oraon tribes of West Bengal, India.

Materials and Methods

Population and area

This cross sectional study was restricted to a single ethnic group, the Oraon, to eliminate the possible ethnic/genetic effects on health traits. The Oraons are the 2nd largest scheduled tribe population (6, 43,510 Oraon) of West Bengal (Census of India 2011). They originally are a Dravidian speaking, endogamous ethnic group with specialized knowledge in agriculture (Roy 1915). Few scholars (Chakraborty et al. 2011; Datta Banik 2008) reported nutritional status and body composition of this community, but the associated reasons were largely unknown.

The Oraon of the present study, live in the rural and urban areas of Barrackpore subdivision, North 24 Parganas, West Bengal, India. In the rural area, three small settlements under Naihati police station and in the urban area five small settlements under Khardah and Ghola police station of Barrackpore subdivision were identified because these settlements were exclusively occupied by Oraon. All households in both the areas were completely enumerated for the collection of socio-demographic data. No statistical sampling was adopted for the selection of the households/individuals because it would create suspicion in the field and would hamper data collection. Prior rapport with the members of the community was established before data collection and they were well informed about the aim of the study. All adults were approached for anthropometric and lifestyle data, but these data had been collected from the willing participants after taking written consent. The study was conducted in compliance with the Scientific Ethical Committee for Protection of Research Risks to Humans of the parent institute (ISI) of the authors. To avoid inter-observer error one of the authors (TKC) collected the entire data. Finally, data were collected from 475 adult individuals including 148 males and 327 females.

Data

Data include demographic, socio-economic, habitual physical activity, food habit, substance use habit and anthropometric (only height and weight) traits of each individual. Demographic data include age, sex, area of living, marital status; that were collected using the well tested household census schedule. Socio-economic data include educational attainment, occupational pursuits and economic status and that were collected using the standard questionnaire/schedule. Data on household characteristics and household assets were collected following a standard questionnaire. The National Family Health Survey 3 (IIPS and Macro International 2007) method was used to calculate wealth index score. [Wealth index is an indicator of the level of wealth that is consistent with expenditure and income measures]. Wealth index score for each household/individual was then divided into two parts on the basis of median value to assess economic status. Data on habitual physical activity include physical activity level, occupational activity, leisure time activity and sleeping hours which were collected using well tested questionnaires. Physical activity have been assessed in terms of energy expenditure, calculated considering the type and duration of each activity (Bouchard et al. 1983). The total energy expenditure (TEE)/day have been calculated by adding energy expenditure of all the activies in a day. Data on food habit variables include total energy consumption calculated by adding cereal consumption all day long following dietary guidelines for Indians (Gopalan et al. 1971), number of days of consumption of fruits and vegetables in a week, consumption of animal protein like fish, egg, meat in a week, milk products consumed in a week and street food consumption in a week, which were collected using well tested questionnaires. Data on substance use include tobacco consumption (smoking and chewing) and alcohol consumption, and that were collected using well tested questionnaires. Anthropometric data including height and weight were collected following standard instruments and technique (Weiner and Lourie 1981) and body mass index (BMI) values have been calculated using the following formulae—

$$\textit{Body Mass Index } (kg/m^2) = \textit{Body weight } (kg.) / \textit{Stature } (m)^2.$$

Classification of data

Individuals were classified based on sex. All other data considerations and classifications used in the study are given in table 1 (see Table 1).

Analysis of data

Descriptive statistics of BMI values across socio-demographic and lifestyle groups were calculated. Multinomial logistic regression was performed taken underweight category and overweight category as dependent variable where the normal weight category was taken as reference. All the socio-demographic and lifestyle variables were considered as independent variables. Age, wealth index score, total energy expenditure and total energy consumption were added in the analysis as continuous independent variables and all the other variables were considered as categorical variables. The association between independent and dependent variables were presented in terms of odds ratios (OR) and 95% confidence interval (CI) level. The data were analyzed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA).

Results

Table 2 (see table 2) shows demographic, socio-economic and lifestyle characteristics of the studied group. Mean (SD) age of male was 39.86 (14.12) years while mean (SD) age for female was 35.12 (12.92) years. Males (rural 58.11% and urban 41.89%) and females (rural 52.59% and urban 47.40%) live both in rural and urban areas. Most individuals of either sex were married (77.03%

males and 73.70% females). A higher percentage (63.51% males and 71.56% females) of individuals were involved in sedentary occupation like service, business, student and household work of females, but a good percentage (36.49% males and 28.44% females) were manually active. Most individuals were literate (89.19% males and 86.85% females), however, a good percentage of males and females were non-literate (10.81% males and 13.15% females). The Wealth Index Score of the group was categorized into two groups i.e. low and high based on median value (0.673033). Most individuals (86.49% males and 76.76% females) reported that they were occupationally active. However, a good percentage (43.92%) of males and most females (59.63%) were inactive in leisure time. Sleeping hours was adequate for the majority (88.51% males and 85.63% females) of the individuals. Mean (SD) values of total energy expenditure was 2656.72 kcal (738.09 kcal) for males and 2261.03 kcal (564.06 kcal) for females. Mean (SD) values of total energy consumption was 2065.07 kcal (839.73 kcal) for males and 1625.60 kcal (592.02 kcal) for females. Majority (91.22% males and 91.44% females) consume fish/egg/meat in a week. Most (64.86% males and 62.39% females) consume fruits in a week, although a good percentage of individuals (35.14% males and 37.61% females) do not consume any kind of fruits in a week. Most individuals (52.70% males and 51.07% females) do not consume milk/milk product in a week. Most individuals (66.89% males and 63.30% females) consume street food like egg roll, chowmin, paratha, fried snacks in a week. The majority (70.27% males and 63.91% females) do not consume adequate (four) meals in a day. Comparatively, a higher percentage of males (39.19%) was made of smokers compared to very little percentage of females (5.20%). A good percentage of males (58.11%) was made of tobacco chewers compared to a little percentage of females (23.24%). A good percentage of males (75.00%) consumed alcohol compared to a little percentage of females (18.35%).

Table 3 (see table 3) shows nutritional status in terms of BMI values of the studied group of either sex. Most participants (69.59% males and 62.08% females) had a normal weight. However, a good percentage of males were mild (14.19%) to moderate underweight (3.38%) and a good percentage of females were mild underweight (11.31%), followed by moderate underweight (3.98%),and severe underweight (3.36%). The percentage of overweight individuals (11.49% males and 15.29% females) was also notable.

Table 4 (see table 4) shows descriptive statistics of BMI values by socio-economic and lifestyle characteristics. Mean differences were significant between the socio-economic groups like areas of living ($p < 0.05$), occupational status ($p < 0.01$) and wealth index score ($p < 0.01$) for males. In the females, significant mean differences exist between the socio-economic groups like areas of living ($p < 0.05$), marital status ($p < 0.01$), wealth index score ($p < 0.01$) and lifestyle categories viz. occupational activity ($p < 0.01$), leisure time activity ($p < 0.05$), street food consumption ($p < 0.05$), smoking status ($p < 0.01$) and chewing tobacco status ($p < 0.05$).

The result of multinomial logistic regression showing the association between underweight and overweight status with socio-economic and lifestyle variables is presented in Table 5 (see table 5). In this analysis, the normal weight was taken as reference category. In respect of the normal weight category, the underweight category was found to be significantly associated only with the total energy expenditure (OR= 0.998, $p < 0.001$), which indicates that individuals with a higher total energy expenditure were less likely to be underweight. The overweight category was significantly associated with sex such as male (OR= 0.036, $p < 0.001$), sedentary occupations (OR= 3.866, $p < 0.05$), wealth index score (OR= 2.093, $p < 0.001$), total energy expenditure (OR= 1.003, $p < 0.001$), inadequate sleeping (OR= 0.182, $p < 0.01$) and alcohol consumption (OR= 2.964, $p < 0.05$) with reference to the normal weight category. In the overweight status the values of odds ratio indicate that being male and

inadequately sleeping were less likely whereas sedentary occupations, wealth index score, total energy expenditure and alcohol consumption were more likely to be associated with an overweight status.

Discussion

This study attempted to explore prevalence of underweight and overweight/obesity status and its association with socio-economic and lifestyle variables of the Oraon tribes of West Bengal, India. The findings reveal that the majority of the individuals belong to the normal weight category, but a notable percentage of males were mildly underweight, whereas females were mildly to severe underweight and overweight. In descriptive statistics, significant mean differences exist in BMI values for some socio-economic and lifestyle variables for males and a good number of socio-economic and lifestyle variables for females. The findings in the association table indicate lifestyle variables had a significant association with both underweight and overweight status. It seems, reducing socio-economic deprivation of the indigenous people was not enough to eradicate malnutrition among them, rather a lifestyle modification of this group through generating awareness and providing their traditional sustainable environment is required to minimize the prevalence of malnutrition of this group.

This study reveals that the majority of the individuals irrespective of sex belong to the normal weight category, which was higher than that of the general population (NNMB 2006) and the tribal population (NNMB 2009) of rural India as well as West Bengal. However, the prevalence of underweight individuals was lower and the prevalence of overweight individuals was higher irrespective of sex than that of the general population (IIPS and Macro International 2007), rural populations (NNMB 2006) and tribal population of India and West Bengal as well (NNMB 2009). The prevalence of underweight people in the study was much lower and the prevalence of overweight was higher than that in several others studies among the Oraon (Roy and Kundu Chowdhury 2013; Chakraborty and Bose 2007; Mittal and Srivastava 2006), other studies among other indigenous populations of India (Agrawal 2013; Beck and Mishra 2011; Chakrabarty and Bharati 2010; Das and Bose 2010; Mukhopadhyay 2010), and the general population of North 24 Parganas (Kundu and Biswas 2014), but it is comparable with few others (Khongsdier 2001) and it is lower than that of few tribal groups of North-East India (Bam and Malagi 2016).

A notable percentage of males were mild to moderate underweight and females were severe, mild and moderate underweight in the present study. It seems, their way of living (lifestyle) can partially explain this health outcome. Ghosh-Jerath and colleague (2015) reported that the traditional food items of the Oraon were nutritious with several vitamin and mineral components and had some medicinal value. However, the Oraon of the present study were compelled to change their traditional way of living. At present they live in small villages or slum areas along with other communities and depend on daily wage earning activities. They need to buy food items from the market and are unable to maintain their traditional food habits due to its unavailability or due to high price. They mostly consume rice as their staple food with single vegetable or fish/meat/egg curry or even only with salt. The finding is corroborative with Kapoor and Dhall (2016), who also argued that due to rapid urbanization tribal people migrated from their traditional homeland, forced to change their traditional occupations, and food habits, thus are unable to get enough nutrition. Several studies (Deo et al. 2018; Das and Bose 2012) reported a higher prevalence of underweight people among the tribal communities and opined that socio-economic factors can partially explain this health conditions, rather social exclusion of the tribals from the mainstream society, play a role to explain the health gap (Haddad et al. 2012). The present study observed that not only the socio-economic status but also their ethnic identity and lifestyle had role in their nutritional status.

The percentage of overweight individuals in the study was higher than the national as well as state average among the scheduled tribes (NNMB 2009). Several studies reported that the prevalence of overweight and obesity is increasing among the tribal communities of India (Kshatriya and Acharya 2016; Sahani et al. 2010) and other south-east Asian countries (Wong et al. 2015), and opined that due to the rapid urbanization, the socio-cultural behavior, lifestyle and other habits (food, work, leisure time) of the tribes were changing, all of whom were showing their effects on their nutritional status (Kshatriya and Acharya 2016). Again, Devi and colleague (2018) argued that the tribal people used to be occupationally active but inactive in leisure times. The findings is corroborative with the present study, where it was observed that the Oraon are becoming used to fried street food like paratha, chowmin, egg roll and consume it regularly, but avoid fruits and leafy vegetables. Again, the habit of watching television at leisure time was prevalent, mostly among women. They also spend leisure time inactively by sitting, gossiping and watching television. All these habits may show effects on their nutritional status.

Again, the mean differences of BMI values across socio-economic and lifestyle variables shows some trend which was in line with other studies. Here, few traits were significant for males and most of the traits were significant for females, which may indicate a greater variability of nutritional status among females then males. Mean BMI was significantly lower in the rural areas than the urban areas both for males and females, which is corroborative with Neuman and colleagues (2013). The present study findings indicate that the low economic group showed significantly lower mean values in BMI than the high economic group. The single women showed significantly lower mean BMI values than the married women. The single women group comprises a fair number of aged widow women who live alone in separate homes and depend on their daily wage earning activities for getting food. Heavy physical activity, absence of adequate nutrition, old age and loneliness may all combine together for their lower BMI values. Again, the labourer group showed significantly lower mean BMI values than sedentarily active males and the finding is corroborative with the study of Bandyopadhyay (2008).

The result of the multinomial logistic regression showed that in reference to the normal weight category, individuals with a higher total energy expenditure were less likely to be underweight and more likely to be overweight. Devi and colleague (2018) also reported the prevalence of the overweight status among the physically active Bhil indigenous population of India. Westerterp (2017) explained that the body maintenance metabolism was the largest component of the total energy expenditure which increases according to body size and thus, the total energy expenditure tend to be higher among overweight individuals. However, physical activity (especially in leisure time) and diet related modification was required to maintain healthy weight, which was largely absent in this group. The association table also reveals that males were less likely to be overweight than females. Again, higher wealth index score and alcohol consumption were more likely to be associated with overweight. Other studies also reported that a higher socio-economic status, physical inactivity especially in leisure time and alcohol consumption were significantly associated with a higher prevalence of overweight status among different tribal groups of India (Sajeev and Soman 2018; Patel and Deonandan 2017; Mungreiphy and Kapoor 2010) thus, partly corroborative with the present study.

Conclusion

This study found the Oraon people were facing a double burden of malnutrition and the trend is similar with other studies which opined that rapid urbanization and changes in physical environment were responsible for the condition. However, the present study holds the notion that a rapid urbanization causes changes in the traditional way of living of the Oraon people and compels them to

adjust with the situation, that affects adversely in their nutritional status. The study lacks larger data size and other confounding variables which may have effect on nutritional status. It seems, a health campaign is required among the tribal communities to make them aware of their health conditions and teach them the benefits of leisure time physical activity, and a nutrient rich diet within affordable cost. Again, Government initiative is required to give them a sustainable environment through promoting and preserving their traditional way of life, including their songs, dances, rituals and festivals which will give them the scope to live with peace and dignity.

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Tables

Table 1: Classification of the demographic, socio-economic, lifestyle and BMI data

Variables	Classification/consideration of data	
Socio-demographic data		
Sex	Male / Female	
Area of living	Rural / Urban	
Marital status	Single (Unmarried, widowed, separated) / Married	
Occupational status	Manual active (Agricultural labour, daily wage earner)	
	Sedentary active (Business, service, student, unemployed, dependent, household work)	
Educational status	Non-literate / Literate	
Wealth index score	Low (< -0.673)/ High (≥ - 0.673) [Based on Median value -0.6730)	
Physical activity data		
Occupational activity	Inactive (Unemployed, dependent, student, sitting posture in job)	
	Active (≥ 6 hours of work for 5 days or more in a week with standing or bending posture)	
Leisure time activity	Inactive (Sitting, gossiping, watching T.V., playing indoor game)	
	Active (Participated in exercise, outdoor games, sports)	
Sleeping hours	Inadequate (<6 hours of sleep at night)	
	Adequate (≥6 hours of sleep at night)	
Food habit data		
Fish/Egg/Meat in week	Yes / No	
Fruits in week	Yes / No	
Milk/ Milk product in week	Yes / No	
Street food in week	Yes (Fried snacks, egg roll, chowmin, paratha) / No	
Taking four meals in a day	Yes (Meal at morning, noon/afternoon, evening and night) / No	
Substance use data		
Smoking status	Yes / No	
Chewing tobacco	Yes / No	
Alcohol consumption	Yes / No	
Anthropometric data	Height (cm) & Weight (kg.)	
Classification of Body Mass Index (kg/m^2) values		
Severe Underweight	<16.00	
Moderate underweight	16.00-16.99	
Mild underweight	17.00-18.49	
Normal weight	18.50-24.99	
Overweight	25.00-29.99	
Obese	≥30.00	

Table 2: Demographic, socio-economic and lifestyle characteristics of the studied group

Variables		Males (n=148)		Females (n=327)	
		No.	%	No.	%
Age (Years) (Mean±SD)		39.86 ± 14.12		35.12 ± 12.92	
Total energy expenditure (Mean±SD)		2656.72 ±738.09		2261.03±564.06	
Total energy consumption (Mean±SD)		2065.07±839.73		1625.60±592.02	
Area of living	Rural	86	58.11	172	52.59
	Urban	62	41.89	155	47.40
Marital status	Single	34	22.97	86	26.30
	Married	114	77.03	241	73.70
Occupational status	Manual active	54	36.49	93	28.44
	Sedentary active	94	63.51	234	71.56
Educational status	Non-literate	16	10.81	43	13.15
	Literate	132	89.19	284	86.85
Wealth index score	Low (<-0.673)	74	50.00	164	50.15
	High (≥-0.673)	74	50.00	163	49.85
Occupational activity	Inactive	20	13.51	76	23.24
	Active	128	86.49	251	76.76
Leisure time activity	Inactive	65	43.92	195	59.63
	Active	83	56.08	132	40.37
Sleeping hours	Inadequate (< 6 hours)	17	11.49	47	14.37
	Adequate (≥ 6 hours)	131	88.51	280	85.63
Fish/Egg/Meat in week	Yes	135	91.22	299	91.44
	No	13	8.78	28	8.56
Fruits in week	Yes	96	64.86	204	62.39
	No	52	35.14	123	37.61
Milk/ Milk product in week	Yes	70	47.30	160	48.93
	No	78	52.70	167	51.07
Street food in week	Yes	99	66.89	207	63.30
	No	49	33.11	120	36.70
Taking four meals in a day	Yes	44	29.73	118	36.09
	No	104	70.27	209	63.91
Smoking status	Yes	58	39.19	17	5.20
	No	90	60.81	310	94.80
Chewing tobacco	Yes	86	58.11	76	23.24
	No	62	41.89	251	76.76
Alcohol consumption	Yes	111	75.00	60	18.35
	No	37	25.00	267	81.65

SD: Standard Deviation

Table 3: Nutritional status of the study participants

Body Mass Index Categories	Males (n=148)		Females (n=327)	
	No.	%	No.	%
Severe Underweight	1	0.68	11	3.36
Moderate Underweight	5	3.38	13	3.98
Mild Underweight	21	14.19	37	11.31
Normal Weight	103	69.59	203	62.08
Overweight	17	11.49	50	15.29
Obese	1	0.68	13	3.98

Table 4: Descriptive statistics of BMI values by socio-economic and lifestyle characteristics

Variables		Males (n=148)			Females (n=327)		
		Mean	SD	t- value/ F value	Mean	SD	t- value/ F value
Area of living	Rural	20.9	2.87	2.220*	21.2	3.80	3.723**
	Urban	22.1	3.17		22.7	3.93	
Marital status	Single	22.2	3.21	1.755	20.9	3.41	2.896**
	Married	21.2	2.96		22.3	4.05	
Occupational status	Manual	20.4	2.63	3.276**	21.2	3.59	1.950
	Sedentary	22.0	3.11		22.2	4.04	
Educational status	Non-literate	20.5	2.85	1.243	22.6	3.73	1.176
	Literate	21.5	3.05		21.8	3.96	
Wealth index score	Low	20.4	2.47	4.244**	20.9	3.27	4.804**
	High	22.4	3.23		22.9	4.29	
Occupational activity	Inactive	21.5	2.72	0.091	23.2	4.70	3.439**
	Active	21.4	3.09		21.5	3.59	
Leisure time activity	Inactive	21.0	2.87	1.452	21.5	3.56	2.290*
	Active	21.7	3.14		22.5	4.38	
Sleeping hours	Inadequate	21.7	3.81	0.477	21.7	3.42	0.462
	Adequate	21.4	2.94		21.9	4.02	
Fish/Egg/Meat in week	Yes	21.4	3.05	0.097	21.9	3.82	0.393
	No	21.5	2.97		21.6	5.10	
Fruits in week	Yes	21.6	2.94	0.997	21.9	3.83	0.101
	No	21.1	3.21		21.9	4.13	
Milk/ Milk product in week	Yes	21.4	2.91	0.013	22.0	3.66	0.576
	No	21.4	3.17		21.8	4.19	
Street food in week	Yes	21.5	3.15	0.523	22.3	4.05	2.182*
	No	21.2	2.83		21.3	3.66	
Taking four meals in a day	Yes	21.2	3.32	0.473	21.7	3.84	0.624
	No	21.5	2.92		22.0	4.00	
Smoking status	Yes	21.0	2.78	1.248	18.2	4.18	4.070**
	No	21.7	3.18		22.1	3.83	
Chewing tobacco	Yes	21.7	3.33	1.518	20.9	3.64	2.505*
	No	21.0	2.54		22.2	3.98	
Alcohol consumption	Yes	21.5	3.07	0.479	21.7	4.69	0.362
	No	21.2	2.96		21.9	3.76	

*BMI: Body Mass Index; SD: Standard Deviation; *p value ≤ 0.05, **p value ≤ 0.01*

Table 5: Result of multinomial logistic regression showing the association between underweight and overweight status with socio-economic and lifestyle variables

Variables		Multinomial Logistic Regression			
		Underweight		Overweight	
		(Ref.: Normal weight)			
		Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Age		1.007 (0.984-1.030)	0.578	0.992 (0.961-1.024)	0.634
Sex	Male	1.725 (0.795-3.739)	0.167	0.036 (0.010-0.133)	<0.001
	Female	Ref.		Ref.	
Area of living	Rural	0.959 (0.467-1.966)	0.908	1.333 (0.553-3.212)	0.522
	Urban	Ref.		Ref.	
Marital status	Married	0.897 (0.463-1.738)	0.748	2.185 (0.916-5.216)	0.078
	Single	Ref.		Ref.	
Educational status	Literate	1.721 (0.701-4.222)	0.236	0.806 (0.292-2.219)	0.676
	Non-literate	Ref.		Ref.	
Occupational status	Sedentary	0.404 (0.202-0.807)	0.010	3.866 (1.311-11.400)	0.014
	Manual	Ref.		Ref.	
Wealth index score		0.781 (0.529-1.154)	0.215	1.802 (1.141-2.846)	0.012
Total energy expenditure		0.9976 (0.9969-0.9983)	<0.001	1.0034 (1.0025-1.0043)	<0.001
Occupational activity	Active	1.291 (0.571-2.918)	0.539	0.746 (0.306-1.821)	0.520
	Inactive	Ref.		Ref.	
Leisure time activity	Active	0.871 (0.477-1.590)	0.653	1.271 (0.628-2.573)	0.504
	Inactive	Ref.		Ref.	
Sleeping hours	Inadequate	1.393 (0.602-3.225)	0.439	0.182 (0.057-0.577)	0.004
	Adequate	Ref.		Ref.	
Total energy consumption		1.0000 (0.9996-1.0005)	0.916	1.0000 (0.9994-1.0005)	0.889
Fish/Egg/Meat in week	Yes	0.650 (0.249-1.695)	0.379	0.570 (0.171-1.903)	0.361
	No	Ref.		Ref.	
Fruits in week	Yes	1.260 (0.689-2.306)	0.452	1.113 (0.546-2.270)	0.768
	No	Ref.		Ref.	
Milk/Milk product in week	Yes	1.436 (0.802-2.571)	0.223	0.682 (0.340-1.366)	0.280
	No	Ref.		Ref.	
Street food in week	Yes	0.850 (0.468-1.545)	0.594	1.134 (0.546-2.355)	0.736
	No	Ref.		Ref.	
Taking four meals in a day	Yes	0.855 (0.471-1.553)	0.607	0.797 (0.378-1.682)	0.552
	No	Ref.		Ref.	
Smoking status	Yes	1.076 (0.454-2.551)	0.869	1.038 (0.283-3.802)	0.955
	No	Ref.		Ref.	
Chewing tobacco	Yes	1.838 (0.959-3.521)	0.067	0.709 (0.293-1.716)	0.446
	No	Ref.		Ref.	
Alcohol consumption	Yes	0.742 (0.348-1.583)	0.440	2.964 (1.129-7.783)	0.027
	No	Ref.		Ref.	
R^2 (Nagelkerke)		0.520			
Model correctly predicted		71.8%			

CI: Confidence Interval; Ref.: Reference Category

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Role Conflict and Accommodation in the Hmar Household

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KEYWORDS

Gender roles, socialization, behaviour, attitude, perception

ABSTRACT

This paper examines gender role differentiation and its effect on conflict in the Hmar household and its coping mechanisms. Categorizations of human is crucial based on sex; however, it is the culturally constructed gender differentiation and perceptions into man and woman, feminine and masculine that is fundamental in defining gender roles and behaviour. The division of roles along gender lines places women in a subordinate position. The paper, therefore, argues that gender role differentiation and perception restrict women to claim their position and maintain a submissive role as perceived by the society.

Introduction

Gender is not something we are born with, and not something we have, but something we do (West and Zimmerman 1987). Gender refers to the meaning ascribed to the sexes and to the beliefs, values and norms that are attached to masculinity, femininity and any other expressions of gender. Gender highlights the social interaction and cultural context shapes gender. In turn meanings and values are ascribed to individuals. So, gender roles are a set of social and behavioural norms that are socially considered appropriate for individuals of a specific sex. The perception of gender roles includes the attitudes of an individual, the actions and personality traits associated with a particular gender within that culture. The differences, inequalities and the division of labor between men and women are often simply treated as consequences of 'natural' differences between male and female humans. Such a view informs most commonsensical understandings of what it means to be a man or a woman in any society and has been intrinsic to worldviews prevailing across different societies throughout much of human history. The idea that natural differences between the sexes are the source of all that makes men and women distinct has also been deeply embedded in scientific discourses (Agrawal 2004).

The sheer variability of the roles and relations of men and women across different societies and social groups presents itself as one of the first evidence against the crude biologically determinist view. That gender is a social construct is obvious from the fact that it has a variety of manifestations and that it has more to do with institutions than with individuals (ibid). Therefore, this paper argues that gender role differentiation and perception restrict women to claim their position and maintain a submissive role as perceived by the society.

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Theoretical Framework of Gender Role

Anthropologists have always been interested in understanding gender in the society though its meaning and significance shifted. It was not until the 1970s and 1980s, with the rise of feminist anthropology that gender as a distinct area of theoretical and methodological interest took hold within the discipline. Margaret Mead, an American anthropologist, was one of the first to empirically ground the distinction between the biological and social characteristics of men and women. She did this rather dramatically through her study of the conceptions of masculinity and femininity among the Arapesh, Mundugamor and Tchambuli, three societies in the New Guinea Islands (Mead 1935). On the basis of this study, she argued that the western equation between masculinity and aggression on the one hand and femininity and nurturance on the other is but one among a number of possible permutations of traits which have no intrinsic relation with biological sex (Agrawal 2004).

Ann Oakley (1972) was one the first social scientists to distinguish the concept of gender from the concept of sex. According to Oakley, gender parallels the biological division of sex into male and female, but it involves the division and social valuation of masculinity and femininity. In other words, gender is a concept that humans create socially, through their interactions with one another and their environments, yet it relies heavily upon biological differences between males and females. Because humans create the concept of gender socially, gender is referred to as a social construction. The social construction of gender is demonstrated by the fact that individuals, groups, and societies ascribe particular traits, statuses, or values to individuals purely because of their sex, yet these ascriptions differ across societies and cultures, and over time within the same society (Blackstone 2003).

Many contemporary social scientists understand gender as a social phenomenon and socialization is attributed as the factor that created the distinctions between male and female. If gender flowed naturally from sex, one might expect the world to sit back and simply allow the baby to become male or female. But in fact, sex determination sets the stage for a lifelong process of gendering, as the child becomes, and learns how to be, male or female. Names and clothing are just a small part of the symbolic resources used to support a consistent ongoing gender attribution even when children are clothed. That we can speak of a child growing up as a girl or as a boy suggests that initial sex attribution is far more than just a simple observation of a physical characteristic. Being a girl or being a boy is not a stable state but an ongoing accomplishment, something that is actively done both by the individual so categorized and by those who interact with it in the various communities to which it belongs. The newborn initially depends on others to do its gender, and they come through in many different ways, not just as individuals but as part of socially structured communities that link individuals to social institutions and cultural ideologies. It is perhaps at this early life stage that it is clearest that gender is a collaborative affair – that one must learn to perform as a male or a female, and that these performances require support from one's surroundings (Eckert and McConnell-Ginet 2013).

Methodology

For the purpose of this study, autoethnography was employed as the method of field study. This refers to an individual researcher's study of his or her own life and its context (Reed- Danahay 1997). This means, studying one's own culture or one's own group of people. This method of study facilitated the researcher to participate closely in the lives of the people under study and collect detail account of their daily lives. Nonetheless, autoethnography brings with it a set of its own dilemma, of being a native at one point and yet, not a native at another. There was constant shift in identity of being an outsider and an insider (Khawzawl 2015). So, ethnography's repertoire of techniques including

observation, in depth interview and case studies were used for collection of data. Married couples, both husband and wife were interviewed for the purpose.

The Hmar

In North-East India, the Hmars inhabit Assam, Manipur, Meghalaya, Mizoram and Tripura. In the state of Assam, they are found in the two hill districts- Dima Hasao (earlier known as North Cachar Hills District) and Karbi Anglong. Haflong is the headquarters of Dima Hasao District. Two villages namely, Muolhoi and Tuolpui were selected for the purpose of the present study.

The Hmars are a tribe belonging to the Kuki- Chin- Mizo group of the Sino- Tibeto- Burman family. The Hmars were recognized as belonging to the Scheduled Tribes of India in 1956. They have been widely confused and commonly clubbed together by the colonial writers as Kukis. It was J. Shakespeare (1912) who included the Hmar in the old Kuki clans and also interchangeably used the term *Khawtlang* (people who lived in the west) and *Khawsak* (people who lived in the east). It was only in 1904 that the term Hmar spelt as Mhar was first formally used by G.A.Grierson in his Linguistic Survey of India. With no written records, the Hmar believe Sinlung, somewhere in China, to be their ancient home based on oral traditions and songs (Ṭhiek 2013). The coming of Christian missionaries paved way to innumerable changes in the lifestyle, culture and belief system of the Hmar. Today, the total population of the Hmar tribe in all parts of Northeastern India adhere to Christianity and modern education and are found to be greatly influenced by modernity and western culture.

Understanding Role Conflict in the Hmar Case

The term is broad and its usage embodies a number of different meanings depending on the context. Several terms describe this one particular term in the Hmar language each varying in some degree, meaning, there is not just one term that can explain this phenomenon. The nearest term that can be used to understand conflict in the familial context is *inkal/ inrem naw, inrem lo.* The conflictual situations locate itself in the role expectations. Being a patrilineal-patriarchal society, where the rule of the father is practiced, the authority of the father over the household, the family members, women and children, and property leads to women subordination. This is garnered by the fact that the key factor in patriarchy is the notion of gender roles. Gender roles are based on the different expectation that individuals, groups and societies have of individuals based on their sex and based on each society's values and beliefs about gender. They are the product of the interactions between individuals and their environments, and they give individuals cues about what sort of behaviour is believed to be appropriate for what sex (Blackstone, 2003).

Traditional Role of Hmar Women

In the Hmar society, it is usually believed that a woman's place is in her home. The role of a woman is to maintain the house and keep its members close and united. The maintenance of the house in the Hmar society pertains to all the production activities especially that of jhum as even in the traditional society, jhum cultivation was the basic occupation. Once a Hmar woman is married, her husband's home becomes her home. The notion can be best exemplified with the traditionally comparison of a woman to a rusted iron. The phrase *nuhmei ṭhanaw le thir ṭhanaw (bad woman and bad iron)* is meant not only as a complete understanding of where a woman belongs, but it is also used to symbolize her place after marriage. This means, like a rusted iron sees more of the blacksmith, so do an evil woman or a bad woman sees more of her parental home, which in the Hmar society is regarded as

substandard or faulty. It is the duty of a woman to rise early and cook meal, feed the livestock and start early for the jhum fields. On returning from the jhum, a woman is seen with a basket loaded with firewood or produce from the jhum field. After dinner, a woman would be often found spinning her yarn or smoking *dumbel*, tobacco. A woman was expected to carry out her duty without complaint. The female informants too said that "*these traditional roles are partly inherent in the society. The female character should possess mild and retiring virtues and be hardworking."*

In the olden days, the husband was solely responsible for all the affairs outside the home. That means, the woman had no place in the societal affairs. The woman was just a passive member and played a subordinate role. The ideological disposition also clearly manifested this point. "*Women should know their place and position. The head is the man and if she believes in God, then she must as well accept this fact*," said the informants.

The woman's most important traditional role is widely considered to be that of caring for the home and the family. In the family, the relatives, kith and kin are all involved. The man's role as a provider and the woman's role as the one that supports and supported are regarded as natural. The housewife- mother role has been considered to be very important both in production activities as well as in managing the home and family. Women play their role in agriculture and domestic services. A man interprets his marriage role in terms of his ability to provide for the economic needs of his family.

Perception of Women's Traditional Role

Most informants were clear about their conception of traditional role. They had learnt it from their parents or grandparents. Highly educated informants had better knowledge of a woman's traditional role. According to them, a woman's primary role is reflected in her duties towards her husband. From her very childhood she is trained to be a good *female to be later on inducted as wife and mother*. She is well trained and informed which kind of behaviour she has to refrain from and which to follow. A boy, however, is not much aware of his role, but a girl is made conscious of her role early. Thus, there is difference in the socialization process of a boy and a girl. Even though a girl is not regarded as guest in her family (her father's house), but she is at times joked upon by her brothers as a '*Mikhuol chamsawt*' (literally meaning, a guest who had overstayed or has been staying for a long time*)* for she has to go to another family after her marriage. She is being groomed to be mentally prepared for the marriage after which she will have to leave her parent's home to play the important role of a good wife, a good daughter- in- law, a good sister- in- law as well as a good homemaker. Apart from that, she will also have to play an important role as a mother in the rearing of her children.

Some of the informants were of the opinion that this kind of role expectation is still prevalent in the society. Even though they were not directly taught, they had a clear idea of what their said duties and responsibilities are. As one of the informants pointed out, a woman is supposed to '*be*' the '*ideal wife'.* She said that "An ideal wife is one who listens to her husband and has to be submissive, subservient and docile. If she crosses the line of answering to her husband and triggers his anger, she may even be physically assaulted. If she wants to become an ideal wife, she has to sacrifice her interests and personal understanding and comply to her husband."

Most of the informants acknowledged they *performed the traditional role.* They were of the opinion that they must look after the comforts and conveniences of the parents- in- law as the latter have all the consideration for them. In their old age, they have many expectations from the daughter- in- law.

One of the male informants resented to the change in the expected role of daughter- in- laws in the younger generation. According to him "*women or married women were submissive and hardworking. They knew their duty and responsibilities so well that without any complain they carry out their work silently even if it was too demanding. This is not seen or present among the younger generation. They get up late, way after food has been cooked by their in-laws. They answer back when questioned and are ready to even shout at the in- laws. All these were never part of the traditional society. We belong to the generation where immense respect was given to the in-laws remaining silent and listening. Now that the scenario has changed drastically, it saddens me*."

Modern Role of Hmar Women

The traditional Hmar family was essentially an economically integrated and self- sufficient production unit. Every member was required to contribute to production, each according to his/her ability. This family role has seen some changes in the recent past with many employment opportunities opened for the younger generation. This saw both men and women taking jobs outside of the traditionally integrated jhum work. This change saw the importance of relatives for companionship, collaboration and support diminishing. The importance of neighbors or fellow community members also reduced. Due to all these changes in the social group structure, family roles also changed progressively. Thus, in the new family, we find that both partners may be gainfully employed or even if not, they may be involved in activities that may generate income for their family.

In such a scenario, the woman continues with the traditionally assigned roles of fulfilling all the household chores and then carry on with her work outside the home. This has created double burden for the woman. On one end, she has to cater to the needs of all her family members and children (if any) and on the other, she is also faced with sharing the financial burden with her husband. Contemporary Hmar society is in transition. Tradition is undergoing continuous change. However, modernity has not been fully accepted. In such circumstances, there is a great deal of confusion in the social and cultural norms. In the transitional phase in which the dual-career families find themselves existing, the traditional role is not adhered to rigidly and the modern one is not yet settled. This vacuum makes members of such families cling to the fulfillment of their own demands and claims. There is great uncertainty regarding husband, wife and other relations in the family. In the absence of clear prescribed roles, one is likely to be unmindful of one's duties while at the same time be unduly conscious of the other's obligations.

The ambiguity and uncertainty in the roles in a dual career household, together with the complexity of modern life and exaggerated emphasis on individuality and individual gratification make it difficult for both husband and wife to adjust to their marital obligations. Here, with the onset of a dual career, there is high expectation from the opposite partner. Earlier, household chores that were regarded as a women's duty are now under scrutiny or are being questioned. The wife seeks the help of the husband in the household chores, which in the traditional times were deemed unfit for a man's work. The society had different perception when a man starts behaving or doing a task meant for women. The wife as the 'owner' of the household in the traditional society was expected to discharge all the duties of the home without any expectation from her husband. However, with dual career options that have started booming up, this notion has changed. A wife expects the partner to assist in the housework and childcare. Hence, what has been found is that the views about husband- wife relationship and their expectations and demands out of matrimony have changed. Many women desire to have a relational co- partnership with their husbands. Women put more emphasis on their privileges than on their obligations. This indicates the change which has taken place. Thus, due to disappointment,

greater frustration takes place and there is a deeper basis for friction.

Perception of Women's Modern Role

A working woman has to juggle both the household responsibilities and her work. When working women were asked whether they were able to perform their duties as they would like to, most of them replied in the negative. The reasons stated were lack of time and strain of work outside. Some of them also said that they are tired and strained when they are back home from work. If they have daughters who could share their work, these women were more than delightful and relieved.

With regards to the modern role of women, the change is evident. Today, with the advancement of science & technology, household work has been facilitated by the introduction of different types of time saving gadgets and machines. As a result of which, women are now able to multitask. As education is fast growing, girls believe that the modern role of a woman is to look after her home but the total responsibility is not only theirs. Most of them believe that a woman has many duties towards her husband and children and family, but also expressed that husbands too have to share in the workload.

Sources of Conflict in the Hmar Household

The Hmars in the sampled villages are undergoing change. From the kind of role perception that a woman has to play, it can well be said that the Hmars in the sampled villages are in an in-between phase of traditional and modernity. This kind of role perception has led to many sources of conflict which we shall deal with in this section. Some of these conflicts are related to household responsibility, issue relating with behaving with relatives and parents- in- law, control over income and expenditure, general character of the partner, conduct of the partner in a marital relation and controlling and taking care of children.

Relation to Household Responsibility

The household is considered an important institution in the Hmar society. With the prevailing role perception, a woman finds herself caught in between, juggling household chores and work. This has led to quarrels at home for expecting members of the household to share the burden and when this expectation is not met, exhaustion and frustration leads to conflict. The female informants in the sampled villages are of the opinion that "*the result of these works is not just to be enjoyed by the female members; if the house is clean and tidy it is not just me who will feel relaxed. All will benefit. Besides, we are all hoping for the betterment of our family; hence, work should be shared equally.*"One male informant, however, was of the opinion that "*men should be kept away from trivial works for they are burdened with much heavier work and duty."*

When new expectations are met, there problems also arise with adjustment as have been stated. In the Hmar society, adjustment from traditional to modern norms finds special mention. Adjustment to societal norms and beliefs were found to be difficult as they are deep- rooted.

Further, it has been found that a profound thrust for the overall development of the household leads an individual towards achieving such desire and at the same time it raises the level of expectation

from other members. This desire for the welfare of the household increases the workload and when the individual is insistent, the other members may even resent this attitude.

Relation to Behaviour With In- Laws and Relatives

In the two Hmar villages, problems with in- laws were more reported when the daughter- in- law was young, working and with children. What has been found is that age and position had an indirect role to play in the division of labour and participation in decision- making process apart from the house arrangement. What has been observed was that young married women were more burdened with household chores and other responsibilities. They are bounded by the traditional role perception of a woman and yet being from a period where modernity has shown its radiance, these women are in-between the change process. Their ideal type is that of *shared labour,* however, this could not be materialized because of the said existing perception. What has been reported and found is that these categories of women work extra time, yet they hear complaints from their in- laws, and there are times they are not able to remain silent, they retort. Besides, a daughter-in-law like in any other known society is expected to behave in a manner pleasing to everyone. She has to be kind and gentle. Further, she is also expected to know and visit relatives, help them in times of need and keep the relationship alive. Hence, the role strain creates more problems.

The ingrained notion in people's minds that household chores are meant for the women folk has created problems in the transition from traditional to modern. Expectation exists not only between partners but also between parents and children, parents-in-law to daughters-in-law or son-in-law and the like. It is as old as the traditions are. As one male informant mentioned, 'gender roles have changed with the changing time'.

Relation to Control over Income and Expenditure

It has been observed that though women were equally involved in income generating activities, control over the expenses was not fully in their hands in both the villages. Apart from meeting the daily needs, women's autonomy was within the concept that prevailed in the society called *thil lien le chin*, things of importance. This would include purchases made for the household, property, movable and immovable. Women were rendered incapable of making decision for these 'important milestones' for the family. Hence, besides being able to do small purchases for the daily requirements, Hmar women looked up to the men in the family for any decision. Hence, their role as the partner in the functioning of the household was quite limited and powerless.

Relation to General Character and or Conduct of the Partner in Marital Relationship

The problem of adjustment becomes more difficult for working men and women or when only the wife is working on account of husband's inability or unpreparedness to change himself in the light of the new conditions. In this condition, it is important for working wives to make efforts to achieve marital adjustment as men find it more difficult to adapt to changing functions of the family. Most husbands in the two villages believed that they need not share the household activities. Besides carrying this attitude, some of the men were alcoholics. Hence, apart from spending their earned money, they also tried and spent their wives's hard-earned money. Further, their behaviour changed after consumption of alcohol. Thus, some of the female informants reported of physical assault.

Controlling and Taking Care of Children

Childcare is also regarded as women's work in the villages. Rarely were men seen with kids. There are two categories of men who helped in child care- the first category belonged to the younger generation who baby-sit while their wives were busy and the second category of men were the older generation who baby sat their grandchildren. Under such circumstances only were women free from childcare. Besides, childcare, there were reports of women nagging men to control their sons. It is said that women were more regular in advising their children than the husbands, while children especially sons, feared the father more. Hence, tussle arise among parents when their perceived role is not played by the latter.

Coping Mechanisms and or Accommodation

In spite of the dilemma faced by the families, there are certain factors that make them viable. At the heart of these factors are the motivational syndromes, of which the most important is financial security. Although the economic factor is not equally important in all cases, an additional income does provide an advantage to such families as it brings the possibility to maintain a higher standard of living. Some working wives reported that their children show independence and resourcefulness by helping with the family tasks. They feel they are contributing to family welfare. Often the children show pride in their parents' accomplishment. They take interest and have a feeling of involvement with the work both parents are doing. The very fact that both parents are employed and share domestic interests and roles allow a greater range of role models for children of both sexes.

It has also been found that men supported women to take up jobs or start business. In fact, among the sampled villages, men showed pride in their family and their achievements. By and large, what is reported is that the support of the husband is critical. Learned patterns of behaviour make it possible for the couples to organize their time, energy, finances and other resources that the kind of life they have chosen can be seen as feasible. In this sense, the family framework may be viewed as a management framework. Some couples are better than others managing their resources, delegating housework, making decisions, delineating issues and drawing boundaries about what is a legitimate and possible way of involvement.

From the foregoing discussion, it is clear that role conflict situations may arise from a variety of circumstances and the contexts in which the role is performed is an important determinant. Despite variations in the terms used, the central component of all the formulations is incompatibility. Thus, role conflict, role strain or role stresses are all concerned with problems for the individual which arise as a result of role incompatibilities (Grace 1972).

Thus, it is essential to discuss the ways through which conflicts are resolved, so that the effects and consequences which put many adverse impacts upon the incumbents as well as other members of the family could be avoided. Getzels and Guba (1954) claim that being confronted with role conflict situations the actor is forced to choose one of the several alternatives; s/he may abandon one role and cling to the other, or s/he may withdraw either physically or psychologically from the role altogether.

Blake and Mouton (1964) have suggested five conflict resolution strategies, namely confrontation, compromise, forcing, smoothing and withdrawal. These strategies will be used to explain how in the sampled villages the Hmars tried to resolve their conflicting situation.

Confrontation

This involves rooting out the causes of conflict. A focal person with such an orientation would meet his superiors and subordinates to discuss the area of conflict and work through the problems. In the sampled villages, there were reports by male informants who preferred to confront the problem. They were willing to face the worst situation while confronting rather than keeping the matter. Among the female informants, however, confrontation was not common. In fact, many female informants avoided confrontation.

Compromise

This strategy involves seeking a middle ground or permitting an accommodation of two opposed alternatives by splitting the difference. Thus, a focal person would seek to compromise the pressures from the opposing role senders regardless of what is the best solution. Informants in the sampled villages informed of cases where a compromise had to be struck between brothers. Neither was happy with the outcome.

Forcing

Basically, this orientation assumes that a man is a commodity like a machine and conflict or disagreement is intolerable. Thus, when conflict arises, a focal person with this orientation would suppress it. This kind of situation was commonly reported in both the sampled villages especially among couples whose husband had more influence over the wife in the family.

Smoothing

This type of conflict involves taking people out of conflict or in other words, glossing over it. The focal person adopting this strategy would do anything he can to maintain harmony. This was one way of staying away from conflict among many of the informants.

Withdrawal

Strict neutrality is maintained in this strategy. The focal person would then keep his eyes closed and does not voice any personal opinion. In the sampled villages, this was mostly reported among the elderly. According to the informants, some of the elders in the family do not voice their opinion but when the situation worsens, they interfere in the conflict to resolve the situation.

Inphahnuoi*, Submission*

Besides the above-mentioned conflict resolution, there is one striking mechanism that have been observed. This is *inphahnuoi* and when translated it would mean to submit oneself or be submissive. This trait is related to a personality type of individuals but it is interesting to note that it is one of the perceived roles a Hmar woman has to play. This is regarded as a virtue among the Hmars of the sampled villages. When the husband raises his tone, the wife is supposed to submit herself and bear quietly. In other words, the wife has to lower herself even if she may be right. Here to raise one's self-

esteem, one has to stoop. Or by lowering your self- esteem, one rises above others. This is an expected role of a woman because women are by nature regarded as soft and tender, submissive and compliant.

The image portrayed by this trait was not well accepted by many female informants in both the villages. They were of the opinion that "*they too had the rights to stand and speak for themselves.*" Hence, what has been observed was that, whenever a situation flared up in the family, and relatives and friends enquired about it, the passing judgment was "*had the wife been submissive, she would not have been physically assaulted (a nuhmei lem in pha hnuoi nachang hre sien ding ana, hi chen an phak naw ding veia).*"

Inbiekrem*, negotiation*

The other important principle followed for conflict resolution is *Inbiekremna*. *Inbiekremna* meaning, negotiation or to come to terms after discussion is deliberated by members in the family. This kind of situation occurs when the wife after a conflict with her husband (most of the time) or her in-laws leaves her husband's house and returns to her parental home. Or it may so happen that the couple is not in talking terms or the daughter-in-law is not in terms with her in-laws. During this kind of crisis, *Inbiekremna* is initiated by close members, relatives and friends or during the worst situations, the clansmen who are involved settle the dispute. In this case, all the differences are deliberated and the members try to come to a solution. That means negotiation happens to come to terms.

Prayer

Many of the informants resorted to prayer as have been reported. When faced with difficulties, the female informants are of the view that "*if Christ dwells in the person, there is nothing that can move them to anger or frustration. It is accepted as their burden here on earth. Instead of stooping down to the position of the person who tries to misbehave, it is better to uphold the person in prayers.*" The narratives indicate that Jesus Christ holds the center stage in their life and that nothing else is permanent. As such, in spite of continuous struggle within their family, one female informant said that, "*life is too short to fill with problem. Instead try and see and understand people from their perspective. It will be clearer.*"

Conclusion

The persistent traditional role and the modern role perception are constantly confronted and encountered in the Hmar society. Basically, with the kind of workload that a woman has to carry, the expectation from the partner too increases. And if for any reason this expectation is unmet, anger and frustration occur leading to a conflicting situation. The inequitable division of labour in the home front and other tasks and errands were the major concerns of the respondents. It is also observed that incongruence in a parent-child relationship also leads to a conflicting relationship. In the present day, individual and societal norms collide at certain point.

In conclusion, gender differentiation and perceptions into man and woman, fundamental in defining gender roles are found to exist in the Hmar society. The emphasis on traditional gender role exists to show the difference in behaviour and attitude between men and women and this adherence is influenced by the rules learned through the process of socialization.

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Anthropology of Food: A Study on the Feeding Habits of Kashmiri Muslims

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KEYWORDS

Food Habit, Kashmiri Muslims, Dastarkhwan, Himalayas

ABSTRACT

Understanding the culture by its food pattern has been the interest of anthropologists for a long period because food represents a form of cultural expression. What the people eat in a particular society is usually determined by its culture and same is the case in the Himalayan valley of Kashmir. Forming a blend of multiple ethnicities, there has been the diffusion of cultural traits between various culture circles and this process has led to the unique identity to the Kashmiri culture. As the Muslims are supposed to follow the Islamic way of life but elements of different cultures has diffused within this religious identity, which led to various changes in the Islamic attributes. One of the areas where we witness this change is the way Kashmiri Muslims eat food. So this paper aims to explain how and what the Kashmiri Muslims eat along with the effect of modern feeding habits on the health of people.

Introduction

The study of food habits has been the interest of anthropologists for a long period and this interest has led to the understanding of various aspects of culture as well. In the study of the anthropology of food, some of the notable works include the study of the Trobriand Islanders by Malinowski (1978) where he elucidates the meaning of the crops produced by the islanders and the role of food as one of the important elements of their tradition. Furthermore, Garrick Mallery's Manners and Meals (1888), Robert Smith's Lectures on the Religion of the Semites (1889), and Levi Strauss' The Culinary Triangle (2003) were some of the pioneering works in the anthropology of food.

The Himalayan valley of Kashmir in India has got immense anthropological potential owing to its topography and the presence of multiple ethnicities from time to time. Originally settled by Hindus and Buddhists, the valley witnessed the first wave of Islamic culture back in the 14th century with its first Muslim ruler – Shah Mir (Asimov & Bosworth, 1999). Thereafter people from different regions and religions settled in the valley thereby transforming the homogenous culture into a beautiful blend of '*Kashmiri Culture*'. Due to the diffusion of cultural traits from one cultural identity to the other, Muslims in the valley adopted various cultural traits from Hindu, Buddhist and Sikh traditions as well. One of the important aspects of the culture that was affected by this diffusion are 'food habits'.

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Food patterns in the valley are atypical and the feeding is governed more or less by the culture. What and how people eat are determined by the traditions and are religiously followed by all the groups present in the valley. The Muslims of the Kashmir valley although share various cultural traits relevant to food with their brethren from other religious groups like having salt tea for breakfast, Islamic teachings restrict the consumption of some foods that are enjoyed by the other ethnicities. Moreover, with the globalization of food items, this Himalayan valley is witnessing the shift in the patterns of feeding habits that are affecting all the groups present in Kashmir. With the introduction of fast food items and ready-to-go meals, Kashmiris have been facing various health implications from last several years. So this paper attempts to bring forth food patterns and the health implications faced by the people due to this introduction of modern feeding habits.

What we eat in kashmir

In addition to providing energy for daily activities and essential nutrients for the growth and normal functioning of the body, food is one of the pleasures of the life if eaten with a family. Kashmir is a closely-knit society of people sharing almost similar socio-cultural and economic environment. So what Kashmiris eat is similar throughout the region with some minor differences. For instance, the staple food in every nook and corner of Kashmir is rice, where the preference is given to the local grained variety (Husaini & Sofi, 2018). Boiled rice forms the basis of meals i.e. lunch and dinner. In addition to rice, other foods that are of prime importance among the locals include mutton, chicken and fish as they are rich in proteins and fats/oils that are necessary for the survival in cold Himalayan climate (Kearney, 2010). In addition to the animal products, meals are often complemented with green leafy vegetables, pulses, potato, tomato, radish etc to balance the diet.

In a common Kashmiri household, food in a family setting is taken usually four times a day. It includes breakfast, lunch, evening tea and dinner. Breakfast being similar in every family, traditional tea locally known as *noon chai* (salt tea) made of black tea, milk, salt and sodium bicarbonate is served and is pinkish in colour (Wani, et al., 2013). Tea is taken with either homemade bread made of wheat, maize or all-purpose flour or bread specially made by a baker (*kandur*) is used. It depends on several factors like the urban or rural setting where one prefers bakery made bread. Jam and butter could be used as per the liking and, to make their breakfast healthy, eggs and chickpea are also taken in the mornings. In the winter months, a specially prepared meat delicacy known as *harisa* is also eaten with the tea (Sen, 2004). Because of the light nature of breakfast in Kashmiri households, lunch is taken earlier than usual at around noon. Boiled rice locally known as *batte* is eaten with a curry made of either veggies or animal products. The type of complement taken with rice also depends on the season of the year where fresh vegetables are taken in summer months, and winters from November to March earlier dried-up vegetables are used. In winter months, pickle locally known as *anchaar* which is made of sliced vegetables can be found in almost every household irrespective of the geography and socio-economic status and is cherished by the Kashmiris. Being a Kashmiri, I have also visited different parts of India and tasted a variety of foods; it was easily observed that the Kashmiri do prefer spicy foods in their diet. Lunch is followed by an evening tea that is taken anytime between 3 pm to 5 pm according to the season of the year and is similar to morning tea. Dinner is taken after the sunset and timing is not uniform all over Kashmir. It has been observed that in urban areas people tend to eat their dinner late mostly after 9 pm while as in rural settings, timing ranges anytime between 8 pm to 9 pm, but this is not true always. Unlike other parts of the country, dinner in Kashmir is a heavy meal and consists of a diet similar to lunch. Many households cook enough food at lunchtime that can be then taken at dinner time as well, while some do the opposite where the food prepared for dinner is kept for next day's lunch. This trend is ever-changing and the majority of the population now prefers freshly prepared food at every meal. Deserts that form an important part of the dinner in Indian households are not preferred in the valley.

Food categories

Kashmiri diet consists of categories not different from other regions of the subcontinent, but the particular foods taken might differ in some way. In this Himalayan valley, some broad food categories include staple foods, fruits and veggies, animal products, fats and oils, and beverages. Each of the categories is discussed in detail.

Staple: Rice is the staple food of Kashmiris and has been so since times immemorial. Produced either locally or imported from other states of the country, it serves as an excellent source of potassium, magnesium, iron, fibre and folate. Rice is also a rich source of carbohydrate and vitamin B and helps in maintaining a balanced diet (Slavin, Jacobs, Marquart, & Wiemer, 2001). There is a saying that no matter what and how much a local Kashmiri eats, the rice should be in the diet daily. Meat, along with rice is the most popular food item in Kashmir. Eating a daily portion of rice is linked to improve all-round health.

Fruits and vegetables: Commonly eaten fruits in Kashmir include: a Kashmiri variety of apple (famous all over the world), figs, apricots, grapes, orange, pears, cherries, bananas, mango, etc. Because of the cold climate in the western Himalayas, some fruits like mango, oranges etc are not grown locally and are imported from other regions while the fruits like apples, almonds, apricots etc are grown in abundance and their export is preferred in the valley due to high market value. Everyone would like to eat a healthier diet. The freely available fruits of Kashmir form an important part of people's diet. Fruits are a good source of vitamins and minerals, and they are high in fibre. They also act an excellent source of potassium, vitamin C, and folate (folic acid) (Economos & Clay, 1999). Fruits rich in potassium may help to maintain a healthy blood pressure. There is a saying, "An apple a day keeps a doctor away" and this quote is relevant because the soluble fibre found in apples combines with fats in the intestine and controls the cholesterol level. Moreover, eating fruits can reduce a person's risk of developing heart disease, inflammation and diabetes.

Vegetables, such as radish, tomatoes, French beans (locally called *hemb*), spinach, peas, collard greens, onions, and potatoes are mostly eaten in Kashmir. Out of them, collard greens (locally called *haakh*) is the most consumed vegetable in Kashmir. Vegetables form good sources of potassium, dietary fibre, and vitamin A and C. Vegetable such as onions contain amino acids in addition to fibre, folic acid, and vitamin B, necessary for the normal metabolism and the production of new cells (Kader, Perkins-Veazie, & Lester, 2004). So, vegetables in the diet provide the essential nutrients for good health and normal functioning of the body.

Animal products: Kashmiris are more inclined towards animal products in their diet. Milk, cheese, mutton, beef, chicken and eggs are some of the animal products having a high consumer intake. Milk contains a good source of nutrients including vitamins, minerals, protein, antioxidants, etc and serves as an excellent source of energy as well, in addition to the maintaining a healthy blood pressure (Hoffman & Falvo, 2004). Being in the Himalaya, meat is cherished among the Kashmiris and is considered a high protein diet which increases metabolic rate, reduces ranger, and promotes fullness (Pereira & Vicente, 2013). Locally made cheese is made from cow milk and its consumption is also high throughout the valley as it is a great source of calcium, saturated fats and proteins. The consumption of cheese also helps in wound healing, promotes healthy bones and teeth (Walther, Schmid, Sieber, & Wehrmuller, 2008). Rich in vitamin E, D, and K, calcium and zinc, eggs also form part of the diet that can be consumed at any time be it breakfast or lunch or dinner and are essential in promoting a healthy skin.

Beverages: *Nun Chai* is the most common beverage taken among the Kashmiris all year round. Taken with traditional bread, it is enjoyed at breakfast and evening time. *Kehwa,* is considered as another traditional beverage of high cultural value that is prepared by boiling saffron and other spices usually cardamom along with dry fruits and is sweet in taste due to the usage of sugar (Akhter, Masoodi, Wani, Raja, & Rather, 2020). If *Nun Chai* is the salt beverage of Kashmir then *kehwa* forms its sweet counterpart. At times, milk is also used in the preparation of kehwa. It helps to build immunity, improves skin health and burns fat and acts as an excellent energy booster. Lipton Tea, a black tea with milk, is also taken. It is a delicious way of improving gut health and may help to reduce the risk of stroke (Dow, 2014).

Fats and oils: Commonly used oils in Kashmir are mustard oil, soya bean oil, coconut oil and refined oil. Mustard and soya beans are grown in Kashmir and oils thus extracted from the local traders are preferred over other oils. Cooking oils used in Kashmiri households act as healthy and versatile fat. Oils and fats are natural sources of fat-soluble vitamins. These vitamins are known to act as an antioxidant and protect the skin from scars (Papas, 1999). Homemade ghee has lots of dietary fats and is commonly consumed in Kashmir. Ghee and butter are also used for preparing various kinds of foods.

Culture and food

Culture plays an important role in the life of an individual. Kashmir, which is famous for its cultural heritage, has a diverse culture due to the presence of different cultural groups from time to time (Warikoo, 2009). Elements of Hinduism, Buddhism, Sikhism and Islam have together paved a way for a beautiful blend based on the value of humanism and acceptance. In similar terms, various attributes of culture among the Muslims in Kashmir are composite of different traits and one of the areas where a difference is felt is in the way food is looked at. Taking into consideration the Islamic belief system along with the tradition, food habits among Kashmiri Muslims are different than those of the Muslims in other parts of the world. The Islamic dietary laws are prevalent whereby a food is checked for being halal or haram. Guidelines for the same are laid down in the Quran and the sayings of Prophet Muhammad (PBUH) and are to adhere no matter what.

When a Muslim begins to eat, he should begin with the name of Allah by saying *Bismillah.* As Prophet Muhammad (PBUH) said, 'Oh boy! Mention the name of Allah and eat with your right hand and eat of the dish what is nearer to you.' (Al-Bukhari, 1996). Kashmiri Muslims adhere to this saying and wash their hands before eating the meals. In the majority of the households, food is taken while sitting on the floor and with the hands. Spoons and forks are used but not to a much extent. A piece of clean cloth known as *Dastarkhwan* (Turkic word meaning tablecloth) is spread before the meal. Used across West Asia, South Asia and Central Asia, it also refers to the traditional space where food is eaten. A meal is usually served by the eldest lady in the house or sometimes by other females as well, but men usually refrain from doing so. Some areas still observe the earlier tradition where the men of the household eat first and are followed by women and children. Recalling my own family around 20 years back, men used to eat in a separate room and were served with the best of food, and then the women used to eat food in the plates used by their husbands for eating. This trend is shifting now due to the disappearance of joint family systems, and in a nuclear family each member is given equal status, whereby men, women and children all eat food at the same *dastarkhwan* at the same time. When the meal is over, hands are washed in a water bowl which is followed by the conversations about politics, sports and family matters.

Modern food habits and their health implications

Globalization has greatly influenced the feeding habits of the Kashmiri people. A valley known for its traditional cuisines is gradually losing the charm to fast food items on home-grounds. Modern diet usually consists of high consumption of junk foods that may be prepared and marketed under unhygienic conditions and due to this fact the health of Kashmiri people has gone drastic changes in recent times. Incorporations of food items like Italian foods, Chinese foods, etc and Indian foods as well like *biryanis, momo* etc is increasing daily. People tend to take snacks as part of the regular meals and with the changes in lifestyle; demand for snacks is increasing day by day (Oniang'O, Mutuku, & Malaba, 2003). These foods have been found to have a high proportion of fat, starch and high sugar content that results in the emergence of various health conditions like diabetes, cardiovascular diseases, obesity, hypertension, hyperlipidemia etc among the locals (O'keefe jr & Cordain, 2004).

Studies show that a large number of people in Kashmir is suffering from diabetes due to the consumption of foods rich in sugars. With the prevalence of snacks, soft drinks and the increased consumption of sweet Lipton tea, the daily consumption of sugars has increases manifold. Moreover, with the heavy number of active as well as passive smokers, people with this condition are increasing by each passing day. Change in lifestyle and increased consumption of the foods high in fat and sugars is leading to obesity among the youngsters as well. It is also accompanied by other conditions like thyroid, cardiovascular diseases etc. One of the factors responsible for obesity and diabetes as well, is the delaying of meals by the people in the Himalayan valley. Due to the availability of the internet and television facilities, meals usually get delayed and are eaten when one is about to sleep, thereby paving way for these health issues. Only junk is not responsible for the health issues people are facing now in the valley of Kashmir. Increased intake of salt via *noon chai* is leading to hypertension. It is also closely linked to modern diets rich in cholesterol and fats. Furthermore, the consumption of snacks high in salts is also proving to be one of the reasons responsible for high blood pressure among the people.

Conclusion

Whereas Muslims are supposed to adhere to the norms laid down by Islamic law, the Kashmiri Muslims do share cultural elements with other groups present in the valley. What the Muslims in Kashmir eat is determined by both religion as well as culture and they go hand in hand. Moreover, with the urbanization and globalization, traditional feeding habits among all the religious groups in Kashmir has undergone a tremendous shift and the meals are being replaced by fast food items and snacks. With this, people are facing various health implications and if this trend continues, the health profile of the valley may see devastating results.

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Representation of Folk Tantra: An enquiry into the *Rati Khowa* Sect in Assam

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KEYWORDS

Tantra, Folk Tantra, Rati Khowa sect, Vaishnavism, Assam, Kamakhya

ABSTRACT

In recent times, the category of folk Tantra has evolved in the study of the Tantric tradition. The category as initiated by June McDaniel in her work is applied for the case study of the Bengal region in India. The new category marks a sharp distinction from the classical Tantra. The study attempts to explore the category further and expand it into the area of Assam in India. The Rati Khowa sect grew after the schism in the popular Vaishnavite movement in Assam. The sect is of esoteric nature which displays the amalgamation of Vaishnavite and Tantric elements. It could be seen in a few districts of Assam. The rituals practised by the sect comes under the left- hand path of Tantra and thus are not approved by the societal norms. Rituals are open only to the participants practised in secret and excluding the outsiders completely. The study will attempt to view the Rati Khowa sect as a folk tantric category. In the process, it will also examine that the category of folk Tantra in Assam is dissimilar to the category of folk Tantra in Bengal as viewed by June McDaniel.

Introduction

The Indic religious setting comprises distinct traditions quite peculiar in their understanding and way of life. 'Tantra' also holds a minor spot in the setting. Tantra as a tradition has grown stronger since 7th C C.E. "From roughly the seventh to the thirteenth century, the thought, ritual practice, and institutional presence of tantric traditions played a major role in the life of South Asians….Tantra first arose as an esoteric tradition for initiated elites seeking liberation (*mokṣa*) or extraordinary powers (*siddhi*), but it later became deeply involved with royal power and with India's public temple cult (and the political and agrarian expansion linked to it), making tantric ritual, institutions, and ideals of sacred power—epitomized in the figure of the tantric *yogī*/guru—a fundamental part of mainstream Indian social, religious, and political life." (Burchett, 2019, 49-50). However, its earliest appearance could be seen in texts like the *Rig Veda* and the *Atharva Veda.*

Its origin, meaning and definition were always a matter of debate among various scholars as they could not be pointed out specifically. The vital facets regarding Tantra being uncertain, it was frequently synonymized with terms like evil, dark and obscure both by Western and Indian scholars during the early part of the 19th century. Scholars primarily viewed Tantra through the lens of sexual rituals and blood sacrifice. These rituals were included under the left- hand path of Tantra, and this myopic view

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of Tantra aided in displaying it as a misunderstood aspect of India religious setting influenced by the prejudiced understanding.[1]

State of the art understanding of Tantra has led to the coining of terms like Neo- Tantra, Folk Tantra etc. This study will explore the category of Folk Tantra in relation to the *Rati Khowa*[2] sect in Assam. June McDaniel have used the term folk Tantra in her work "Offering Flowers, Feeding Skulls: Popular Goddess Worship in West Bengal" (2004). She is of the opinion that Tantra can be divided into two types: folk and classical. She has defined the term placing it within the geographical area of the Bengal region. However, this study will put it in the Assam region, which is situated next to Bengal.

Objectives

This study has a two-fold objective: first is to make an enquiry into the esoteric *Rati Khowa* sect in Assam by viewing it through the category of folk Tantra and its implication in recent times and the second is to examine the category of folk Tantra itself and observe its significance if any in filling the gap for the reading of Tantra.

Methodology

The study will be based on the reading of field works conducted previously by scholars, oral sources on the *Rati Khowa* sect in Assam, and also on primary sources including key Tantric texts like Kalika Purana (10th C/13th C) and Yogini Tantra (16th C) composed within the geographical area of Assam.

Discussion

McDaniel has established the category of folk Tantra which marks a sharp distinction from the classical Tantra. She is of the opinion that

> *In folk or popular Tantra, the emphasis is upon ritual practice, direct experience, and pragmatic results. The goddess gives supernatural abilities (siddhi) and power (shakti), and she appears to the practitioner in the forest or burning ground… Folk Tantra is largely an oral tradition, in which the term "Tantra" refers primarily to a practice or sadhana. There is little emphasis on reading texts, and many folk tantrikas are illiterate. When texts are used, the ritual instructions are not interpreted in a symbolic manner; they tend to be taken literally, and the rituals are physically acted out. However, due to the lack of texts and tradition, much of popular Tantra seems to be based on a sort of trial-and-error approach." (2004, 10).*

The narrative for folk Tantra as put forward by McDaniel could be viewed in Assam since the medieval period. Institutions like the Kamakhya temple near Guwahati and the *Kesai Khati* temple in Sadiya could be pointed as few instances. Tantric rituals and practices were carried out in the Kamakhya temple following the left-hand path, which included ceremonies like sacrifice and use of meat and wine. In the case of the *Kesai Khati* temple, it could be viewed in the ceremony of the human sacrifice carried out within the premises of the temple. However, this study will not deal with these institutions,

1 Some portions have been taken from the unpublished PhD thesis titled "Tantric Religious Milieu of the Kamakhya Temple: Analysis of Practices and Patronage Patterns (14th – 16th Centuries A.D.)" by Nilam Kakati, Department of History, University of Hyderabad, India, 2019.

2 Rati is night in Assamese and khowa is eating. Thus, it implies a ritual which is conducted during the night which included eating.

but with an esoteric sect which was an amalgamation of Vaishnavite and tantric traditions.

The Vaishnavite movement (16th C) in medieval Assam was the most important phenomena in the religious setting.

> *There were two phases in the growth of Vaishnavism in Assam. In the early phase (from the epic age to the twelfth century A.D.) it was more or less a queer mixture of the Puranic and Tantric faiths, and in the later (fifteenth- sixteenth centuries) it was principally based on the doctrine of Bhakti or monotheism as propounded by Shankardeva… The Bhagavata tradition in Vaishnavism which virtually emerged in the early centuries of the Christian era with an emphasis on devotion or Bhakti of the worshipper for an individual deity and gained ground in the post- Gupta period attained greater popularity in Medieval Assam, Bengal and Orissa.* (Singh, 2009, 103).

> *In the 16th C, proselytization by a Vaisnavite apostle Shankardeva, took place through the medium of 'namasamkirtana' which involved collective chanting and direct homage to the deity. The followers of Shankardeva paid little attention to caste, were willing to accept a Sudra as their head priest and were allowed to eat the flesh of domesticated animals. The beginning of 'namasamkirtana' is to be found in the 8th C Sankara Narayana image inscription. The Deopani Vishnu image inscription dated in the 9th C mentions that the twice-born classes, along with the Sudras and women, can worship Vishnu. This inscription also contains a reference to bhaktas which implies that the cult of Bhakti was gaining ground as early as the 9th C.*(Lahiri, 1991, 128).

One of the primary aspects of Shankardeva's Vaisnava movement was his intimidating attitude towards the Tantric Shakta tradition, which had been prevalent in Assam since long and it included animal and human sacrifices and *panchamakara* in its ritual practices. He had a shallow opinion of it and regarded it as a debased form of adoration where women were employed as items for sexual enjoyment in the name of the Tantric cult. (Borkakoti, 2008, 2). He made a great effort to discontinue these practices and preached against them. However, in spite of Shankardev's attempt to discontinue them, these practices could be viewed to have crept into the Vaisnava movement at its later phase taking the shape of the *Rati-Khowa* sect.

The sect grew after a schism in the institution of the Satra long after the demise of Shankardeva. The Satra, as an institution established under the Vaishnavite movement, became a vital centre for the propagation of the religious ideas. It also acted as space which developed art, culture under the banner of the movement.

> *Vaishnava establishments of Assam are generally called satras and not maths. This name seems to have been taken from the Bhagavata- Purana where it occurs in numerous places… The word Satra was possibly applied in Assam Vaishnavism to mean an assembly of devotees (where things about Vishnu and Krsna, who was for them no other than the Brahman or Paramatman were discussed) in an analogy of brahma satra.* (Neog, 1965, 310-11)

The institution of the Satra, along with the Vaishnava movement, gained popularity and was established as an eminent institution in association with the movement. In a way, this institution represented the Vaishnava movement. However, like every other religious tradition, it had to pass through the irregular path of schism too. The Satra had to face schism after the demise of its initiator Shankardeva and his favourite disciple Madhavdeva.

> *The term Samhati was employed in the sense of groups of Assam Vaishnavism of the schism of the order. We find the use of the word only in the post- Sankrite Vaisnava literature… In early*

> *biographies, this division was never termed as Samhati, and we find the word Sampradaya or simply Samprada instead of Samhati.* (Goswami, 1988, 34).

The beginning of the schism in the order could be observed after the demise of Sankardeva, which led to the question of the succession after him. It further intensified with time and resulted in the schism of the order into four divisions, which were "i) the followers of Damodara- Brahma Samhati, ii) the followers of Mathuradasa Padma Ata and others- Nika Samhati, iii) the followers of the grandsons of Sankara and their successors- Purusa Samhati and iv) Gopal Ata's followers- Kala Samhati." (Neog, 1965, 154). The schism in the order led to the weakening of the primary pillar of the movement. However, it also initiated the process of the establishment of Satras in various parts of Assam, but with different doctrines under the banner of each Samhati. This schism could also be viewed as one of the factors of the downfall of the Ahom Kingdom. As Mayamara-Satra affiliated to *Kala Samhati* led a revolt against Ahoms, which destabilized the roots of the Ahom Kingdom.

With the subsequent schism in the Vaishnava movement certain ambiguous religious practices crept into it. These practices were of esoteric nature, and represented a section or group of marginal observers who do not appear much in the historical narratives. The *Rati-Khowa* tradition represents one of such esoteric sects which developed within the Vaishnava movement in Assam. It originated in the affiliation to Kala Samhati which displayed a liberal attitude. "The Gosains propagating the esoteric cults of Rati-Seva or Rati-Khowa belong to a religious sect called *Kal-Samhati* or *Kal-Ghati*. The founder of *Kal-Samhat*i was Gopal Ata." (Gogoi, 1976, 46). Gopal Ata had twelve chief disciples, and the foremost among them was Bar Yadumani. "Of the chief preachers' Bar Yadumani's favourite disciple was Ramai or Ramdev. It is said that Ramdev was the first Gosain to propagate the cult of the night- worshipping in Upper Assam through his agents." (Gogoi, 1976, 46). "For the liberal view in religious matters, some sort of esoteric observances probably entered into the sect in later times." (Goswami, 1988, 40). "The Kala Samhati, originating from Gopaladeva of Bhavanipur has some such qualities in it as would commend themselves as democratic in character." (Neog, 1965, 155). However, ambiguous religious practices could also be viewed in the other Samhitas.

Barua makes an attempt to associate the *Rati-Khowa* sect to Buddhist Tantrism that was prevalent in Pre- Ahom Assam. He writes "It might be that Buddhism visited Assam in its declining phases. It can be established from the isolated images of Buddha discovered and the existence of sects as *Rati Khowa Sampradai* that can be connected with the declining phases of Buddhism, that once this religion of the 'Enlightened one' prevailed in this country." (Barua, 1956, 57). "The *Rati Khowa* or *Purnadhariya* sect of Assam, which continued till recent times, had its origin undoubtedly in this system which was evidently a mixture if Tantric-Buddhism and Tribal Customs." (Dutta, 1990, 84). Gogoi, on the other hand, holds a different opinion regarding the affiliation of the *Rati Khowa* sect. He affiliates it to the Tantric Saivite tradition.

> *The present-day Tai Ahom have racial unity but are socially and religiously disintegrated by sectarian Hinduism. About half of the community are Tantric Saivites who may be called Night-worshippers. The members of the sect are known as Purnadharis devotees or Bhaktas who hold on to the perfect one. They are also called Barkhelia Bhaktas, meaning worshippers belonging to the Great sect. But ordinarily, people refer to them as Rati Khowa Bhaktas or night worshippers from the fact that they perform their ceremony of worshipping only at night in strict secrecy.* (1976, 42-3).

Different opinions and arguments could be viewed regarding the source of the *Rati-Khowa* sect by various scholars. However, it could not be overlooked that it was affiliated with the Samhatis of the Vaishnava movement and was a part of the Bhakti cult which had distinct features of Tantric elements in it.

The *Rati-Khowa* sect represents secret and esoteric practices which are carried out in the night in secluded spaces. It is not performed for public view; only participants of the ritual were allowed to attend it. Thus sources for these are not available in abundance. The participants also were not outspoken regarding the rituals, which are transmitted orally from generations. Songs and Padas were available in association with the rituals which gave a symbolic impression of it.

Cinia bhakati dhara mur bandhava
Cinia bhakati dhara
Hare parvati rahasya bhakati
Ihak sar kari dhara[3]

The nature of the practices of the secret and esoteric rituals vary from place and modes. They could be categorized under various types:

> *Gopidhara, Gopi- khela, Bara- Sewa, Bati- bhagiya or Bati- pariya, Carikaraniya, Digambariya, Dangariya- Sewa, Kewaliya, Katani, Karanipatiya, Lakhimpuriya, Madhupuriya, Mayamariya, Purnabhagiya, Phuibariya, Sudhabhagiya Salitalagowa and Sibasagariya practices fall under the generic form of Rati-Khowa.* (Dutta, 1990, 89).

Rituals included sexual union, wine, meat, and fish which display a similar depiction of the *panchmakara* of left-hand path of Tantra.

> *They worship with offerings of meat and homemade liquor (saj) prepared from rice, the meat being of fowls or pork… Beginning with the Sadhu all the chief devotees in the assembly drink from the same cup the liquor it contains. Women devotees offer the drink and meat to every male Bhakat… In a covered enclosure called dhol- ghar (secret chamber) a Bhakat who aspires to be a Karani is examined by a naked woman. All other men and women having access to this dhol ghar including doorkeepers have to be naked." (Gogoi, 1976, 43). "Usual Rati- khowa forms of ritual are 1. Salita- logua, 2. Dangaria Seva and 3. Bar Seva in which the select group of devotees strip their persons of all apparel before they proceed to perform their worship with devotional songs and dance.* (Gogoi, 1976, 49).

The rituals are conducted under a guru who has complete knowledge of the practices. He is addressed as Sadhu or Purna- Swami, i.e. someone who has gained complete knowledge. "As interpreted by some followers of the *Rati-Khowa* cult, the sadhu must be a '*jitendriya*' (controller of five organs) man, who can subdue all passions of life… The first stage of the function is termed as '*Tel-karani*.'" (Dutta, 1990, 105-6). The first stage is considered to be the most vital; it examines the controlling power of the sexual urge. The monk who could successfully overcome this urge was promoted to the higher-order and was capable of presiding the rituals.

A female nun other than the sadhu's wife was designated to take her place beside the *sadhu*. Genital organs of both the *sadhu* and nun were the chief elements of adoration during the rituals. "One very curious aspect is that the genetic organ of the Sadhu is considered as a manifestation of Narayana." (Dutta, 1990, 108). The *sadhu* and nun are adorned, represented as a manifestation of Krishna and Radha. Homemade liquor or saj is vital for the accomplishment of the rituals and are consumed by the Sadhu and all the devotees who attend the ceremony. Sexual unions are included in the ceremony of sects like the *Gopi-khela* and *Bara-Sewa*. However, the ceremony of *Tel-karani* was shared by all sects. The sect is still a part of the religious setting in contemporary Assam.

3 Yugut Vicar (devotional songs). It says Know the bhakti. This secret worship Rati- seva with meat and drink offering is of Hara and Parvati.

> *[The] Rati- Khowa is in vogue today among a large section of the Ahom people of Sibsagar and Lakhimpur districts and also among the Miris and Kacharis. Satras propagating this cult were established mostly in the sub-divisions of Sibsagar in Upper Assam, but Satradhikars are non- Ahom, mostly high caste Hindu Sudra Gasains."* (Gogoi, 1976, 47).

The Vaishnava faith as propagated by Shankardeva was of composite nature, which discarded practices like drinking alcohol and were against the blood sacrifice. But the dominant religious setting prior to its establishment was composed of the said elements. The *Rati-khowa* sect evolved blending some elements of both the faiths. The sect established a space where Tantric tradition could be continued but with the veil of the Vaishnava faith. The *Rati-howa* sect could be viewed as the tool which was adopted to domesticate Tantra within the ambit of the Vaishnava movement. Tantra representing an enduring part in the religious setting and was not easy to ignore. It had to be assimilated in the popular religious setting, i.e. the Vaishnava movement. Thus the said sect incorporated tantric rituals and practices. However, it could not discard the esoteric nature of it. As the esoteric nature of Tantra is what defines Tantra.

The *Rati-Khowa* sect of Assam aptly fits the category of folk Tantra as defined by McDaniel. The sect could be identified more by its practices then the literary or written traditions. Moreover, not many written records were available for the sect, and tradition is handed down orally from generation to generation. The sect consisted of a closed group of members and elaborate details regarding the rituals were not made available to outsiders. Additionally, the rituals comprising the use of wine and sexual rituals places it in the category of popular Tantra.

In the case of Assam, the category of folk Tantra stands out as a prominent factor. It initiated with the institution of Kamakhya since antiquity. Kamakhya is frequently claimed as a central Shakti Pitha. It is the space where the *Yoni* of Devi Sati fell. The myth related to the origin of the Shakti Pithas is too well known to repeat it again. Kamakhya is regarded as the yoni goddess symbolizing the life-giving power.

> *Sati's Yoni or vulva is located in the inner sanctum or garbhagriha of the Kamakhya temple. It takes the form of a fissure in a large rock, often filled with water from an underground spring, and worshipped as the goddess in her manifestation as Kamakhya. The Kalika Purana, a work composed in Assam to glorify Kamakhya, provides a description of the cave and Yoni.… Originally there was no figurative image of the goddess Kamakhya; however, recently a popular print was installed near the yoni chamber to give pilgrims a complete image of the goddess before encountering the aniconic Yoni.* (Ramos, 2017, 45-6).

Kamakhya was initiated as a folk deity by the aboriginal group of people known as Kiratas.

> *Before the advent of Naraka the aboriginal Kiratas of Pragjyoisa were basically the followers of the Saiva cult. But at the same time, the Shakti worship was prevalent among a considerable section of them. The mother Goddess or Devi Kamakhya manifested in the form of Yoni symbol and representing Shakti or procreative force of the female was an object of veneration for those Kiratas, who were the devotees of the creed.* (Singh, 2008, 279).
>
> *It was Naraka who, after having after conquering Pragjyotisha and its original inhabitants, the Kiratas brought to prominence in the aboriginal cult—the cult of the mother goddess worshipped in the Yoni symbol as opposed to the cult of Shiva worshipped in the phallic symbol. No wonder the Kamakhya was an embodiment of the fusion of both Aryan and non- Aryan beliefs and practices."* (Singh, 2008, 280).

Conclusion

Thus, it could be viewed that the category of folk Tantra has been prominent in Assam since antiquity. The adoration of Devi in the form of Yoni in the institution of Kamakhya provided a more legitimate claim to its tantric background. The folk character in the institution is enhanced when the initial adoration was carried out by an aboriginal group of people.

Therefore to conclude, it can be said that Assam as a region has influenced by the tantric tradition since long, and can also be considered as a prominent instance of folk Tantra, the category established by June McDaniel. The institution of the Kamakhya adorned as the yoni goddess stands out as the initial illustration of folk Tantra. This category was then expanded and integrated into the Vaishnavite movement taking the shape of the *Rati-Khowa* sect. The *Rati-Khowa* sect as an esoteric tradition is more identified by its practices than by any literary feature. This sect comprises a vital aspect in the religious setting of Assam, which symbolizes the domestication of Tantra. However, it could not discarded its esoteric nature, as it is what defines Tantra.

The category of folk Tantra in the case of Assam is a part of its cultural matrix and is inseparable from the same, sharing a common identity. It has continued since antiquity in the instance of the institution of the Kamakhya and it exists in recent times in the instance of the *Rati Khowa* sect.

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The Anthropology of Dress: A Study in the change of Assamese women dress in Assam

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KEYWORDS

Assamese, Dress, Identity, Meaning, Photographs, Women

ABSTRACT

As a cultural artefact, the dress holds an important position in everyday life. Other than covering one's body, it is representational and can be linked to questions of identity, nationalism, status, class and caste. This paper highlights the importance of clothing as a significant part of material culture and analysing the factors that have influenced the change in women's dress in different periods during the twentieth century Assam. It discusses the symbolic value and meaning attached to the dress and explains how it becomes a carrier of ethnic identity and class. The finding in the study is based on a structured interview using a visual ethnographic tool (photographs) as well as literature selected purposively.

Introduction

Anthropology contributes scholarship that relates to understanding the place of dress in culture, and I define the anthropology of dress simply as the study of the dress by anthropologists (Eicher,2000). The evolution of dress in society within its socio-economic and political scenario represents much more than it is being assigned as a part of material culture. Simply, the dress can be defined as something that helps in covering one's body protecting one from the extreme weather condition. However, eventually, changes in the dress habits of society are quite frequently the result of political movements, state-interventions, and the rise of identity-consciousness adding new meaning to clothing. From being a product of utility, its representational value has increased phenomenally. Such as other than covering one's body it now has become more symbolic when linked with the question of identity, nationalism, status, class, and gender. Dress as an important part of material culture is recognized in a way how people construct their identity within a community through their clothing. The unique pattern, motif, and sartorial style in the clothing help in identifying a community or tribe representing their identity in a society. However, the impact of modernity in traditional societies has been deeply influenced by the series of events encountered, while affecting the social and cultural structure.

Assam is a state situated in the North-Eastern part of India. It is bounded by other north-eastern Indian states (popularly known as 'Seven Sisters of India') namely Arunachal Pradesh to the north, Manipur, and Nagaland in the east, and Meghalaya, Tripura, and Mizoram to the south. The north-eastern states are connected with the rest of the country through a narrow 22 km corridor via a strip of land in West Bengal called the 'Siliguri corridor' or 'Chicken's Neck'. It also shares international borders with Bhutan to the north and Bangladesh to the south. North-East India consists of various tribes

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and non-tribal groups that share their cultural traits such as food, dress, rituals, customs, language, and the like thus creating their own cultural identity. One of the commonalities among North-East India is its richness in age-long weaving culture and biodiversity. The vibrant textile tradition of the region enables one to understand the relationship between nature and culture, through the motifs and patterns used in the traditional attires. These motifs and patterns thus hold socially constructed meaning which is often contested.

However, after the annexation of the British in India and particularly in North-East India the series of events that occurred have a deep impact on society. Introduction to British administration, education system, trade, industrialization, and growth of urbanization has dismantled the traditional setup of the society thus recreating ruckus in the region. The late nineteenth century brought new experiences and challenges in the region where people got strangled between tradition and modernity. One of the major challenges faced by the people in the nineteenth century Assam is its shift from the agrarian to the semi-capitalist economy.

Assam has been a traditional economy until the British annexed Assam in the early nineteenth century. Agriculture was the primary occupation and an important source of livelihood in the region. However, among the womenfolk, the art of weaving was immensely popular. One cannot outlook the traditional art of weaving that has occupied a special place in Assamese culture. Many notable personalities during their visit have remarked and praised about the weaving culture in Assam. Such as Mahatma Gandhi during his visit to Assam remarked that the Assamese female weaver can weave dreams in their handmade clothes (Goswami, 2000, 53). It played a significant role in women's lives and was inseparable to them. Weaving among the Assamese forms girls' part of education and was a part of women's ordinary household duties (Samman,1897). It is so intrinsic to Assamese women that during marriage proposal the bride is being questioned whether she acquires the knowledge of weaving or not. One who knows weaving was considered to be an ideal woman in Assamese culture. However, during the colonial period, there was a decline in the status of weaving culture deeply affected by the increasing imports from abroad.

If one looks at the history of dress in Assam, probably the oldest and most usual form of dress in pre-colonial Assam were draped clothing styles with tucks and fold. Existing sculptures (before the eighteenth century) and visual data such as photographs, give an idea of the clothing tradition in Assam. Albeit, very few writings on the Assamese dress and its significance as a part of material culture are found in the region.

This study entails drawing on visual ethnographic data and archival material to understand the role of clothing as an important part of material culture in Assamese society as well as a new challenging way of understanding the symbolic entity that clothing holds in contemporary times. Though the term 'Assamese' has always remained contested the researcher here used the term to refer to the groups who use Assamese as their mother-tongue.

Methodology

Objectives

The objective of this study is to explore the sartorial changes of women in Assamese society. Furthermore, it will analyze the role of clothing as a significant part of material culture and scrutinize various reasons that lead to the gradual change of clothing among the Assamese over the years.

Area(s) of Study

Fieldwork for the study was conducted in Tezpur under Sonitpur district in Assam. The selected area is culturally and historically significant as the region has witnessed various socio-political events over the years. These series of events have had a tremendous impact on people thus establishing a new perspective towards clothing that will be discussed below.

Data was collected through structured interviews by using the photo-elicitation method. The method was effective in a way that it enables the interviewee to recall their memories and provide a room for spontaneous conversation. However, secondary data such as books, archival materials were also used in the research. A total of 40 people was interviewed, both male and female. The age group of interviewees was in between 20-80 years.

Result and Discussion

Clothing as a significant part of the material culture not only enhances one's self (personal values) but it tends to understand the values assigned to clothing as a tangible artifact. As Woodward says, clothing is "not seen as simply reflecting given aspects of the self but is co-constitutive of facets such as identity, sexuality, and social role." (Woodward in Miller, 2005:21 as cited in Wright,2009). Hence, giving more creditability to the clothed body the 'self' is being manifested and visualized through the clothing one wears, whereas factors like identity, class, caste, hierarchy are closely linked to clothing. This research on women dresses discovers the role of clothing in Assamese culture while critically analyzing the change over the years. Apart from its utilitarian aspects, clothing now holds connotative meaning thus acting as a tool for communication between cultures. As an artifact, clothing conceals our physical appearance as Barthes points out, "the body cannot signify, clothing guarantees the passage from sentience to meaning" (Barthes, 1995: 258 as cited in Wright,2009) thus manifesting the 'self' while the clothing being a mediator in communicating in the social world through the qualities it encompasses.

Historical texts on Assamese women's dress reflect that the most common and earliest form of clothing among the Assamese was that of tuck and folds which was often weaved by the women themselves. The art of weaving was much popular among the Assamese women folks and played a significant role in their lives since owning the art of weaving once regarded as a significant characteristic of an 'ideal-woman'. Weaving was an important criterion that needs to be fulfilled during marriage proposals. Thus, the weaving culture in Assam has always been rich and intrinsic in the region and closely associated with women's lives.

However, the British annexation in Assam gradually dismantled the traditional Assamese society affecting its socio-economic and cultural factors. Further, the series of events that occurred from the nineteenth century also brought tremendous change under strong political grounds. The period British annexed Assam, the industrial revolution already reached its peak in Britain, thus affecting the traditional weaving culture and the small local industries in Assam. During the period, the Europeans also tried to strengthen trade ties between Assam with the rest of the world. With the imports of foreign goods, they tried to bring their control in the market system where the imported goods were way cheaper than the locally produced cloth. The traditionally produced industries thus could not compete with foreign goods. This being a prime reason for the diminishing production of local goods in a society where the foreign goods were available for cheaper rates as compared to traditional clothing.

Secondly, throughout the study, it was found that cultural assimilation had a deep influence on the process of change in the Assamese women's dress. With the coming of the British, Assam experienced a new form of administration, educational system, land reform, language thus affecting its traditional roots. British conquest in Assam and the development in the field of infrastructure, transportation, education was solely for their interest. One of the prominent discoveries by the Europeans was the invention of tea in Assam. No doubt the Europeans were successful in building up the tea industry through their skills, experience, knowledge and were determined with a clear vision but the only problem was the unavailability of cheap labor in huge numbers. As a result, during the mid-nineteenth century, the Britishers brought immigrant laborers from the state of Bengal, Orissa (now Odisha), Chota-Nagpur, and from eastern parts of India to employ them in the tea gardens later cultivated in the region. Likewise, large numbers of Bengalis from Bengal for administrative purpose, Marwaris from Rajasthan for trade were also brought by the British during their rule in Assam. Hence, Assam established its connection with other states in India during British rule. In her book 'Women of Assam', Vickland (1927) talks about the range of clothing that she witnessed in the late nineteenth century in the streets of Assam donned by the immigrants settled in Assam. She talks about how few Assamese elites' women started wearing sarees as an adaptation of Bengali culture. Thus, nineteenth-century Assam witnessed a strong amalgamation between cultures in terms of cultural attributes such as dress, food, the language ~~where cultures got exchange~~ and gradually the transformation was visible in the sartorial styles among few Assamese progressive families. Cultural assimilation, as well as inter-state movement, brought the Assamese close to a Pan-Indian culture, clothing being one of the important material cultural traits that were visible in the region. The influence of western and Pan-Indian dresses among the Assamese was due to the hierarchy that exists in clothing. Such as the western dress seems more progressive, modern, and outgoing in comparison to traditional Assamese clothing; in the same way, the Pan-Indian clothes were regarded as superior to Assamese clothing. Clothing thus derive meanings based on power relations linking it directly to one's status in society.

While looking at the change of women's dress in Assamese culture the role of missionaries has a significant role to play. The prime objective of the missionaries was to evangelize the people of North-East India, however their endeavor in the development of modern Assamese language and literature cannot be ignored (Talukdar, 2012). The first impression of the British while coming to India was gathered from encountering Indians in their naked bodies. Newly arrived British women in India recorded with shock not only the semi nakedness of the Indians but also their "low" status, as they moved around barefoot, semi-naked, and so on (Cohn 1996,130). The status of the people was judged by the clothes they wore. With formal education, the missionaries also taught people to be 'civilized,' meaning to cover their bodies with proper clothing. This apparently made people to realize their state of inferiority and uncivilization because ther were half-naked. Through clothing, the Europeans carried an aura of representing their form of clothing as superior and more outgoing than that of the regional clothing of Assam. The change was more pertinent among the progressive and wealthy Assamese who went to different states as well as abroad in pursuing higher education and adopted new cultural characteristics during their stay. Since his return from Calcutta in 1845, Anandaram Barooah used trousers, hat, and shoes whenever he visited Europeans or went out for a walk (Hopkinson 1867 as cited in Barpujari 1977,126). Thus, later many Assamese elites started imitating the western styles deeply influenced by the colonial masters and started emulating European lifestyles. On the other hand, the woman along with formal education was also taught activities such as sewing and embroidery. These resulted in the addition of new elements to clothing such as blouses and underskirts to their clothing. The historical perspective tends to look at the variable impact of the European culture and their idea of civilization while analyzing the change in the Assamese dress. The period of modernity that is believed to evolve with the advent of the British in Assam, added modern/ western elements that influenced people to adopt new sartorial experiences.

Forty people interviewed during the study provided valuable inputs and their perception of how clothing plays an important role in their everyday lives. Most of the women find the traditional *mekhela chadar*[1] intrinsic to Assamese culture and as a marker of Assamese identity. However, they have also talked about the change in present times where one finds multiple variations of *mekhela chadar* which was very rare earlier.

When asked to one of the informants, aged 85 she said:

> Interviewer*: Tell me about the dress you have seen around in your 20s?*
>
> Interviewee*: Women wore handwoven Mekhela Chadar. The use of blouse was absent during our days. It is only in the post-1970s that people were introduced to blouses. Whereas, at home, women would tie mekhela over their chest and feel comfortable.*
>
> Interviewer*: Did you wear a dress other than your traditional outfit?*
>
> Interviewee*: Yes, it was back in the 1980s, when I was gifted a saree from my eldest son who worked in the Army. That was the first time I tried a saree but it was always mekhela chadar that I wore in public places. However, I remember during the Assam Agitation when women were forced to wear traditional mekhela chadar and resist the Pan-Indian clothing in public.*

Few informants mentioned how earlier women in mainly rural areas women were busy in weaving clothes for their own, however, they now see a decline in home-made weaving clothes due to the import of Pan-Indian dress which is cheaper and less time-consuming. However, while selecting a dress women remain very conscious of what to wear since particular clothing possesses socially constructed qualities in terms of age, color, and different spaces. The dress can be both a mechanism for control and can be a strategy to challenge social norms. Thus, in religious events, Assamese women choose to wear *mekhela chador* rather than any other dress for the sake of tradition and as it seems to be appropriate in the particular situation. Another example might be that of a widow wearing white is culturally and socially accepted, whereas resisting the social norm becomes problematic in Assamese culture. However societal norms vary from place to place and individuals. Thus, in the present time, with the flow of modern thought and ideas, and people leading an urbanized lifestyle, societal norms and tradition have been more flexible to many. ~~However, there is always a constant skepticism between tradition and modernity that continues to strive among the people.~~ Another interviewee Minakshi Gogoi (38yrs), talks about the newer trends in clothing and the comfort she finds while wearing a Pan-Indian dress such as the *Salwar-kameez.* However, during religious occasions and celebrations, she tends to wear the traditional *mekhela chadar*.

This shows the multifaced identity that a person deals with the clothed body, where her clothing represents her status as well as her identity. For example, the traditional Assamese women dress is the *mekhela chador*, but it is also regarded as old-fashioned, inelegant when compared to other Pan-Indian dresses which are "classy" and "progressive". Sometimes people wearing a particular dress can be bullied and mocked to some extent.

Many have linked the idea of modesty, shame, and class with clothing. The sense of modesty concerning women's clothing was always present in Assamese society. The idea of modesty in terms of women's clothing has restricted women's choices thus providing a sense of what to wear and what not? thus ensuring what remains appropriate/inappropriate in culture. This has also helped in regulating women's sexuality by controlling them in the dominant patriarchal structure, by continuously

1 Traditional two-piece Assamese women dress. *Mekhela* is the lower garment and *chadar* is a long piece of cloth to cover the upper body.

monitoring their sexuality. Likewise, there was certainly a change in how people (especially women of privileged families) associated dress with modesty. Thus, in the early twentieth century with the change in the socio-cultural order, the reform in dress was equally visible in Assamese society. People became more conscious of their clothing, and the transformation in the Assamese dress was more apparent in this period due to certain socio-political events that people encountered. However, the difference in dress practices can be seen among the Assamese in terms of social order. Hence, high-class women wear only silk clothes as compared to the women of the lower class who wear cotton fabrics. Rare and expensive 'silk' gradually became dominant and used largely by the upper classes. On the contrary, the lower class draped the easily available woven cotton loincloth. ~~Asserting that the rare 'silk' is something that is meant for the rich can no better be understandable what Saikia had written on account of Assam's silk and its uses among people.~~ Saikia (2001) writes: "The silk was a mark of social differentiation to the discerning eye. The *Eri* cloth could be used by the poor without any difficulty. Of all the three varieties, *Eri* was the cheapest and the most common thing of daily use in winter" (2001,67).

However, in terms of women, clothing played an important role during the social movement in the twentieth century Assam. First and foremost, the Assamese women's role in India's Independence has been remarkable in the history of Assam. During the movement, the women boycotted foreign goods and accepted the traditional dresses mainly 'cotton' and 'Khadi' as a protest against the British rule. The shift from silk to cotton was the result of the Gandhian intervention in Indian politics. Gandhi looked into the importance of clothes in people's lives and took it up as an important tool during the Swadeshi movement. Gandhi was one of the first to realize the political potential of dresses. The very act of choosing to wear or not a particular dress was a powerful political statement and this was something that would forever alter the history of dress in India. Susan Bean portrays how Gandhi as a 'semiotician' experimented with clothes and achieved an understanding of the role of clothes in Indian life (Bean 1989 as cited in Tarlo 1996,64). While wearing the loincloth, Gandhi tried to build a connection with the common people and tried to deliver a message through his attire, and encouraged people to engage more in weaving, spinning, and refraining from the use of foreign goods. However, abandoning of foreign goods was also a strategy to discourage and demotivate the British power.

Another contribution of Assamese women was during the *Asom Andolon*[2] (Assam Agitation 1979-85). During this period, clothing was used as a significant tool to represent the greater Assamese culture. During the *Asom Andolon,* women were told to abandoned Pan-Indian dresses and to wear the traditional *mekhela chadar* as a symbolic representation of the Assamese. The photographs clicked during the movement provide evidence to analyze how women were mobilized as cultural bearers in both sub-nationalist discourses. The role played by the Assamese women in the Assam Agitation was both symbolic (to represent her as the bearer of an "authentic" culture) and functional (the idea was, after all, to establish the uniqueness of the Assamese as a community).

However, post-Independence, the growth of urbanization has resulted in the upliftment of new markets trade in Assamese society due to better connectivity to other provinces. This brought the traders an opportunity to import more goods in the markets. Other than markets, newspaper advertisement, as well as the Assamese cinema, has a major role to play in the transformation noticed in women dress. The post-1960s have witnessed women starting wearing Pan-Indian dresses (*Salwar* suit, western dress, Saree) moderately. This is considered an influence made by popular culture during the period inspiring women to accept the trend in clothing mainly by few elite Assamese families.

2 an ethnonationalist movement against immigrants in Assam, mostly of Bangladeshi origin.

Conclusion

Changes in lifestyle and identities, whether chosen, imposed, or a result of aging, are reflected in our memories of the dress (Slater, 2004). This article is an attempt to strengthen the understanding of cloth as an important part of material culture that seems mundane in everyday life is used instrumentally and linked to the questions of identity, nationalism, status, class, and gender. Clothes as a cultural artifact are embedded with multiple sets of meanings that are shaped by the socio-economic and political forces, reflecting the social and cultural aspects of the time that gives an essence of the embodied experience with clothes. This is discernible in the way Assamese women dress, which has embodied multiple-meaning over time.

The study reflects the layered meanings that clothing beholds and is defined concerning binaries, such as superior or inferior, progressive, and traditional. The binaries are made to distinguish the 'self' from the 'other', where the dominant 'self' tries to shape, create, and reinforce cultural meanings. The role of patriarchy in undermining women's position remains constant in the way women served as cultural bearers. Women's participation during the freedom movement and the *Axom Andolon* displayed women's enthusiasm (to attain public access) and as cultural representatives by accepting to wear the *mekhela chadar* as a cultural symbol of Assamese nationalism and their identity. "Clothes do more than simply cover and fit the body. They are an extension of the body, an extension that proclaims personhood, because people choose clothes that represent who they are" (Becker 1997, 138). Clothes do not have a meaning of its own, but it is the body that makes clothes live and connects them to the world.

However, the continuous renegotiation of identity through dress strives to continue between tradition and modernity. Lastly, if we consider the *mekhela chador* and the Pan-Indian dress as an artifact, then in contemporary times the several ways of clothing depict multiple identities that people use to position themselves to reinforce conventional stereotypes and to internalize the expectations of society.

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Photographic References

Figure 1- *"[British family with Indian Servants in northeastern India]"*. Photograph. United Kingdom: Alamy Limited n.d. Heritage Image Partnership Ltd / Alamy Stock Photo. *Private collection*. <https://www.alamy.com/british-family-with-indian-servants-in-northeastern-india-image262730857.html. (accessed with license 7th January 2020)

Figure 2- "[*Lakshminath Bezbaroa with wife Pragya Sundari Devi and daughter (late 19th century)]"* (Personal collection, ©Avinivesh Sarmah)

Figure 3- "[*The Chaliha family of Sivasagar (former Chief Minister of Assam, Bimala Prasad Chaliha is seen sitting to the extreme left) of 1900s]"* (Personal collection, ©Avinivesh Sarmah)

Figure 4- "[*Members of the Sharma family of Choladhara, Jorhat, (1930s)]"* (Personal collection, ©Avinivesh Sarmah)

Figure 5- "[*Family photograph of Nabin Chandra Medhi]"* (Personal collection, © Bidyum Medhi)

Figure 6- *"[Mohandas Karamchand Gandhi visits Silk makers in Assam 1946]".* Photograph. Spain: Age Fotostock. *World History Archive.* <https://www.agefotostock.com/age/en/Stock-Images/Rights-Managed/IAM-WHA-096-0250/1 (accessed with license on 26/-8/2019)>

Figure 7- Bohra, P., *"[Vintage Fashion: 1970s, Assam]".* Blog photograph. Slow Motion Thoughts. c2015. *Vintage India.* <http://slowmotionthoughts.com/category/vintage-india/> (accessed 9th January 2020)

Figure 8- Baruah, J. *"[From Nirbhaya to Jallikattu: The protestors' version of a 'New India]".* Photograph on Article. The Economic Times. c7th April 2018. <https://economictimes.indiatimes.com/news/politics-and-nation/a-look-at-some-of-the-powerful-protests-that-shook-india/articleshow/63658786.cms> (accessed 12th December, 2019)

Figure 9- "[*Assamese women in Pan-Indian Salwar suit (1990s)*] *"* (Personal collection, ©Siwani Mech).

Pictures

Figure 1. British family with Indian Servants in north-eastern India.

Figure 2. Lakshminath Bezbaroa(Assam) with wife Pragya Sundari Devi (belonging to royal Tagore family, Bengal)and daughter (late 19th century).

Figure 3. The Chaliha family of Sivasagar (former Chief Minister of Assam, Bimala Prasad Chaliha is seen sitting to the extreme left) of 1900s. The use of saree is seen among the women in the picture

Figure 4. Members of the Sharma family of Choladhara, Jorhat, (1930s) The patriarch was Dr. Binondi Sarma who was a renowned physician.

Figure 5. Before 1940s, Family photograph of Nabin Chandra Medhi

Middle row (sitting from left) : Nabin Ch. Medhi, Labanya Medhi (wife), Snehalata Medhi (brother's wife) Bipin Chandra Medhi (brother), Freedom Fighter and MLA of Mangaldai, Assam.

Figure 6 Mahatma Gandhi's visit to Assam in 1946

Figure 7. Taken in the early 1970s in Assam, the women in these pictures are wearing traditional Assamese mekhela, barring one who is in knit collared top and boot cut trousers.

Figure 8. The Assam Movement, 1979-1985

Figure 9. Assamese women in Pan-Indian Salwar suit (1990s)

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Family and Marriage among the Tai Khamti of Arunachal Pradesh: A Study on Social Changes and Continuity

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KEYWORDS

Culture change, Family, Marriage, Tai Khamti, Urbanisation

ABSTRACT

The North-Eastern region of the Indian sub-continent marks the amalgamation of populations and cultures belonging to different ethnic communities that reflect location-specific distinct ways of life but, tend to co-exist peacefully preserving their unique traditions. The state of Arunachal Pradesh shelters a total of twenty-six major tribes and around a hundred sub-tribes, each one of them reflecting a unique cultural tradition. Although most of these tribes inhabit the rural areas of the state devoid of many modern facilities, yet the growing need for better employment, the urge for improving socio-economic conditions has led to migration either temporary or permanent to the urban centres and over years contributed to the loosening of the traditional culture structure. The spread of modern education also bears an impact on the traditional values and beliefs among these tribes. With this in consideration, the present study aims to understand the nature of changes in the institution of marriage and family of the Tai Khamti tribe of Arunachal Pradesh. This study highlights the ongoing process of urbanisation, acculturation, and modernisation among the tribe which has affected their core institutions over years.

Introduction

The dynamic nature of society has long been established and thus society is transforming both in its structure and functioning. Given the unprecedented frequency of change, the study of social change holds more justification than evaluating the society itself. The main thrust of village studies has been confined to the traditional social structure. However, with the passage of time, migration and assimilation have become prominent. Thus village studies focusing on any traditional society should ponder upon the changes brought about in the social life. The concept of 'change' relates to social continuity and hence the tradition and structure underlying any society couples to initiate a change process (Gupta, 2005). Any analysis of change thus evaluates social structures and traditions, where the historic construction is attributed by the traditional framework and the existing processes are stressed by the structural part (Gupta, 2005). Talking about change, it can be a by-product of multiple forces like modernisation, industrialisation, and innovations, all leading to a varied way of life. Therefore, it is not feasible to designate a single force associated with the change in society. Further, change originating in any sphere soon leads to associated transformations in the other areas within the social system. This establishes the vital aspect of social structure where various traits are interlinked and thus a shift in one of these introduce change to its interrelated parts. In turn, changes in the peripheral traits create waves of change in the entire system leading to the alterations in more rigid structures in due courses, with the impact getting weaker as it reaches the core (Ramya & Ramjuk, 2018). This

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very nature of culture dynamicity provides a framework to understand and evaluate the various forms of a particular culture across time. As discussed above, in any culture, tradition refers to the last phase of socio-cultural life while modernity denotes the contemporary structure and values with fewer or observable changes. Every society has a culture and it is ever-changing and the underlying process of change leads to internal adjustments with the time that remains essential for any culture to maintain its continuity. This relationship between the traditional and modern present hurdles and integrating the two phases becomes difficult as the forces of changes neither snap the relationship with the past nor does the process of continuity allows elements within the culture structure to remain static. Given such a situation, referring to the past as irrelevant and the contemporary as better adapted can become obsolete as both phases bear latent functions and marked events. Changes leading to a modern form of culture hold a significant impact on social life and its associated practices that affect the culture core in both rural and urban societies. Society being dynamic, it changes slowly under the pressure of both internal and external factors. However, not all traits in a social group follow a simultaneous path to change. In any social group, the core traits hold higher resistance to the forces of change than the marginal ones. The values governing any society remain crucial towards accepting or rejecting the change process. Hence, societies that are tradition-bound tend to be more rigid towards change and present challenges to new ideas and innovations. From the social change perspective, it would be interesting to mention that drastic changes in the social structure have always been considered harmful to society. This is because the social system is unable to adjust in itself and its cultural roots are torn apart. Thus tradition forms a buffer and prevents the destruction of old values and enables the social system to maintain its structure. In other words, social change is gradual and any sudden forces may lead to shattering its internal dynamics. Moreover, evaluating the concept of social change needs constant understanding that change is closely associated with continuity and both these concepts are intertwined in the social sense. Any study on social change can only be justified by drawing a legitimate comparison with the traditional. What continues today is in concurrence with the image of the past and the rest is tuned with the changed pattern. The concept of continuity and change has often been critical with different scholars looking at it from multiple dimensions. However, the common view of the concept corresponds to the comparison between the present and the past or relates to the evaluation of any changes either towards progress or decline. Pienyu (2017) stated, "Continuity and Change signify tradition and modernity. Tradition and modernity are expressions of values that seek to explain the process of social and cultural transformation at different stages of development". In the modern world, evaluating the relevance of tradition and modernity can become difficult as individuals struggle to distinguish the traditional values and its modern forms. The concept of change and continuity is itself a diachronic process that brings in alterations in any culture by a social mechanism (Behera, 2016). Social change occurs at both 'macrostructures' and 'microstructures'; thus any structural change process leading to transformations in 'macrostructures' bears the tendency to eventually influence the 'microstructures'. For instance, urbanisation and industrialisation spill over its influence on family structures and marriage traditions. The 'spread-effect' of changes in the higher structures corresponds to the transformation originating in the microstructure. However, such alterations in the microstructures can also be brought through endogenous forces of change.

Based on the above discussion, it is essential to understand the underlying dynamics of the traditional and the modern. While examining these dynamics, it is necessary to analyse the process of change and its influence on the core institutions. Such core institutions often remain intact but their underlying components do changes while incorporating forces of transformations across the period. Such an analysis is essential to highlight the process of adaptation to the change process. To understand change and continuity in social traits the present paper looks at the core institutions of family and marriage from different historical periods. In the Indian context, the family has been the basic and integral part of any larger social system because of the role it plays in the generation of human

capital resources and the power that is vested in it to influence individual, household, and community behaviour (Sriram, 1993). It remains a homogenous unit that reflects strong coping mechanisms and acts as the line of defence, securing the survival, health, education, development, and protection of its members. The interpersonal relationship shared by its members forming a wider network of roles has drawn the attention of social scientists from multiple disciplines. It is also a major source of nurturance, emotional bonding and socialisation, and a link between continuity and change. It has the major potential to provide stability and support when there are problems. Similarly, marriage is an equally important socially approved institution. The relationships shared within the institutions of marriage are defined and sanctioned by custom and law. Marriage regulates the division of labour and legitimates inheritance and succession and thus it is more than a means of sexual gratification that set forth a mechanism that guarantees a continuation of the family itself. Marital practices and their importance have been analysed across various cultures and their social context has been highlighted through various definitions. Edward Westermarck (1921) defined marriage as "A more or less durable connection between male and female, lasting beyond the mere act of propagation till after the birth of the offspring". Radcliffe Brown's (1950) definition, states "marriage as an alliance between two kins based on the common interest that is marriage itself". Considering the importance of family and marriage in the social order, this paper attempts to measure the nature and extent of change that has occurred in the two important social institutions. As rural India is becoming increasingly important as a source of change, this study on social institutions will unmistakably reflect signs of new kinds of transformation.

Methods of the study

This study was conducted in the Namsai district of Arunachal Pradesh which is dominated by the Tai Khamti tribe of the Buddhist faith. They are the only followers of Theravada Buddhism in the entire Indian sub-continent and have been practicing their ancient religion despite the growing influence of Christianity in the territory. The present study was explorative combining ethnographic methods along with analytical procedures. The secondary data collection began with a review of books published in the study group. Article and notes published in both regional and English languages were collected through online and offline sources. In course of the fieldwork, the district libraries of Namsai and Lohit in Arunachal Pradesh provided immense material that helped to locate the traditional family and marriage systems.

For the study, six Tai Khamti villages were randomly selected, namely, Chowkham, Momong, Lathow, Kherem, Nalung, and Gunanagar. The prominent method applied during the study was participatory observation supplemented by case studies to get an in-depth and holistic picture of the family and marriage structures. The initial stage of the study began by closely observing the daily life of the Tai Khamti people and interacting with prominent members of the sample villages. This was followed by a household census survey that was beneficial to structure the data based on demographic values. Informal interviews and discussions were conducted which helped in identifying respondents who were later consulted for semi-structured interviews. From among the respondents, individuals between the age group 70 and 85 were identified and oral histories were collected through informal meetings. Semi-structured interviews were conducted among 62 families consisting of 350 individuals among whom 184 were residents of rural areas while 166 were urban residents. During the study, a keen observation was made on the pattern of interaction, social relationships, family attitudes, and social sanctions that helped to cross-check the data collected through interviews. The snowball sampling method was much helpful throughout the study. Data was collected in the form of scribbled notes and recorders were used whenever possible.

Objectives

To understand the traditional Tai Khamti family structure and marriage customs.

To analyse the level of changes in the institutions of family and marriage.

To evaluate the factors affecting the core institutions and study the prevailing cultural practices.

Results

Family structure

Within the Tai Khamti social organisation, the family was considered as the basic and vital unit that regulated behaviour, attitudes, relationships, and the social order at large. It was a by-product of either marriage relationships or drawn through decent ties. By tradition, family among the Tai Khamti has been patrilocal, patriarchal, and patrilineal and tends to regulate the economic and religious spheres. The basic family composition consisted of a man, his wife, and their unmarried children. This was a form of a rather modern grouping where the individuals occupied a single house with an undivided kitchen. Traditionally the tribe practiced a joint family system driven by the need for labour as agriculture was the primary economic activity then. Even in present-day families, members shared duties both in the household and agricultural sectors. Nuclear families were extended comprising of unmarried brothers and sisters. However such extended families were scarce and most of the newly married couples were found to settle at their own individual house rather than taking shelter with the groom's parents which were a preferred tradition among the tribe. A gradual change could be observed in the composition of family units across the tribe. Nuclear families had become prominent as individuals were driven by their natural tendency to gain authority as the family head.

Table 1: Family Types among the Sample Group

Family Type	Total Number
Nuclear	52
Joint	6
Extended	4

Joint families usually consisted of parents, their sons, daughter-in-law, and their children. In many cases, newly married sons had built up their own houses within the parental compound but still maintained a common dining space. Common dining was also regular in extended families where the widowed daughter and her children took shelter in the former's paternal house. The modern ideologies of family planning had been minimal among the tribe as members were still reluctant to participate in the family planning program. The Tai Khamti followed a patrilineal descent and hence descent was traced through the father's line. It was found that members from the same lineage groups followed a tradition of extending help in multiple situations involving economic activities, organising religious ceremonies, or providing financial assistance. Murdock (1949) stated that "a rule of descent affiliates an individual at birth with a particular group of relatives with whom he is especially intimate and from whom he can expect certain kinds of services which he cannot demand from any other kinsmen". Among the Tai Khamti, the patrilineal descent system made men the legal owners of the parental property. Any of the male members in a family could make their claim to the father's property. However, in cases where the son was not in contact with the family and stays in distant palaces, his claim to the property was marginalised. In the earliest times, the Tai Khamti followed a tradition of passing a part of the parental property to the married daughters as a token of love. However, such a system has been regulated by the village councils in the present day due to the growing instances of inter-community marriages. Respondents narrated how members of the neighbouring caste

groups have started marrying Tai Khamti girls to claim authority over their ancestral property. The Tai Khamti followed a similar rule of descent and inheritance for an adopted child. Adoption was socially sanctioned among the tribe and in situations like the death of children or in case of lack of a potential heir to parental property; any individual can opt for adoption. However, it was remarkable that the members preferred to adopt from within the community, and outsiders were not readily accepted. The general belief regarding such preference related to the fact that adopting children from within the community made the socialisation process much easier. Adoption could be observed where brothers shared their child and such practices were readily accepted by the villagers. Such traditions symbolised social support and even made parenting less worrisome for childless couples. Co-operation and mutual support is the key to any successful family. Among the Tai Khamti, the family has been an institution for the division of labour. Each member either male or female was ascertained with their respective duties and responsibilities. The division of labour was based on the idea of hard work and soft work. Female members were more comfortable in household activities like child-rearing, cooking. However, they were not restricted to their routine activities and often helped the male folks in agricultural activities. The male members were more absorbed in the economic activities that varied between agriculture, timbering, salaried jobs, or entrepreneurial activities. Flexibility did exist, like duties shared between the male and female members. In many instance, female members agreed to the fact that at times of illness and social ceremonies their male folks do help them in the kitchen activities. Children were taught to obey their elders and entrusted with household duties based on their age. Such labour division formed a part of their traditional methods of child socialisation. However, a gradual change in gender roles could be observed in the present-day Tai Khamti society. Today, there is not much division of labour between the male and female and both perform each others' work. With the spread of opportunities for higher education and emerging platform to showcase individual talents, the stereotypic gender roles have loosened. It was common in many households where servants had been entrusted with household duties and the agricultural activities were looked upon by wage labourers. Marketing activities that were largely considered as a male duty were now taken up by females as the restrictions and taboos associated with the movement of female members had loosened across time. Free movement of female folk was only regulated during the time of pregnancy when the women were kept under the guidance of the family members and were forbidden from involving in activities that would create complications during childbirth. For instance, during pregnancy, a woman was forbidden from crossing over a rope which was used for tying cattle considering it to be inauspicious. Despite the decline of rigid social norms concerning women, yet the female folk still cling to their traditional customs associated with family obligation and social conduct. The present-day Tai Khamti society hardly regulates the interaction of unmarried girls and boys despite the traditional norms of maintaining a strict gap among opposite sex through the system of the dormitory. Similarly, the marriage alliance was highly valued by the members and the instances of divorce were nonexistent among the tribe.

By tradition, the Tai Khamti had been patriarchal and thus the male authority in every family was normal. A thin line of male dominance was still present among the tribe in affairs associated with inheritance and visiting public spaces. However, the male authority hardly hindered the freedom of the female members. The present-day Tai Khamti society has seen female representatives in village councils and, even in family affairs the opinion of the female members was duly addressed. The female members in every Khamti society enjoyed social, cultural, and individual freedom. Unlike traditional society, female respondents agreed upon the fact that they were free to choose their profession and make choices in terms of marriage relationships, dressing, and leisure activities. In the absence of male heads, the females were entitled to their parental property. The Tai Khamti society had been following traditional dispute resolution methods associated with inheritance. In case when a person left behind two wives along with their children, the village council could bring the parties involved into a consensus

unless the party solved the issue within themselves. The obligation towards the elders' still signified the nature of a woman within the tribe. In the household, the daughter-in-law and father-in-law shared a relationship of affection and respect. However, in the case of mother-in-law, a more of an authoritative relationship still prevailed, wherein a new bride had to pass a phase to understand the duties and obligations of her new family under the guidance of her mother-in-law. However such authority did not undermine the choice of the new bride and restricted her daily activities. The daughter-in-law was granted equal status as her fellow members and remained free to explore her choices. This sense of belonging helped her to better adjust to her husband's family. Among the Tai Khamti, kinship was a vital factor that played a significant role in the family unit. Both cognates and affinities received equivalent status within the household. Because of the patriarchal structure, the birth of the male child was usually welcomed despite such preferences were negated by the members. The family had been the main agency of child socialisation among the tribe. Socialisation guaranteed the maintenance of social order and strengthened the structure of society. Any newborn was gradually habituated to the activities of the family from the age of one to two years. The Tai Khamti believed that a male child was a better learner than a female one, and it was during this stage that a thin line of gender differentiation was imposed through variations in games and household activities. In the case of a female child, she was more associated with her mother and thus took up experiences from the kitchen activities and other household tasks. A male child, on the other hand, was free to roam and more involved in duties that he experienced from his father. In the case of boys, he would visit the forest with his father or go fishing and even helped in the fields. The primary stage of socialisation continued until the child was free to blend with the large crowd of a village.

A family cannot be separated from society when it comes to child socialisation. Among the Tai Khamti, it could be observed that a child was never restricted from merging into the public gatherings and he or she was made free to mingle with any of the villagers irrespective of gender or age. The traditional segregation of males and females through the dormitory system had long vanished. It was the society as a whole that stimulated the process of socialisation and the aged sections of the community played a vital role in the whole process. Followed by the primary socialisation, a child entered a more structured and formalised phase where he or she pursued education and continued until an adult choose to involve in income-generating activities. This traditional phase of child socialisation had seen transformations over the years. As the process of urbanisation had initiated the spread of boarding schools and in such cases children were deprived of their traditional socialisation process and were more inclined towards modernity. The loosening of established methods could also be noticed with the change in the economic status of families that bore a large impact on the whole process that ultimately affected the behaviour of a child. Today, the role of the family to teach the younger ones has shifted to educational and religious institutions.

Marriage and cultural practices

Traditionally the Tai Khamti practiced polygamy and it was socially sanctioned; however, such practices have become irrelevant today and monogamy was a widely accepted marriage form. In the early Tai Khamti society, a cross-cousin was the most preferred mate for marriage and both mother's brother's daughter and father's sister's daughter were considered for marital ties. Even today such preference did exist, yet it didn't restrict individuals from choosing a mate of their own. By tradition, the Tai Khamti practiced three main forms of marriage that included marriage by love *(hakkon),* marriage by capture *(onlak),* and marriage by service *(khonkhoi)* (Behera, 1994). In the present day, marriage relationships were established either through love or arranged by the respective families. The early traditions of service and capture had become nonexistent. The Khamti marriage ritual involved a process of financial agreement wherein the groom had to pay a price to the bride's family. The idea

behind the practice of the brideprice was that her parents were losing a working hand and the money had to be deposited to compensate for the loss. Even today such practices are widely popular and like the early periods, the brideprice was fixed based on the norms laid down in the holy book 'Thamasaat Sangyase'. Unlike many other societies where the girl's consent was hardly entertained in case of marriage, the Tai Khamti have been following the practice of consulting the bride and her choice was given due attention. However, a vast change in the age of marriage and choosing their mates could be observed in today's society. Respondents narrated that in the earliest times girls were married off between the ages of 15-18 years as an unmarried female was associated with the concept of purity. Such beliefs compelled the woman to marry whether they liked it or not. Such traditions had been discarded over the years. At marriage, the bride had to bring gifts *(Khung-um)* and the necessary goods required for her daily activities (Behera, 1994). Behera (1994) observed that the marriage ties among the Tai Khamti were much flexible in comparison to the orthodox Hindu society. Since the early days, the tribe had the practice of divorce *(fakon)*, though these were rarely practiced and not appreciated by the community. The families involved in the process of divorce had to follow socially governed norms and at times the village council might come into work. The divorce rules were still operating today and the tribe hardly visited the modern judiciary but rather solved such issues within the village council. Their established traditional laws governed the rights that a wife bore on her husband's property and socially accepted norms were given preference rather than modern laws. Traditionally, the Tai Khamti followed strict restrictions and by rule, marriage within the same clan was prohibited. Even today such restriction continues and both the rural and urban residents considered such rules essential for the integrity of the tribe. However inter-community marriages have crept in, which was nonexistent in early times. Among the Tai Khamti, marriage restrictions were widely followed as they consulted their manuscripts in any ceremonies of this kind. For example, marriage was strictly forbidden during the *Vassavasa* or *Khau Wa* ceremony which was celebrated from the mid of July to the mid of October. Any individual who was found to violate this rule could be penalised and even made outcaste. Clan exogamy and tribal endogamy were the established rules of marriage. They avoided the marriage relationship with Mother's sister's daughter. In ancient times these rules of mate selection were strictly followed by the members. The breach of such rules was considered as an act of disrespecting their culture and often faced fines and punishments; however, in recent times, a greater flexibility has been granted to the new generations. Social support has been keen on any Tai Khamti marriage since the earliest periods. Family and clan members extended every possible help in course of organising such ceremonies. They would involve in negotiations and help the groom financially to pay the brideprice and even extended physical help in making arrangements.

The arranged marriage process had been elaborate involving negotiations between the two families involved. Specified individuals, known as *Kotoki* or *Chao Pat Chao* (messenger) acted as a middleman between the bride and groom and he was usually selected based on the fact that he couldn't be related to either of the families. By tradition, *Kotoki* was the first person to visit the bride's family along with a few female members from the groom's side. They carried a basket of sweets known as *Khong Paak* as a token of respect. After negotiations with the bride's parents and securing their approval the *Kotoki* revisited the bride's place to formally conduct the engagement or *Pong Phaak.* In course of this visit, the groom's family was required to carry a basket of betel nut, steamed rice *(Tupula Bhat),* and dry fish *(PA Haeng).* This ritual was followed by the practice of negotiating the brideprice or *Huka*. Traditionally the Tai Khamti followed a remarkable practice, where each of the members of the bride's family bore a specific price, and the marriage was finalised once the price was payed by the groom. However today such rigid norms have been diluted and the brideprice was practiced more in order to keep the tradition alive. The earliest Tai Khamti society used their indigenous nimbers to arrive at the brideprice negotiations. The prevalent rate was one hundred and forty rupees or *Choilung.* In the present day, the groom's family would give a larger amount as a sign of affection and to reveal their economic status.

On the first day of the Tai Khamti arranged marriage, members from the groom's family visited the bride's place to bring the bride. Elaborate arrangements were made for food and merriment at the bride's place. The bride's maternal uncle played a vital role in course of the whole ceremony and he escorted her to the groom's place after receiving a formal invitation from the groom's members. Once the two parties arrived at the groom's place, they sat together to exchange material goods. Traditionally the groom's family had to provide a set of bullocks to the bride's side and in return, the bride's family offered the groom a cow. In recent times such negotiations were hardly existent and the ritual was carried out through cash transactions that ranged between ten to fifty thousand depending on the economic condition of the families involved. Even today, the bride used to go back to her parental home on the first day of the marriage and it was on the second day that the groom's family members revisited her to bring her back to her new home. On this day, a specified individual known as *Teiko* accompanied the groom's families and carried an umbrella, which was similar to one noticed in any Hindu caste marriage in India. At the bride's place, the newly married couple seek blessing from the *Bhikkus* (Monk) and the village elders. By tradition, the village elders tie a sacred band on the hands of the couple that signified their union. Such a practice was still prevalent in today's Khamti society and the members highly valued it. Once the rituals at the brides' place end, her family members accompanied her to the groom's place. In the earliest times, the bride was accompanied by her maternal uncle who would dress like a warrior or wear a golden crown. Today such rituals have been less visible; however, they still followed the manuscript of marriage or *Fi* to ascertain the time when the newly married couple could enter the groom's house. Modern traditions have crept into the Khamti marriage ceremonies wherein young girls from the bride's side would demand gifts from the groom before letting them enter their home. Such gifts were generally distributed in the form of cash. Respondents believed that these traditions were not indigenous and have been a result of assimilation with caste populations.

In the present day Tai Khamti society, marriage by elopement *(Pai Pin Hun)* has become the preferred form of marriage. Respondents agreed upon the fact that marriage by elopement was widely practiced as arranged marriages often consumed much time and effort and also bore high financial costs. In this type of marriage, traditional rituals and negotiations were hardly followed. In common the couples would elope and take shelter in one of their relatives' house and during this period the boy's parents were made aware. His parents had to take the consent of the girl's family regarding their marriage. After receiving the consent the boy would bring back the girl to his paternal home where a feast was organised to formally recognise their union. In many cases, the groom would arrange the feast based on his ease and financial condition and hence need not follow any specified norms. The flexibility involved in this kind of marriage had made it more preferable among the younger generation and gradually it has become a socially approved form.

Table 2: Marital Status of the Sample Group

Gender	Male	Female	Total
Married	143	125	268
Unmarried	42	36	78
Separated		1	1
Widow/Widower		3	3

Discussion

It is apparent from the discussion that with the advent of modernisation, the core institutions of marriage and family have seen a gradual change among the Tai Khamti. The transition from tradition to modernity is vital for the progress of any society and it is always difficult to ascertain

the benefits and shortcomings of both periods. In the Tai Khamti society, the spread of education has loosened the indigenous methods of child socialisation and formalised education and boarding schools have restricted their association with the society at large. However, with the spread of education women have become enthusiasts to pursue higher education and opt for the profession of their choices rather than being strictly involved in the household's activities. The division of labour has become flexible where both man and woman take up each other's jobs, yet the traditional norms and taboos associated with women's movement at times of pregnancy has remained rigid till today. As discussed in the introductory section, not all traits in a culture change simultaneous and few tend to maintain their original form. As time passed more and more individuals have taken up government jobs and in due course encounters with outsiders have led to the introduction of traditions that are not indigenous to the tribe. The practice of making negotiations at marriage has been reduced to cash transactions which were earlier carried out through material goods. The very nature of the marriage form has seen vital change and rigid customs associated with arranged marriage have been gradually replaced by marriages where the bride and groom could give prominence to their choices. There has been a shift in the mindset concerning marriage. In the earliest society, an unmarried girl was observed from the standpoint of purity and hence she was married off whether she liked it or not. However today the consent of the girl is duly considered and woman is free to select their mate. The economic condition plays a vital role in the institution of marriage in the present day Khamti society. Marriage ceremonies and gift-giving are determined by the financial status, unlike the traditional society where the roles of social norms were given dominance. The negotiations between the traditional and modernity are well exposed in the Tai Khamti society. Despite changes in family structures and roles, social support and clan ties are still well established which can be easily noticed in course of marriage ceremonies. The rapid spread of nuclear families has hardly affected the socially approved obligation towards elders and respect towards in-laws. The balance between tradition and modernity is composed of their social order. The tribe practiced polygamy and had vivid laws that governed divorce. In modern-day polygamous marriage has become nonexistent, yet the indigenous rules of divorce still hold strong within the society and members seek the help of the village council in crucial matters rather than consulting the modern judicial system. With time, the rules of inheritance have also seen noted changes. Traditionally men were the preferred heirs to the parental property and the married daughters were given a certain share as a token of love. In the present scenario, the tribe has regulated the passing down of parental property to their daughters due to growing instances of property annexation by outsiders through conducting marriage with the Tai Khamti girls. Today, marriage is still regarded as the basic and necessary unit to maintain the social order, and hence the frequency of individuals being unmarried by choice is relatively low. What have changed are the goals of marriage and it can be easily observed among the educated generation and the urban residents. The old mindset of having a larger family for households labour has been replaced by the growing preference for smaller families. In the case of marriage, the older notions of marriage for procreation and following the societal order have been overshadowed by marriages driven by the notions of self-fulfilment.

Conclusion

In the present times, human society has been experiencing the forces of globalisation which have brought in multiple changes within traditional societies and their cultural structures. Thus to address the survival of the local traditions it has become essential to initiate an in-depth discussion on the indigenous values and their modern forms. The present-day Tai Khamti society stands at the crossroads of traditional and modern cultures locked in a negotiation. Traditional practices like dormitories and child marriage have been abolished while elaborately arranged marriages

and joint families have been gradually minimised. Among the study group, the family, however, continues to be the basic social unit and follows patriarchy. But changes were also visible in the fields of inheritance, age of marriage, marriage norms, etc. The transition from tradition to modernity has introduced a better access to education allowing a woman to pursue her desired profession. Today choice is driven by self-satisfaction rather than governed by the rigid norms of the society that provides ease of life and flexibility to adjust with the changing times.

Pienyu (2017) states "Modernity implies rationality, liberal spirit and plurality of opinion, autonomy, secular ethics and respect for the private world of the individual. Such modern values are contradictory to the traditional rituals and practices involving the community at large and its customary rules". In the case of the Tai Khamti, the course of negotiation between adopting the modern values and following the traditional norms, the members seemed to restrict any radical change. In other words, the nature of changes in the social order of Tai Khamti was more of a linear pattern keeping a balance between tradition and modernity. Taking the case of Tai Khamti, it has become essential to structure and formulate tools that can be applied to address and strengthen the indigenous traditions and enable them to survive in global times. The rich cultural heritage, either tangible or intangible in the form of music, folktales, rituals, etc can be utilised to establish a proper framework of analysis. An in-depth analysis of the core social institutions like family, marriage, religion can be beneficial to highlight the nature of continuity and change in social orders and address the connection between the tradition and modernity of different societies subjected to the forces of globalisation. The family has been recognised as a basic unit of any society and is a link between individuals and the community. Investigations on the family and marriage and the nature of their changes have been limited. Sonawat (2001) states, "There seems to be a general paucity of applied family research in India. Thus it is important to deliberate whether these studies can be considered applied in nature-applied research is oriented towards an outcome, rather than concepts and it begins on the premise of usefulness and application". Based on her observation, it can be concluded that any research addressing the issues concerning family should be bound under a common purview which would help in influencing and formulating family planning policies in the coming periods.

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Associations of Menopause and Cancer in Global Scenario in post-menopausal women

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KEYWORDS

Breast cancer, Cervical cancer, Menopause, Ovarian cancer, Uterine cancer

ABSTRACT

Cancer is one of the deadliest causes of morbidity and mortality around the world. Menopause is the permanent cessation of menses results in permanent amenorrhea. Menopause causes a vast change in women's life e.g., physiological and psychological changes. Menopause is not the cause for cancer but it's a factor to cancer as age increases. The dual burden of cancer and menopause hampers many women globally. There are various other risk factors e.g., obesity, high BMI, sedentary lifestyle, unhealthy food habits, smoking, alcohol consumption, age at menopause etc can raise the probability of malignant disease. Some of these risks factor can be changed, whereas some cannot. Among all the reproductive organ cancers, breast cancer is the most common, followed cervical cancer and other cancers in developing countries. Women who attain late menopause after the age of 55 years are more prone to reproductive and other cancers (e.g., uterine cancer, ovarian cancer and breast cancer). In developing countries, women lack basic knowledge which tends to make them more vulnerable to dangerous diseases. Cancer is a major concern over there. Early screening, proper diagnosis and medication are effective measure to control cancer. This review study is in contrast to menopause and its association to recent trends in cancer in a global scenario. It describes current burden, prevalence, prevention, early diagnosis of cancer globally and theoretical analysis of female reproductive cancer among menopausal women.

Introduction

Cancer is considered as the 2nd deadliest causes of morbidity and mortality after cardiovascular death across the world (Sharma and Pattanshetty, 2017; Omran *et al.*, 2018), with increasing number of new cases and deaths every year (Szabo *et al.*, 2019). The burden of cancer is spreading unexpectedly all over the world in all income groups due to the growing population and longevity. There is a large population of middle aged women in menopausal years, among whom the prevalence of cancer is the most (Torre *et al.*, 2017). Menopause is the permanent cessation of menses which results from ovarian failure, as defined by the WHO (Kumari *et al.*, 2017). Studies found that menopause is not the cause for cancer but it may be a factor associated with cancer with increasing age and rise more in mid age (Lobo *et al.*, 2014; Surakasula *et al.*, 2014; Macdonald *et al.*, 2018). Women who attain late menopause after the age of 55 are more prone to cancer (Lobo *et al.*, 2014; Surakasula *et al.*, 2014). This is also the same for girls who attain puberty before twelve, hence the more the exposure of estrogen, the higher the risk of breast cancer (Lobo *et al.*, 2014). Some of the biological processes of aging may be also involved in the pathogenesis of cancer and age related diseases. There are many environmental factors that influence these biological processes and those can be modified resulting slowed aging and the onset of cancer may be delayed or even prevented (Surakasula *et al.*, 2014; Torre *et al.*, 2017; Macdonald *et al.*, 2018).

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According to the data of 2012, breast cancer is the most common cancer followed by colorectal cancer, cancer of lungs, cervical cancer and cancer of stomach, endometrium and ovarian cancer (Lobo *et al.*, 2014). There are various risk factors that can raise the probability of developing female reproductive cancers. According to the WHO, common cancers seen among women are of reproductive organs, breast cancer is the most common, followed by the cancer of cervix in developing countries like India (Shakir, 2018; Szabo *et al.*, 2019). Breast cancer is found to be the most common cancer in UK and most deaths occur due to late medical approach with ineffective treatment (Macdonald *et al.*, 2018). Globally 44000 new cases of cervical cancer are registered yearly but it is a preventable cancer with an early diagnosis (Shakir, 2018). In the year 2018 there were about 2.1 million breast cancer cases registered worldwide which accounts almost one in four cancer cases among women (Szabo *et al.*, 2019). The total number of cancer cases expected to rise is 24 million in 2035 which was 6.7 million in 2012 (Lobo *et al.*, 2014; Kumari *et al.*, 2017). Studies revealed that cancer rates are 1.8 times more in developed countries than developing countries, with the exception of cervical cancer. Risk factors associated with cancer are smoking, consumption of alcohol, increased body weight, sedentary lifestyle, change in reproductive pattern, late age at first child birth, lesser childbirth, exposure to radiation, excess sunburn, irregular menstrual period, more exposure to hormones, age, more exposure to environmental pollution, environmental physical and chemical agents, chronic infectious condition, unhealthy dietary habits, induced abortion, non-parity etc. (Lobo *et al.*, 2014; Surakasula *et al.*, 2014; Torre *et al.*, 2017). Genetic factors also contribute significantly to the risk of various cancers (Lobo *et al.*, 2014). Unhealthy lifestyle practices can be easily modified to prevent the incidence of cancer, e.g., lifestyle modification, balanced diet, daily exercises, skipping tobacco and alcohol can decrease the risk of cancer (Lobo *et al.*, 2014; Macdonald *et al.*, 2018). Numerous prevention and early detection interventions are proven to reduce cancer and mortality (Torre *et al.*, 2017). Proper screening and risk assessment can be helpful in preventing cancer and mortality if implemented worldwide, e.g., cervical cancer can be easily controlled with screening through Pap smear method or Human papilloma virus (HPV) analysis at beginning stage (Lobo *et al.*, 2014; Shakir, 2018). High risk women should be aware of such programs/techniques and opt for screening regularly and earlier in the life. Hence, this review study has been done to emphasis different risk factors of menopause associated with cancer. This can bring into light the present global scenario of cancer among menopausal women in population.

Statement and objectives of the present review study

Menopause makes women life more complex and it doubles if one has cancer. Menopause may be induced early because of cancer but it may not be same for the opposite. The objectives of the present review study are aimed to determine the association between cancer and menopause and its impact on health among adult women. This manuscript also describes global cancer status, risk factors, prevalence of cancer of reproductive organ among menopausal women. Management of menopausal complaints after cancer may not be that easy as well. It needs holistic and multidisciplinary approach along with individualized care. The increasing cancer burden is pronounced more in low and middle income countries due to inadequate access to early detection and proper treatment and with increasing age menopausal women may be associated with high risk of developing cancer. This study will limelight the present situation of this disease and adds more to the present knowledge.

Uterine/endometrial cancer and menopause

Endometrial cancer is one of the most common gynecological malignant cancers among women with high mortality rate (Torre *et al.*, 2017; Clarke *et al.*, 2018). It accounts about 5% cancer incidence and 2% of mortality among women across the globe, seen more among developed countries than

developing countries (Torre *et al.*, 2017; Clarke *et al.*, 2018). Northern America and region of Europe experience the highest rate of uterine cancer whereas Melanesia, Eastern Europe, Caribbean records highest mortality rate (Torre *et al.*, 2017; Clarke *et al.*, 2018). Risk factors associated with endometrial cancer are higher BMI, central adiposity, genetic factors, Lynch syndrome (hereditary non-polyposis colorectal cancer), history of cancer, early age at menarche, breastfeeding, nulliparity, late age at menopause, hypertension, long-term hormonal exposure, estrogen therapy, high blood sugar, PCOS and life style factors such as sedentary life, smoking, alcohol consumption, unhealthy food pattern also had a impact on endometrial cancer (Torre *et al.*, 2017; Clarke *et al.*, 2018; Wu *et al.*, 2019). Women who attain menopause at a later age have higher hormone levels and are exposed to estrogen for long time which is associated to various health issues. The association of age at menopause and increased risk of endometrial cancer is still controversial. Studies also showed that increased weight, later age at puberty and higher parity were associated with late menopause. Moreover, a low level of progesterone with anovulatory cycles is seen among women with late menopause, which may also result to endometrial cancer risk (Wu *et al.*, 2019). Wu *et al.* (2019), analyzed that women who exceeded 46.5 years without attaining menopause risked to endometrial cancer (Clarke *et al.*, 2018; Wu *et al.*, 2019). Post menopausal bleeding (PMB) is a common symptom of endometrial cancer seen among 2/3 of menopausal women (Clarke *et al.*, 2018). Endometrial cancer lacks in early detection and no population based screening was found till date. It is curable with surgery with a 5 year survival rate. Women with PMB go through various clinical examinations like transvaginal ultrasound, hysteroscopy, biopsy, dilation and many more. The risk of endometrial cancer among women with PMB is 3% to 25% varies from person to person. The prevalence of PMB was 90% in women with endometrial cancer found in a review analysis study (Clarke et al., 2018).

Ovarian/ fallopian cancer and menopause

Ovarian cancer is a highly fatal health condition worldwide, is the 5th leading cause of cancer death in women (Franco, 2012). It accounts for about 4% of cancer prevalence and mortality worldwide and highest cases are found among Europe, Northern and Eastern Europe whereas death rates are higher among these countries along with Melanesia (Torre *et al.*, 2017). It has a 5 year survival rate with 36%-46% among women (Perez-Lopez *et al.*, 2017). Each histological range of ovarian cancer is allied with different history of clinical nature, epidemiologic factors, genetic and family history (Perez-Lopez *et al.*, 2017). Familial influence of breast or ovarian cancer is found to be important risk factors, some ovarian cancers cluster heredity which easily develop sooner than non genetic tumors (Perez-Lopez *et al.*, 2017; Torre *et al.*, 2017). The existence of ovarian cancer in one first degree relative increases women's risk by 5% and it increases by 7% if there are more than one (Perez-Lopez *et al.*, 2017). Other risk factors are long term menopausal hormone therapy, BMI, excess body fat deposition, increasing age, low parity, not using oral contraceptives, environmental factors (Franco, 2012; Perez-Lopez *et al.*, 2017; Torre *et al.*, 2017), whereas the use of oral contraceptives for a long duration is estimated to reduce the risk of ovarian cancer by 30% (Perez-Lopez *et al.*, 2017; Torre *et al.*, 2017). Trans vaginal ultrasound and biomarker testing are two screening methods for ovarian cancer used in developed countries include U.S and U.K. Due to early non specific symptoms and late stage presentation most of the cases are diagnosed at later stages of this disease and thus making survival rate low (Perez-Lopez *et al.*, 2017; Torre *et al.*, 2017) and the prime intervention as surgery and chemotherapy (Perez-Lopez *et al.*, 2017). Symptoms such as abdominal pain, swelling etc occurs later in life in ovarian cancer patients (Franco, 2012) whereas asymptomatic women without genetic predisposition are difficult to treat (Perez-Lopez *et al.*, 2017). According to Franco (2012), ovarian cancer risk increased with increasing height, weight and BMI. The taller the woman, the greater is the risk of ovarian cancer, the same with weight and BMI too, if all other factors for ovarian cancer remain constant. At various stages of life in women different types of ovarian cancer may develop. Epithelial

ovarian carcinoma is most common in post-menopausal women which arise from ovarian surface, fallopian tubes or peritoneum (Perez-Lopez *et al.*, 2017). Based on clinical and molecular studies there are two different carcinogenic trajectories, type I and type II. Low grade serous, clear cell, low grade endometrioid, mucinous cancers and Brenner tumors fall under type I category. From genetic point of view type I are stable whereas, type II are instable with high p53 mutation prevalence. High grade epithelial serous, endometrioid, undifferentiated cancers and mixed mesodermal malignancies fall in type II which can arise from extra-ovarian tissues, fallopian tubes (Perez-Lopez *et al.*, 2017).

Cervical cancer and menopause

It is the fourth most common diagnosed genital cancer worldwide with fourth leading cause of cancer mortality as well. In developing countries, cervical cancer is the second most commonly diagnosed cancer succeeded by breast cancer and third leading cause of cancer related mortality (Torre *et al.*, 2017). There are about 510,000 new cases every year, in which 80% accounts for developing countries as mentioned by the WHO and half of these cases end in death (Kumari *et al.*, 2017). In India, cervical cancer accounts for 17% cause of mortality which is one quarter of global cervical cancer rate (Sharma and Pattanshetty, 2018). In India one woman dies of cervical cancer in every 8 minutes (Kumari *et al.*, 2017). The cervical cancer accounts for 15% of all cancer in women (Kumari *et al.*, 2017). The main cause of cervical cancer is human papilloma virus (HPV) which is responsible for 70% of cervical cancers around the world (Torre *et al.*, 2017), commonly seen among middle aged women (Jabbari *et al.*, 2019). In developing countries 1/53 women and in developed countries 1/100 women suffer from this disease (Sharma and Pattanshetty, 2018). The WHO recommends women of 30 years and more to perform Pap smear every 10 years and countries who implemented such strategies have eradicated cervical cancer drastically. It is the most common method used for diagnosing cervical cancer (Lobo *et al.*, 2014; Jabbari *et al.*, 2019). Different studies suggests that people has inadequate knowledge and aware on cervical cancer. Socio-economic factors, cultural barriers, attitude and perception of women on cervical cancer can be a risk factor to it (Jabbari *et al.*, 2019). As gynaecologists suggests cancer of cervix is an ideal malignancy for screening for premalignant epithelial anomalies, as it meets both test and disease criteria. Early detection of this disease is easy as it has a long latent stage which provides sufficient time for diagnosis (Shakir, 2018). Several researchers have reported that determinants associated with the risk of cervical cancer are age, educational status, early marriage, marital status, early age of child birth, number of sex partners, employability, financial status, presence of malignancy, chronic disease, habit of smoking, family history of cancer, perception on health, health status, food pattern, likelihood of screening (Sharma and Pattanshetty, 2018; Jabbari *et al.*, 2019). Kumari *et al.* (2017) reported that presents various complaints among cervical cancer women were postmenopausal bleeding, watery discharge, blood stained discharge, contact bleeding, foul smelling, lower abdominal pain, and backache. Vaginal itching and not washing genitals were found to be associated to cervical cancer (Sharma and Pattanshetty, 2018). Studies found that post-menopausal bleeding was most frequent grievance among cases of cervical cancer and post-menopausal women were diagnosed at advanced stage of cervical cancer (Kumari *et al.*, 2017). As women get older they neglect the risk of cancer incidence and try avoiding screening (Jabbari *et al.*, 2019) and age is highly associated with the prevalence of cervical cancer (Shakir, 2018). The prevalence of pre-malignant and malignant lesions was common in post-menopausal women when compared to the counterpart pre-menopausal women. Further, squamous intraepithelial lesions are more common in post-menopausal women (Shakir, 2018). The prevalence of pre-malignant and malignant lesions was common in post-menopausal women when compared to the counterpart pre-menopausal women. Further, squamous intraepithelial lesions are more common in post-menopausal women. Borker *et al.*, (2013) observed that many post-menopausal women don't feel to clean genitals as they don't have menses now. Many women don't know the exact way to clean the genitals. They even don't feel to

visit a doctor for the complaints since they thought that it is non treatable. Hence screening with pap smear is crucial for early detection of cervix cancer.

Breast cancer and menopause

Breast cancer is the most frequently diagnosed cancer among female worldwide. It is a disease of older women (more than the age of 20) with leading death cause of cancer (Torre *et al.*, 2017; Heer *et al.*, 2020). Around the world most cases of breast cancer are seen in North America, New Zeleand, Northern Europe and Western Europe whereas higher mortality rates are seen in developing countries than in developed countries e.g., sub-Saharan Africa (Torre *et al.*, 2017). The incidence of breast cancer is rising in India (22.9%) and is now the second most commonly diagnosed cancer in women after cervical cancer (Surakasula *et al.*, 2014; Lobo *et al.*, 2014). Global burden of breast cancer will increase over 2 million new cases/years by 2030 (Surakasula *et al.*, 2014). Breast cancer alone contributes 25.2% of the cases, and the top three contribute more than 43% of all cancer cases (Lobo *et al.*, 2014). Breast cancer may be increased with prolonged use of standard doses of estrogen in combination with certain progestogens; estrogen alone either decreases the risk or increases it marginally with very prolonged use (10–15 years). Breast cancer mortality has significantly decreased in countries where a national screening program is available (Surakasula *et al.*, 2014; Szabo *et al.*, 2019). The rate of breast cancer survivors is increasing gradually due to early detection and disease specific death in developed countries. Many women experience menopausal complaints, estrogen deficiency during or after the period of breast cancer treatment (Santen *et al.*, 2017). The experience of menopause, menopausal symptoms and cancer is different women to women. The joint burden of cancer and menopause hampers many women globally (Surakasula *et al.*, 2014; Szabo *et al.*, 2019). Some of the un-modifiable risk factors to breast cancer are genetic factors, age, sex, family history, menstrual cycle, use of radiation, dense breast tissue. Other prevailing risk factors related to lifestyle are nulliparity, late pregnancy, unable to breast feed child, induced abortion, recent use of oral contraceptive pills, use of hormone therapy in menopause, use of alcohol, high BMI, sedentary life (Surakasula *et al.*, 2014). Study revealed that the incidence of breast cancer was seen more among post-menopausal women with excess body weight (Heer *et al.*, 2020) than pre-menopausal women. Younger age at menarche increases the risk of breast cancer among menopausal women, whereas late menopause increases the risk of breast cancer. The risk is increased by 3% every year with later menopause. Late age at first full term pregnancy is associated with higher risk to breast cancer, while early age at first full term pregnancy is not. High parity and practicing breast feeding is believed to reduce the risk of breast cancer (Surakasula *et al.*, 2014). Weight at a young age decreases the risk of breast cancer whereas after menopause high BMI increases the risk of breast cancer. Weight gain during 40-50 years of life is associated with high risk of post-menopausal breast cancer. Pre-adolescence girls with low weight have higher mammographic density when they grew up adults, and mammographic density is counted as one of the highest risk factor associated to breast cancer. Hence, leaner women may be prone to breast cancer due to low level of adiposity in the mammary gland which alters breast tissue maturation making it more susceptible to cancer (Duverger *et al.*, 2016). The rate of breast cancer mortality has been reduced in developed countries where it is detected earlier, screening program is performed with mammography and with improved treatments women are living longer even after diagnosed with breast cancer (Lobo *et al.*, 2014; Szabo *et al.*, 2019). Women were diagnosed with breast cancer, menopausal symptoms are more persistent along with effects of cancer treatment and may be more severe and annoying compared to natural menopause. After cancer, diagnosing menopause can be troublesome as ovulation may start again many years after long delayed menses and raised follicle stimulating hormone (Surakasula *et al.*, 2014).

Conclusion

Menopause marks the end of woman's reproductive cycle which is due to hormonal changes. The hormonal changes and the menopause can be factors responsible for cancer. Cancer is an age related disease that develops over a long period of time. This complex process leads to mortality and impact millions of women around the world. Menopausal women should be offered evidence-based education on cancer and its precautionary measures. It is necessary to understand the role of risk factors associated to the prognosis of cancer including factors that are modifiable and may contribute to prevent the progression of cancer thereby improving survival of menopausal women.

Recommendations

Awareness program on cancer should be organized, eg. health camps. Access to health care facility for menopausal women should be established for early diagnosis. Separate clinic for screening cancer should be there in every district hospitals.

Awareness on help seeking and early approach to medical should be encouraged for older adults.

Media can be more focus on cancer causing agents and thus can influence public creating awareness.

Intervention measures should be taken to improve menopausal health eg. counseling, guiding on mental health, nutrition, sanitation etc.

Menopausal women in rural areas should be properly guided about menopausal symptoms and they should be made aware of common life threatening diseases. Health care professionals can be engaged for the said purpose as they have access to remotest area of the village and are trained.

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Abdominal And Gluteofemoral Fat Distribution As Risk Factor Among The Plains Garo Women Of Kamrup District, Assam

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KEYWORDS

Garo women, fat distribution, abdominal and gluteofemoral region, physical activity

ABSTRACT

The Garo women perform vigorous physical activity which is expected to bring changes in their body build and in the complications arising due to metabolic syndrome. The present work is an attempt to assess the disease risk of the Garo women from anthropometric measures of abdominal and gluteofemoral areas taking into account age, education and physical activity of the subjects as covariates. Considering both waist and hip circumference simultaneously identifies almost 20% more people as being at higher risk of death compared with using waist circumference alone. The majority of the women of the present study claimed to be physically fit when asked to self-report their health status. No cases of heart-related ailments were reported from them which might have arisen due to fat deposition in the abdominal and gluteofemoral area. This proposes that improvement of physical activity in an obese patient may improve their health regardless of whether the patient stays fat.

Introduction

Body fat distribution is a major determinant of metabolic health and cardiovascular risk factor. Population studies show that an increased gluteofemoral fat mass is independently associated with a protective lipid and glucose profile, as well as a decrease in cardiovascular and metabolic risk (Manolopoulos *et al.* 2010). Since it is an important risk factor, the proportion of abdominal to gluteofemoral body fat, as measured, for example, by the waist-to-hip ratio, correlates with obesity-associated diseases and mortality and is a stronger cardiovascular risk marker than BMI (Canoy *et al.* 2004; Grundy *et al.* 2008; Yusuf *et al.* 2005).

Risk factors are traits, conditions, or habits that increase chance of developing a disease. The five conditions described below are metabolic risk factors. Any one of these risk factors may occur by itself, but they tend to occur together. At least three metabolic risk factors are required to be diagnosed with metabolic syndrome. (Metabolic Syndrome, 2019)

A large waistline. This also is called abdominal obesity or "having an apple shape." Excess fat in the stomach area is a greater risk factor for heart disease than excess fat in other parts of the body, such as on the hips.

A high triglyceride level. Triglycerides are a type of fat found in the blood.

A low HDL cholesterol level. HDL sometimes is called "good" cholesterol. This is because it helps remove cholesterol from your arteries. A low HDL cholesterol level raises your risk for heart disease.

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High blood pressure. Blood pressure is the force of blood pushing against the walls of your arteries as your heart pumps blood. If this pressure rises and stays high over time, it can damage your heart and lead to plaque build-up.

High fasting blood sugar. Mildly high blood sugar may be an early sign of diabetes.

So, an increase in fat mass is considered to be an important risk factor for the worldwide increase in Type 2 diabetes and cardiovascular disease. However, for a given fat mass, there is a large variability in the risk prediction of these cardio metabolic diseases. For example, some lean people unexpectedly have a risk of Type 2 diabetes and cardiovascular disease that is similar to the increased risk that is observed in most people who have obesity. What both of these phenotypes have in common is a very characteristic fat distribution. As a result, much focus has been given on the strong predictive power of increased visceral fat mass (Stefan 2020).

Considering both waist and hip circumference simultaneously identifies almost 20% more people as being at higher risk of death compared with using waist circumference alone, and is a simple and cost-effective way of identifying body shapes associated with increased risk of premature death. Waist circumference (WC) and hip circumference (HC) are commonly used and easily understood measures of abdominal (upper-body) and gluteofemoral (lower-body) body size, respectively. WC is primarily a measure of visceral/ectopic and subcutaneous adipose tissue around the waist, whereas HC measures both adipose tissue and lower-body muscle mass (Cameron *et al*. 2020). Numerous studies have shown that larger WC is strongly related to morbidity and premature death, while there is some evidence that larger HC is protective for these same outcomes (Snijder *et al*. 2004; Beigaard *et al*. 2004; Heitmann and Frederiksen 2009; Neeland *et al*. 2018; Manolopoulos *et al*. 2010).

A more complex relationship between hip circumference, waist circumference, and risk of death was found by Cameron *et al*. (2020) which were revealed when both measures are considered simultaneously. This is particularly true for individuals with smaller waists, where having larger hips was protective. Considering both waist and hip circumference in the clinical setting could help to best identify those at increased risk of death.

WHO projections show that Non Communicable Diseases (NCDs) will be responsible for a significantly increased total number of deaths in the next decade. NCD deaths are projected to increase by 15% globally between 2010 and 2020 (to 44 million deaths). The greatest increases will be in the WHO regions of Africa, South-East Asia and the Eastern Mediterranean, where they will increase by over 20%. In low- and middle-income countries, 29% of NCD deaths occur among people under the age of 60, compared to 13% in high-income countries. Most NCDs are strongly associated and causally linked with four behaviours: tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol.

People who are insufficiently physically active have a 20–30% increased risk of all-cause mortality compared to those who engage in at least 30 minutes of moderate intensity physical activity on most days of the week (WHO 2010). Physical activity is considered as a complex, multi-dimensional behaviour. Many different modes of activity contribute to total physical activity, and this includes occupational, household (e.g. caregiving, domestic cleaning), transport (e.g. walking or cycling to work) and leisure-time activities (e.g. dancing, swimming). Physical activity can be further categorised in terms of the frequency, duration and intensity of the activity.

The women of the Garo community are hard workers. Apart from working at home, working in

the orchards or collecting firewood from the nearby hills is a major part of their daily activities. This vigorous physical activity that they perform is expected to bring changes in their body build and in the complications arising due to metabolic syndrome. Keeping this in mind, this paper is an attempt to assess the disease risk of the Garo women from anthropometric measures of abdominal and gluteofemoral areas taking into account age, education and physical activity of the subjects as covariates.

Materials and methods

The Garos are a Tibeto-Burman ethnic group in Meghalaya, Assam, Tripura, Nagaland and neighbouring areas of Bangladesh like Mymensingh, Netrokona, Jamalpur, Sherpur and Sylhet, who call themselves A·chik Mande (literally "hill people", from *a·chik* "bite soil"+ *mande* "people") or simply A·chik or Mande. The Garos are one of the Scheduled tribes in the North-Eastern state of Meghalaya, India. The Garos are mainly distributed over the Garo Hills in Meghalaya, Kamrup, Goalpara, KarbiAnglong districts of Assam, Khasi Hills in Meghalaya and Dimapur (Nagaland State), substsntial numbers (about 200,000) are found in greater Mymensingh (Tangail, Jamalpur, Sherpore, Netrakona, Mymensingh) and capital Dhaka, Gazipur, Sirajgonj, Rangpur, Sunamganj, Sylhet, Moulovibazar districts of Bangladesh. It is estimated that total Garo population in Meghalaya, Assam, Nagaland, Tripura, West Bengal, Canada, USA, Europe, Australia and Bangladesh together is more than 1 million. (Lewis *et al*. 2013). According to the census of India, 2011 there are 26000 Garos in Kamrup (Rural).

The present cross-sectional study was undertaken among the plains Garo women of villages under Boko and Chaygaon development block. These villages are about 70-75 km away from Guwahati city which falls under Kamrup district of Assam. The name of the villages in descending order of their distances from Guwahati city are Kompaduli, Gohalkona, Rajapara, Nongldonga, Amrengkona, Kinangaon, Santipur, Hanthaikona, Koroibari, Jangrapitha.

The study was carried out among 862 adult Plains Garo females from 18 - 80 years of age. Data was collected from women who voluntarily agreed to participate in the study. Age of the women has been collected after verifying the written record. Those women who did not have a birth record, their age were estimated by referring to some important local events. Pregnant and sick women were not included in the study.

Age grouping: The women have been classified as per their age groups. The age groups have been divided into 5 year intervals. For the ease of classification, the women below 20 years have been made into a separate group, the women from the age 20 to 59 years have been divided into 8 groups with 5 year intervals and the women of age 60 years and above have been grouped in a separate age group as they belong to the elderly category.

Educational status: The educational groups has been divided as follows: illiterate – no formal education, pre - primary – class nursery to kindergarten, primary – class 1 to 5, middle school – class 6 to 8, secondary school – class 9 and 10, senior secondary school – class 11 and 12, graduation and post-graduation (Indian standard classification of education, 2014).

Physical activity: data on physical activity was collected using the Global Physical Activity Questionnaire (GPAQ) developed by World Health Organisation (2002) to assess the physical activity performed by the person in one week. It collects information regarding physical activities performed in three domains, i.e., (i) activities at work, (ii) activities performed while travelling, (iii) recreational

activities. GPAQ consists of total sixteen questions. It covers several components of physical activity, such as intensity, duration, and frequency. Data is taken for moderate and vigorous intensity activities. A person is said to be having a sedentary lifestyle if the total activities performed by a person in a week are less than any of the following.

150 minutes of moderate intensity physical activity OR

75 minutes of vigorous-intensity activity OR

An equivalent combination of moderate and vigorous-intensity physical activity achieving at least 600 MET-minutes.

Both vigorous and moderate intensity activities were recorded if it is done for at least 10 minutes continuously. Vigorous – intensity activities are activities that require hard physical effort and cause large increases in breathing or heart rate. Moderate – intensity activities are activities that require moderate physical effort and cause small increases in breathing or heart rate like brisk walking or carrying light loads. Moderate activities during travel include walking or using bicycle. (WHO 2002)

Anthropometric measures taken into consideration of abdominal and gluteofemoral region in the study

Waist Circumference (WC) – WC was measured at the minimum circumference between the last rib and the iliac crest. WHO experts addressed the recommended cut-off points for waist circumference of women as follows: >80 cm – increased risk of metabolic complications and >88 cm – substantially increased risk of metabolic complications (WHO 2008).

Hip Circumference (HC) – Hip circumference was measured at the maximum protuberance of the buttocks. The derived indices of waist circumference and hip circumference considered for the present study are waist to height ratio (WHtR), conicity index (CI), waist to hip ratio (WHR).

Waist – Height Ratio (WHtR) – This is the ratio (R) of the waist circumference – (WC-) to height (Ht). The WHtRcutoff value of ≥0.5 is efficient and supported that increased adiposity was substantially related to the risk of Cardio vascular disease. (Son 2016 and Ashwell 2005).

Conicity Index (CI) – The conicity index is used to assess the central adiposity by assuming the body as a perfect cylinder, i.e. the deviation from a cylindrical shape is due to central adiposity. The index is obtained using the formula, CI = WC(m)/ [0.109 x √{weight(kg)/height(m)}] (Valdez *et. al.*, 1993). For cardiovascular risk calculation, the values proposed for women is ≥1.18 and for men is ≥1.25 (Pitanga *et. al.*, 2005).

Waist – Hip Ratio (WHR) – This is the ratio of waist circumference to hip circumference. WHO experts addressed the recommended cut-off point for waist – hip ratio of women as 0.85 cm. WHR greater than or equal to 0.85 means a substantially increased risk of metabolic complication (WHO 2008).

Analysis of data: All descriptive data pertaining to anthropometric measures has been reported as mean and standard deviation. The data were analysed using the Statistical Package for Social Sciences (SPSS) version 17.0. For group comparisons one-way ANOVA was applied. Pearson's correlation (two tailed) was used to evaluate the strength and direction of linear relationship between variables. Linear regression was used to explain the variation of dependent variable by the independent variable. The p-values of <0.05 and <0.01 were considered to be statistically significant.

Results

The descriptive statistics of the anthropometric measurements, their ratios and indices according to their age, educational level and physical activity status of the Garo women are presented in Table 1. With the increase of age, the mean WC, HC and WHtR increases. This increase continues up to the

age of 50 – 54 years and then it slightly decreases. In case of CI and WHR the value increases steadily up to the last age group i.e. 60 years and above. With respect to educational qualification, the mean WC, HC, WHtR and CI decreases as educational level increases. Only in case of WHR the mean is .87 among the illiterates and there after it decreases to .86 and remains same for the next group i.e. senior secondary/graduate and post graduate level. When the different variables are seen against physical activity, the mean WC, HC, WHtR is more among the women who did vigorous activity than among the women who did moderate activity, whereas the value of CI and WHR shows a lesser value among the women doing vigorous activity.

The relationship between WC, WHtR, CI and WHR with age groups is analysed in Table 3. Noticeably higher proportions of women are found to be normal or with no risk of disease in the age group ≤19 years as per WC (93.3%), WHtR (73.3%), CI (58.3%) and WHR (56.7%). With the increase of age, the percentage of women without risk decreases as detected by all these indices. Higher proportion of women are found to be in the disease risk category in the age group 60≤ years as per WC (56.3%), WHtR (76.5%), CI (87.7%), WHR (70.4%). The percentage of women with normal indices decreases to 44.4% for WC, 23.8% for WHtR, 12.3% for CI and 29.6% for WHR.

Anthropometric measures as the predictors of disease risk according to educational level has been analysed in Table 4. Noticeably higher proportions of women are found to be normal or with no risk of disease in the senior secondary/graduate/post graduate group as per WC (66.3%), WHtR (56.3%), CI (45.0%) and WHR (47.5%). Higher proportion of women are found to be in the disease risk category in the illiterate group as per WC (35.8%), WHtR (57.9%), CI (70.4%), WHR (60.4%).

The relationship between WC, WHtR, CI and WHR with physical activity level is analysed in Table 5. Higher proportions of women are found to be normal or with no risk of disease in the moderate physical activity group as per WC (69.9%), WHtR (46.68%), CI (33.7%) and WHR (41.3%). Higher proportion of women are found to be in the disease risk category in the vigorous physical activity group as per WC (39.4%), WHtR (55.96%), CI (66.6%), WHR (60.2%).

The analysis of variance between and within the age groups, educational groups and physical activity groups (Table 6) reflects that according to age groups, the variance in WC, HC, WHtR, CI and WHR is significant. But as per level of education the variation is found to be significant only in case of WHtR and CI. When physical activity level is seen, the variation is significant in case of WC, HC and WHtR. The correlation between anthropometric variables with age, education and physical activity is shown in Table 7. Age is significantly correlated with WC, HC, WHtR, CI, WHR. Education is negatively correlated with all the anthropometric variables. Significant correlation is seen only in case of WHtR, CI, WHR. There is significant negative correlation of physical activity with WC, HC and WHtR.

Table 8 shows how the independent variables predict the variance in the dependent variables. Age and physical activity has been found to predict the dependent variables significantly.

Discussion

Till 50-54 years, the mean WC, HC and WHtR have been found to be increasing, and then it decreases slightly with the increase of age. The WC, HC and WHtR decrease by 2.74 cm, 4.52 cm and .02 cm respectively. Wannamethee *et al*, in 2005 has found that with age there is an increase

in fat and decline in muscle. The loss in muscle might be the reason for the slight decrease in WC, HC and WHtR after reaching its peak at the age of 50 – 54 years. In the case of CI and WHR, the value increases steadily up to the last age group i.e. 60 years and above. The analysis of variance of all the variables between the age groups is statistically significant (at the level of 0.01) and a positive correlation exists between age and other anthropometric variables. This increase in circumference of the abdominal area and gluteoformal area in women may be due to the drop in estrogen levels that comes with menopause. In general, the natural menopause occurs between 45 and 55 years of age (WHO 1996). According to the Indian National Family Health Survey (NFHS-3)carried out during 2005-2006, about 18 per cent of currently married women in the age group of 30-49 years had reached menopause; a very similar finding of 17.7 per cent was reported in an earlier survey round (NFHS-2 1998-99). Among the women of the present study it occurs between the ages of 45 – 49 years (mean age at menopause 47.21 years) – (Table 2). Several studies have reported that adipose tissue distribution changes with age. Increasing age has been consistently associated with increased intra-abdominal adipose tissue deposition in both genders (Kotani *et al.* 1996 and Enzi *et al.* 1986). Studies have also documented age-related changes in adipose tissue distribution as reflected by an increase in the waist-to-hip ratio, which has been used as an anthropometric index of relative abdominal adiposity (Lanska *et al.* 1995; Tonkelaar *et al.* 1989). In the 1,179 participants of the Baltimore Longitudinal Study of Aging, a waist-to-hip ratio increase was reported across various age groups (from 17 to 96 years of age) in both men and women (Shimokata 1989).

Highest percentage of women of the age group 60 and above years is in the disease risk category as per WC, WHtR, CI and WHR. The percentage of women with disease risk increases from a younger age group to older age groups (Table 3). A 2008 study on more than 44,000 women for 16 years (Zhang *et al*. 2008) concluded that women with greater waist circumference were more likely to die of heart disease and cancer than those with smaller waists. Association of adiposity with metabolic risks was confirmed in a cross-sectional study (Christou *et al*. 2005). Abdominal fat comprises of both subcutaneous fat (fat that accumulates under the skin) and visceral adipose tissue (fat that accumulates around organs deep within the abdomen). Unlike subcutaneous fat, visceral fat cells release their metabolic products directly into the *circulatory system,* which carries blood straight to the liver. As a result, visceral fat cells that are enlarged and full of excess triglycerides pour fatty acids into the liver. Fatty acids also accumulate within the pancreas, heart, and other organs. The fatty acids accumulate in cells that aren't engineered to store fat. The result is organ dysfunction, which produces impaired regulation of insulin, blood glucose, and cholesterol, also as abnormal heart functions (Abdominal obesity and your health, 2017). In the present population, which is a rural one the women have a hard-working, physically active lifestyle. The women carry out household task as well as work in the orchards and collect firewood in nearby hills. They hardly sit and rest for less than 2 hours daily. All the women in the present study adhered to the recommended WHO guidelines for physical activity i.e. they do 150 minutes of moderate intensity physical activity or 75 minutes of vigorous-intensity activity or an equivalent combination of moderate and vigorous-intensity physical activity achieving at least 600 MET-minutes. But women who did vigorous activity showed the highest percentage in the disease risk category as per WC (39.4%), WHtR (55.96%), CI (66.6%) and WHR (60.2%). The mean WC, HC, WHtR also is high in case of women who did vigorous physical activity than among those who did moderate physical activity. The analysis of variance between the physical activity groups have been found to be significant in case of WC, HC and WHtR.

Sedentary behaviour increases in Asian Indians at around 35 to 45 years in women (Singh *et al.* 2007). This statement is highly contrary to the present study where the women starting from the age of 40 and above start to become more physically active as fewer women in this group have

breastfeeding children and they can leave the children and go about their household work or working in the hills and fields. As it is seen in the present study, the waist circumference of the women increases as the age increases and subsequently puts them at risk for metabolic diseases. Since these women are also heavy workers this increasing waistline should not be a cause of concern for them as they burn a lot of calories while working. Moreover, physical activity questionnaires do not take into account free-living physical activity due to standing, moving around, and fidgeting and hence a lot of activity goes unreported, which if taken into account would increase the amount of activity done by a person. That means that they might still be fit with a lower risk of heart-related death. Vigorous physical activity might make them gain muscle and muscle weighs more than fat and it provides a significant boost to body metabolism (Thompson 2018). This muscle gains in the Garo women who perform vigorous physical activity might be making them muscular which is being misreported as obesity. Moreover, a negative correlation of physical activity with WC, HC, WHtR is seen of which WC and WHtR are significant at the 0.05 level and HC is significant at the 0.01 level. It means that WC, HC, WHtR significantly decreases with an increase in physical activity even though the high percentage of disease risk is seen with increasing physical activity.

The relationship of waist circumference to abdominal adiposity, especially visceral or intra-abdominal obesity, is age- and gender- as well as ethnicity-dependent (Hans *et al*., 1997; Lemieux *et al*., 1996; Despres *et al*., 2000; Misra *et al*., 2005). There is a continuous relationship between waist circumference and clinical outcomes, and these cut-off values of waist circumference (>80 cm – increased risk of metabolic complications and >88 cm – substantially increased risk of metabolic complications) are currently difficult to justify, especially if we consider that women have, on average, more subcutaneous fat and less visceral fat than men (Kvist, H. *et al*. 1986; Lemieux *et al*. 1993). However, menopause is associated with a selective deposition of visceral fat, a phenomenon which again makes the >80 cm and >88-cm value questionable (Kotani *et al*. 1994; Zamboni *et al*. 1992; Toth *et al*. 2000). Regarding ethnicity, the International Diabetes Federation (IDF) has recognized this problem and proposed to lower the waist circumference cut-offs for some ethnic groups (Alberti *et al*. 2005). The ethnic-specific cut-off values of abdominal and gluteofemoral obesity that they proposed were not generally approved against direct imaging data of visceral fat and clinical results, and further work is expected to characterize what is high-risk obesity in various populaces of the world. In spite of the fact that waist and hip circumferences and its derived measures is genuinely decent correspond of the measure of all abdominal fat, it can't recognize visceral adiposity, a significant correlate of metabolic irregularities, from the measure of subcutaneous abdominal fat. Numerous examinations have demonstrated that subcutaneous fat is making less partiality to the patient's metabolic profile while patients with an overabundance of visceral fat are portrayed by the worst metabolic profile (Despres 2006, 1990; Pouliot *et al*. 1992; Ross *et al*. 2000a, 2000b; Bjorntorp 1991; Goodpaster *et al*. 2003; Kissebah 1994; Matsuzawa *et al*. 1995; Nielsen and Jensen 1997). Thus, the anthropometric measures of abdominal and gluteofmoral obesity alone cannot distinguish between subcutaneous and visceral obesity. And thus, increased waistline doesn't always mean high-risk abdominal obesity. Moreover, the majority of the women of the present study claimed to be physically fit when asked to self-report their health status. No cases of heart-related ailments were reported from them. And on further investigation, the local pharmacists and health centres also have not registered any case which might have arisen due to fat deposition in the abdominal and gluteofemoral area.

The mean WC, HC, WHtR, CI shows a decreasing trend as the educational level increases. The highly literate women in the present population don't engage in heavy physical activities on daily basis as they are employed and do not need to depend only on agriculture for their living. Due to lack of heavy exercise in the form of household work and working in the hills and fields their body shape might be less muscular than their hard-working counterparts of the same age. Yoon *et al*. (2006)

found that higher levels of education for women resulted in lower waist circumference. Absence of statistically significant regression analysis in case of education prevents from drawing any conclusion on the role of education.

Conclusion

The mean of all the anthropometric variables shows an increasing trend with age, education and physical activity. Percentage of women in the disease risk category increases with age and decreases as the educational level increases. Waist circumference is found to be greater than 80 cm among the women who do vigorous physical activity. Numerous different studies have affirmed that increased adiposity is related to increased mortality and morbidity since the exemplary Framingham study was published. During the last few decades, examinations have furnished proof that subjects who do vigorous physical activity and have brought down mortality and lowered the danger of cardiovascular and metabolic sicknesses. Even though regular physical activity adds to the decrease of adiposity, numerous beneficial health effects from physical activity are free from its impact on adiposity. Besides, various studies propose that physical activity may offset the hazardous health effects of increased adiposity. This proposes that improvement of physical activity in an obese person may improve their health regardless of whether the person stays fat. The ability to perform physical activity is generally limited in obese people, but the women of the present study go about their daily work whether they are in the obese category or not. This might be because they do not have the luxury to maintain a sedentary lifestyle as the work they do is what comprises their livelihood or the women might not feel tired enough to not do any work. At last, the inquiry whether fat or fit is more significant may incline toward wellness however one should consider that an association of the two determinants is consistently present and in this way the individual effect is difficult to analyse.

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Table 1: Descriptive statistics of anthropometric variables [waist circumference (WC), hip circumference (HC), Waist height ratio (WHtR), Conicity Index (CI), Waist Hip Ratio (WHR)].

Age	Total women	WC	HC	WHtR	CI	WHR
		± SD	± SD	± SD	± SD	± SD
≤ 19	60	69.98 ± 6.98	83.76 ± 6.05	.47 ± .05	1.17 ± .09	.84 ± .07
20 –24	100	72.18 ± 7.85	85.31 ± 6.31	.48 ± .05	1.18 ± .08	.85 ± .06
25 – 29	100	73.25 ± 8.34	85.80 ± 6.58	.49 ± .05	1.19 ± .08	.85 ± .53
30 – 34	93	77.38 ± 10.97	90.15 ± 8.61	.52 ± .07	1.21 ± .09	.86 ± .06
35 – 39	100	77.59 ± 9.99	90.24 ± 8.12	.52 ± .07	1.22 ± .09	.86 ± .05
40 – 44	82	77.94 ± 10.14	90.41 ± 8.10	.52 ± .07	1.22 ± .08	.86 ± .05
45 – 49	86	79.63 ± 10.99	90.51± 8.51	.54 ± .08	1.25 ± .11	.87 ± .05
50 – 54	80	82.79 ± 11.90	93.53 ± 8.91	.55 ± .08	1.27 ± .10	.88 ± .06
55 – 59	80	80.76 ± 11.48	90.07 ± 8.68	.54 ± .07	1.27 ± .13	.88 ± .07
60 ≤	81	80.05 ± 11.42	90.01 ± 9.37	.54 ± .08	1.28 ± .11	.89 ± .07
Educational level						
Illiterate/primary	159	78.36 ± 11.04	89.65 ± 8.32	.53 ± .07	1.25 ± .11	.87 ± .07
Middle/ Secondary	623	77.30 ± 10.49	89.41 ± 8.33	.52 ± .07	1.23 ± .10	.86 ± .06
Senior secondary/ Graduate and Post graduate	80	76.00 ± 11.25	88.38 ± 8.83	.50 ± .07	1.21 ± .10	.86 ± .06
Physical activity						
Moderate	392	76.32 ± 10.54	88.12 ± 8.42	.51 ± .07	1.23 ± .10	.86 ± .06
Vigorous	470	77.89 ± 10.83	90.10 ± 8.41	.52 ± .07	1.22 ± .10	.86 ± .06
Total	862					

Table 2: Distribution of women according to age at menopause

		No. of women by present age (years)		
Age at menopause	Total no. of women	40 – 44	45 – 49	50+
30 – 32	1(0.5)	1	-	-
33 – 35	1(0.5)	-	1	-
36 – 38	8(4.0)	3	1	4
39 – 41	13(6.5)	2	-	11
42 – 44	24(12.0)	1	7	16
45 – 47	65(32.5)	-	12	53
48 – 50	39(19.5)	-	4	35
51 – 53	25(12.5)	-	-	25
54 – 56	17(8.5)	-	-	17
57 – 59	7(3.5)	-	-	7
Total no. of women	200	7 (3.5)	25 (12.5)	168(84.0)
Mean age at menopause	47.21 ± 5.05	38.29	44.60	47.81

Figures within brackets are percentages

Table 3: Anthropometric measures of abdominal and gluteofemoral region as predictors of disease risk according to age groups.

Variables	Category	No. of women	≤ 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 ≤
WC	No risk	559(64.8)	56(93.3)	84(84.0)	82(82.0)	59(63.4)	61(61.0)	49(59.8)	46(53.5)	42(52.5)	41(51.3)	36(44.4)
	At risk	303(35.1)	4(6.7)	16(16.0)	18(18.0)	34(36.6)	39(39.0)	33(40.2)	40(46.5)	38(47.5)	39(48.8)	45(56.3)
WHtR	Normal	390(45.2)	44(73.3)	65(65.0)	64(64.0)	40(43.0)	38(38.0)	31(37.8)	32(37.2)	27(33.8)	25(31.3)	19(23.8)
	At risk	472(54.8)	16(26.7)	35(35.0)	36(36.0)	53(57.0)	62(62.0)	51(62.2)	54(62.8)	53(65.4)	55(68.8)	62(76.5)
CI	Normal	289(33.5)	35(58.3)	48(48.0)	47(47.0)	33(33.5)	32(32.0)	26(31.7)	21(24.4)	17(21.3)	15(18.8)	10(12.3)
	At risk	573(66.5)	25(41.7)	52(52.0)	53(53.0)	60(64.5)	68(68.0)	56(68.3)	65(75.6)	63(78.8)	65(81.3)	71(87.7)
WHR	No risk	350(40.6)	34(56.7)	53(53.0)	45(45.0)	38(40.9)	35(35.0)	28(34.1)	29(33.7)	27(33.7)	26(32.5)	24(29.6)
	At risk	512(59.4)	26(43.3)	47(47.0)	55(55.0)	55(59.1)	65(65.0)	54(65.8)	57(66.3)	53(66.3)	54(67.5)	57(70.4)
	Total	862	60	100	100	93	100	82	86	80	80	81

Table 4: Anthropometric measures of abdominal and gluteofemoral region as predictors of disease risk according to educational level.

Variables	Category	No. of women	Illiterate / primary	Middle and secondary	Senior secondary/ graduation/ post-graduation
WC	Normal	559(64.8)	102(64.2)	404(64.8)	53(66.3)
	At risk	303(35.1)	57(35.8)	219(35.1)	27(33.8)
WHtR	Normal	390(45.2)	67(42.1)	278(44.6)	45(56.3)
	At risk	472(54.8)	92(57.9)	335(53.8)	35(43.8)
CI	Normal	289(33.5)	47(29.6)	206(33.1)	36(45.0)
	At risk	573(66.5)	112(70.4)	417(66.9)	44(55.0)
WHR	Normal	350(40.6)	63(39.6)	248(39.8)	38(47.5)
	At risk	512(59.4)	96(60.4)	375(60.2)	42(52.5)
	Total	862	159	623	80

Table 5: Anthropometric measures of abdominal and gluteofemoral region as predictors of disease risk according to type of physical activity.

			Physical activity	
Variables	Category	No. of women	Moderate	Vigorous
WC	Normal	559(64.8)	274(69.9)	285(60.6)
	At risk	303(35.1)	118(30.2)	185(39.4)
WHtR	Normal	390(45.2)	183(46.68)	207(44.04)
	At risk	472(54.8)	209(53.32)	263(55.96)
CI	Normal	289(33.5)	132(33.7)	157(33.4)
	At risk	573(66.5)	260(66.3)	313(66.6)
WHR	Normal	350(40.6)	156(41.3)	194(39.8)
	At risk	512(59.4)	236(58.7)	276(60.2)
	Total	862	392	470

Table 6: Anova of anthropometric variables between and within the groups.

Variables	Age		Education		Physical activity	
	F	Sig.	F	Sig.	F	Sig.
WC	12.562	.000	1.056	.387	4.559	.033*
HC	12.692	.000	0.569	.755	11.773	.001*
WHtR	15.888	.000	2.148	.046*	6.500	.011*
CI	13.809	.000	3.463	.002*	.130	.718
WHR	5.596	.000	1.678	.123	.242	.623

Table 7: Correlation between anthropometric variables with age, education and physical activity.

Variables	WC	HC	WHtR	CI	WHR
Age(years)	.297**	.253**	.344**	.362**	.239**
education	-.061	-.025	-.101**	-.139**	-.087*
Physical activity	-.073*	-.116**	-.087*	.012	.017

**Correlation is significant at 0.05 level (2-tailed) **Correlation is significant at 0.01 level (2-tailed)*

Table 8: Regression coefficient between the variables

	Standardized coefficients	R^2		
	Beta		t	sig
WC				
constant		.723	11.463	.000
Age	.184		8.662	.000
Education	.011		.534	.593
Physical Activity	.083		4.459	.000
HC				
constant		.744	35.153	.000
Age	.131		6.380	.000
Education	.029		1.461	.144
Physical Activity	.027		1.499	.134
WHtR				
constant		.736	11.563	.000
Age	.222		10.685	.000
Education	-.011		-.531	.595
Physical Activity	.081		4.424	.000
CI				
constant		.219	35.35	.000
Age	.353		9.879	.000
Education	.009		.260	.795
Physical Activity	.139		4.440	.000
WHR				
constant		.259	42.250	.000
Age	.184		5.296	.000
Education	-.019		-.572	.567
Physical Activity	.128		4.188	.000

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Netnography as a Research Method in the age of AI and IoT - Trends in India.

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KEYWORDS

Netnography, virtual culture, digital space, AI & IoT

ABSTRACT

Netnography has been there in the social science stream since 1995 but is mostly used only for market and consumer research. Kozinets (2007) defined Netnography as 'doing ethnographic research online or on digital networks and also as a combination of internet and ethnography'. The objectives of this study is to understand the current trends & future of digital space of India and an extensive analysis of existing Netnographic studies in India. The study reflects that the digital space and digital users are growing with high penetration rate along with the popularity of 4Gs and Smartphones in India. Research findings further reveal that there exists a substantial gap between the scope of Netnographic studies and the size of the overall Indian digital space, virtual networks/SNSs and number of digital users. Also, there are only a few disciplines currently promoting Netnography as a serious research method in India.

Introduction

Netnography was first developed in the field of marketing and consumer research with an interdisciplinary approach (Kozinets 2010). Later further developed into different fields and multi themed research other than focusing on market/brand/consumer studies. Netnography method indicates 'doing ethnographic research online'. It is a method which integrates internet/digital networks and the concept of ethnographic research. Netnography focuses majorly on reflections and data generated by digital/online communities. However, it also expresses parts of offline human feelings, ideologies, opinions and behaviours etc. It is simply a faster, easier and less expensive version of ethnographic research that is practically better suited for studying internet culture and communities. According to Kozinets (2006) netnography ensures better ethnographic studies with better standards than traditional ethnography methods. Hall (2011) listed popular terms related to netnography which are used in major academic research as being under two categories. The first is 'Ethnographic term', that includes Virtual ethnography, Online ethnography, Internet ethnography and Cyber ethnography. The second is 'Fieldwork term', that includes Virtual fieldwork, Online fieldwork, Internet fieldwork, Cyber fieldwork and Netnographic fieldwork. Netnography research methods have a number of advantages such as a better understanding of subcultures, easy data collection activities, trustworthiness of virtual respondents/communicators, unelicited & naturalistic responses, democratic conversations (Dholakia & Zhang 2004; Kozinets 2006; De Valck et al.,

2009). Likewise, the major limitations of using netnography as a research method are the studying only virtual communities, mass/huge databases (information), lack of visual cues, researcher acuity and authority (Kozinets 2002, 2006; Sade-Beck 2004; Dholakia & Zhang 2004; De Valck *et al.,* 2009). This paper tries to understand the current trends & future of digital space in India and an extensive analysis of existing Netnographic studies in India. Various statistical reports are used to develop ideas on the number of current and future users of overall Digital/Online products and services. The authors also extensively analysed research articles published in indexed journals which used the Netnographic method in an Indian context. By both of these stages, the study reveals existing gaps and scope of Netnography as a research method which understands the complex virtual communities and online behaviors.

Methodology

The authors did an extensive analysis on published articles collected from different journal search engine services. Particularly for the purpose of content analysis, different filters have used to focus on the subject area. The preliminary results have filtered as articles published only in India or related to India, published between 2009 to 2019, articles which used methods like Netnography, Online ethnography, Virtual fieldwork, Online fieldwork, Internet fieldwork, Cyber fieldwork and Netnographic fieldwork etc. Further the results were analyzed in the context of theme of the article, category, and digital platform used for the research. There exists a future scope for application of deep content analysis and a post Covid-19 studies in the same subject stream.

Discussion

To understand and predict the scope of research methods like Netnography we have to analyze the size of Digital/Online world as of right now and in the future. It includes all electronic devices which connect humans and interact with humans. To express the actual size of the digital world, we have to find out the number of users connected with internet, smartphones and other digital networking services/devices. According to Table 1, more than half of the world's population uses internet services and they are digitally connected to each other. Similarly, in the case of India, 1/3rd of the population have access to internet service. The popularity of Mobile internet users, Social Media users and Smartphone users reflects how big the digital/online networks are and the transformation of offline human interactions to online. These online interactions are developing as complex communities on the web with almost the same features of a traditional community culture; along with the technological advancements humans started adapting the technologies which simplify and increase the performance of the works.

Table 1: Number of Users in 2019 (millions). Population- World: 7800 million, India: 1373 million

	World	India		World	India
Internet.	4480	451	Mobile phone.	5150	813
Mobile Connections.	9320	1204	Mobile internet.	4000	420
Smartphone.	3300	299	Social Media.	3700	351

Source: GSMA; IAMAI; TRAI; Statista.com; worldometers.info, 2019.

Unlike the last decade, it is not only the PC/Internet but also different devices which are connected to the internet. In the era of Artificial Intelligence and the Internet of Things, the number of services, users and devices in the digital/online world is booming. Social Networking Sites (SNSs), Ecommerce portals, Digital services, Online Entertainment/Knowledge streaming services, Online banking are the basic digital networks developed after the evolution of Web 2.0. Later on these services and

products integrated into smaller and smarter versions with the arrival of Smartphones & 4G networks. As digital human connectivity became popular, different categories of smart devices like smart watches, smart TVs, voice assistants etc. captured the young market. Right now the automation of human activities is advancing with the help of AI and IoT which exactly act like human bots with the power of self-learning. Table 2 shows the number of users in 2019 and 2024 (forecasted) who consume digital world services like E-Commerce, Mobile POS Payments, Video Streaming (SVoD), Music Streaming services, E-publishing and Online Food Delivery, and major SNSs like Facebook, WhatsApp, YouTube, Instagram and Tik Tok.

Table 2: Number of Users in Virtual/Digital Space.

	2019 (million)		2024* (million)	
	World	India	World	India
E-Commerce.	3897.1	654.3	5060.3	963.4
Mobile POS Payments.	1133.3	403.2	1657.2	697.8
Video Streaming (SVoD).	1072	53	1306.8	78.2
Music Streaming services.	1021.1	92.8	1273.9	109.5
E-publishing.	1442.4	105.0	2378	2024
Online Food Delivery.	971.6	182	1731	280
Facebook^	2450	313.6	-	444.2
Whatsapp^	1600	400	-	-
Youtube^	2000	265	-	-
Instagram^	1000	73	-	-
Tik Tok^	300	120	-	-

'' forecasted, '-' data not published, '^' Active monthly users. Source: livemint.com; mediakix.com; Statista.com, 2019.*

According to Tables 1 and 2, we can determine the actual size of the current digital/online world and the future of these. All data showing the online services and networks are growing with a large penetration rate. This indicates the future scope of research methods like Netnography, which further acts as a future interdisciplinary research method with better, easier and multi-dimensional access.

There exists only a few Netnographic studies in India which used Netnography as a major research method on research articles to identify and find solutions to Indian research problems. As indicated on Table 2 the scope of Netnographic studies is increasing in India with the popularity of budget smartphone users and cheap 4G mobile network connections. Chakraborty, Ahuja, Jain, Bhardwaj are the popular Indian authors who practiced Netnography on their research. The table below (Table 3) tries to show major Indian netnography studies and analysis of the Year, Theme, Category and Used digital platforms of the study.

Table 3: Research articles used Netnography as a major research method in India.

Author & Year	Theme	Category	Digital Platform Used
Chakraborty & Bhat (2019).	Online community interaction in the Consumer Electronics Industry.	Consumer behavior. Virtual community. Digital Marketing.	Facebook.
Dey (2019).	Digital activism against gender violence.	Sociocultural. Virtual community. E-activism.	Facebook, Twitter, and Blogs.
Singhvi, and Srivastava (2019).	Consumer Perception for Selecting Sports Brands.	Consumer behaviour. Virtual community. Digital Word-of-Mouth.	E-commerce sites, SNSs, Blogs and Reviews sites.

Valacherry & Pakkeerappa (2018).	Socialization aspect in customer knowledge management (CKM).	Customer Strategies. Social Media Marketing.	Facebook, Twitter and Foursquare.
Sharma (2018).	Behaviour of Facebook users for brand engagements.	Consumer behaviour. Digital Marketing. Online Branding.	Facebook.
Nedungadi *et al.* (2018).	Using mobile technology for monitoring and supporting teachers, to reduce both teacher and student absenteeism.	Education. Sociocultural. Tech trends. Virtual community.	AmritaRITE apps and WhatsApp.
Ahuja & Alavi (2017, 2018).	1. Cyber psychology and Cyber behavior of adolescents. 2. Brand engagement and visibility of the airline	1. Sociocultural. SNSs culture. Psychology. 2. Online Branding. Social Media Marketing.	Facebook, Instagram and Twitter.
Jain *et al* (2016, 2018).	1. Gender Trends on Female Bikers. 2. Surrogate Branding via Online Image Development.	Digital Marketing. Online Branding. Virtual community.	Facebook. Q&A sites and Blogs.
Bashir and Gupta (2017).	Tourist reviews and experiences on craft tours.	Consumer feedback/reviews. Visual anthropology. Online Branding. Digital Word-of-Mouth.	Blogs.
Dasgupta (2017).	Experience of queer Indian men in digital spaces.	Sociocultural. Psychology.	Planet Romeo, Facebook and Grindr.
Kujat (2016).	Subaltern Voices Entering the Public via Social Media.	Sociocultural. Tech trends. Virtual community.	Twitter and Facebook.
Bhardwaj *et al.* (2014, 2016).	1. Facebook Content Management Strategies Fast Food company. 2. Brand-Community Benefits.	Virtual community. Online Branding. Customer engagement.	Facebook.
Panda *et al* (2015).	Consumer acceptance of the sharing economy.	Sociocultural. Consumer behaviour. Online community.	Airbnb site and App.
John *et al.* (2014).	Users' characteristics and factors affecting purpose of using Facebook.	Sociocultural. SNSs culture. Psychology.	Facebook.
Tripathi and Verma (2014).	Relationship Building on Social Media: NGOs in the education sector.	Sociocultural. Virtual community. Stakeholder engagement.	LinkedIn, Facebook, Twitter, YouTube and Blogs.
Chauhan & Pillai (2013).	Social media content strategies of educational institutions.	Customer engagement. Digital Marketing. Online Branding.	Facebook.
Dwivedi (2009).	Online destination image of India as a tourist destination.	Consumer feedback/reviews. Virtual community. Online Branding.	Major SNSs and Review sites.

Source: Compiled by Researcher.

The majority of the existing Indian studies have used Facebook as a digital platform to do netnographic research (Dwivedi 2009; Chauhan & Pillai 2013; Tripathi and Verma, John *et al*., Bhardwaj *et al.*, 2014; Kujat 2016; Dasgupta 2017; Jain *et al*., Ahuja & Alavi, Sharma, Valacherry & Pakkeerappa 2018; Chakraborty & Bhat, Dey 2019). Facebook is the popular SNSs in India and also it is easy to do an ethnographic kind of research on Facebook by participating in Groups, Page

updates etc. Trend analysis further reveals that most of the Netnographic-based studies comes under the category of 'Online Branding', 'Digital Marketing', and Consumer Behavior'. Then comes the 'Sociocultural' and 'Virtual/SNSs community'. There are few studies with traces of the 'Psychology' and 'Tech trends' categories. The table shows that there is an immense increase in the number of studies as the technology becomes popular in India over the years.

Conclusion

Even research ethics are a major issue in online ethnography (Kozinets 2015). The popularity of Netnography is increasing among more young scholars as it demands a better understanding of both contemporary technology and culture. The study shows that the size of the digital space and the number of digital users is growing at a high penetration rate, due to the booming popularity of 4Gs and smartphones in India. In the future there will be a huge digital population for research sampling with a wide variety of virtual cultures. Research findings further reveal that there exists a substantial gap between the scope of different Netnographic studies and the size of the current Indian digital space, virtual networks/SNSs and number of digital users. Netnographic methods are not yet widely used by different disciplines including for Humanities and Social Science research. Even in India, it is seen that Netnography is commonly used outside the academic field for the purpose of Market studies or Business planning or development studies. Right now there are only a few disciplines promoting Netnography as a serious research method. However, future social science research will be practicing Netnographic methods as humans adapt and become addicted to technologies for basic needs, similar to how mobile phones slowly have become sort of artificial appendices if human hands. The future is the Age of AI and IoT, in which the Internet powers all human activities and shapes cultures.

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Time to Rethink Buried Treasure

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ABSTRACT

The contemporary decolonisation movement necessitates ethical reconsideration of the ownership of archaeological sites and objects, alongside reconsideration of the control of the archaeological and historical narrative. In this article, a British archaeologist argues that as we work towards decolonisation, heritage law must change. Advances in metal detecting technology have made the collection of archaeological artefacts easier than ever before; popular perceptions need to shift away from the hunt for buried treasure. Archaeological and ethnographic material should be legally defined as the patrimony of the local community, and ought to be held in public ownership/stewardship in that country. In England today, unless it is a known archaeological site or monument that is specially designated, there is no permit required to excavate, and no licence needed to go metal detecting, only the private landowner's permission. In England and in the U.S., it is still legal for dealers and auction houses to trade in archaeological material. Ending the trade in antiquities would be analogous to the proposed worldwide ban on trading in wildlife, an issue that has recently risen up the global agenda. Abolition of sales of archaeological material at British auction houses could eventually have the added advantage of making the global antiquities market unsustainable.

Now is the age of decolonisation. Decolonisation involves actively reconsidering the ownership of heritage. In part, this means the repatriation and restitution of contested heritage that was acquired in circumstances where the original owners were not in a position to object.

To achieve decolonisation, contested heritage must be understood to refer not just to objects that were "stolen" - taken by force or without permission - but equally to archaeological and ethnographic material that may have been given in tribute or legally purchased under laws that were imposed on any domestic or foreign population at a time when the people of that place were without sovereign power.

A museum, such as the British Museum, for instance, might hold a receipt of sale from a private collector, and might feel confident that the 19th century Turkish colonial rulers of Greece (for example) openly and willingly sold the archaeological material in question. However, from the ethical standpoint of decolonisation, the museum is not justified in refusing a repatriation request for material that was supposedly legally purchased under inequitable conditions, any more than it would be justified in refusing a request from a modern-day African nation, for example, to return historic objects certainly looted by British soldiers or colonial agents.

Ownership of heritage, control of the historical narrative, and economic equity are all central to the decolonisation movement. Field expeditions to augment museum collections are a colonial relic of the eighteenth to early twentieth century[1]. The 1970 UNESCO "Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property"[2] provided all State governments (thus excluding Indigenous communities) with the basis for national laws to prevent the trade in archaeological material, whether newly excavated or already held in collections. The 1970 Convention is limited to archaeology "specifically designated" by each State as important - which in Britain for example, the vast majority of archaeological sites and objects are not - or traded 'illicitly'. This emphasis on criminal procurement of cultural heritage is arguably outdated, and forms a point of intersection with decolonisation.

Decolonisation goes further than the 1970 UNESCO Convention, in that the legality at the time of the acquisition is not the decisive factor.

Decolonisation also involves effective acknowledgement of local community, including Indigenous community, ownership and stewardship: public as opposed to private ownership. To counteract the ongoing global trade in cultural heritage, this must apply equally to the archaeological record that is still in situ in the lands of every modern country, and support the State's obligation to respect local communities and to preserve the heritage.

Social acceptance of capitalist acquisition[3] and Western entitlement needs to be challenged in order to make dealers and collectors, and their wider networks, reflect on the impact of their activities. As we work towards decolonisation, perceptions need to shift away from the hunt for buried treasure. Advances in metal detecting technology have made the collection of archaeological artefacts easier than ever before. As metal detecting increases in popularity[4], the pursuit of buried coins and other objects by treasure hunters has acquired the image of a "harmless hobby." It is not harmless.

Since the 1995 Council for British Archaeology report on "Metal Detecting and Archaeology in England"[5], we've known that each year even just in England alone, hobby treasure hunters pluck hundreds of thousands of objects out of their context in the ground - from whole assemblages of prehistoric to Medieval metal artefacts, to individual coins, broaches, and buckles.

Why is treasure hunting harmful? Because in archaeology, context is everything.

Archaeologists interpret past events and processes by recording the association of every find, and study sites holistically in order to reconstruct the past narrative of a place. Coins left behind on or near a settlement or byway may be evidence of the chaos of a final episode that caused valuables to be scattered, or robbed and hidden and ultimately unretrieved. Even a single gold coin of any date from the Iron Age onward is evidence of local wealth and trade. The loss of context is the loss of the narrative itself.

1 <https://blog.nationalarchives.gov.uk/decolonising-archaeology-iraq/>

2 <http://portal.unesco.org/en/ev.php-URL_ID=13039&URL_DO=DO_TOPIC&URL_SECTION=201.html>

3 <https://www.ft.com/content/f4df95c2-cc94-11e8-8d0b-a6539b949662>

4 <https://www.telegraph.co.uk/news/2017/11/22/detectorist-finds-rise-treasure-hunters-inspired-tv-shows/>

5 <https://new.archaeologyuk.org/other-publications>

The difference between treasure hunting and archaeology is substantial. The goal of even unpaid amateur archaeologists is to investigate the buried historic environment, not to dig up treasure.

Treasure hunters target objects that can be sold through art market dealers and offered on online sales sites like eBay. This established trade in antiquities is legal in Britain and the U.S., and it almost certainly masks and motivates illicit trade[6] from other countries.

Supporters of hobby metal detecting like to portray buried objects as randomly lost items that have now been found by chance. The reality is that the searching is systematic. North American metal detectorists eager to collect British material culture have been known to travel to England for treasure hunting holidays[7]. Organised treasure holidays and metal detecting rallies[8] are clearly planned on sites that have been previously identified as good artefact hunting grounds.

All of this activity suggests a massive scale of depletion of the accessible archaeological record.

The collection of archaeological artefacts has a variable reputation. Media stories regularly portray the taking of material [9] from archaeological sites in war-torn Syria, Afghanistan and Iraq for example, mainly by people from the region, as "looting," and damaging to global heritage. But White men geared up with metal detectors, doing essentially the same thing in rural Britain are seen as discoverers, heroically saving heritage[10].

Exploiting the non-renewable resource of the archaeological record is harmful whoever does it, wherever they are.

In England, opinions about artefact hunting and collecting are split. Supporters of the Portable Antiquities Scheme[11] canvass for respect and understanding for the artefact hunters, hobby metal detectorists, dealers and collectors, with whom they willingly collaborate in studying and publishing the loose objects that are found.

Many archaeologists, on the other hand, do not see treasure hunting as a part of archaeology.

A major reason for this tension is the public experience of archaeology. Traditionally, the past has been presented in museums as a series of movable items that were apparently made to collect and display. Archaeological artefacts have been treated as works of art. Archaeological material is of course not art. The objects are items that were made for a practical purpose, however beautiful or well-crafted they may be.

However, when classified as art, archaeological material acquires financial value, and the debate becomes heated.

6 <https://news.artnet.com/art-world/antiquities-sold-online-fake-1135832>

7 <http://metaldetectingtours.com/>

8 <http://www.detecting.org.uk/html/Metal_Detecting_Rallies_In_The_United_Kingdom.html>

9 <https://www.thetimes.co.uk/article/antiquities-experts-call-for-war-on-isis-looting-3xz5d59lt>

10 <https://www.dailymail.co.uk/sciencetech/article-7402085/Stunning-5MILLION-haul-1-000-year-old-coinsreveals-11th-century-tax-evasion.html>

11 <https://finds.org.uk/>

If we acknowledge that the true significance of archaeology is in its heritage value, and that, as cultural patrimony, artefacts belong to the public - specifically to the local community -then the material becomes unsalable.

The concept of "buried treasure" is of course deeply ingrained in Western culture. There is even a Bible story about it, Matthew 13:44: "The Kingdom of Heaven is like a treasure hidden in the field, which a man found, and hid. In his joy, he goes and sells all that he has, and buys that field."

Although the parable mentions buried treasure, it isn't a case of "finders keepers": the finder could only claim the treasure once he had gone to the effort of hiding it again and then purchasing the field. Perhaps surprisingly, the notion that the current landowner owns everything associated with the land, including buried remains, is still endorsed in England today.

In recent years, hunting for archaeological artefacts with a metal detector seems to have practically overtaken fishing and shooting as a popular outdoor recreational activity. But like hunting wildlife, hobby 'treasure hunting' has got to be carefully regulated for the sake of conservation.

Many countries do have strong heritage protection laws, so searching for and digging-up buried objects is restricted by permits and licenses. In a lot of countries, cultural heritage is considered public property of the State, so cannot be legally bought and sold.

However, in England, unless it is a known archaeological site or monument that is specially designated, there is no permit required to excavate, and no licence needed to go metal detecting. Buried artefacts are considered the private property of the owner of the site where they were found.

The current law in England, the Treasure Act 1996[12], does not make archaeological artefacts State (or Crown) property. It merely makes the reporting of certain material a legal obligation. My experience has been that in practice, the Treasure Act does nothing to protect heritage. Quite the opposite: it encourages artefact hunting, by providing a financial incentive to landowners and the detectorists they allow on their land. The result is that archaeology is being openly exploited as a source of "collectables."

England has no heritage law equivalent to the Native American Graves Protection and Repatriation Act (NAGPRA[13]) in the U.S. This means that even prehistoric, ancient and Medieval burial sites in England are not protected.

In England and in the U.S., it is still legal for dealers and auction houses to trade in archaeological material. It is time to ask: "Is it ethical?"

The European Association of Archaeologists Community on the Illicit Trade in Cultural Material[14] is soon to publish a Code of Ethics for the Scientific Evaluation of Archaeological Materials. The EAA Community is focusing not only on "illicit" activities - such as failing to gain the landowner's

12 <https://www.legislation.gov.uk/ukpga/1996/24/contents>

13 <https://www.nps.gov/subjects/nagpra/index.htm>

14 <https://heritage-lost-eaa.com/eine-seite/>

permission to search for and remove archaeological material from their property - but also addressing the stimulus of the activity: collection-driven exploitation of archaeology.

What heritage professionals - the archaeologists, scientists, and conservators who study the objects - are asking today is how commodification of cultural heritage is damaging archaeology.

Introduction of three new laws in England would help to conserve the archaeological record: a Heritage Protection Act that places archaeology in the common ownership of the public; a Metal Detecting Licensing Act, that treats recreational artefact hunting the same as, for example, hunting animals; and a revised Dealing in Cultural Objects Act, that abolishes the commercial trade in archaeological material as a form of "collectable."

Work on the first of these pieces of legislation was shelved by the incoming government in 2010. When the Valletta Convention[15] was ratified by the UK parliament in 2001, Britain agreed to introduce a system of licencing for metal detecting. The implementation of this in law has since stalled too. The current Dealing in Cultural Objects (Offences) Act, passed in 2003, is not fit for purpose. It has not led to a single successful prosecution.

Thanks to lobbying by wildlife conservationists, Britain now has the Ivory Act 2018[16] in place. This could provide a starting point for revision of the Dealing in Cultural Objects Act. Ending the trade in antiquities would be analogous to the proposed worldwide ban on trading in wildlife[17], an issue that has recently risen up the global agenda.

Abolition of sales of archaeological material at British auction houses could eventually have the added advantage of making the U.S. branch of trade, and subsequently the global antiquities market, unsustainable.

For heritage professionals, conservation of the archaeological record can often seem like an overwhelming responsibility. Our work needs to be supported by robust heritage protection laws, fit for the 21st century, the age of decolonisation.

15 <https://www.coe.int/en/web/culture-and-heritage/valletta-convention>

16 <https://www.legislation.gov.uk/ukpga/2018/30/contents>

17 <https://www.independent.co.uk/news/health/wildlife-trade-pandemics-coronavirus-ban-import-worldleaders-b673860.html>

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