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- Satnam Kaur Gill

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BURDEN OF ANAEMIA AMONG YANADI TRIBE IN NELLORE ITDA

Sandhya Gupta, E. Venkata Rao***

We report here the burden of anaemia among the Yanadi tribe in the Nellore ITDA (Integrated Tribal Development Agency). Yanadi tribe, one of the primitive tribal populations, is predominant in Nellore district in Andhra Pradesh. Poor health in this sub-population, with limited data, is a cause of concern for the tribal development administration. To obtain data on health status and on the prevalence of anaemia including its age and gender-wise distribution, a cross-sectional survey during January-March 2008 was conducted in the Nellore ITDA circle on the request of Tribal Welfare Department of the Government of Andhra Pradesh. The study revealed findings hitherto unreported in published literature.

As per the 2001 census,[1] about 4.62 lakh Yanadis live in the southern state of Andhra Pradesh with nearly half of them (2.13 lakh) living in the coastal district of Nellore[2] making it a major (88%) tribal group in the district.[3] Apart from Nellore district, they are mostly prevalent in the adjoining districts like East Chittoor, Kadapa and South Prakasam. Twenty two villages from 12 *mandals* (revenue divisions) were chosen from neighbouring districts on the basis of higher density of Yanadi population in the respective *mandals*. A house-to-house survey was conducted among about 50 households from each of these villages of Nellore district including about 20 to 30 households from adjacent districts. Prior to data collection, informed written consents were obtained from the participants or from the parents in case of a child or minor. Haemoglobin concentration was measured of the subjects above 5 years of age using Sahli's method[4] and subjects were classified into different grades of nutritional anaemia as per the WHO criteria.[5] All the data were analyzed using SPSS software. Proportions were compared using 'chi square (χ^2) test'. A probability value of <0.05 was considered statistically significant.

A total of 1014 households were surveyed for the present study covering a population of 3028. Three hundred and twenty three subjects consented for haemoglobin estimation and 36 among them were of paediatric age group (5-13 years). All the paediatric subjects and 89% of adults were moderate to severely anaemic (Table-1). Severe anaemia was noted among 47.2% paediatric and 15.3% adult population. Adult females had significantly higher level of anaemia than males. No gender difference was found among paediatric population.

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Table-1: Prevalence of anaemia among the Yanadi tribe in Nellore ITDA*

Age Category	Hemoglobin status[5]				Total
	Normal	Mild	Moderate	Severe	
Child	0	0	19 (52.8)	17 (47.2)	36
Adult	20 (7.0)	12 (4.2)	211 (73.5)	44 (15.3)	287
Total	20 (6.2)	12 (3.7)	230 (71.2)	61 (18.9)	323

* Figures in parenthesis indicate row percentages

Present study has revealed much higher proportion of anaemia in comparison to the findings revealed by NFHS-3 survey[6] : 76.8% among scheduled tribe children (6-59 months), 23.1% among adult males and 62.7% among adult females (general population, aged between 15-49 years, in Andhra Pradesh).

High prevalence of anaemia among the tribal population of all ages has been reported for the reasons of poor nutrition, sanitation, unhygienic practices and socio-cultural issues among them.[6-9] Genetic disorders like sickle-cell anaemia, thalassemia and glucose-6 phosphate deficiency are common among them due to their cultural practices.[10-12] Hence, findings of this study calls for further investigation into the cause of anaemia among this sub-population.

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Conflicts of Interest

None declared.

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TRADITIONAL DIETARY PRACTICES FOLLOWED DURING LACTATION BY GADDI TRIBE IN KANGRA DISTRICT (HIMACHAL PRADESH)

Bindia Dutt*

Abstract: *The study was conducted on 100 married Gaddi tribal women of Himachal Pradesh. Thirty-two percent of them reported serving of special foods (Khertu, Gharlani, Bal Ladoo or Sonth Ladoo and Gingha) to lactating women from 4th day after the child birth. These foods are considered beneficial by majority of the experts (83.33%). All the respondents reported that mothers were given the regular diet consumed by all in the family, i.e., dal, chapatti, vegetables, rice, along with ghee 15 days post child birth. In addition, 92% reported that 'khichri' prepared of rice, moong dal (lentils), methi (fenugreek), jeera (Cumin) and sonth (dry ginger), was given. This has been tested and supported by Ayurveda being a galactogogus and easy to digest food. Majority of the respondents (87%) reported that Red pepper was not the part of lactating mothers' diet. About 60% of the experts, i.e., doctors from the field of Gynecology, Ayurveda and Nutrition, and Ayurvedic literature support this practice. Among pulses, rajmah and mah/urad dal were reported to be avoided by 83 and 80 % respondents respectively. Similarly, potato was not consumed by 77% of the respondents, brinjal by 70%, cauliflower by 68% and pumpkin by 63%.*

INTRODUCTION

The word “traditional” is defined as 'a cultural continuity, transmitted in the form of social attitudes, beliefs, principles and conventions of behavior and practices, derived from historical experiences.[1] Traditional practices are based on experience, often tested over centuries of use, adapted to local culture, environment and dynamics. Hence, it can be termed as an “Ancient Prescience”- a collection of facts and practices frozen in the past. Traditional practices are among the most oldest and sensitive aspects of any society. Even the most deprived section of the society, i.e., 'tribes', may have rich local wisdom that lies confined within the minds of the people if not documented. Thus, they need to be explored and documented.

Himachal Pradesh (HP) is rich in vegetation (medicinal plants) and hilly with difficult terrain. People of HP exhibit and hold a valuable source of traditional knowledge and practices for the treatment of various diseases. Chhota-Bhangal, one of the most interior areas of Western Himalaya, is a pristine area with good vegetation. Bhangalis represent a tribal community of the Himalaya. They are the repository of traditional knowledge, especially regarding the

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utilization of plants for medicinal purposes. These plants are used for the treatment of about 21 diseases ranging from simple stomach-ache to highly complicated male and female-disorders. Bhangalis use fruits of Khnor (*Aesculus indica*) for preparing a nutritious recipe, called "Sik". It is a pre and post-pregnancy food for women. It is also used for stopping excessive bleeding and abdominal pain during menses. Similarly, decoction of leaves of Charmara (*Artemisia sieversiana*, Wild) is administered to the pregnant ladies as an abortifacient. Roots of Matoshal (*Selinum tenuifolium,* Wallich) are powdered, mixed with the mustard-oil and applied on the body of women to treat swelling that develops after the child birth. [2]

Apart from using parts of various medicinal plants during pregnancy and lactation, some cultural practices are also followed among Gaddi tribes, women during pregnancy, are prohibited from viewing the lunar or solar eclipse. They are forced to remain indoors and avoid stitching clothes or associated activities. The Gaddis firmly believe that any non-compliance of these practices will result in deformed babies. Further, pregnant women are also prohibited from attending funerals or viewing dead babies as well as stepping out of their houses during hours of darkness. They are also denied contact or visits by mothers whose child has recently died.

Based on these practices, it can be said that the tribal people (Gujjars, Bakarwalas, Gaddis, Kinnars) of HP are rich reservoirs of the traditional practices. As per the recent estimates (2000), the Gaddi population is about 126,300. Their population in 1981 was about 76,860, which increased to about 1,05,100 in 1990 and 1,15,700 in 1995. The majority of these Gaddis are Hindus. [3] They are to be found in Dhauladhar between an altitude of 1000-2500 MSL. Recently, some of them have migrated to other districts of the state, especially Kangra and Mandi.

The majorities of them are land-owners and practice agriculture as their primary means of livelihood. They are also pastoral and own large herd of sheep and goats as a subsidiary occupation. They are nomadic moving up and down the hills in summer and winter with their animals to facilitate grazing. This has also resulted in their 'bartandari' (customary) rights on forest land which are Government owned. Today, many of them have taken up many high ranking jobs in government, private organizations and other economic activities/ professions.

Gaddi women do not have any right to inheritance as per traditional laws. Their social position is regarded as equal to that of their husband. They work equally with their husband in agricultural work except for poaching. They are also responsible for the collection of fuel and fodder both for the immediate use and for the storage and use in the winter. Women also take part in all the social, religious and ritual activities. In addition, they are responsible for all the domestic works and feeding the members of their families. However; in spite of bearing various responsibilities, they do not have right to any decision-making in their

families. In general, cultural norms and practices and socio-economic factors determine the nutritional status of women. During pregnancy, women are restricted from having routine food items due to taboos and ritual practices, which are widely documented in both rural and tribal population.[4] Tribal women are vulnerable particularly to under-nutrition because of the wide variation in the culture, religion and levels of development among different Indian states.

Hence, the present study was undertaken with two main objectives: firstly, to explore the traditional dietary practices followed by Gaddi women during lactation and secondly, to validate the identified practices with the help of experts and Ayurvedic literature.

METHODOLOGY

For exploring the traditional dietary practices followed by Gaddi women during lactation, 100 married women aged 40 years and above were interviewed with the belief that these women would have vast experience and knowledge of the ancient traditions as compared to those who delivered babies recently (past 1 or 2 years). The sample was selected from 4 tribal dominant villages, viz, Bundla, Rakh, Bindraban and Mehnja of Bhawarana Panchayat Samities of Kangra district of Himachal Pradesh.

In order to validate the identified traditional practices, a sample of 12 experts, i.e., doctors from the field of Nutrition, Gynecology and Ayurveda were selected. The information from experts was collected using questionnaire. The validation was carried on 3 point continuum, based on experts' knowledge, as: scientific (those foods items which, according to experts, are beneficial to the health of the lactating women), unscientific (those food items which, according to experts, are not beneficial to the health of the lactating women) and uncertain (food items about which the experts had no knowledge). The traditional practices were also validated, based on Ayurvedic literature.

RESULTS AND DISCUSSION

Traditional foods given during lactation and their validation

It is clear from Table-1 that 32% respondents used to serve special foods from 4th day onwards to the lactating mothers. Before this day, they are offered simple boiled milk twice or thrice a day. According to the respondents, this is based on the clearance of their uterus and stomach. This practice has been considered acceptable by majority of the experts. Ayurveda also supports the same mentioning that it helps in the increase of milk secretion (Table-1).[5] After the 4th day of the delivery, the Gaddi women are given 'Khertu', 'Gharlani', 'Bal-Ladoo' or 'Sonth-Ladoo' and 'Gingha'. Table-1 indicates that 'Khertu' and 'Gharlani', the two milk preparations, are served to the lactating mothers. 'Khertu' is given as lunch and dinner while 'Gharlani' is often consumed as breakfast or evening snacks. According to the respondents, 'Khertu' is generally prepared from rice, enriched with milk, ghee, sugar and nuts. Its intake is associated with the increase in milk production. It is served from the 1st or 4th

day after the child-birth for 15 days. It has been considered nutritious by majority of the experts (83.33%).

'Gharlani' is also a milk product. It is prepared with milk, coconut, ground almonds, dates, raisins, *sonth* (dried ginger) powder and ghee. Ayurveda, on the basis of its ingredient properties, supports the practice of its consumption.[5] Similarly, another important preparation, called 'Bal-Ladoo'/ 'Sonth-Ladoo' is also given to the lactating mothers as reported by all. 'Bal-Ladoo' is given from 1st or 4th day after the child-birth and continued up to 2-3 months. In general, one 'Bal-ladoo' of 25-30g is administered every day. It is prepared from *moong dal* (green gram), ghee (butter oil), almonds, coconut, raisins, dates, charmagaz, dried seeds of pumpkin, safed musli (*Chlorophytum borivillianum*- a white live worm which grows as an underground root*),* three types of Gonds (*nagori gond, kamarkas* and *banslochan*), *sonth* (dried ginger), *saunf* (fennel) and cardamom. The practice of giving such foods is regarded beneficial for the lactating mothers in the Ayurvedic literature. [5] 'Gharlani' and Bal-Ladoo / Sonth Ladoo are believed to provide strength by removing the physical weakness and inducing warmness in mothers. It increases milk secretion. The addition of *gonds* in 'Bal-Ladoo'/ 'Sonth-Ladoo' helps to control excessive bleeding. 'Gingha' is another preparation that works like 'Gharlani' or 'Bal-Ladoo'. It is prepared with wheat flour, ghee and sugar. It is mostly consumed at night starting from 1st or 4th day up to 15th day. Consuming 'Gingha' has been judged as 'scientific' by the three-fourth of respondents. However, no information is available in Ayurvedic literature in this regard and authenticity of this practice needs verification. In general, these preparations are administered to lactating mothers in all the families. However, time duration and quantity vary depending upon the economic condition of the families.

According to all the respondents; 15 days post child birth, mothers are given normal diet, i.e., *dal* (pulses), chapatti, vegetables and rice along with ghee. However, 92 % also reported that 'Khichri' (the mixture of many types of grains) prepared of rice, moong dal, methi, jeera and sonth is also given. This practice has also been termed 'scientific' by all the experts. Ayurveda strongly supports this practice as all these foods are galactogogus and easy to digest. Methi and jeera are added to reduce flatulence. These foods are given as per the desire of the mother. After 21 days, 'Gharlani' is replaced with boiled-milk as reported by 38% respondents. This practice is continued at least for 2 months, giving the lactating mothers boiled-milk once per day. As can be seen from Table-1, the lactating mothers are also served with falvoured boiled water. It is often boiled with *chhoti-elachi* (cardmom), *tejpatta* (bay leaves) and *saunf* (fennel). All the concerned experts support this practice as reliable and consider it anti-infection. Ayurveda also supports this practice.[5]

The above mentioned nutritional preparations are consumed up to 2 to 3 months after the child birth. However, the lactation is continued up to 1 to 2 years. Hence, the efforts have also been made to find out if any special preparation is

given to the lactating women during this period. Nothing special has been reported to be served in this duration. However, the amount of normal dietary intake is always as per the requirement of the lactating women.

Foods restricted during lactation

Scrutiny of Table-2 reveals the foods avoided by the lactating mothers in the Gaddi tribe. It has been reported that solid foods like chapatti, vegetables, pulses etc. are avoided by the mothers for 15 days after the child-birth. Table 2 also shows that this practice has been termed 'reasonable' by the three-fourth of the experts and Ayurveda also supports it. For, a young mother's body is sensitive to digest solid foods. Majority of the respondents (87%) have reported that Red-pepper is not added to the lactating mother's diet. About 60 percent of the experts along with Ayurvedic literature support this practice.[5] Among the pulses, *urad dal* (split black gram) is not administered. Similarly, potato is not consumed by 77% respondents, brinjal by 70%, cauliflower by 68% and pumpkin by 63% respondents. It is clear from Table-2 that this practice is approved by all the experts, as these food items are believed to cause gastric flatulence leading to the stomach-ache. More than 50% respondents have reported that curd/ *lassi* (a drink made of curd, mixed with sugar and nuts) / radish/ sour foods are not given to the lactating mothers. In addition, a large number of respondents have also reported that salt is given to them in mild amount to increase wound healing.

DISCUSSION

Women are generally vulnerable to under nutrition especially during pregnancy and lactation when the nutrient requirements are higher. The demographic consequences of the lower status in women have resulted in female infanticide, higher death rate in women as compared to men, lower sex ratio, lower literacy rate and lower level of employment in non-agricultural sectors.[6] Most of the Indian mothers are malnourished, anaemic and have short pregnancy interval. Several studies underscore the relationship between maternal nutrition and incidence of low birth weight.[7] NNMB (2003) has reported that the overall prevalence of anaemia has been observed to be highest among lactating women (78%), followed by pregnant women (75%) and adolescent girls (70%).[8]

Among Gaddi community, the women, after the delivery, are given special food preparations from day 4 onwards up to day 15. This may be because of the belief that post child-birth, the body is unable to digest heavy meals. Findings of Telesara, (2000) also support this practice with reference to the tribals of Udaipur district of Rajasthan.[9] The special preparations, given to the lactating mothers in Gaddi tribe are: 'Gharlani' (milk product), 'Bal-ladoo'/ 'Sonth-Ladoo' and 'Gingha'. The ingredients used in these products are mostly associated with the rich nutrition inducing warmness, increasing milk secretion and controlling the excessive bleeding. Kanwar and Sharma (2011) have reported similar findings among rural women of Kangra district of

Himachal Pradesh.[10] Apart from these food products, rural women also use 'Moong-dal halwa' as a source of energy. Similarly, Sharma and Sharma (2003) in their study on rural mothers of Baijnath block of Himachal Pradesh found that 90% of the rural women consumed galactogogue, called 'Kharani'.[11]

Apart from dietary management, Gaddis take care of lactating women with regards to drinking water as well. They use only special boiled water (water +*chotti elachi, tejpatta* and *saunf*). It is believed to lessen thirst and lower the risk of stomachache in the lactating mothers. Similar practice is followed by rural women of Himachal Pradesh (Kanwar and Sharma).[10]

It is a common belief among Gaddi women that what a mother consumes has a direct influence on her child's health. A common 'pahari' (proverb) among Gaddi tribe, *"Patadoo ta ni Batadoo"* and *"Batadoo ta ni Patadoo,"* means that a woman can have only one choice- either control her eating habits during the lactating phase for the well being of her child or she should eliminate the thought of a child. They avoid solid foods like chapatti, vegetables or pulses for about 15 days after the delivery as they believe that it is hard to digest and may cause them stomachache. In a study by Telesara,[9] it has been found that during lactation, for about 10-15 days, the mother is not given chapatti, dal and vegetables because such foods distend the nerves of the mother's body and cause them stomachache.[9]

Sharma and Sharma (2003) have reported that rural women avoid *dals* (pulses) like mash, *rajmash, rongi* etc. with the belief that these food items produce pinworms and cause stomachache among the neonates.[11] Similar practice has been observed among Gaddi women during the present study. Further, Gaddi women also avoid curd, lassi, radish and sour foods during lactation for the belief that these foods are cold in nature and may cause cold and cough to the mother and consequently to the child too. Similar behaviour has been noted by Sharma and Sharma (2003) in his study.[11] In contrast, avoidance of curd and 'Lassi' among tribal women of Rajasthan is based on the belief that they cause coagulation of mother's milk (Telesara).[9]

Based on the present studies, it can be concluded that Gaddi women consume special nutritive foods as the source of energy to overcome weakness, induce warmness, control bleeding and enhance milk-secretion. In addition, they avoid foods that are cold in nature and produce gaseous flatulence. Thus, it can be said that consumption and avoidance of certain foods during lactation revolve mostly around the hot and cold nature of the foods.

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Table-1: Traditional dietary practices followed for lactating mothers among Gaddi tribe in Kangra district of Himachal Pradesh alongwith their scientific validation

S. No.	Dietary practices	F/%	Logic as reported by respondents	Experts opinion			Ayurvedic literature	Information related to practice
				S*	US**	UC***	S^, NS^^, UA^^^	
1	Simple milk (Upto 4 days)	32	The uterus and digestive system of mother gets cleared	9 (75)	3 (25)		S	To have increased milk secretion
2	Khertu+Ghee (From 1st/ 4th day & upto 15 days)	100	Increase milk secretion	10 (83.33)		2 (16.66)	S	Instead of rice give it with milk or any other strength providing material
3	Gingha (from 1st/ 4th day & upto 15 days)	100	To provide strength and control excessive bleeding	9 (75)		3 (25)	UA	
4	Gharlani + Ghee (from 1st/ 4th day upto 21 days) Ingredients : Almonds, Grated coconut, Dates, Dry raisins, Milk	100	Provide strength to the mother, reduces backache, induces warmthness to mother's body &increases milk secretion	10 (83.33)		2 (16.66)	S	Almonds: Provides strength and checks amnerrhoea Coconut: Provides strength and increases milk secretion Dates:Strength providing, removes gas, increases milk secretion and removes pain Dried raisins: Strength providing and intellect promoting Sonth: Provides strength, hot in nature, helps in digestion, reduces pain, removes gas and brings uterus to normal position
5	Bal/ Sonth ladoo (from 1st/4th day upto 2 1/2 to3 months) Ingredients: Moong dal powder,	100	Provide strength to the mother, reduces backache, induces warmthness to mother's body &	12 (100)			S	This prepration is also mentioned in ayurveda since the item added has different properties beneficial for lactating mothers Almonds: Provides strength and

	Ghee, Almonds, Coconut, Dates, Raisins, Charmagaz, Safed musli, Three types of gonds- Nagori gond, Kamarkas, Banslochan, Sonth, Bari elachi, Choti elachi		increases milk secretion & gond added keeps check on excessive bleeding					checks mnerrhoea Coconut: Provides strength and increases milk secretion Dates:Strength providing, removes gas, increases milk secretion and removes pain Safed Musli: removes gas, provides strength, increases weight, increases immunity and cold nature balances the hot effect of other items. Gonds: Checks amnerrhoea and provide strength Banslochan: Strength providing and reduces chances of infection Saunf: Provides strength, increases appetite and cold nature balances the hot effect of other items Elachi: For flavor, helpsin digestion, removes gas, thirstiness and all three doshas i.e.Kapha, vata & pitta Bari elachi: Improves appetite, pain reducing and for good flavor Ghee: To provide strength

6	Special boiled and cooled water (upto 21 days) Ingredients: Elachi, Saunf and Bay leaf	100	It is light and easily digestible, avoids thirstiness, reduces chances of stomachache & avoids stomach bulginess	12 (100)			S	It's easy to digest
7	Khichri (after 15 days) Ingredients: Moong dal, Rice, Methi, Jeera, Sonth	92	Easily digested by mother as well as child. Methi and jeera are added to avoid gas formation	12 (100)			S	It provides strength and is galactogogus
8	Simple vegetable, dal, chapatti, rice etc (after 15 days)	100	So as to adjust to normal routine	12 (100)			S	Special diet need to be given upto this period
9	Milk (After 21 days to 2 months)	38	To avoid weakness if any	12 (100)			S	Milk need to be provided for strength

Key words : S* = Scientific, US** = Unscientific, UC*** = Uncertain,
S^ = Satisfied, NS^^ = Not satisfied, UA^^^ = Unavailable.

Table-2 : Traditional practices regarding avoidance of foods for lactating mothers among Gaddi tribe in Kangra district of Himachal Pradesh alongwith their scientific validation

S.No.	Traditional Practice	F/%	Logic as reported by respondents	Experts opinion			Ayurvedic literature	Information related to practice
				S*	US**	UC***	S^, NS^^, UA^^^	
1.	**Foods Avoided**							
a)	Solid foods such as vegetable, dal, rice for 12 to 15 days	100	Mothers body was weak and not able to digest these foods	9(75)	3(25)		S	Ayurveda also mentions the same.
b)	Rajmash	83	Gaseous foods and thus there were the chances of stomachache	12(100)			S	Gas producing thus cause stomachache
c)	Potato	77						
d)	Cauliflower	68						
e)	Brinjal	70						
f)	Pumpkin	63						
g)	Mash/ Urad dal	80	Cause pinworm to child as these are hot in nature	8(66.66)	4(33.66)	2(16.66)	S	Hot, heavy and gas producing
h)	Chillies	87		8(66.66)		4(33.33)	S	Chillies harmful for mother as well as child
i)	Curd/ Lassi/radish and		Cold in nature cause cold and cough to mother and child			12(100)	UA	
j	Salt (not in excess)	60	It delays healing of wounds	9(75)	3(25)		UA	
K	Meat	44	Pieces of meat gets settled in child's stomach and cause pain	7(58.33)	3(25)	2(16.66)	S	Meat is difficult to digest and cause problem to mother and child

Key words : S* = Scientific, US** = Unscientific, UC*** = Uncertain,
S^ = Satisfied, NS^^ = Not satisfied, UA^^^ = Unavailable.

IMPACT OF FOREST ON TRIBAL HEALTH: A STUDY AMONG THE TOTOS OF TOTOPARA, DISTRICT-JALPAIGURI, WEST BENGAL

Pinak Tarafdar*, Subhankar Roy

Abstract: *Health care practice among the tribal population is often an indispensable study in medical anthropology. Tribal life and medicinal practices are often interconnected with the forest ecology. Their traditional health care system is based on their deep observation and understanding of the nature and environment. The present study aims at identifying various dimensions of health seeking behaviour of the Totos- a forest based primitive tribal group (PTG), found only in the Totopara of Jalpaiguri district in West Bengal. They are intimately attached with the forest in respect of foods, fruits, edible roots, leaves, medicinally important plants and many other minor forest produces. Furthermore, the study highlights the multifaceted impact of forest policies, deforestation and commercial forestation programmes on the health seeking behaviour of the Totos*.

INTRODUCTION

Tribal communities in India mainly consist of forest dwellers that, over the centuries, have accumulated a rich knowledge of the usage of various forests and forest products. According to census-2001, 8.2% of Indian population constitutes 8,43,26,240 is nearly half of the indigenous people of the world. In India, there are about 635 tribal groups and subgroups including 75 primitive communities designated as 'primitive' on the basis of their agricultural technology, low level of literacy, stagnant or diminishing population size, distance from the main stream of population, economic and educational backwardness, extreme poverty and their dwelling in the remote and inaccessible hilly terrains. They maintain constant touch with the natural environment and remain unaffected by the developmental process undergoing in their habitat. According to government statistics, tribes are often found dwelling in approximately 461 communities with almost 92 % of them residing in rural areas. These remote areas constitute reserved forest regions with little or no basic civic amenities like transport, roads, markets, health care, safe drinking water or sanitation. Therefore, tribal communities are generally believed to lag behind other communities in terms of income, education, health and other necessities of life.[1,2]

Tribal communities are mostly forest dwellers and their traditional health care system is often dependent on both the herbal and the psychosomatic treatment. Plants, flowers, seeds, animals and other naturally available substances are often the raw materials used for the treatment. These traditional medical practices

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always have influence of religion, supernaturalism and magico-religious beliefs. Health is a pre-requisite for human development and is essentially concerned with the well-being. Health varies with different biological and socio-cultural variables like age, sex, food habit, education, economy, community, environment, place of habitation, communication and culture.[3]

The holistic concept of health culture provides a valuable framework for analyzing the work of anthropologists in health fields. However, very few studies are available in this direction, especially among the primitive tribal population. The present study explores the impact of forest on the health care practices of the Totos- a forest dependant primitive tribal group of Jalpaiguri district of West Bengal.

Study area and the people

Totopara which is a small village under the Madarihat block of Jalpaiguri district was selected for the present study. The area is situated in the Indo-Bhutan border of the bank of the river 'Torsha'. The hillocks are from 750´ to 1250´ above the sea-level and lie at Lat. 89°20´ and Longitude 26°50´. The Northern end touches Bhutan on the East is river 'Torsha' and, on the South and West are deep 'Titi' reserve forests (Jaldapara wildlife Sanctuary) of Jalpaiguri district. The village is named after the inhabitants belonging to the 'Toto' tribal group. The village Totopara is divided into six sectors, viz., Panchayat Gaon, Subba Gaon, Mondol Gaon, Puja Gaon, Mitran Gaon and Dhumchi Gaon.

Methodology applied

In the present study, stratified sampling was administered for the selection of the sectors in Totopara. Among the six sectors (Panchayat Gaon, Subba Gaon, Mondol Gaon, Puja Gaon, Mitran Gaon and Dhumchi Gaon), four sectors (Panchayat Gaon, Subba Gaon, Puja Gaon and Mitran Gaon) were selected under the two broad categories: Category: 1 (Puja Gaon and Mitran Gaon) and Category: 2 (Panchayat Gaon and Subba Gaon). The selection was made on the basis of their dependency on forest, distance from market and core place of the village, economic status and education.

The sectors of Category: 1 (Puja Gaon and Mitran Gaon) are relatively more distant from the market and core of village than those of the Category: 2 (Panchayat Gaon and Subba Gaon). People of Category:1 are more dependent on forest and forest produces than the people of Category: 2. The data was collected from the sectors of these two categories by using the preliminary census schedule, observation, case studies, focused group discussion and interview techniques. (Table-1) The secondary data was collected from various census reports, journals, books, block office and adjoining Health Centers of the areas under study.

Category	Sectors	Criterion
Category: 1	Puja Gaon	1. Distant from the market and core area of the village. 2. Distant from the Primary Health Centre. 3. Nearness to the adjoining forest.
	Mitran Gaon	
Category: 2	Panchayat Gaon	1. Nearness to the market and core area of the village. 2. Nearness to the Primary Health Centre. 3. Nearness to the weekly market and village shops.
	Subba Gaon	

Table-1: Distribution of population according to sex

Name of the Sector		Male	Female	Total
Category: 1	**Mitran Gaon**	79 51.97	73 48.03	152 100.00
	Puja Gaon	73 55.30	59 44.70	132 100.00
	Total	**152** **53.52**	**132** **46.48**	**284** **100.00**
Category: 2	**Panchayat Gaon**	164 55.41	132 44.59	296 100.00
	Subba Gaon	184 56.27	143 43.73	327 100.00
	Total	**348** **55.86**	**275** **44.14**	**623** **100.00**
Grand Total		**500** **55.13**	**407** **44.87**	**907** **100.00**

(Source: Field Study: 2010)

RESULTS AND DISCUSSION

Health, particularly in the tribal societies, cannot be dealt in isolation. The indigenous health care system of the Toto tribal community is based on their deep observation and understanding of the nature and environment. Their knowledge of many medicinal plants has often been derived through their deep observation of other animals in nature.[4] The village 'Totopara' is the only den of Totos in the world and is situated at the foothills of the Himalayas towards southern border between Bhutan and India. The *Torsha* is

the main river flowing to the east and extension of the Jaldapara Wildlife sanctuary extending towards the south of village. The forest adjoining the village is termed as 'Titi forest'. It is a tropical rain forest falling under the Lankapara range of Coochbehar division.

Earlier, the Totos were originally dependent upon forest and land for their food and nutrition. They were known as the 'Bridge and Buffer-Community' and their chief means of economic pursuit was the transportation of orange, ginger and turmeric from Bhutan to India.[5] They collected different fruits, tubers, roots and vegetables from the forests which have a great nutritive value. They hunted different forest beasts and boiled them for eating. They also consumed carrion meat which were available in their habitat. The *Torsha* and *Howri* rivers of West Bengal and *Mabui, Chengbui* and *Giti* rivers of Bhutan are the Toto's major sources of fishing during the rainy season. They cultivate *Maize*, *Maruwa, Zinger* and a special type of rice called '*Kauni'.* They make `*Eu*' – a country liquor, made from fermented *rice, maize,* and '*Kauni'*. According to them, the indigenous liquor supplies calorie value and vitamins.

Due to decline and degradation of forest and implementation of several forest acts, the Totos were forced to change their food habits. The forest is no more freely accessible to them as in the past. The forest laws prevent them from an easy access to the forest. The fish population in the local rivers and streams have declined due to lower rainfall. Further, over-usage of the pesticides in the agricultural fields directly contaminates the local streamlets, leading to decline in the number of fishes and forcing them to collect vegetables and other foods from the weekly market.

Elderly Toto individuals have a deep knowledge of the medicinal value of different plants which are regularly used in eliminating various ailments. Plant and animal parts are also used as a source of medicine. There exists a definite relation between forests and tribal health. It has been noted by various anthropologists that the tribals living in the remote areas have a better health status and more balanced food than those living in less remote areas.[6,7] The primitive tribal community 'Toto' lived in the remote areas of Jalpaiguri district and collected various kinds of roots and tubers available in the adjoining forests. Deforestation has affected nutritional status.

Totos collect different plants having medicinal values like- *Chaprasai, Herchun, Aing, Goirabet, Duidusey, Hartal, Amrasing, Daising, Foching, Butasing, Budi* and *Tenkey* (Chart-1) from the nearby forests. They also use the bile of different forest beasts as a source of medicine (Chart-2). The two emerging factors, i.e., 'lack of cultural transmission' and 'less imitable nature of indigenous knowledge' have confined their traditional medicines to a few elderly persons of the Toto community. The traditional healers are trained to produce different herbal mixtures which are used as source of medicine. But, with the passage of time, the use of the traditional medicine has decreased. Lower availability of herbal medicines from forest has been one of its main causes.

Chart-1: Some indigenous plants and their uses

Indigenous name of the plants	Parts used	Used in
Chaprasai	Leaf	Stop bleeding
Herchun	Stem	Burning
Aing	Root	Jaundice, evil look Stomach problem
Goirebet	Root	Tuberculosis
Gaja-Muri	Fruit	Snake bite
Yubda	Root	Jaundice
Sang	Flower	Tuberculosis
Ling	Root	Dog bite
Pipla	Root	Fever Cough & Cold
Guai	Stem (red coloured)	Pneumonia
Loasing	Root	Jaundice
Duidusey	Root bulb	High blood pressure
Hertal	Root	Stomach problem
Amrasing	Leaf	Pox
Pangcha	Root	Pneumonia
Foching	Rhizome	Paralysis
Butasing	Stem & bark	Dysentery
Tenkey	Leaf	Stomach problem

(Source: Field Study: 2010)

Chart-2: Some animal parts as a source of medicine

Name of the animals	Parts used	Used in
Bear	Bile	Tuberculosis
Iguana	Bile	Tuberculosis
Snake	Venam	Stop bleeding

(Source: Field Study: 2010)

The Totos cultivate number of cereals like *Maize, Kaoni*, *Maruwa* and *Paddy* during different seasons of the year. *Maize* and *rice* are their main staple food. They also collect cereals, pulses and sugar from the ration shops. They purchase dried fishes from the nearby market. Meats frequently consumed by them are beef, pork and chicken. The literate sections of the Totos have stopped consuming carrion meat and insects. Some of them collect different types of vegetables like *Mushai, Mairunshai, Birshai, Singsai, Laka, Ling* (indigenous names of the plants) etc. from the adjoining forest. The use of spices viz. onion, garlic and ginger is a new addition to the Toto food items. The young Totos are no longer interested in their traditional foods. It could be due to lack of availability of their traditional food and availability of the modern food items in the region.

'Beef' is the chief item during their occasions of celebrations like childbirth, marriage etc. According to the choice of the guests, it is prepared with or without the spices. They also prepare pork for the non-beef eaters. The main meals are taken twice daily: early in the morning and before the dark. Their meal includes *rice*, *roti* made from *maize*, *kala-dal*, vegetables etc. They occasionally consume egg, fish or meat in their meal. They collect tea from the neighboring tea-estates and markets and take the infusion in hot water with salt. They believe that salted-tea provides more energy.

The most favorite drink of the Totos is '*Eu'*- a country made liquor, prepared from fermented rice and *'maize'* or a mixture of the two in an earthen pot. This indigenous beer produces energy in the form of calories. It is served during village festivals to both the sexes and young and old. The Totos traditionally welcome their guests with 'Eu'. They use betel-leaf with betel-nuts and a few among them smoke *Biri* or cigarettes. Meats and fishes are restricted for the pregnant women. They believe, it may cause rough or violent behavior in the newborn. They are also restrained from eating *plantain flower* because according to their beliefs, *plantain flower* may cause miscarriage.

In the present study, it has been observed that majority of the Toto population is affected by various diseases as can be seen from Table-2, 85.08% families are affected by various diseases. In Category-1, 79.31% families from Mitran Gaon and 86.36% families from Puja Gaon are disease-affected. In Category-2, 87.09% families are disease-affected in Panchayat Gaon and 85.29 % in Subba Gaon. It has also been noted, as described in Table-3, that the female members are comparatively more disease-affected (42.51 %) than the male members (39.80%). Number of disease-affected person is the highest in Panchayat Gaon and lowest in Mitran Gaon. In the sectors of Category-1, 22.50% males and 18.92% females believe in their traditional health care practices. In contrast, in the sectors of Category-2, only 12.58% males and 12.50% females believe in traditional practices (Table-5). Various diseases like Malaria, Jaundice, Arthritis, Tuberculosis, Headache and Blood pressure have also been reported from the studied area. (Present study)

Table-2: Disease affected families

Name of the sector		Total no. of families	Affected	Not affected
Category:1	Mitran Gaon	29 100.00	23 79.31	06 20.69
	Puja Gaon	22 100.00	19 86.36	03 13.64
	Total	**51** **100.00**	**42** **82.35**	**09** **17.65**
Category: 2	Panchayat Gaon	62 100.00	54 87.09	08 12.90
	Subba Gaon	68 100.00	58 85.29	10 14.71
	Total	**130** **100.00**	**112** **86.15**	**18** **13.85**
Grand Total		**181** **100.00**	**154** **85.08**	**27** **14.92**

(Source: Field Study: 2010)

Table-3: Disease affected persons

Name of the sector		Total affected		Total	
		M	F	M	F
Category:1	Mitran Gaon	18 22.78	21 28.77	79 100.00	73 100.00
	Puja Gaon	22 30.14	16 27.12	73 100.00	59 100.00
	Total	**40** **26.32**	**37** **28.03**	**152** **100.00**	**132** **100.00**
Category: 2	Panchayat Gaon	104 63.41	89 67.42	164 100.00	132 100.00
	Subba Gaon	55 29.89	47 32.87	184 100.00	143 100..00
	Total	**159** **45.69**	**136** **49.45**	**348** **100.00**	**275** **100.00**
Grand Total		**199** **39.80**	**173** **42.51**	**500** **100.00**	**407** **100.00**

(Source: Field Study: 2010)

In general, Totos believe that various supernatural powers are responsible for the inception of different ailments among them. Hence, they perform diversified magico-religious acts for maintaining good health. These acts are executed by the priests or *Jhakri* belonging to the Toto or Nepali community. However, this notion has recently changed. Consequently, now

The Totopara PHC is being accessed by the people inhabited in the sectors of Category-2 due to their nearness to the health centre. Residents of Puja Gaon are relatively more accustomed to follow magico-religious performances due to their economic and educational backwardness.

Health and treatment among Totos are very much connected with the

Table-4: Concept of disease

Name of the sectors		Natural		Super-Natural		Cannot say		Total affected	
		M	F	M	F	M	F	M	F
Category:1	**Mitran Gaon**	18 100.00	19 90.48	-	01 04.76	-	01 04.76	18 100.00	21 100.00
	Puja Gaon	16 72.73	11 68.75	05 22.73	04 25.00	01 04.55	01 06.25	22 100.00	16 100.00
	Total	**34 85.00**	**30 81.08**	**05 12.50**	**05 13.51**	**01 02.50**	**02 05.40**	**40 100.00**	**37 100.00**
Category: 2	**Panchayat Gaon**	94 90.38	87 97.76	05 04.81	01 01.12	05 04.81	01 01.12	104 100.00	89 100.00
	Subba Gaon	52 94.55	41 87.23	03 05.45	02 04.26	_	04 08.51	55 100.00	47 100.00
	Total	**146 91.82**	**128 94.12**	**08 05.03**	**03 02.21**	**05 03.14**	**05 03.68**	**159 100.00**	**136 100.00**
Grand Total		**180 90.45**	**158 91.33**	**13 06.53**	**08 04.62**	**06 03.01**	**07 04.05**	**199 100.00**	**173 100.00**

majority of the Totos identify and understand the natural causes behind their diseases (Table-4). The traditional medical practices as use of herbal medicines, magico-religious performances, worship of God etc. have mostly been replaced with the modern medical system after the establishment of Primary Health Centre in Totopara.

environment particularly with the forest ecology. Forest is the key source of getting medicinal plants for Totos. Their traditional healers collect different medicinal plants that are used for various diseases such as tuberculosis, jaundice, headache, arthritis and blood pressure etc. In Mitran Gaon, 13.79% and in Panchayat Gaon, only 3.23% of families

collect medicinal plants from forests. (Table-7)

Besides the herbal medicines, the Totos also use various parts of animals as the source of medicines. They use the bile of bear as well as iguana to treat Tuberculosis. They also reported that the snake-poison is a good remedy for stopping bleeding.

Forest is considered as a good source of fodder for the domestic animals in the tribal areas. Because of the shortage of pastural land in Totopara, the villagers depend on forest for the fodder of their domestic and farm animals. It was noticed that in Mitran Gaon 55.17% families depend on forest for animal fodder. In case of Puja Gaon, Panchayat Gaon and Subba Gaon, the percentage was 72.72, 41.94 and 41.18 respectively (Table-7).

The animals feed *Fetaidi, Bairadi, Saindi, Kising, Dosing* and *Lora* (indigenous names of the plants). These trees are available in the adjoining forests of the village and can provide fodder for about 4 months. Later, it is obtained from the banks of the river *Torsha*. Villagers use stored fodder for the remaining 4 months of the rainy season.

Table-5: Category of treatment

Name of the sectors		Total persons suffered		Types of treatment						No treatment	
				Traditional		Modern		Both			
		M	F	M	F	M	F	M	F	M	F
Category:1	Mitran Gaon	18 100.00	21 100.00	05 27.78	02 09.52	08 44.44	13 61.90	05 27.78	06 28.57	-	-
	Puja Gaon	22 100.00	16 100.00	04 18.18	05 31.25	10 45.45	06 37.50	08 36.36	05 31.25	-	-
	Total	**40 100.00**	**37 100.00**	**09 22.50**	**07 18.92**	**18 45.00**	**19 51.35**	**13 32.50**	**11 29.73**	**-**	**-**
Category: 2	Panchayat Gaon	104 100.00	89 100.00	09 08.65	08 08.99	75 72.12	69 77.53	13 12.50	08 08.99	07 06.73	04 04.49
	Subba Gaon	55 100.00	47 100.00	11 20.00	09 19.15	38 69.09	27 57.45	06 10.91	10 21.27	_	01 02.13
	Total	**159 100.00**	**136 100.00**	**20 12.58**	**17 12.50**	**113 71.07**	**96 70.59**	**19 11.95**	**18 13.23**	**07 04.40**	**05 03.68**
Grand Total		**199 100.00**	**173 100.00**	**29 14.57**	**24 13.87**	**131 65.83**	**115 66.47**	**32 16.08**	**29 16.76**	**07 03.52**	**05 02.89**

(Source: Field Study: 2010)

Table-6 : Distribution of family on the basis of the access of forest resources

Name of the sector		Total no. of family	Access of forest resources		
			Yes		
			Regular	Occasional	No
Category:1	Mitran Gaon	29 100.00	27 93.10	01 03.45	01 03.45
	Puja Gaon	22 100.00	21 95.45	-	01 04.55
	Total	**51** **100.00**	**48** **94.12**	**01** **01.96**	**02** **03.92**
Category: 2	Panchayat Gaon	62 100.00	51 82.26	05 08.06	06 09.68
	Subba Gaon	68 100.00	60 88.24	04 05.88	04 05.88
	Total	**130** **100.00**	**111** **85.38**	**09** **06.92**	**10** **07.69**
Grand Total		**181** **100.00**	**159** **87.85**	**10** **05.52**	**12** **06.63**

(Source: Field Study: 2010)

Table-7: Distribution of household on the basis of resources collected from the forest

Resources collected from the Forest	Name of the sector			
	Category: 1		Category: 2	
	Mitran Gaon	Puja Gaon	Panchayat Gaon	Subba Gaon
Fuel	06 20.69	-	19 30.65	21 30.88
Fodder	02 06.90	-	06 09.68	05 07.35
Food	-	-	01 01.61	-
Fuel & Fodder	08 27.58	09 40.90	11 17.74	13 19.12
Fuel & Food	-	02 09.09	04 06.45	06 08.82
Fodder & Food	-	01 04.55	02 03.23	01 01.47
Fuel & Fodder & Food	06 20.69	06 27.27	07 11.29	09 13.24
Medicinal plants	04 13.79	02 09.09	02 03.23	03 04.41
Others	01 03.45	01 04.55	01 01.61	02 02.94
Nothing	02 06.90	01 04.55	09 14.52	08 11.77
Total	**29** **100.00**	**22** **100.00**	**62** **100.00**	**68** **100.00**

(Source: Field Study: 2010)

CONCLUSION

Present study reveals the importance and influence of ecology on the health and nutritional conditions of the primitive tribal 'Toto'. Deforestation, commercial forestation and plantation of cash corps have also influenced their life. The restrictions imposed on them by the forest-laws regarding the use of forest-products have had a profound effect on their living. Major causes of Totos inclination towards traditional healthcare practices and indifference towards modern medical practices have also been observed as: their superstitious beliefs/concepts and unawareness about healthcare and modern medical practices.

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FOLK MEDICINAL CLAIMS FOR THE TREATMENT OF ARTHRITIS IN CHHATTISGARH, INDIA

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Abstract*:The present study aims to document the folk medicinal practices for the treatment of 'Arthritis' by various tribal and rural people of Raipur District of Chhattisgarh. The information was collected through interviews. Interviews were conducted with traditional healers and other elders of the community or village. Twenty six medicines were documented for the treatment of Arthritis and an attempt has been made to authenticate the claims from the literature of Classical Medical System. Botanical and vernacular names, parts used and mode of administration were systematically arranged. Preliminary screening was done with the help of the experts on Druvygun and Ras-shashtra to furnish scientific base for the claims.*

Keywords: Traditional medicine, Arthritis, Traditional healers

BACKGROUND

The traditional medical systems are generally based on the use of natural and local products. They are commonly related to people's perspectives on the world and life. Plants, animals and human beings have intimate biological relationships since remote past and have evolved along parallely through co-operation and inter-dependence for their existence. The primitive men for their existence in the forest might have encountered the miseries of pain and sickness and sustained injuries. And, to alleviate themselves from these sufferings, they would have employed the use of natural products of either plant or animal. This exploration through experimentation may have led them to the discovery of the healing properties of plants.

According to Ayurveda (Indian traditional medicine), main cause of the pain of arthritis is aggravation of *vata* (air) *dosha*. It is believed that Arthritis is caused by accumulation of *ama* (a toxic by-product secreted during improper digestion) and aggravation of *vata*. *'Ama'* is circulated throughout the body and accumulates at the susceptible organs. Accumulation of *ama* in the joints and aggravation of *vata* occur simultaneously resulting in a disease called '*amavata'* or 'Arthritis'. As described above, '*ama'* and '*vata'* the major causes of arthritis, the line of its treatment is based on the reduction of '*vata'* and digestion of the '*ama'*.[1] Body massage with sesame or mustard oil helps to reduce the '*vata'* and pain.

Mild physical exercise is useful. Guggul (*Commiphora mukul*) is very useful herb for curing the arthritis. Diet regimes are very important for the patient suffering from arthritis, easily digestible food like vegetable juices and soups are recommended. Eating hot, spicy, fried,

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sweets, smoking, day-sleep, staying up late in the night and mental tension add to ill health (http://ayurveda-foryou.com/treat/arthritis.html).

METHODS

Present study is based on the empirical data collected from various tribal and non-tribal traditional healers residing in various regions of Chhattisgarh state. For the collection of data, detailed interviews were conducted with the traditional healers and group discussions with the villagers and patients. Details of medicinal plants used, mode of treatment, methods of preparation, methods of administration and dosage were documented. To document the folk medicinal practices followed by the tribals of Chhatisgarh in India, the data was collected from the European Commission-assisted-project entitled '*NTFP Based Livelihood Activities'.* The project was conducted in different villages of the state from June 2009 to September 2010 having "Promotion of Herbal Health Care" as one of its important components. The collected information were primarily screened with the help of a team of Ayurved experts from Govt. Ayurvedic College Raipur, Chhattisgarh to quantify the effectiveness of the herbal preparations. The identification of species was done with the help of published literature and floras.

RESULTS AND DISCUSSION

The present study focuses on the medicinal plants used for the treatment of arthritis among the people of Chhattisgarh. Traditional healers diagnose the problem of arthritis on the basis of their experience and the symptoms of the disease such as severe pain on joints of lower limb, loss of appetite, body ache, acidity or acid peptic disease (APD) etc. These healers advise medication of herbal drugs singly or in combination with some '*mantras'*. Traditional healers are specialists in the identification of raw drugs and preparation of medicine (single or multiple plants species). The medicinal plants used in general for the treatment of arthritis are given follow:[2-8]

Enumeration

1. Banrakas (*Colocasia occidentalis*) root, Triphala churna (*Phyllanthus embilica, Terminalia bellrica, Terminalia chebula)* is prepared as fine powder and 1 spoon powder is administered with water twice daily until relief.
2. Juice of Dhatura (*Datura metal* Linn.) root and Rasna (*Belpharispermum subsessile)* root, Anjwain (Carum copticum (L.) Benth & Hook. F), Chamsoor, Rajsindoor, Garlic (*Allium sativum* Linn.), Sendha namak are cooked with Mustard (*Brassica campestris* Linn.) oil for 1 to 1.30 hrs After cooling, the mixture is filtered and massaged twice daily for 2 to 3 months.
3. Very small piece of Kala Dhatura (*Datura stramonium*) root is taken with jaggery only on Wednesday and Sunday up to three consecutive weeks.
4. 10-15 gm rhizome of Keokand (*Costus speciosus* Koeing. Sm.) is taken with jaggery thrice daily for 7 days.

5. Fine powder of Keokand rhizome (*Costus speciosus* Koeing. Sm.) and Palash (*Butea monosperma* Linn.) bark is prepared. 1-1 spoon powder is taken with water twice daily until relief for the treatment of osteoarthritis.

6. Oil of Malkangani (*Celastrus paniculatus* Willd.) seed is used to massage on the affected area twice daily up to 30-45 days.

7. Powder of Satavar (*Asparagus racemosus* Willd.) tuber and Ashwagandha (*Withania somnifera* Linn. Dunal) root is prepared and one spoon powder is taken with water or milk once only for 10-15 days.

8. Powder of Rasna (*Belpharispermum subsessile*) root, Keokand (*Costus speciosus* Koeing. Sm.) rhizome, Satavar (*Asparagus racemosus* Willd.) tuber, Anantmool (*Hemidesmus indicus* R. Br.) root, Rohina (*Soymida febrifuga* A. Juss) bark and Arjun (*Terminalia arjuna* Roxb. W. & A.) bark is prepared and 1/2 spoon of this powder is taken in the morning and evening up to 90 days.

9. Tulsi (*Ocimum sanctum* Linn.) leaf 10 gms, Nilgiri (*Eucalyptus golubus* Labill.) leaf 20 gms, Kala dhatura (*Datura stramonium*) 20 gms, Nirgundi (*Vitax nigundo* Linn.) leaf 20 gms, Amihaldi (*Curcuma amada* Roxb.) 20 gms, Pheng (*Celastrus paniculatus* Willd.) 20 gms, Garlic (*Allium sativum* Linn.) 20 gms and Banrakas (*Colocasia occidentalis*) 20 gms are boiled in 1 liter Mustard (*Brassica campestris* Linn.) oil until the volume reduced to half. Then strain the mixture. Gentle massage once a day for 7-8 days.

10. Deo-daru (*Berberis aristata* DC.) bark, Aonla (*Phyllanthus embilica*) fruit, Anantmool (*Hemidesmus indicus* R. Br.) and Jawar (*Sorghum bicolor* L. Moench) leaf are dried under the shade and fine powder is prepared. One spoon of the powder is taken with one cup lukewarm water in the morning and evening for one month.

11. Kutaj (*Holorahena antidycentrica* Linn. Wall.) root, Gursukhri (*Grewia hirsute* Vahl.) root, Loung (*Syzygium aromaticum* Linn. Merr. & Per.), Kochla (*Strychnos nax – vomica* Linn. F.) seed and Garlic (*Allium sativum* Linn.) are taken in equal quantity and boiled with Mustard (*Brassica campestris* Linn.) oil for one and half hours and strained. This oil is used for gentle massage twice daily until relief.

12. Rasna (*Belpharispermum subsessile*) root, Kochla (*Strychnos nax – vomica* Linn. F.) fruit, Aak (*Calatropis procera* Ait R. Br.) Leafs, Bhimsen kapoor, Loung (*Syzygium aromaticum* Linn. Merr. & Per.) and Garlic (*Allium sativum* Linn.) are boiled with 1 kg Mustard (*Brassica campestris* Linn.) oil; after cooling strained mixture is massaged twice daily up to 90 days.

13. Paste of Amaltash (*Cassia fistula* Linn.) seed and bark is applied on effected area once daily until relief.

14. Juice of Dhavai (*Woodfordia fruticosa* L. Kurz.) root and Raktivrar (*Uraria picta* (Jacq.) Desv. ex. DC) root is prepared and 1 spoon of juice is taken with water once daily until relief for the treatment of Gout.

15. Powder of Karhar (*Gardenia spinosa* Thunb.) Root, Bhui champa (*Pygmaeopremna herbacea* (Roxb) Moldenke.) root, Amaltash (*Cassia fistula* Linn.) seed and Tendu (*Diospyros malanoxylon* Roxb.) root are prepared and 1 spoon powder is taken with 1 cup country-liquor in the morning for 5-6 days.

16. Massage oil of Jhumka (*Leonotis nepetifolia* (L.) R.Br.) fruit/ Whole plant is prepared with Mustard (*Brassica campestris* Linn.) oil and used for gentle massage once daily until relief.

17. Cold decoction of Vidang [*Embelia tsjeriam-cottam* Auct. non (Roem & Schult) A. DC.] root is prepared and taken twice daily until relief.

18. Powder of Bajur ganth (*Pygmaeopremna herbacea* (Roxb) Moldenke.) root, Kali musli (*Curculigo orchioides* Gaertn) tuber and Keokand (*Costus speciosus* Koeing. Sm.) rhizome are prepared and 1 spoon of this powder is taken with water twice daily for one month.

19. Powder of Vidhara (*Argyreia speciosa* Sweet.) Seed is fried with cow ghee and mixed with the powder of Kali mirch and Adrak (*Zingiber officinale* Roscoe.) Tuber. 1 spoon of this mixture is taken once daily upto 15 days.

20. 100 gms Kalihari (*Gloriosa superba* L.) tuber is boiled with half liter Mahua (*Madhuca latifolia* Roxb. Chevalier.) oil. Oil is used for gentle massage twice daily for 3 – 4 days.

21. Decoction of Hathjor (*Cissus quadrangularis* L.) whole plant, Nirjundi (*Vitax nigundo* Linn.) leaf and Jhumka (*Leonotis nepetifolia* (L.) R.Br.) whole plant are prepared and half cup decoction is taken once daily for 7 days.

22. Infusion of Bhui champa (*Pygmaeopremna herbacea* (Roxb) Moldenke.) root and giloy (*Tinospora cordifolia* (Willd.) Miers Hook f & Thomson) stem is prepared in 100 ml. water and half cup infusion is taken thrice daily for 3 days.

As per the Classical ayurvedic literature on traditional phytotherapy of Indian medicinal plants, the species like *Datura metal* Linn., *Belpharispermum subsessile*, *Allium sativum* Linn., *Brassica campestris* Linn., *Celastrus paniculatus* Willd., *Asparagus racemosus* Willd., *Withania somnifera* Linn. Dunal, *Hemidesmus indicus* R. Br., *Soymida febrifuga* A. Juss, *Terminalia arjuna* (Roxb.) W. & A., *Vitax nigundo* Linn., *Curcuma amada* Roxb., *Berberis aristata* DC., *Phyllanthus embilica*, *Holorahena antidycentrica* (Linn.) Wall., *Syzygium aromaticum* (Linn.) Merr. & Per., *Strychnos nux – vomica* Linn. F., *Calatropis procera* (Ait) R. Br. and *Cassia fistula* Linn. are consistently used for the treatment of arthritis by the tribal communities and in modern medicine as well.

CONCLUSION

The study reveals that mostly rural people depend for their primary healthcare on folk medicine. The tribal and rural people of various parts of Chhattisgarh are highly dependent on medicinal plants for their health care needs. Arthritis is one of the major problems associated with joints-pain among the rural as well as urban population in India but the tribal system to overcome the problem is based on the herbal remedies. This has attracted the attention of several botanists and plant-scientists in identifying and exploring this system of treatment for many diseases.

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MORBIDITY PATTERN, DISABILITY AND HEALTH CARE UTILIZATION AMONG THE GERIATRIC POPULATION OF TRIBAL COMMUNITIES OF DIBRUGARH DISTRICT, ASSAM

Chinmayee Barthakur*

Abstract: *A community based cross-sectional study was conducted among the tribal elderly persons aged 60 years and above. The objectives of the study to assess the morbidity pattern and disability among geriatric population of tribal communities as well as the utilization of health care services by them. Sampling method used was multistage stratified random sampling. The sample size for the study was 286. Study results are as follows: out of 286, 145 (50.7%) and 91(31.8%) elderly subjects were in the 60-69 and 70-79 year age groups respectively and out of them, 55% were women in both the age groups. In the 80-year age group, out of 50 (17.5%) elderly subjects, 62% were women. Out of them, 3.5% occasionally consumed tobacco and 61.5% were regular tobacco chewers. Similarly, 24.5% were occasional alcoholic and 31.5% were regular alcoholic. The commonest morbidities were cataract (85%), hypertension (68%), blindness (29%), deafness (26%), and kyphosis (15%). Further, total 33% subjects had 1-2 morbidities, 45% had 3-4 morbidities, 16.1% had 5-6 morbidities and 2.4% demonstrated more than 6 morbidities. The overall percentage of blindness and hearing disability in the present study were 29% and 26% respectively. Based on the activities of daily living, it was found that 6.3% of the elderly suffered with some disability. It was observed that 98.6% of the study population utilized health care facilities for one or more reasons. Rationale for utilizing PHC and CHC was availability (100%) and affordability (72%). Among them, 36% sought these services only due to accessibility.*

INTRODUCTION

'Ageing' associated disorders (AAD) and challenges have always been a part of mankind. Recently, AAD has gained importance as the number of individuals and their proportion is increasing. Change in socio-economic environment has aggravated this issue further. The process of ageing is a complex and heterogeneous. Therefore, it should not be considered as a simple chronological event.[1] In fact, the factors like social, economic, psychologic etc. influence the chronological age and thereby determine the quality of ageing.[1] However, the relationship between ageing and above-mentioned factors varies from country-to-country and individual-to-individual. Therefore, it is difficult to ascertain any single definition of the elderly that can be applied consistently and universally.[2] Moreover, in the year 1980, the United Nations recommended 60 year as the age of transition to the elderly segment of the population[2] and, over the years, the number of people belonging to this

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segment has vastly increased. It is because of this growth of the graying segment of the population, both in the absolute numbers and in proportion, that the concern and interest in them are growing. Towards the end of the millennium, about 580 million people in the world were at the age of 60 years and above, and this figure is expected to rise up to over 1000 million within the next 20 years- a 75% increase in the 60^{+} age-group compared to a less than 50% increase in the world's population as a whole. By the year 2020, 70% of them will be living in the developing countries.[3] Developed countries experienced such a phenomena and undertook measures to cope with these problems.[4] In India, the elderly population increased from 5.6% in 1960 to 6.67% in 1991 and reached 7% by the turn of the century. It is projected to increase up to 8.94% by the year 2016.[5] This increase has been due to greater life expectancy resulting from the advancements in medical interventions and public health improvements as well as due to decline in fertility. The increase in the number of the graying has led India to a phase of demographic transition. This demographic transition has changed the overall morbidity and mortality pattern leading to an epidemiological transition.[6] India, being a developing country, has been struggling to cope with the burden of communicable diseases. With the greater life expectancy and adoption of modern life styles, the burden of non-communicable diseases is set to increase. In addition, 80% of the aged population live in the rural areas that are remote and inaccessible to health care services apart from being socio-economically backward.[1] This enormous size of geriatric population with the burden of communicable, non-communicable diseases and socio economic problems poses a great challenge to the health care system. This challenge demands the formulation of effective and appropriate health care services not only to sort out these issues but also to improve the quality of life of tribals. Hence, it requires further research regarding information on health status of the aged population in India[7].

In India, there are number of ethnic groups that are spread over different geographic regions. These ethnic groups are in perpetual poverty and remain deprived of healthcare and other services. Hence, the National Health Policy, 2002 gave special emphasis on the urgency of their upliftment.

In India, according to the 1991 census, the number of scheduled tribe population is 6.78 crore. In Assam, the tribal constitutes 12.82% of its total population[8] which is quite a significant number. Therefore, this study was undertaken with an objective to enlist some comprehensive information on health and health service utilization of the rural tribal elderly people. Most of the villages in the study area are remote. In the study area, the health care services to the people are provided through one CHC, one PHC and network of sub-centers. Due to irregular and inconsistent transport system, PHC is not easily accessible to the people living in remote villages. Bus services are available only in the winter season while in the rainy season, these services are disrupted due to poor conditions of the roads.

The objectives of the present study are to assess the morbidity pattern and disability among the geriatric population of the tribal communities of Dibrugarh district, Assam and utilization of health care services by them.

METHODOLOGY

The present study was carried out among the elderly tribal people living in the villages under Khowang Development Block of Dibrugarh district. The study is cross-sectional of villages under Khowang, about 30 km away from Assam Medical College, Dibrugarh. It is inhabited by both tribal and non-tribal population. The major tribal communities of the study area are Sonowal-Kachari, Deori and Mising with cultivation as their main occupation. Population of the tribal people aged 60 years and above comprised of both the sexes. Multistage stratified sampling was used for the selection of the sample. At the first stage, out of the 6 PHCs of the district, Khowang PHC was selected as it had a significant proportion of tribal population. Subsequently, in the next stage, villages were selected by stratifying them according to the presence of tribal and non-tribal communities. Among all the villages, only tribal dominated villages were selected, i.e., villages either with only tribal population or with predominantly tribal population. Such villages were 31 in number and the total population of the selected villages was 16,500. Out of them, the geriatric population was estimated to be about 1,160 (considering their percentage to be 7% of the total population during the period of study). To determine the sample size, the Epi Info version-6 was used. To derive the sample size, the expected frequency of chronic morbidity was assumed to be 45%, as determined by the National Sample Survey Organization in their survey conducted during the year 1986-87. To calculate the sample size, following formula was used: Sample size = n/1-(n/ population) n= z*z [p (1-p)]/ (d*d).Thus, the sample size was calculated to be of 286 elderly subjects with the confidence limit of 95%. By using the voter list of the villages, the households were serially numbered. Then, with the help of the random number table, the households for the study were selected and the elderly people of these households were examined and interviewed. However; if in any particular household there was no elderly then the next randomly selected house was visited. Methods undertaken for identifying morbidities were history taking, general examination, systemic examination and laboratory investigation. Utilization of health care services was assessed based on interview technique. Disability was measured with the activities of daily living score.

RESULTS AND DISCUSSION

The data of the sample population was analyzed to understand the morbidity pattern in terms of prevailing diseases, the number of morbidities any elderly suffered their disabilities and the consequent use of health care facilities. In addition, an analysis was done for the socio-demographic composition and behavioral factors.

Socio demographic characteristics of the sample population

For analyzing the data, sample population was divided into three age groups of both the sexes- 60-69, 70-79 and ≥ 80 years. Demographic composition of the elderly population was: out of 286 elderly subjects, in the 60-69 year and 70-79 year age groups, number of individuals were 145 (50.7%) and 91(31.8%) respectively. In the 80-year age group, out of 286, the number of elderly subjects was 50 (17.5%). In the present study, out of the total study population, the percentage of women and men were 56% and 44% respectively. The age-wise distribution of the elderly subjects showed that in both 60-69 year and 70-79 year age groups, women constituted 55% of the study subjects and in the 80-year age group, women constituted 62% of the elderly subjects. Rao (1994) in his study observed that the women to men ratio was 2:1.[9] Similarly, Joshi K. et al (2003) also observed that the number of women was more than that of the men.[10] In Ageing and Health in WHO, SEAR, it was stated that usually women consistently have a longer life expectancy than men.[11] They constitute both a larger number as well as larger proportion among the population.[12] Higher number of women in the present study may be due to increasing fatality among men during middle and old ages. Dr. D. Jamuna (1994) supports similar findings.[13] Thus, findings of the present studies are in concordance with those of the earlier studies. As for the marital status in our study, out of the total men, in 60-69 year, 70-79 year and 80 year age groups, 10.8%, 26.8% and 31.8% were widowers respectively. In case of women, in the same age groups, the percentages of widows were 35%, 56% and 100% respectively. As a whole, 20% of men and 54% of women were widowers and widows respectively. Rao (1994) reported that 71% females and 28% males were widow and widowers respectively.[9] Guha Ray presented the data collected by NSSO and revealed that 74.7% and 31.6% of the elderly rural men and women were currently married respectively,[14] our studies reveal similar findings.

Behavioral factors

Data on the habits of smoking, tobacco chewing and alcohol consumption were collected. The percentages of non-smokers, ex-smoker/occasional-smokers and regular-smokers were 91%, 2% and 7% respectively. The tobacco-consumption pattern was as: 35% never consumed tobacco, 3.5% occasionally consumed it and 61.5% regularly consumed tobacco. The alcohol consumption pattern of the study population revealed that 44% were non-alcoholic, 24.5% were occasionally alcoholic and 31.5% were regular alcoholics. The study conducted in Rajasthan by Prakash et al (2004) revealed that 62.5% of the elderly persons were non-smokers, 22% were current smokers, 10.6% were ex-smokers and 4.66% were tobacco chewers.[15] In the present study, the percentage of non-smokers was marginally higher compared to the previous studies. The findings of the present study on the habit of alcohol

consumption pattern among the elderly could not be compared due to lack of information in this aspect.

Morbidity Pattern

In the present study, the common morbidities were cataract (85%), hypertension (68%), blindness (29%), deafness (26%), kyphosis (15%), varicose vein (13%), peptic ulcer (7.7%), diarrhea/dysentery (7%), BEP(6.4%), arthritis (4.5%), constipation (4.5%), asthma (4%), corneal opacity(3.8%) and chronic bronchitis (2.1%). The overall occurrences of hypertension amongst the study-subjects were found to be 68%. Among them, 64.8% men and 70.8% women were hypertensive respectively. In case of women, the percentages of hypertensive subjects were found to increase with the advancement of age. In men, the maximum occurrence of hypertension (71%) was found in the 70-79 years age group. 1.9% of the study subjects were diagnosed to have diabetes and surprisingly all of them were women. One person was found to suffer from cancer and one from tuberculosis. Both these individuals were men.

Rao (1994) in his study showed that 88% elderly had visual complications, 40% locomotors ailments, 18.7% had symptoms related to CNS (Central Nervous System diseases), 17.4% had respiratory problems (16.1%.), 13.3% had skin problems, 9.9% had GIT problems and 8.2% had hearing problem.[9] Tripathi (2001) observed in his study; the occurrence of arthritis in 15.3%, muscular pain in 14.7%, hypertension in 13.53%, heart disease in 11.76%, diabetes in 11.2%, asthma in 10%, gastroenteritis in 8.24%, blindness in 4.12%, kidney diseases in 2.94%, paralysis in 1.76% and depression in 1.76%. He found arthritis to be the major problem among his study subjects.[16] Guha Roy's (1994) study revealed that chronic diseases in the persons above 60 years of ages was 47% joint problems, 34.4% cough, 6.4% blood pressure, 3.7% heart disease and 3.3% piles.[14]

In the present study, major problems among the elderly were found to be those associated with joints and cough. Kishore and Garg (1994) in their study reported most common morbidities as: cataract 30%, arthritis and arthralgia 15.6%, refractory errors 13.6%, anaemia 13.3%, chronic bronchitis 7.3%, dental carries 7%, hypertension 5.2%, impaired hearing 5% and filariasis 1.5%.[17] Thus, as per their observations, the major morbidities among the elderly persons were cataract, arthritis and arthralgia. In contrast, the present study showed that the occurrences of cataract among the elderly persons was much higher while those of arthritis and arthralgia were much lower than had been reported by them. Joshi and Kumar (2003) observed hypertension in 49%, COAD (Chronic Obstructive Airways Disease) in 42%, cataract in 38%, osteoarthritis in 33%, senile deafness in 19%, asthma in 6% and diabetes in 5.5%.[10] In our study, only the finding of senile deafness is similar to that reported by Joshi & Kumar (2003).

Overall morbidity pattern among the elderly detected in the present study is marginally different from the results of the other studies. Analysis of our data showed that in this geographic area, the most prevalent diseases among the

elderly are cataract, hypertension, hearing impairment, blindness, varicose vein and kyphosis. Regarding cataract and blindness, the high prevalence may be due to following reasons: firstly, they consider difficulty in vision to be normal ageing phenomena and secondly, inaccessibility to health care services, and; the ineffective implementation of the blindness control programmes in these area. The high prevalence of hypertension may be associated with the socio-cultural practices of alcohol-consumption and tobacco-chewing. The high intake of pork meat among the tribal population under study may be another factor influencing the occurrence of hypertension. The occurrences of arthritis, asthma and chronic bronchitis were quite low among our study subjects.

The world wide estimate of symptomatic osteoarthritis was reported to be 9.6% in men and 18% in women of more than 60 years of age. The prevalence of rheumatoid arthritis was reported to be within the range of 0.3-1% and in developing countries, it went towards the lower end of the range. It also stated that generally osteoarthritis was more prevalent in Europe and USA than in the other parts of the world. [18] Thus, the findings about arthritis in the present study nearly conforms to the figures published in the WHO reports.

It was found in the present study that in persons aged 60-69 year, 76.3% women and 81.5% men had cataract and in persons aged 70 years and above, 92.6% women and 91.7% men had cataract. Sounderssanane et al (1985) found that 86.2% in 60-69 year age group and 94.5% in 70-year age group had cataract.[19] They also observed that the prevalence of cataract increased with the advancement of age. The findings of the present study correspond to the findings of the above mentioned studies. Bachani and Murthy (2000) in their study observed the prevalence of cataract amongst the persons aged 60-69 year to be 52.6% and amongst the persons aged 70 years and above to be 63%.[20] In the present study, Kyphosis was found to be present amongst 15% of the study subjects and it was predominantly present amongst women. However, Prakash et al (2004) found Kyphosis to be present only amongst 3% of their study subjects.[15] The observed difference between the findings of their study and present study regarding the prevalence of Kyphosis may be due to the difference in population, i.e., one was urban-based while the present study is rural based.

Table-1: Age and sex composition of the study subjects

Age groups	No. of subjects		Total
	Male	Female	
60-69 year	65 (45%)	80 (55%)	145 (50.7%)
70-79 year	41 (45%)	50 (55%)	91 (31.8%)
≥ 80 year	10 (38%)	31 (62%)	50 (17.5%)
Total	**125 (44%)**	**161 (56%)**	**286**

Number of Morbidities

Table-2 shows the number of morbidities in different age groups according to age and sex. According to the observations made in the present study, among all the study subjects, 33% suffered from 1-2 morbidities, 45% from 3-4 morbidities, 16.1% from 5-6 morbidities and 2.4% from 7-8 morbidities. No morbidity could be diagnosed in 5% of the elderly in the study of Rao (1994). His study also revealed that 76.5% of the study subjects had 2 or 3 morbidities, 13.2% had 4 morbidities and 6.9% had single morbidity. Joshi K et al (2003) found that 42.5% had 4-6 morbidities, 23% had 7-9 morbidities, 1.5% had a maximum number of 13 morbidities and 0.5% had no morbidity.[10] Chou K.L. and Chi I (2002) found that 20.3% of their study subjects had no illness, 43.1% had one chronic illness and 23.5% had two chronic illnesses and 0.5% had five chronic illnesses.[21] In all these studies, including the present study, it has been observed that majority of the elderly subjects suffered from more than one morbidity.

Disability Status

Table-3 shows the distribution of different disabilities among elderly men and women. It was classified into visual and hearing disability. The overall percentage of blindness in the present study was found to be 29%. The percentage of blindness for men and women was 21.6% and 35% respectively. Age-wise distribution showed that 21.4% of the study subjects aged 60-69 year and 37.5% of the subjects aged 70 years and above were blind. Bachani and Murthy (2000) reported that 12.4% in 60-69 year age group and 26.2% in 70-year age group suffered from blindness due to cataract.[20]

Table-2: Number of morbidities among the study subjects according to age and sex.

No. of Morbidities as diagnosed	60-69 year		70-79 year		≥ 80 year		Total
	Male	Female	Male	Female	Male	Female	
0	5 (7.7%)	7 (8.8%)	1(2.4%)	-	-	1(3.2%)	14 (5%)
1-2	29(44.6%)	29(36.3%)	15(36.6%)	13(26%)	5(26.3%)	3(9.7%)	94(33.9%)
3-4	26(40%)	36(45%)	16(39%)	27(54%)	11(58%)	13(42%)	129(54.1%)
5-6	4(6.2%)	7(8.8%)	9(22%)	10(20%)	3(15.8%)	9(29%)	42(15%)
7-8	1(1.5%)	1(1.2%)	-	-	-	5(16.3%)	7(2.4%)
Total	**65**	**80**	**41**	**50**	**19**	**31**	**286**

Table-3: Types of disability among the different age groups of both the sexes.

Types of disability	Male			Total	Female			Total	Total
	Age group				Age group				
	60-69 year	70-79 year	≥80 year		60-69 year	70-79 year	≥80 year		
Visual disability	10 (15.4%)	12 (29.3%)	5 (26.3%)	27 21.6%)	21 (26%)	23 (46%)	13 (42%)	57 (35%)	84 (29.4%)
Hearing disability	10 (15.4%)	12 (29.3%)	9 (47%)	31 (24.8%)	11 (14%)	18 (36%)	14 (45%)	43 (26.8%)	74 (26%)
Total	**20**	**24**	**14**	**58**	**32**	**41**	**27**	**100**	**158**

Hearing Disability

In the present study, 26% of the elderly subjects were found to have hearing disability. S.K. Kachar (1997) in his studies on hearing disability found that 8.5% of the elderly had hearing disability.[22] In Kishore and Garg's (1997) study, only 5% were hearing-disabled.[17] These numbers are comparatively low as compared to our study. The present study's findings regarding hearing disability were close to those of Joshi K et al (2003).[10]

Degree of disability

Based on the activities of daily living, it was found in the present study that 6.3% of the elderly had to live with some disability. The women constituted the bulk of the disabled persons. The percentage of the people having disability increased with the advancement of age. Joshi K and Kumar R (2003) found that in rural areas, 16.3% men and 1.9% women had no disability, 20.4% men and 19.6% women had minimal disability, 46.9% men and 64.7% women had moderate disability and 16.3% men and 13.7% women suffered from severe disability.[10] The difference observed between these two studies may be due to the use of different scales to estimate the activities of daily life.

Pattern of health care utilization

In the present study, it was observed that 98.6% of the study population utilized health care facilities for one or the other reason. The predominant form of health care delivery was allopathic system of medicine and the sources from which the services were sought were PHC and CHC. Majority of the study subjects (100) revealed that 'availability' was main cause of using the health care facilities and seventy two percent narrated 'affordability' as the reason. Only 36% the 'accessibility' was the reason for seeking services from these centres. Regarding the purposes for which health facilities were utilized, cent-percent answered that they used them for curative purposes and only 7.2% replied to use them for the preventive purposes. The example given for preventive purpose was testing of the blood pressure.

CONCLUSION

The study was conducted among the tribal communities of Assam to determine a basic understanding about the prevailing morbidities, disability and utilization of health services in view of evolving demographic and epidemiological transition taking place in our country. Besides, there is a paucity of such studies among tribal communities. In spite of some limitations in the study, it unveiled several important and significant facts about socio-demographic characteristics, morbidity pattern and health service utilization among tribal communities. The study also revealed the feminization of the graying world as the widowhood was found to be more common among the women in the present study. More than 50% of the geriatric population had the habit of tobacco chewing and alcohol consumption. Morbidity pattern revealed that hypertension, cataract associated with blindness and hearing impairment were quite most common ailments of the elderly tribal people in the rural areas. Other studies have revealed that maximum number of elderly suffered from multiple morbidities. In our studies, similar finding was observed among elderly tribal. Higher disability number was found among the elderly women. Although the prevalence of hypertension was found to be quite high, the awareness regarding health check-up for preventive purposes was very low. Moreover, only 36% study-subjects cited 'accessibility' as the reason for availing services from PHC/CHC as most of the tribal villages were in remote areas. Thus, there is need to provide a comprehensive geriatric care program to the elderly with special focus on the tribal elders.

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DEMOGRAPHIC AND HEALTH COMPOSITION OF TRIBAL- POPULATION OF RAJASTHAN

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Abstract: *The growth rate of tribal population in Rajasthan was reported 29.8 during 1991-2001. It is higher than the growth rate of the total population of the state (28.33). Several tribes inhabit the state. In Rajasthan, tribes constitute around 12% of the total population of the state. The main tribes are 'Bhil' and 'Minas'. Around 39% of Rajasthani tribes comprise of 'Bhil'. The second largest tribal group is 'Minas'. Tribals live in isolation with natural surroundings, hence called 'sons of soil'. Tribes constitute separate socio-cultural groups having distinct customs, traditions, marriage, kingship and property inheritance system; living largely in agricultural and pre-agricultural level of technology. In the tribal areas, there is lack of adequate physical and manpower infrastructure in the fields of health and family welfare. There is no proper road-link between the tribal villages and health centers. Tribals are economically backward. There is no provision for free medicine and treatment except for some diseases like malaria, polio, diarrhoea, T.B. etc. In general, they believe that with lack of money, treatment is not possible. Hence, they depend on their traditional healers and priests- 'Bhopas'. The development programme for tribals is independently functioning without any co-ordination between different departments. The health centers lack sufficient staff and infrastructure along with sufficient finance. The number of available health and medical institution/centre is inadequate to serve even minimum needs regarding health care.*

INTRODUCTION

The state of Rajasthan is situated in the north-west part of India. It is the largest state of the country in terms of its geographical area. It has great geographical diversity: north- west region of the state is a desert, southern regions are mostly hilly, north-east parts are plateau and central parts are plain lands. There are several types of tribe inhabit in Rajasthan. Tribals constitute around 12% of the total population of the state.[1] The tribes comprise mainly of 'Bhils' and 'Minas'. They are the original inhabitants of the area. Apart from these tribes, a number of smaller tribes are also present in Rajasthan. Around 39% of Rajasthan tribals comprise of 'Bhil'-inhabiting-areas of Udaipur, Banswara, Dugarpur and Chittorgarh districts. 'Bhils' are believed to be fine archers and may also be called as 'bowmen'. They were originally food gatherers. However, with the passage of time, they have taken up small-scale agricultural and domestic employment. The second largest tribal group, that of 'Minas', is found in the majority of regions of Shekhawati and eastern Rajasthan. 'Minas' solemnize marriage among the young children. 'Garasias' is a small Rajput-tribe inhabiting Abu Road area of southern Rajasthan. 'Sahariyas', the jungle dwellers, are considered as the most backward tribe in Rajasthan. They inhabit Kota and Baran districts of south-east of Rajasthan. Their main

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occupations include shifting cultivators, hunting and fishing. 'Damors' belong to Dungarpur and Udaipur districts. They are mainly cultivators and manual labourers.

Tribes constitute separate socio-cultural groups having distinct customs, traditions, marriage, kingship, property inheritance system and living largely in agricultural and pre-agricultural level of technology. Scheduled tribes are officially recognized by the Govt. of India as socially and economically backward and in need of special protection from injustice and exploitation. They are food-gatherers, hunters, forestland cultivators and minor forest-product collectors. The tribes of Rajasthan inhabit widely varying ecological and geo-climatic conditions in different numbers. They have developed strong magico-religious health care system and they wish to sustain and live as per their wish. Due to their social and economic backwardness, they have indifferent demographic and health characteristics. In this paper, attempts have been made to highlight the facts about tribal population regarding their demographic and health behaviour.

Sources of Data

The main sources of data regarding tribal population of Rajasthan are decennial census and National Family Health Survey (NFHS) -2 Rajasthan.[2]

Population Size and Growth

According to 2001 census, Rajasthan has tribal population of 70,97,706 which forms 12.56 % of the total population of the state. The population has grown at a rapid rate in past 90 years and more rapidly in last four decades. During 1901, the total population in the state was 103 lakhs that rose up to 565 lakhs in 2001. During the decades 1961-71, 1971-81 and 1981-91, the growth rate of tribal population in Rajasthan was 35.33 %, 34.46 % and 31 % respectively.[1]

Distribution of Tribal Population

The tribes are concentrated in Banswara and Dungarpur districts where their proportion to total population of the districts comes to 73.47% and 65.84 % respectively. Other districts with higher proportion are Udaipur (46.34%), Sirohi (23.39%), Sawami Madhopur (22.47%), Bundi (20.25%), Chittaurgarh (20.28%) and Baran (21.13%). View of the dispersal pattern of tribal population in various districts in terms of absolute number reveals that the highest proportion (17.75%) of the total tribal population is residing in Udaipur district followed by (15.29%) in Banswara, 10.16% in Dungarpur, 5.81% in Jaipur and 8.39% in Sawai Madhopur districts. These five districts together contribute more than half of the state's total tribal population. Remaining districts have very low proportions, the lowest being 0.08 percent in Bikaner district. The districts, which have less than 1% of the state's total tribal population are Ganganagar, Churu, Jhunjhunu, Sikar, Ajmer, Jaisalmer, Jodhpur and Nagaur (Table-1). The tribes have been confined to their closed land of forests and hills. Hence, in most of the places, the density of their population is low.[1]

Table-1: Percentage of scheduled tribes in Rajasthan

S.No.	Name of District	District Population	Total	Rural	Urban
1.	Ganga Nagar	1789423	0.34	0.17	0.97
2.	Hanuman garh	1518005	0.66	0.37	1.80
3.	Bikaner	1674271	0.26	0.19	0.38
4.	Churu	1923878	0.51	0.48	0.57
5.	Jhunjhunun	1913689	1.93	2.24	0.73
6.	Alwar	2992592	8.06	8.98	2.39
7.	Bharatpur	2101142	2.31	2.63	0.98
8.	Dhaulpur	983258	4.59	5.47	0.39
9.	Karauli	1209665	22.37	25.35	4.38
10.	Sawai Madhopur	1117057	22.47	25.97	3.27
11	Jaipur	5251071	7.92	11.82	3.28
12.	Dausa	1317063	26.34	28.75	5.96
13.	Sikar	2287788	2.65	3.09	1.02
14.	Ajmer	2181670	2.30	3.06	1.19
15.	Tonk	1211671	11.89	14.53	1.04
16.	Jaisalmer	508247	4.85	5.11	3.44
17.	Jodhpur	2886505	2.82	3.12	2.29
18.	Nagaur	2775058	0.22	0.23	0.16
19.	Pali	1820251	5.40	6.29	2.20
20.	Barmer	1964835	5.87	6.24	2.59
21.	Jalor	1448940	8.43	8.66	5.55
22.	Sirohi	851107	23.39	27.13	7.98
23.	Bhilwara	2013789	9.02	10.35	3.54
24.	Udaipur	2633312	46.34	55.97	5.65
25.	Rajsamand	987024	12.82	13.85	5.24
26.	Chittorgarh	1803524	20.28	23.47	3.03
27.	Dungarpur	1107643	65.84	69.77	15.89
28.	Banswara	1501589	73.47	78.83	9.44
29.	Bundi	962620	20.25	23.76	3.58
30	Kota	1568525	9.60	16.18	3.15
31	Baran	1021653	21.13	24.47	2.49
32	Jhalawar	1180323	11.90	13.47	4.02

*Sources: Census of India, 2001, Rajasthan

Sex Ratio

Sex ratio is the number of females per 1000 males. Sex composition of a population is an indicator of the socio-economic and health conditions of the males and females. The sex ratio of tribal population (944) was higher than that of the general population (922) of the state indicating no discrimination of sex at birth in tribes. As described in Table-2, there are 16 districts that have sex ratio of 900 or less females per 1000 males. Eleven districts observed sex ratio is between 900–950 and 5 districts reported sex ratio of 950 females per 1000 males. It has been observed that the districts having higher concentration of tribal population have higher sex ratio. 'Bhil' and 'Mina' constitute major portion of tribes of the state. Mainly 'Bhil' live in southern districts of the state where sex ratio was more than 950 females per 1000 males. In contrast, 'Minas' are concentrated in Sawai-Madhopur and Jaipur districts. This tribe is socio-economically better as compared to general population of the respective districts in terms of sex ratio.[3]

Literacy

Literacy is one of the powerful instruments of social change. Rajasthan has the lowest literacy rate after Arunachal Pradesh in India. According to 2001 census, overall literacy rate of the country is 65.38%; however, in Rajasthan, it is 60.4%.[1] Table-3 shows that literacy among tribes of Rajasthan is extremely low particularly among females. More than two- third of the tribal female population continue to be illiterate. A majority of tribal children still continue missing the school as tribes tend to use their children for ancillary services that would bring in some added income for their starving families.[4]

Table-2: District wise sex ratio of tribal population, 2001

Sex Ratio	Districts
900 and less	Ganga Nagar (880), Bikaner (817), Churu (884), Alwar (878), Bharatpur (868), Dholpur (834), Swaimadhopur (876), Jaipur (897), Dausa (894), Karoli (854), Jaisalmer (869), Hamuman garh (868), Nagour (854), Barmer (885), Bundi (880), Kota (885)
900 – 950	Jalore(903),Jhunjhunu (929), Pali (926), Sikar (923), Ajmer(925), Sirohi (953), Bhilwara (939), Baran (918), Jhalawar (916), Jodhpur(918), Tonk (915)
950 and above	Udaipur (985), Rajsamand (968), Chittorgarh (967), Dungarpur (1028), Banswara (983)

*Sources: Census of India, 2001, Rajasthan I Population totals (Floppy Records).

Table-3: Tribal literacy rate in Rajasthan 2001

Year	Total	Male	Female
1961	3.98	07.42	0.28
1971	6.46	12.02	0.20
1981	10.27	18.85	1.20
1991	13.18	23.17	2.31
2001	44.7	63.4	29.3

Source: Census of India-2001, Rajasthan, Final Population totals Directorate of census operation, Jaipur

Tribal Culture and Fertility

Ethno-demographic characteristics of tribes bring out wide variation in the level of fertility within the community. It is mainly because of variation in the social, cultural and economic practices. Nagda (1988) reveals that factors like traditional religious systems, value of children, polygamy, remarriage, bride price and poor literacy have paved the way for high fertility among the tribes.[5] The average living children of 'Bhil' are 6.7, followed by Christian-Bhil 6.2 and Bhagat-Bhil 5.4. [5] The age at effective marriage of boys and girls is 18.2 and 17.4 years respectively.

More than 50 % of Bhils live in nuclear families consisting of 5-6 members. Nearly all mothers are illiterate. Marriage is usually solemnized after the couple gets an opportunity to know each other intimately over several months. Divorce is usually granted easily on the grounds of adultery, carelessness in the up-keep of the house etc.[4]

The results of 'National Family Health Survey' (NFHS–2), India indicate the silent issues of fertility pattern of tribes in Rajasthan[2] as evident in Table-4. The mean number of children ever born to ever married women of age 45 – 49 was 5.72. More than half of the mothers have 3 and more live births. The median age at first birth was reported to be 19.4 years. Tribal women produced 4.31 children during their reproductive life but they wish only for 2.7 children. Tribes consider an only average 2.9 children as ideal for their family. The tribes maintain sufficient space between births of two successive children. Median interval since previous birth was 29.5 months. It shows that tribes are aware about adverse implications of rapid growth of population. Male child preference is strongly reported among tribes. Ninety-seven percent tribes desire at least one male child.

Table-4: Fertility indicators of tribes of Rajasthan

Indicators	Value
Percentage of currently pregnant women.	12.4
Mean no. of children ever born to ever married women age 45-49 years.	5.72
Percentage of third and above birth order of children.	55
Median age of first birth women in age group 20-49.	19.4
Total fertility rate	4.3
Wanted fertility.	2.7
No. of children considered as ideal.	2.9
Percentage of women wanted at least one son.	97
Median months interval since previous birth	29.5

Source: National Family Health Survey (NFHS – 2) India, Rajasthan 1998-99

Level of Mortality

Level of mortality was higher among tribes in comparison to general population of the state. Table 5 reveals that among the tribes, 58 births per 1000 live births die in the first month of life, about 37% of infants die between 1-12 months and 95% infants die before attaining their first birthday. Child mortality (1–5 years) was calculated to be 155. The major causes of infant and child mortality in tribes are acute respiratory infections, fever, diarrhoea and anemia. It is suggested that for reduction in mortality, especially infant mortality, existing infrastructure of health and medical facilities should be improved and RCH (Reproductive & Child Health) Programme should be popularized among them through modern and traditional methods of motivation and communication.[6]

Health Scenario of Tribal Women

Health status of tribal women is poor and the number of pregnancy related deaths in the tribal areas is higher than those in the state. Reproductive health of tribal women is generally governed by their poverty and lack of control over resources. Majority of tribal women suffer from malnutrition, infections and early and repeated child bearing resulting in their poor reproductive condition.

Reproductive health condition is one of the indicators of quality of life. Quality of life of women can be assessed through demographic indicator like maternal and infant mortality-rate. The report of Sample Registration System (SRS 1997-2003) indicates the level and trends of maternal mortality and nearly 24% of maternal

Table-5: Mortality indicators of tribes of Rajasthan

Indicators	Rate
Neonatal mortality rate	58.0
Post neonatal mortality rate	36.7
Infant mortality rate	94.7
Child mortality (1-5 years) rate	155.0

Source: National Family Health Survey, (NFHS –2) India, and Rajasthan 1998-99.

mortality declined in the country during 1997-2003. Report further highlights the fact that about two-third of the maternal deaths occur in Empowered Action Group (EAG) states, viz, Bihar, Chhattisgarh, Rajasthan, Jharkhand, Orissa, Madhya Pradesh, Uttar Pradesh, Uttaranchal and Assam. Maternal Mortality Ratio has declined from 398 in 1997-78 to 301 in 2001-2003.[7]

'Malnutrition' is widespread among tribal girls and women. Women are accorded equal rights for the standard health services. However, they are treated unequally in accessing basic health services. Extreme poverty, lack of nutritious food and safe drinking water, sanitation and hygienic dwelling etc. affect the reproductive health of women in tribal areas. The early child bearing, miscarriages and multiple pregnancies create serious health hazards for women.[6]

Socio-Culture Issues of Health

Every culture, irrespective of its simplicity and complexity, has its own beliefs and practices concerning diseases and it evolves its own system of medicine to treat them. Tribals practice unique ways of diagnosis and treatments during illness. Their belief in supernatural power is strong particularly in the context of health and disease. The different deities and spirits are connected with various types of diseases. The tribal communities believe in specific gods for the treatment of diseases, calamities, diseases of cattle, snake bite and dog bite etc. All these deities have their own respective sphere and field. The tribal priest, known as '*Bhopa',* is sought for the treatment. *'Bhopa'* may offer sacrifice at the sacred place *(Devra)* to control the adverse effects of the concerned disease or calamity etc. Tribals' dependency and belief on '*Bhopa'* is often responsible for their non-acceptance of modern medicine.

The '*Bhopas'* share the common cultural beliefs and practices of the patients. If the reason of illness is identified as evil-eye, sorcery or witchcraft, the tribals will always inform '*Bhopa'*.[4] In tribal community, illness and the consequent treatment are not always an individual and familial affairs. Rather; at times, decision about the nature of treatment may be taken at community level. In case of some specific diseases, not only the diseased person but also the entire community of the village is affected. Health and treatment are connected with the environment. The traditional health care system and treatment are based on tribals' deep observation and understanding of the nature. The tribal healers use different parts of plants for treatment and population control. This knowledge can be fruitfully utilized in a wider context .[4]

Nutritional Status of Tribal Women

The mean Body Mass Index (BMI) for women in Rajasthan is 19.9. About 40 % of scheduled tribe women have BMI below 18.5 indicating higher nutritional deficiency among tribal women. More than half (58%) of the tribal women and 80 % of children suffer from anemia (NFHS-2).[2] In tribes, problem of malnutrition emanates from poverty, illiteracy, lack of nutritional food, health

education and nutritional habits. Unsafe drinking water often leads to diarrhoea, dysentery, parasitic infections and skin diseases. Several traditions prevail among tribes regarding food intake by pregnant and lactating mothers. A pregnant woman is prohibited from consuming ghee, oil-seeds, groundnuts, curd and hot foods. Mother of a newly born child is given several types of herbal products and gum with ghee to eat. It is believed that during pregnancy, rich foods containing ghee and fat are injurious to the womb of a pregnant woman. However; post child birth, it is considered good for the health of mother as well as child. The tribal people of southern Rajasthan, specially Kathodi and Garasia, believe that during pregnancy, use of forest foods and meat are good for mother and child. Kathodi women eat monkey-meat during delivery .[8]

Health Care

Practices associated with the ante-natal and post-natal care are some of the indicators of health status of children and mothers. Result of NFHS-2 shows that 58% tribal mothers refrained from ante–natal care during their pregnancy due to their belief that it is not essential or customary. About 42 % of mothers were given two doses of tetanus toxide injection and 36 % were given IFA tablets.[2] About 86 % child births were performed at their home and three-fourth of the deliveries were conducted by the 'Daais' (traditional women of the localities who look after and assist the pregnant women during the child-birth) and other untrained persons (Table-6).

Table-6: Health care indicators in tribes of Rajasthan

Indicators	Percentage
Women received ante natal care	42.0
Women received two injections of T.T.	42.0
Women received 100 IFA Tablets	35.8
Childbirth at home	86.0
Delivery conducted by Dais and others	76.0
Children Immunization	
Three dose of DPT	15.7
Three dose of Polio	31.5
Measles	19.0
One dose of BCG	39.7
One dose of vitamin A	12.9
Complete vaccination	10.3
Started breast feeding within one hour of birth	03.7
Mother Squeezed first Milk form breast	73.8

Source: National Family Health Survey, (NFHS –2) India, Rajasthan 1998-99

As mentioned in Table-6, about 16 % children were given three doses of DPT, 31.5%, three doses of polio; 19%, of measles and 13 % single dose of vitamin-A. The complete immunization of children was found only in 10.3 % tribal children.

Traditional Method of Conducting Delivery

According to tribal belief, a woman is pregnant if menstrual period is delayed by a month. They do not take Mahua liquor. There is no restriction on their daily routine works. The child birth, '*Japa*', is conducted in a hut called '*Jopada'*. The hut is cleaned and pasted with cow-dung in advance. The pregnant women, in labour, go to the hut. In case of hardships during child-birth, traditional 'Daai' of the community assists the other elderly ladies of the community to help with child-birth. The naval-cord is cut by the mother herself with the help of a bamboo-strip, knife or stone. They prefer the bamboo-strip because it is safer and devoid of infections.[9] After cutting the naval-cord, the stump is tied and *mahua* oil applied. The mother is given a small quantity of *mahua* liquor and water, mixed with *haldi* (turmeric) and *gour* (*Jaggary*) with the belief that these substances eliminate toxic elements from the body of the mother. Mothers are advised to avoid sour foods and pulses. The colostrum is discarded from breast and the baby is breast-fed after one day of the delivery up to 2-3 years. The supplementary foods are given to the child after 5-6 months. Breast-feeding is not stopped during the sickness of the child.

Birth Control Methods

Table-7 shows methods of the birth control as practiced by these tribes. As can be seen, 29% of currently married women use any method of birth-control and about one-fourth use any modern method of birth control. Female sterilization is more popular among tribes. The need for family welfare is 18%. It is nearly same for limiting and spacing methods. About 71% of the women do not use any method of birth control. About 2% women apply traditional methods of birth-control.

Table-7: Practicing birth control methods in scheduled tribes in Rajasthan

Indicators	Percentages
Any methods of birth control	29.3
Any modern method of birth control	26.5
Female Sterilization	21.8
Male Sterilization	1.0
Not using any method	70.7
Unmet needs of family welfare	
For spacing	8.9
For limiting	9.1

Source : National Family Health survey, India, Rajsathan.1998-99 (NFHS-2)

Indigenous Practices of Birth Control

The tribals, being an ancient social community, practise indigenous methods of birth control. They use several types of forest products and *Jadibuties* (herbs) for controlling the birth as well as removing the sterility due to their belief that traditional methods of birth control do not cause any side-effects. For removing any unwanted pregnancy, they use boiled water of bamboo-pills, old gour, leaf of adhatoda, vasica (Adusa), clove basil, carsia, black-pepper, sunth and thymol. For permanent birth control, they use juice of gurbell, seed of castor and citron and mix it with gour to consume it for 15 days with water. During these 15-days, they take precautions to avoid the use of milk, ghee and sour things and take only 'roti' (chapati) of barley with *mung dal* (green gram) without chilies and salt. For maintaining space between two children, they use aqueous extracts of cotton-seeds and cannabis sativa seeds (*Ganja*) along with picrorhiza (*Kutki*). This mixture is consumed by the woman every month for four days after the menstruation period. The local tribal-healers have knowledge about the herbal medicines and they prefer to keep it as trade secret. The tribal 'Daai' also knows these medicines.

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Concept Note

SELF-HELP GROUPS: AN INSTRUMENT TO IMPROVE HEALTH OF TRIBAL WOMEN: A CONCEPT

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Women, throughout India, remain some of the most disadvantaged individuals especially in the rural areas. Majorities of rural women are landless agricultural labours, marginalized farmers and artisans, and; within these families, they are most disadvantaged in terms of socio-economic status. Mishra (2002) presents status of Indian women. According to Mishra (2002), they often depend on their men counterparts either financially or for all their necessities.[1] This dependent behaviour acts as an obstacle in proving their capabilities, income generating capacity, decision making power and risk bearing endurance etc.

Under these circumstances, the informal arrangement for credit supply to the rural poor people through Self-Help Groups (SHGs) is a promising way forward tool for mutual help and income generation.

Movements of women development through Self-Help Groups have been introduced in different parts of India and other countries to promote the socio-economic status of women and bring out all around development in general. During early 1980's, an experimental attempt was made in Bangladesh by Dr. Mohammad Yunus.[2]

Self-Help Groups are small homogenous groups, consisting of 10-20 women from Below Poverty Line (BPL) families, voluntarily organized to promote financial savings. These are self-managed groups of poor women which primarily came into existence to mobilize financial resources through their own savings and lend the same amongst themselves to meet the credit needs of their members. Joining the SHG helps women to improve their saving habits, increase family income, fulfill their economic needs through self-employment, utilize bank loan and government welfare schemes, help the members to escape from the clutches of money-lenders and mobilize financial resources. In SHGs, regular meetings are important; ideally, groups meet monthly where they receive a platform to discuss sensitive issues such as: gender violence, dowry system, social issues, resources in their village and adjoining areas, development and welfare schemes of the government, public infrastructure etc. SHGs also provide a forum to conduct training programme on health, nutrition, agriculture, animal husbandry livelihood etc.[3]

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The study on Self- Help Groups in Madhya Pradesh, conducted by UNICEF, Bhopal, (1997) shows the development in people of the region wherein a rapid change has occurred in last three decades with the shift in emphasis from welfare approach to the empowerment approach.[4] The path of empowerment is critical and involves people, especially women who constitute nearly half of the population. The concept of Self- Help Group is an attempt to mobilize women themselves into such groups and to support them to acquire financial independence.

"The Evaluation Report on Impact of Implementation of the Revised Long Term Action Plan (RLTAP) in KBK Koraput, Bolangir, Kalahandi Districts, Orissa" by Panka Toppo and Amar Nayak (2006) has observed that the Self-Help Groups have implemented majority of the income generation programs under micro-finance system.[5] It was found that poverty alleviation, on average, was at a fair level of outcome- about 50% of beneficiaries indicated satisfactory or better than satisfactory level of impact.

John (2001) in his book 'Empowering the Oppressed: Grassroots Advocacy Movement in India'. provides incidences on certain groups in India that have introduced ways to improve sound financial condition effectively.[6] Incidences, mentioned in the book, provide proof to the effect of community leaders who are committed in their work to improve fellow citizen.

Proposed role of SHGs among Tribal women and children health care

Government has launched several health welfare schemes for women, i.e., *Kishori Shakti Yojna*, Adolescent Girls Scheme, *Janani Suraksha Youjana* (JSY), *Vande Mataram* Scheme, National Population Policy etc. Broadly, the aims of these schemes are to reduce maternal mortality and morbidity of the pregnant women by providing them free ante-natal and post-natal check, counseling them on nutrition, breast-feeding and birth spacing, converging service delivery at village level, meeting the needs for contraception, collaborating with non-governmental organizations for better reproductive health and child birth, providing 24-hour maternity services at PHCs/CHCs availing the provision of ambulance services etc. Under the Integrated Child Development Services (ICDS), various schemes have been implemented for the supplementary nutrition, immunization, health check-up, referral services, nutrition and health education etc. Despite all these efforts, the expected outcome has not been achieved particularly in the tribal areas. Probable causes of this lack of improvement are: socio-cultural factors and taboos, tribal dependency on local traditional healers, under-utilization of available services, distance from the source of knowledge and information, poor infrastructure, lack of linkages within the health care delivery systems, inaccessibility of health care facilities, mass media, lack of motivation to work in outreach areas etc.

Considering the achievements of SHGs in socio-economic development, it can be concluded that SHGs can be instrumental in improving health in general and particularly diseases related to women and children in the tribal areas. Specialized doctors, gynecologist, pediatrician or other trained and experienced health care providers can be roped in the tribal areas during the regular meetings of SHGs.

The communication strategies such as puppet shows, folk stories, story-telling, local song and drama etc. on the importance of health and hygiene, ante-natal care, safe delivery, post-natal care, vaccination and on various other elements related to child health etc. will strengthen the awareness of the targeted group. Discussions can be made in a user-friendly environment so that tribal women can clarify their doubts without any shy and embarrassment. They can also share their opinions without hesitation. Participatory discussions will provide the women an opportunity to hear the experiences of one-another which may influence them to adopt the good practices, followed by their group partners. Such activities could provide a platform for tribal women to remove their ignorance in an uninhabited fashion. It would give them a chance to express their opinions. Finally, this will increase their awareness and help them learn concepts of health. It will also assist the members of Self-Help Groups acquire self-confidence. Panka Toppo and Amar Nayak (2008) have enumerated how mobility outside the boundary of their home and interaction with the outside people improve self-confidence among women.[7]

In summary, it can be said that SHGs can act in two ways. Firstly, it can create awareness among tribal women directly regarding development programmes, health schemes and preventive measures of various diseases to acquire necessary treatments. Secondly, SHGs can empower, directly or indirectly, the efforts for the improvement of the health of women and their families. It is believed that helping one-another by one's own will help the tribes utilize various welfare-schemes and programmes adequately.

Present article aims at the due action by various research communities and programme managers regarding the literature on SHGs and their roles in the improvement of health, particularly among the tribal population. So, the article urges the research community and the programme managers to take up SHG at grassroot level and to examine its impact on the welfare of the marginalized tribal population.

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