TRIBAL HEALTH BULLETIN

ISSN 0971-4677

A Biannual Publication on Tribal Health (Published Simultaneously in English & Hindi)

Vol. 14, No. 1&2
January & July 2008

Indexed in
Indian Science Abstracts
&
Medicinal and Aromatic Plants Abstracts

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Socio-Culture Issues of Health Seeking Behaviour and Expenditure on Health in Tribes of Rajasthan

-B.L.Nagda

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A Biannual Publication on Tribal Health (Published Simultaneously in English & Hindi)

Published by the Editor,
Tribal Health Bulletin,
Regional Medical Research
Centre for Tribals (ICMR),
Nagpur Road, P.O. Garha,
Jabalpur-482 003 (M.P.), India.
Ph. : +91-761-2370800, 2370818
Email : bulletin_rmrct@yahoo.com
www.rmrcticmr.co.in

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Vol. 14 Nos.1& 2 January & July 2008

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MENARCHE AMONG A PRIMITIVE TRIBE BAIGA OF CENTRAL INDIA

Rajesh K. Gautam*, Awadesh N. Sharma*, R. Jyoti*, Bhagat S. Thakur*

Abstract: *The present investigation was carried out on 575 women. The mean age at menarche for Baiga women was found to be 13.27±1.45 years. The one-way analysis of variance (ANOVA) shows that there is significant difference in respect of age at onset of menarche for women of different age groups (F=3.2, p<0.001, at df =12). Simultaneously, the independent t-test carried out shows that the women who are in pre menopausal stage, they differ significantly from postmenopausal women (t= -4.473 at df = 573, p<0.001), which is also proved through error bar diagram. It can be concluded from the present investigation that the mean age at onset of menarche of Baiga women (13.27 years) is less than the average for Indian population (14.05 years). Whereas minimum is recorded for Garo of Assam (12.55 years) and highest mean is found for Marcha Bhotia of Uttaranchal state (16.79 years).*

INTRODUCTION

In India, out of more than 500 tribal groups, 74 are identified as Primitive Tribes. The principle reasons of categorization as primitive tribe are: their stagnant population, poverty, extremely low level of literacy, self sustained and forest base economy, nomadic and primitive or pre-agricultural stage of technology. The menarche (first menstrual period) have important cultural, social and epidemiological implications. Increasing attention has been recently devoted by scientists to understand the cause of age variations in the timing of this events.[1] It is reported that the initiation of menstruation depends on various factors such as socioeconomic conditions,[2,3] nutritional status [4-6] physical activity[7,8] altitude level,[9-11] seasonality,[12] general health and life-style,[13,14] and genetic parameters.[15-17] An enumeration of average age at menarche of girls of 24 countries gives the range as 10-18 years.[18] Mean ages at menarche and at menopause vary substantially between women across different countries or across different ethnic groups.[19-25] Yet, mean age at menarche for the girls of 67 countries is calculated as 13.53 (SD ± 0.98) years,[1] in the same study in reference to India (Punjab) [26] were cited with 14.31 years of age at menarche for Indian women. The average ages at menarche in hot, temperate and cold climate are reported to be 13.0, 14.3 and 15.8 years respectively.[18] Some opined that the menarche before 12 years of age is abnormal.[27,28]

In this way menarche is widely studied, it is determined by socio-cultural practices, inherent genetic constitution, economic status, occupation, nutrition, morbidity, climate, geography and other factors. Wide variations were noticed in age at menarche of different population groups, it differs from region to region and country to country depending on

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biological constitution of population, socio-economic, political and environmental conditions etc. Many scholars have paid attention on age at onset of menarche but tribal population particularly primitive tribe are least explored in this respect.

Keeping in mind the wide implication of menarche, the present study is an endeavor to deal with its biosocial proximate among a primitive tribe the Baiga of Central India. The sample for present study was drawn from Dindori district, which is a new district. As per Census of India 2001, out of total population (580730) of the district Dindori, there were 374447 tribal individuals (Gond, Baiga, Kol, Oraon, Dhoba etc.),[29] whereas according to Census 1991 the population of Baiga tribe in Mandla district was 59370 (in 1991 the Dindori was part of Mandla district). In the state of Madhya Pradesh the total population of Baiga was 317549 (Census, 1991).[30]

MATERIALS AND METHODS

For present investigation, Baiga populated area of Madhya Pradesh state was selected (Map 1). Ten Baiga dominated villages (Chanda, Tatar, Sheetalpani (Sherajhar), Silpidi, Thadpathara, Dhurkuta, Badna-Chua, Sendurkhar, Tarach and Raxim) of old Baiga-Chak area of Dindori district were chosen purposively. For present investigation, a total of 575 women of 10 villages belonging to 415 households were interviewed by door-to-door visit. Non-random sampling method was adopted. All non-related women of a household were chosen for the study. A total of 10 investigators collected the required information in 25 exhaustive days of October 2004, by rigorous field visit and constant stay among Baiga tribe. A Semi-structured schedule was used to collect the data. To support quantitative data, qualitative information was collected through case study and focus group discussions. For further details Gautam et al. (2007) may be referred.[31]

Estimation of Age

Estimation of right age is an important aspect in this kind of study. Among tribals, where most of the population are illiterate the age estimation require more conscious efforts. During data collection for present study, different anthropological techniques of age estimation were employed. These techniques include genealogy formation, clinical examination, enumeration of pregnancies, recalling method etc. Seasons (rainy, winter, summer, harvesting etc.), festivals (Holi, Diwali, Rakshabandhan, Dashahara etc.), fairs, market days and other important events like marriage, death, first issue etc. were used as landmark to find out the exact date, month and year, and accordingly the age was calculated.

RESULTS AND DISCUSSION

Baigas are widely distributed in Mandla, Dindori, Shahdol and Balaghat districts of Madhya Pradesh, and Bilaspur district of the newly formed Chhatisgarh state. They are identified as Primitive Tribal Group (PGT). They are forest dwelling tribe. They live in deep, unapproachable, remote hilly tract of Satpura valley. Previously they were shifting cultivator on these hills. But, now the practice of

shifting cultivation is in its vestigial form. Now these people are being settled in the villages within the forest and entering into pastoral and agricultural mode of life along with their traditional practice of hunting and food gathering. According to Gautam and Choudhary (2007), still 22 to 82 percent of them collect different minor forest produce; similarly 12 to 62 percent of them possess hunting implements viz. gun, bow and arrow. At the same time they are settled agriculturist as 86 percent of them also possess plough.[32]

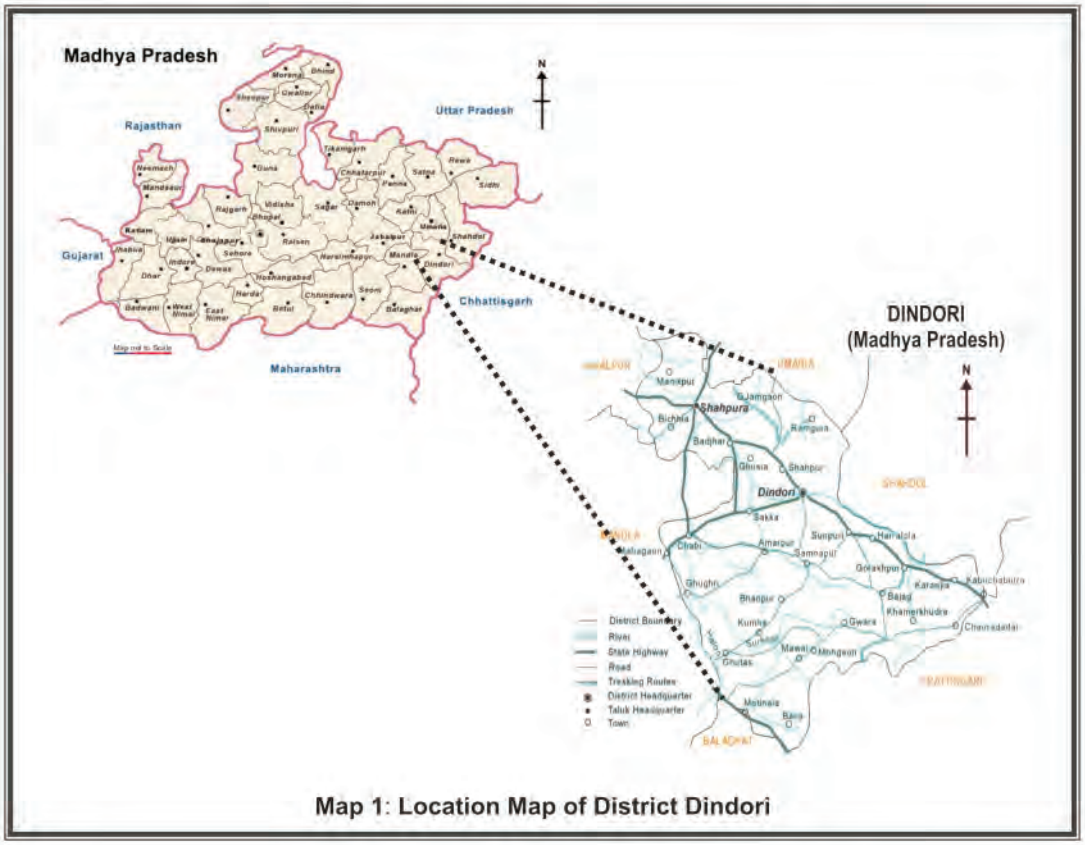
From the sample (n=575) majority (82 percent) of women were illiterate, only 6.3 per cent were just literate, they didn't have any formal schooling, but they could read and write. Approximately 6 per cent were primary educated and only 3 per cent were high school educated. Most of the women (66.4 percent) were housewife by occupation, it also included the students. Approximately one-third (29.2 percent) were actively indulged in agriculture and food gathering. Out of the total sample 85 percent women were married, 11.1 percent were unmarried and 3.8 percent were widow.

Central tendency, dispersion and percentile of age at menarche among Baiga are presented in the Table 1. It is evident from the table that the mean age at menarche for Baiga women is 13.27±1.45 years, whereas the median and mode of age at menarche among this primitive tribe is 13 years; although, the age at which first menstruation appears varies from 11 to 20 years of age. Among 575 women only 15.3 percent were in postmenopausal stage rest 84.7 percent in pre-menopausal condition. The comparison of age at onset of menarche among pre-menopausal and post-menopausal women is given in Table 2. It is evident that the percentage of post-menopausal women decreases as the age at onset of menarche increases, where as it is reverse in case of pre-menopausal women. Further analysis shows that there is significant difference in age at onset of menarche among pre and post menopausal women as evident from t-test ($t = -4.47$ at $df = 573$, $p<0.001$) and error bar diagram (Figure 1). Inter-group comparison named one-way analysis of variance test (ANOVA) and t-test are presented in the Table 3. It is apparent that 95 percent sample belongs to 10-59 years of age group. The age at onset of menarche is significantly different for women of different age groups ($F=2.836$, $p<0.001$, at $df=12$).

A comparative scenario of age at menarche among different Indian population is evident from Table 4. It is apparent that the mean age at onset of menarche of Baiga (13.27 years) is less than the average for Indian population (14.05 years), whereas minimum is recorded for Garo of Assam (12.55 years) and highest mean is found for Marcha Bhotia of Uttaranchal (16.79 years). Further in this respect it should be noted that the age at menarche is decided by a number of biosocial and ecological variables. For example the Marcha Bhotia is a high altitude dwelling population, so it is natural that due cold climate and hypoxia the growth of children is delayed which leads to delayed age at menarche whereas the Baiga are although primitive tribe yet they have early menarche, because they are inhabitant of semi-tropical forests.

CONCLUSION

It can be concluded from the present study that the Baiga being a primitive tribe, they have simple life style. There is little individual difference at the level of socio-economic and cultural background. Though they are at the transition phase but still their socio-economic structure is in earliest form, where everybody or every family have almost similar socio-economic condition, a majority of women (82 per cent) are illiterate, nullifying the impact of level of education of 18 percent women; similarly their occupation hardly vary, as everybody have to work for own livelihood, even housewives and students are not barred off from their duty at agricultural field and collection of food from forest. Therefore these socio-economic variables don't have any significant correlation with age at onset of menarche. Whereas variables like current age have significant correlation ($r=0.159$, $p<0.001$) with age at menarche. It is interesting to note that the younger women are experiencing early age at menarche in comparison to their aged counterparts, which clearly establish secular trend in age at menarche among Baiga. As now days, Baigas are also in the influence of the process of globalization; they are also benefited by the overall development of the country and the region. Due to green revolution, they are partially protected from the conditions of starvation and scarcity of food. In this way it can be concluded that the pace of development had accelerated the early age at menarche among this primitive tribal group.



Map 1: Location Map of District Dindori

Figure 1: Error bar diagram showing 95% confidence interval of mean value of age at onset of menarche among pre and post menopausal Baiga women. The difference in mean is significant.

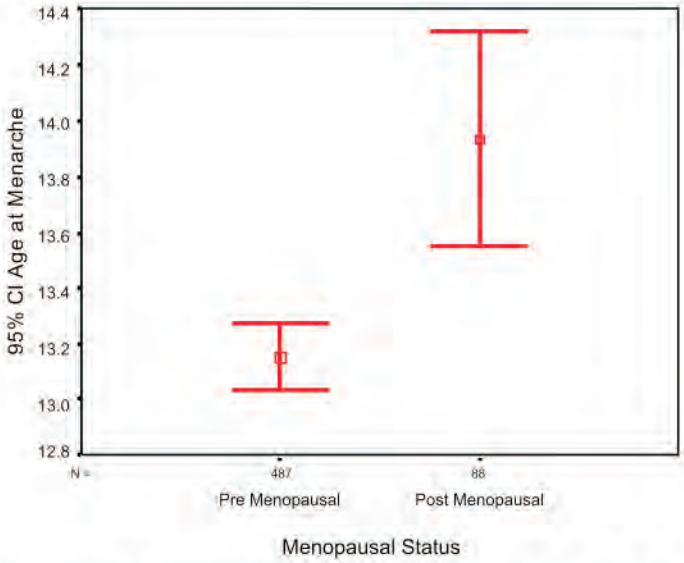


Table 1: Central tendency, dispersion and percentile of age at menarche among Baiga.

Number		575
Mean		13.27
SE of Mean		0.061
Median		13.00
Mode		13
Std. Deviation		1.458
Minimum		11
Maximum		20
Percentiles	25	12.00
	50	13.00
	75	14.00

Table 2: Distribution of subjects as per age at menarche and menopausal status

Age at Menarche	Menopausal Status				Total	
	Pre Menopausal		Post Menopausal			
	N	%	N	%	N	%
11	39	8.0	3	3.4	42	7.3
12	116	23.8	18	20.5	134	23.3
13	171	35.1	18	20.5	189	32.9
14	104	21.4	26	29.5	130	22.6
15	23	4.7	5	5.7	28	4.9

16	23	4.7	6	6.8	29	5.0
17	8	1.6	9	10.2	17	3.0
18	2	0.4	2	2.3	4	0.7
19	0	0.0	1	1.1	1	0.2
20	1	0.2	0	0.0	1	0.2
Total	487	100.0	88	100.0	575	100.0

Table 3: Distribution of sample as per current age and menopausal status along with one-way analysis of variance test or t-test for age at menarche.

Background Characteristics	N	%	Cumulative Percent	One-way analysis of variance test for age at menarche as dependent variable					
Current Age				Source	Sum of Squares	df	Mean Square	F	Sig.
10-14	23	4.0	4.0	Between Groups	70.7	12	5.8	3.2	0.001
15-19	74	12.9	16.9	Within Groups	1780.3	992	1.7		
20-24	96	16.7	33.6	Total	1851.1	1004			
25-29	97	16.9	50.4						
30-34	86	15.0	65.4						
35-39	56	9.7	75.1						
40-44	39	6.8	81.9						
45-49	35	6.1	88.0						
50-55	25	4.3	92.3						
56-59	17	3.0	95.3						
60-64	12	2.1	97.4						
65+	15	2.6	100.0						
Total	575	100.0							

Menopausal Status				Independent Samples Test						
	N	%	Cumulative Percent	Mean	SD	SE	t	F (Levene's test)	df	Sig.
Pre menopausal	487	84.7	84.7	13.15	1.354	0.061	-0.473	11.282	573	0.001
Post menopausal	88	15.3	100.0	13.93	1.805	0.192				
Total	575	100.0								

Table 4: Mean Age at Menarche among Tribal and Non-Tribal Population Group of India.

Country/State/ Region	Population Group	Mean age at Menarche	Source
Assam			
	Garo	12.55	Das and Saikia (1999)[33]
	Ahom	12.96	Gogoi (1972)[34]
	Mikirs	12.75	Khatoniar (1972)[35]
	Kalita	12.61	Das & Das (1966)[36]
Arunachal Pradesh			
	Singpho	12.59	Kar & Mahanta (1975)[37]
	Adi	14.45	Duarah (1989)[38]
Sikkim			
	Buddhist	15.50	Bhasin and Bhasin (2000)[39]
	Hindus	14.62	Bhasin and Bhasin (2000)[39]
	Lepchas	15.55	Bhasin and Bhasin (1995)[40]
	Bhutias	15.62	Bhasin and Bhasin (1995)[40]
Jammu and Kashmir			
Ladakh (HA)		14.99	Bhasin and Nag (2002)[41]
	Bodhs	15.43	Bhasin and Nag (2002)[41]
	Baltis	14.79	Bhasin and Nag (2002)[41]
	Brokpas	14.85	Bhasin and Nag (2002)[41]
	Arghuns	14.65	Bhasin and Nag (2002)[41]
Himachal Pradesh			
	Gaddi	14.01	Bhasin and Bhasin (1993)[42]
	Brahman	14.21	Bhasin and Bhasin (1993)[42]
	Rajput	13.92	Bhasin and Bhasin (1993)[42]
	SC	14.00	Bhasin and Bhasin (1993)[42]
Kinnaur	Kinnaura	15.11	Gautam (2006)[43]
Middle altitude		15.19	Gautam (2006)[43]
High Altitude		15.03	Gautam (2006)[43]
Uttaranchal (or erstwhile UP)			
	Johari Bhotia	15.10	Kapoor (1996)[44]
	Rang Bhotia	16.00	Kapoor (1996)[44]
	Marchha Bhotia	16.18	Kapoor (1996)[44]
	Marchha Bhotia	16.79	Chachra and Bhasin (1998)[45]
	Dharchula Bhotia	15.36	Chachra and Bhasin (1998)[45]
	Johar Bhotia	16.39	Chachra and Bhasin (1998)[45]
	Bhotia	-	Singh (1984)[46]
	Rang Bhotia		Kapoor & Kapoor (1986)[10]
	Johari Bhotia		Kapoor & Kapoor (1986)[10]
	Raji	13.40	Patra (2001)[47]
	Jaunsaris	14.59	Kshatriya, et al. (1997)[48]
Orissa	Khadia	14.27	Chaudhury, et al. (1994)[49]
	Kissan	14.28	Chaudhury, et al. (1994)[49]
	Kondh	13.40	Chaudhury, et al. (1994)[49]

	Oraon	14.07	Chaudhury, et al. (1994) [49]
	Mirdha	13.30	Chaudhury, et al. (1994) [49]
	Gonda	14.32	Chaudhury, et al. (1994) [49]
	Khandayat	13.41	Patnaik (1971) [50]
	Karan	13.28	Patnaik (1971) [50]
	Brahman	12.94	Patnaik (1971) [50]
West Bengal	Kora	13.76	Bhattacharyya et al. (1985)[51]
	Bagdi	13.65	Sarkar and Chowdhury (1967) [52]
	Kayastha	13.30	Bhattacharyya et al. (1977) [53]
	Brahman	13.00	Bhattacharyya et al. (1977) [53]
Andhra Pradesh			
	Kapu	13.79	Raj J. and Reddy (1977)[54]
	Bagata	13.46	Annapurna (1972)[55]
	Kummari	13.33	Babu and Naidu (1989)[56]
	Mangali	13.13	Babu and Naidu (1989)[56]
	Madiga	13.21	Babu and Naidu (1989)[56]
	Chakali	13.01	Babu and Naidu (1989)[56]
	Koya	13.25	Paddaiah (1977)[57]
	Chenchu	14.30	Rao & Aruna (1975)[58]
	Muslim	13.14	Ramamma & Reddy (1977)[59]
Rajasthan	Balija	13.66	Gunasundaramma & Reddy (1977)[60]
	Bhora	14.88	Basu & Gupta (1977) [61]
Andaman	Oraon	13.47	Bhattacharyya et al. (1985)[51]
Maharashtra	Mahar	13.98	Bhattacharyya et al. (1991) [62]
	Brahmin	14.34	Rakshit (1962) [63]
Chhatisgarh			
Raipur	Kamar	13.80	Pandey (2002) [64]
Madhya Pradesh			
Patalkot	Bhariya PTG	13.90	Pandey (2002) [64]
Raigarh	Birhor PTG	13.90	Pandey (2002) [64]
Sarguja	Hill Korwa PTG	13.60	Pandey (2002) [64]
	Hill Korwas	13.60	Pandey and Tiwari (1993) [65]
	Gond	12.80	Pandey and Tiwari (1993) [65]
Dindori (Baiga Chak)	Baiga	**13.27**	**Present study (2006)**
India	**Maximum**	16.79	
	Minimum	12.55	
	Average	14.05	

HA = High Altitude Region
UP = Uttar Pradesh (India)
SC = Scheduled Caste
PTG = Primitive Tribe

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STATUS OF SICKLE HAEMOGLOBIN AND ANAEMIA AMONG GOND POPULATION OF PANNA DISTRICT, MADHYA PRADESH

M.P.S.S. Singh, R.B. Gupta*, Surendra Kumar**

Abstract: *A total of 195 blood samples were analysed for sickle haemoglobin in Gond (Scheduled Tribe) population of Panna district, Madhya Pradesh. 6.7% of studied population was found to be sickle cell trait and 0.5 % was deficient for G6PD enzyme. The overall prevalence of anaemia (as per WHO standard) was 77.4%. Anaemia among children and adult female was significantly higher ($p<0.05$) than adult males. Most of the anaemic persons fall under mild category. Frequency of sickle cell gene was 0.0333 and population was in equilibrium state for sickle cell gene as per Hardy-Weinberg's law ($p>0.05$).*

INTRODUCTION

Sickle haemoglobin is autosomal recessive inherited disorder in which the red cells contain mutant sickle haemoglobin due to mutation of adenine nucleotide to thymine at Codon 6 of β-globin gene. This mutation substitute valine for glutamic acid in the sixth position from the N-terminal end of beta globin chain. In deoxygenated state, cells containing sickle haemoglobin become rigid and deformed, assuming a sickle shape. Sickle cell disease is homozygous state and causes life threatening crisis. The sickling phenomenon is responsible for the clinical manifestations of the disease. Sickle cell trait is heterozygous state for sickle haemoglobin gene that does not cause any complication in normal condition. Sickle Cell haemoglobin is very prevalent among the tribal groups of Central India particularly in Madhya Pradesh.[1-4] The objective of the present study was to know the status of sickle haemoglobin and also the prevalence of anaemia among Gond tribe of Panna district in which the status of Sickle haemoglobin was not known. This study was carried out in the Pawai block of Panna district. As per Census 2001, the Scheduled tribe population of Panna district is 131,796 which are 15.4 percent of the district total population. The tribal population of Pawai block constitutes 14.2 percent of total population. Gond is the most dominating tribal population of this area and this tribe is unevenly distributed in the district.

METHODS

A total of 195 blood samples were collected into EDTA vials after obtaining the consent from apparently healthy persons taking family as sampling unit. Complete blood cell counts were carried by automatic blood cell counter. Sickle haemoglobin was identified by sickling test with 2 percent sodium metabisulphite and confirmed by electrophoresis on cellulose acetate

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membrane with TEB buffer at pH 8.6.[5] G6PD deficiency was detected by using DCIPdecolorization method.[6]

RESULTS

The status of sickle haemoglobin and G6PD deficiency among Gond population of Panna is shown in Table-1. Sickle haemoglobin was only abnormal haemoglobin detected in the 195 blood samples. The prevalence of sickle haemoglobin as a heterozygous (Hb AS) was 6.7 percent. No case of sickle cell disease (homozygous) was found in sampled population. A few studied population (0.5 percent) was found to be deficient for G6PD enzyme. Frequency of sickle cell gene among this tribe was 0.0333. The studied population was in equilibrium state for sickle cell haemoglobin gene as per Hardy-Weinberg's Law (p>0.05).

The prevalence of anaemia (as per WHO standard)[7,8] among studied population is given in Table-2. The overall 77.4 percent of Gond population was anaemic. The prevalence of anaemia among children (94.4 percent) and females (88.7 percent) was significantly higher (p<0.05) than among adult males (61.4 percent). Majority of the anaemic persons (59.0 percent) fall under mild category (Hb10-12gm/dl). 27.2 percent of Gond population was moderately anaemic (Hb7-10gm/dl). Severe type of anaemia (Hb<7gm/dl) was observed in 4.6 percent of Gond population.

The mean red cell indices of studied Gond population are given in Table-3. The mean haemoglobin levels of the studied population were 11.2±2.2 g/dl.

Table 1: Percent prevalence of sickle haemoglobin and G6PD deficiency among Gond population of Panna district

N	Sickle cell trait	Gene freq. of 'β^S'	G6PD deficiency
195	6.7	0.0333	0.5

Table 2: Percent anaemia among Gond population of Panna district

Group	N	Type of anaemia			Total Anaemia
		Mild	Moderate	Severe	
Male	88	47.7	12.5	1.1	61.4
Female	71	49.3	33.8	5.6	88.7
Children	36	33.3	50.0	11.1	94.4
Total	**195**	**45.6**	**27.2**	**4.6**	**77.4**

DISCUSSION

Sickle haemoglobin is the commonest genetic disorder among the tribal groups of central India particularly in Madhya Pradesh.[9,10] Prevalence of sickle haemoglobin varies from 0 to 30 percent among the various tribal populations of central India.[1-4]

In the present study prevalence of sickle haemoglobin was 6.7 percent among Gond population. On the basis of this prevalence rate, about 0.2 per thousand births among the studied population is expected to suffer from sickle cell disease (homozygous). The facilities for diagnosis and management of these disorders should be established at PHC as well as district level so that individuals can avail this facility before marriage to know their haemoglobin type. Birth of Sickle cell disease (HbSS) children can be controlled by avoiding marriage between two heterozygous (HbAS) individuals.

Anaemia is rampant in the studied population especially among the adult females and children. Anaemia is mostly of mild type (45.6 percent). A large proportion of the tribal population is having moderate (27.2 percent) and severe form (4.6 percent) of anaemia. The common morbidities like iron deficiency, malaria, worm infestation and other nutritional deficiencies need to be studied in detail in relation to anaemia. Anaemia control programme and control of common morbidities should be strengthened aiming a women and children.

Table 3: Haematological parameters of Gond population of Panna district

N	Hb (g/dl)	HCT (L/L)	TRBC (X 10^6)	MCV (fl)	MCH (pg)	MCHC (g/dl)
195	11.2 ±2.2	37.0 ±6.8	5.0 ±0.9	74.3 ±7.9	22.3 ±3.4	30.0 ±2.2

Acknowledgements

The authors are grateful to RMRCT (ICMR), Jabalpur for providing facilities and necessary funds to carry out the study and also to the staff of the Genetics department.

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CHILD MALNUTRITION AND FEEDING PRACTICES IN INDIA

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Abstract: *Child malnutrition is a biggest challenge our country is facing today even when the economy is said to surging ahead. Every second child under three in the country is malnourished. This paper takes data from the National Family Health Surveys, NSS and uses multivariate analysis to study the effects of selected demographic and socioeconomic factors on child malnutrition. The analysis reveals that the strongest predictors of child nutrition in India are child's age, child's birth order, mother's education, and household standard of living. The paper also assesses whether recommended infant feeding practices help to alleviate the prevalence of stunting, wasting and malnourishment. It also shows inter-state differentials in malnourishment among children in India. The evidence supports some recommended practices for reducing malnutrition, including mother not squeezing the colostrums from her breasts, not using a feeding bottle with a nipple, exclusive breastfeeding for the first four to six months and feeding supplementary foods (solids and mushy foods) at about seven months, and suggests that, for some groups of children, better feeding practices could reduce the prevalence of severe stunting. Delayed initiation of breast-feeding, deprivation from colostrums, and improper weaning are significant risk factors for under nutrition among under-fives. There is need for promotion and protection of optimal infant feeding practices for improving nutritional status of children in India.*

INTRODUCTION

Child malnourishment is one of the greatest problems in the world, especially in India, and it is important to improve the situation because the first years of life are crucial in the development, mentally and physically and children continue to suffer from life long health issues such as blindness, poor bone structure, and a lower capacity to learn along with many more consequences. Childhood malnutrition is a massive crisis caused by a combination of factors including inadequate or inappropriate food intake, childhood diseases, harmful childcare practices, and improper care during illness: all contributing to poor health and millions of deaths annually. It affects growth potential and the risk of mortality and morbidity in later years of life. The early years of life are the most crucial because it is when the body develops the most mentally and physically and is most vulnerable to disease and illness. The children of India are malnourished because of factors attributed to overpopulation, poverty, and destruction of the environment, lack of education, gender inequality, and inaccessible medical care. Poverty is a major cause of malnourishment because it limits the amount of food available to children causing wasting and a lack of vitamins, minerals and nutritional value leading to

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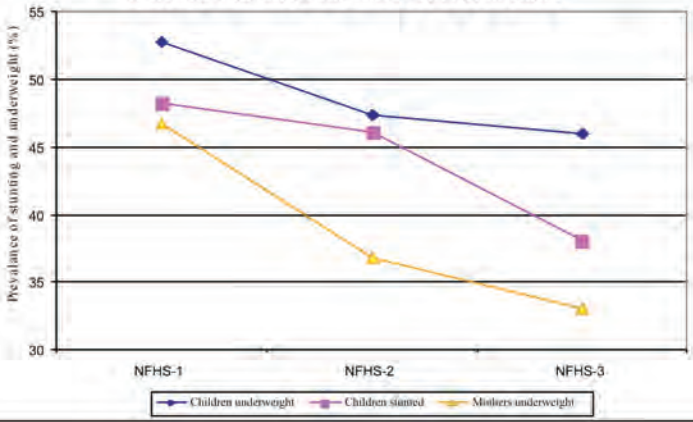
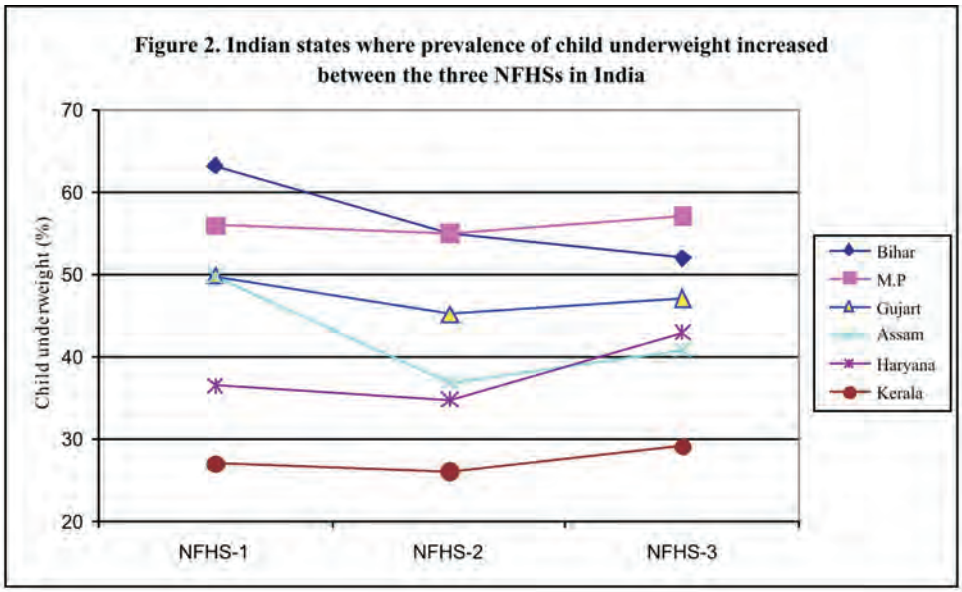
stunting and low weight. Overpopulation is a serious problem linked to competition for food, shelter and medical care and leads to malnutrition amongst children, especially in rural areas where access to medical care and food is limited.

The malnourished of India are located not only in urban, but more so in rural areas, where income and food variety is lower. According to the National Family Health Survey-III of India, 55% of children living in rural areas suffer from malnutrition compared to 45% of children in urban areas. The situation is particularly grave in states like Bihar, Uttar Pradesh, Madhya Pradesh, and Rajasthan. Twenty nine percent of the Indian population is below the poverty line, 70% of which lives in rural areas. Nearly 30% of newborns have low birth weights and it is proven that females with little to no education more commonly raise malnourished children. Large families with more than three children have greater malnourishment rate than smaller families due to competition for food and medical care. Those who have childcare practices, such as delayed complementary feeding, are also at risk of malnutrition.

The modest decline in child stunting and underweight between the years 1992-93[1], 1998-99[2] and 2005-06[3], when National Family and Health Surveys (NFHS) were carried out, is depicted in Figure 1. Between the first two surveys, child stunting was almost flat, while underweight dropped by 4 percentage points. Between 1998-99 and 2005-06 it was the other way around: child stunting declined by 7 percentage points, while underweight remained practically unaltered. These different developments provide an indication that child stunting and underweight may have partly different causes, a possibility to be examined. India is far from being a homogenous country in terms of malnutrition. Child stunting and underweight have persistently been more prevalent in some of the landlocked northern and central states than in the rest of India (Figure 2). The rates at which the incidence of child stunting and underweight has changed also vary notably across the states. In six large Indian states, child underweight actually increased between the two most recent surveys. The subsequent statistical analysis aims at explaining this dismal development

Figure 1. Change in Child stunting and Underweight and mothers with a BMI<18.5 Between the three NFHSs in India





About 30% of newborn in India are of low birth weight (Birth weight <2500 g). According to NFHS-3 surveys, about 43% of under-five year children are underweight (weight for age < median-2SD of WHO standards), 48% are stunted (height for age < median-2SD) and 20% are wasted (weight for height < median-2SD). About 36% of adult women and 34% of adult men in general suffer from chronic energy deficiency (BMI<18.5), while 13% of women and 9% men are afflicted by overweight/obesity (BMI ≥ 25).[3]

The prevalence of under nutrition among children rises steeply from about 30% at birth to about 60% at 18 months of age. This is largely attributed to faulty infant and young child feeding practices prevailing in India. According to NFHS-3 surveys, only about a fourth of women (27%) initiate breast feeding within one hour after delivery. More than half of the women (57%) give pre-lacteals to their new born. Only about 46% of infants receive exclusive breast feeding up to 6 months of age. Very early or delayed initiation of complementary feeding coupled with inadequate and inappropriate complementary foods, further aggravates the problem of under nutrition among young children.

Infant feeding practices have significant effects on both mothers and children. Mothers are affected through the influence of breastfeeding on the period of postpartum infertility and hence on fertility levels and the length of birth intervals. These effects vary by the duration and intensity of breastfeeding. Proper infant feeding, starting from the time of birth, is important for the physical and mental development of children. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. Breast milk not only provides important nutrients but also protects the child against infection. The timing and type of supplementary foods introduced in an infant's diet also have significant effects on the child's nutritional status.

The Government of India recommends that initiation of breastfeeding should begin immediately after childbirth, preferably within one hour (Ministry of Women and Child Development, 2006).[4] Early initiation of breastfeeding is encouraged for a number of reasons. Mothers benefit from early suckling because it stimulates breast milk production and facilitates the release of oxytocin, which helps the contraction of the uterus and reduces postpartum blood loss. The first breast milk (colostrum) is highly nutritious and has antibodies that protect the newborn from diseases. Late initiation of breastfeeding not only deprives the child of valuable colostrum, but becomes a reason for introduction of prelacteal feeds (that is, something other than breast milk) like glucose water, honey, *ghutti*, animal milk, or powdered milk that are potentially harmful and contribute to diarrhoea in the newborn.

METHODS

As already mentioned, data for this research is mainly drawn from the National Family and Health Survey (NFHS-2 & 3) from all 29 states.[2,3] The analysis was carried out using both descriptive and multivariate statistical methods. In the first part of the descriptive analysis, all indicators of child malnutrition and feeding practices are measured either as percentages or as ratios. Each outcome variable is binary (yes or no), so that logistic regression is an appropriate method of multivariate analysis.

For logistic regression analyses, the nutritional status variables (weight-for-age and height-for-age), which are continuous variables, were treated as dichotomous, with two values 'well-nourished' and 'under-nourished'. For an analysis of the undernourished children, the dependent variable was equal to 1 if the child's z score was a below-2 standard deviation unit (under-nourished child) and equal to 0 if a z score fell within an above-2 standard deviation (well-nourished child). Due to the small number of cases the effect of the sex of the child on the choice of a treatment alternative is not assessed in a regression model. The analysis simply examines the relationship between the sex of the child and health difference indicators without taking into account other explanatory variables. For the second level of analysis, logistic regression models were used to find the effect of the sex of the child on the various outcomes of gender difference, controlling for the demographic and socio-economic characteristics of women. A set of demographic and socioeconomic variables is considered as control variables. The control variables included in the logistic regressions are: Child's age (0-11, 12-23 and 24-35 months), Mother's age at time of the birth of the index child (below 19, 20-29 and 30 years or more), sex of the child categorized as male and female, education of both women and their husbands were categorized as either illiterate or literate including primary, middle or secondary or higher, preceding birth interval was classified into two categories as first birth and more than or equal to 24 months and less than 24 months, mother's current work status can greatly influence child health through lack of time for childcare and feeding, particularly breast-feeding. This variable

was categorized as currently not working and working, Caste was grouped into scheduled caste and non-scheduled caste, Religion was classified into Hindu and non-Hindu, Area of residence was classified into urban and rural.

Coefficients are estimated using the maximum likelihood method (MLM) of estimation. The independent variables are recoded into categorical indicator variables. One value of each variable is chosen to be the reference category. The reference category was the first category of the variable. The odds ratios for the reference category attributes are relative to the reference category. The odds ratio for the reference category is equal to 1. If an odds ratio is greater than 1 this indicates an increased likelihood of the event occurring, while an odds ratio less than 1 indicates a decreased likelihood of its occurring. A variable was considered significantly associated with nutrition status when its p value was below 0.5.

RESULTS

The Problem with Child Malnutrition

Sixty years after independence, nearly half of India's children under three are malnourished (Table 1). India has the largest number of children in the world who are malnourished. Even more significantly, India's rate of malnutrition is worse than that in Africa on average. In fact, South Asian countries have the world's worst rate of malnutrition, and India's rate of malnutrition is among the worst in South Asia (together with Nepal and Bangladesh). Even the best states in India, Kerala, has a rate of child malnutrition comparable to that for Africa's average rate. Even more worrying is the fact that the rate of malnutrition, defined as underweight children relative to an internationally accepted reference population, has not declined significantly over the last decade and a half. In 1992-93 (NFHS-1)[1] it was 54%; in 1998-99 (NFHS-2)[2], it was 46%, and in 2005-06 (NFHS-3)[3] it was 46% - hardly any change over a period in which the economy has been growing at over 6% p.a. on average. Naturally, given the increase in population, the number of malnourished is likely to have actually increased.

Bihar, Jharkhand, MP, Chhatisgarh, and UP are the states with malnutrition rates well above the national average of 46% (Annexure A). Some of these states have actually seen an increase in the share of malnourished children in the 03 year-old child population between 1998-99 (NFHS-2) and 2005-06 (NFHS-3). A

Table 1:Trends in Childhood (0-3 Years of Age) Malnutrition in India

Nutritional Parameter	1992-93 NFHS-1	1998-99 NFHS-2	2005-06 NFHS-3
Stunted	52.0	45.5	38.4
Wasted	17.5	15.5	19.1
Underweight	53.4	47.0	45.9

Note: Figure of NFHS-1 above are for 0-4 years. However, NFHS-1 later generated data for below 3 years children with 51.5% children being underweight. *Source:* NFHS surveys, IIPS.

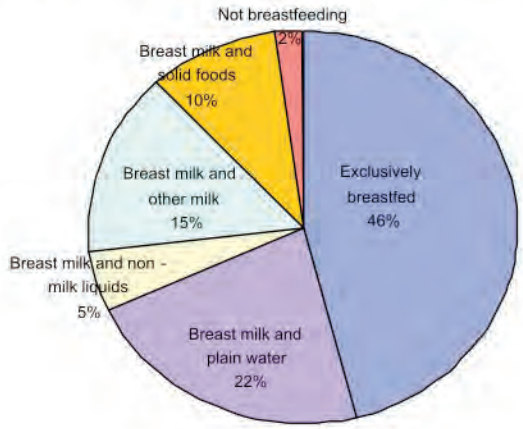
concerted effort is planned, therefore, in the Eleventh Five Year Plan[5] to reduce the child malnutrition rate in each state to the extent identified in Annexure A.

Improper feeding practices and diarrhoeal disease are important determinants of malnutrition. The Government of India recommends that children should be exclusively breastfed for the first six months of life (that is, they should be given only breast milk with no other liquids or food).[4] There are many reasons for recommending exclusive breastfeeding for the first six months. First, breast milk is nutritionally superior to other liquids and solid foods. Second, when a child consumes other liquids and solid foods, the intake of breast milk is reduced, which in turn decreases the mother's supply of milk. Third, feeding young infants liquids and solid foods increases their exposure to pathogens, putting them at greater risk of contracting diarrhoeal disease.

In India, the introduction of liquids and solid or semi-solid foods often takes place before the recommended age of six months. Less than half of children under six months of age are exclusively breastfed (Figure 3).

Exclusive breastfeeding drops to only 28 percent for children aged 4-5 months.

Figure 3: Feeding Practices of Infant Under Six Months



In addition to breast milk, 22 percent of children under six months of age are given plain water, 15 percent are given milk, 5 percent are given liquids other than water or milk, and 10 percent are given solid or semi-solid food. Only 2 percent of infants under six months of age are not being breastfed.

The ICDS, which has been in existence for over three decades, was intended to address the problem of child and maternal malnutrition, but has clearly had limited impact *(MOWCD, 2006)*.[4,5] Child malnutrition has barely declined at all in a decade and a half, anaemia among women and children has actually risen (Annexure B) and a third of all adult

women were undernourished at the end of 1990s and also in 2005-06. It has also had limited coverage. Therefore, the answers are increasing coverage to ensure rapid universalization; changing the design; and planning the implementation in sufficient detail that the objectives are not vitiated by the design of implementation. Besides, all its original six services have to be delivered fully for the programme to be effective: (i) supplementary nutrition programme (SNP), (ii) immunization, (iii) health check-up, (iv) health and nutrition education, (v) referral services, and (vi) pre-school education (PSE).

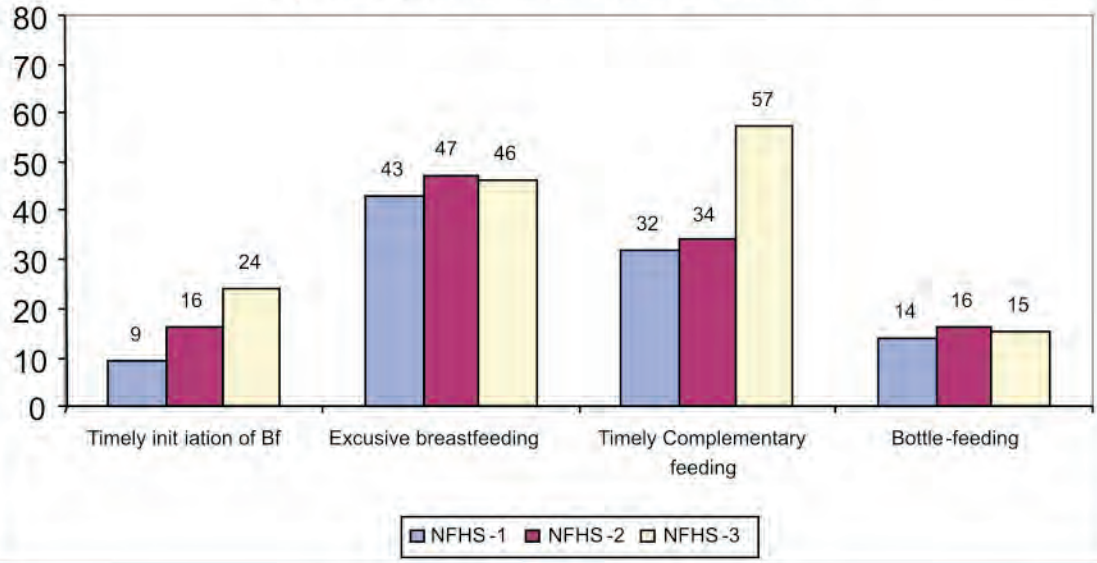
First, the ICDS has to be universalized. Second, the current scheme does not focus on 03 year children. But malnutrition sets in utters and is likely to intensify during the 03 year period, if not addressed. In fact, this window of opportunity never returns in the lifetime of the child. A child malnourished during 03 years will be marred physically and mentally for life. The design of the scheme has to address this problem frontally. This has several implications:

- Mother's malnutrition and its knock-on effects on child malnutrition: Malnutrition begins in utero, as Indian mothers on average put on barely 5 kg of weight during pregnancy.[6] This is a fundamental reason underlying the LBW problem. They should put on at least 10 kg of weight, which is the average for a typical African woman. Middle class Indian women tend to put on well over 10 kg weight during pregnancy. But this is not the only problem; LBW is also partly explained by low BMI of women in general, prior to their becoming pregnant. Small women (who are small before they become pregnant) give birth to small babies. In 1998-99 as much as 36% of all Indian women (48% in Orissa and Chhattisgarh) had a below normal BMI; the share had barely dropped to 33% in 2005-06 (according to NFHS-3).[3]
- Breastfeeding in the first hour: Within the first hour of birth, the infant must be breastfed. Only 23% of Indian babies were breastfed within the first hour (in 2005-06).[3] If Indian mothers enhance early initiation of breastfeeding within one hour, we can save 250000 babies from death annually by just this action; this would reduce the overwhelming share of neonatal mortality in our IMR (Planning Commission, (2007-12).[6]
- Exclusive breastfeeding for six months is necessary to avoid unnecessary infections to the baby, develop the baby's immunity, and ensure growth. Only 46% of Indian babies are exclusively breastfed; the remaining half is exposed to unhygienic methods of feeding (see Annexure B).
- Solid food six months on. The baby must begin to receive solid, mushy food at 6 months (i.e. together with breastfeeds) for the baby to continue to grow in the way nature intended her to grow. Only 56% of mothers introduce appropriate solid, mushy food in a timely manner after 6 months. Not surprising that NFHS-2 data shows that the proportion of underweight children rises from 16% to more than 60% between the ages of 6 months and 2 years. This malnutrition also affects the mental

development of the child for life. About 90% of the development of the brain takes place before a child reaches the age of two years (see Annexure B).

after birth. It is also recommended that children should not be given anything to drink or eat before the initiation of breastfeeding, not even plain water.

Figure 4: Trends of breastfeeding indicators



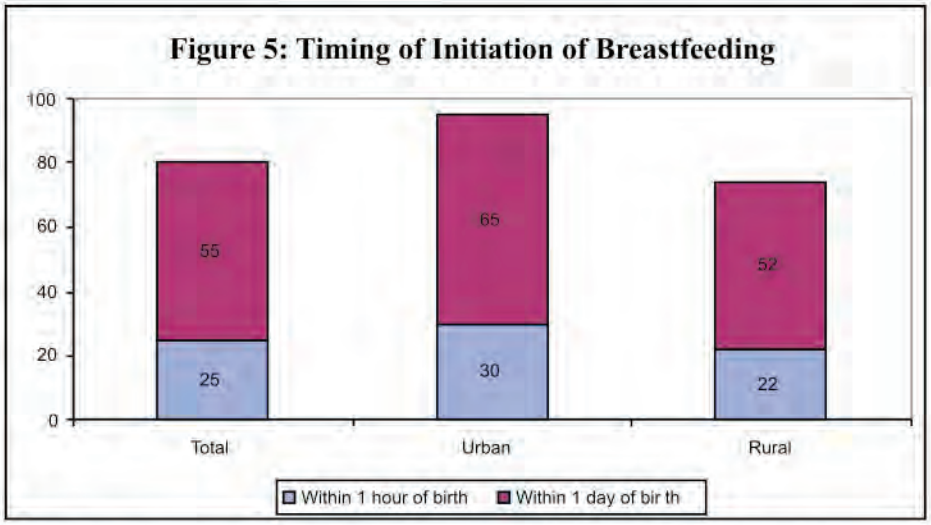
The Government of India recommends that breastfeeding should begin immediately after childbirth, preferably within one hour of delivery. It is important to breastfeed the child right after birth because the first breast milk (called colostrum) is highly nutritious and contains antibodies that help protect the newborn child from diseases.[4] Although almost all children in India have been breastfed (96 percent), breastfeeding typically begins much later than recommended (Figure 4). Overall, only one-quarter of children are breastfed within the first hour of birth and slightly more than half are breastfed within one day of birth. Although the early initiation of breastfeeding is more common in urban areas than in rural areas, even in urban areas, 7 out of every 10 children are not breastfed within the first hour

However, most mothers (57 percent) gave their babies something other than breast milk to drink in the first three days after birth. The most common "prelacteal" liquid given to babies is milk other than breast milk, followed by honey, sugar or glucose water, and plain water. Honey is often given to the baby as part of a blessing ceremony. Contrary to recommendation, most mothers squeeze the colostrum from their breasts. Infant and young child feeding indicators and trends across three surveys (Figure 4) shows the breast feeding according to age in 2005-6 and Table 2 the frequency of different indicators in three surveys. Although timely initiation of breast feeding significantly increased from 9 to 24 % over 14 years, it is still suboptimal. Exclusive breast feeding (EBF) rates and bottle feeding rates were unchanged.

Timely complimentary feeding increased so substantially in the last survey raising questions about the difference in methodology of estimating this indicator between surveys (Figure 5).

as is recommended, and almost half (45 percent) did not start breastfeeding within one day of birth. Most mothers (57 percent) gave their last-born child something to drink other than breast milk

Figure 5: Timing of Initiation of Breastfeeding



Note: The estimates are based on last-born ever-breastfed children in the last five years whether the children are living or dead at the time of the survey.

While breastfeeding is nearly universal in India, very few children are put to the breast immediately after birth. Only one-quarter of last-born children who were ever breastfed started breastfeeding within half an hour of birth, in the three days after delivery. Only 69 percent of children under two months of age were exclusively breastfed. Exclusive breastfeeding drops to 51 percent at 2-3 months of age and 28 percent at 4-5 months of age.

Table 2 : Comparison of breastfeeding indicators among children 0 -23 months of age in India

Indicators	NFHS-1		NFHS-2		NFHS-3	
	Rate(%)	95 % CI	Rate (%)	95 % CI	Rate (%)	95 % CI
Timelyfirst-suckling rate[a]	9.3	8.6-10.1	15.8	14.9-16.8	23.5	22.3-24.8
Current breastfed rate [b]	90.0	89.5-90.5	90.9	90.4-91.4	89.8	89.2-90.4
Ever breastfed rate[a]	98.8	98.5-99.0	98.9	98.7-99.1	99.2	99.0-99.4
Continued breastfeeding rate (1 year)[d]	89.1	87.9-90.2	90.3	89.1-91.4	89.4	87.9-90.7
Continued breastfeeding rate (2 year)[e]	73.1	71.1-75.0	75.3	73.2-77.3	73.1	70.9-75.3

Exclusive breastfeeding rate[c]	43.4	41.4-45.3	46.8	45.0-48.5	46.4	44.4-48.5
Predominant breastfeeding rate[c]	31.4	29.8-33.1	27.5	25.9-29.1	27.4	25.6-29.3
Full breastfeeding rate[c]	74.8	73.2-76.2	74.2	72.7-75.6	73.9	72.1-75.5
Bottle –feeding rate[a]	14.0	13.2-14.9	15.8	14.9-16.7	14.8	13.8-15.9
Timely complementary feeding rate[f]	31.5	29.8-33.3	34.0	32.1-35.9	56.7	54.4-59.0
Note : a- Infant under 12 months; b -Children under 24 months; c -Infant below 6 months; d-Children 12-15 months; e - Children 20-23 months f- Infant 6-9 months Sources: NFHS Surveys.						

Overall, slightly less than half of children under six months of age are exclusively breastfed. At age 6-8 months, only about half of children 53 percent are given timely complementary feeding (breast milk and complementary food). The timely complementary feeding rate increases to 74 percent at age 9-11 months and 81 percent at age 12-17 months. Use of bottles with nipples is not common in India. Bottle feeding increases from 5 percent under age two months to 18 percent at age 9-11 months and declines at older ages. It is recommended that breastfeeding children age 6-23 months be fed from three or more different food groups, infants age 6-8 months be fed at least twice a day, and children age 9-23 months be fed at least three times a day. No breastfeeding children age 6-23 months should be fed milk or milk products every day; in addition, they should be fed from at least four food groups, and they should be fed four or more times a day. NFHS-3 finds that only 44 percent of breastfed children are fed at least the minimum number of times recommended and only half of them also consume food from three or more food groups. Feeding recommendations are followed even less often for no breastfeeding children. Overall only 21 percent of breastfeeding and no breastfeeding children are fed according to the infant and young child feeding recommendations.

Multivariate Analyses

Multivariate analysis is necessary to identify some of the key determinants of nutritional deficiencies in children. NFHS-3 provides a rich set of data on factors that may be reflected to poor nutritional status. The determinants of chronic undernutrition and acute undernutrition are likely to differ to some extent, so a multivariate analysis of the determinants of all three standards indicators of nutritional status would be required to obtain a complete picture of factors affecting the nutritional status of young children. In this paper, I include an illustrative analysis of the determinants of low Height-for age and low weight-for age, which takes into account both chronic and acute malnutrition.

The effect of the sex of the child on the nutritional status is assessed in two different models. In the first, the effect of the sex for the likelihood of low weight-for age is modeled, taking into account various demographic and socioeconomic characteristics. In the second, the dependent variable is the odds of having a

low height-for-age as comparing with normal height-for-age. Both models control for the effect of a number of demographic and socioeconomic variables. The results are presented in Tables 3 and 4. The odds ratios indicate that in India girls are more likely to be underweight (OR=0.864) and stunted (OR=0.987). In both models, a preceding birth interval of more than 24 months is associated with lower odds of being underweight and stunted. Fathers' education, young age of mother at the time of childbirth (20-29 years) and rural residence is also associated with lower odds of being underweight. In both models, the higher age of child (12-23 and 24-35) is associated with its being underweight and stunting. This may be due to the positive effect of breastfeeding on the nutritional status of children.

Table 3: Logistic Regression Analysis of the Low Height-for Age as a function of selected Explanatory Variables

Variables	B	Exp(B)	S.E.	95.% Confidence Interval
Sex of child				
Male	.000	1.000		
Female	-.146	.864**	.032	.812-.919
Birth order				
1	.000	1.000		
2-3	.238	1.268**	.048	1.154-1.394
4+	.383	1.466**	.053	1.322-1.625
Birth interval				
First birth	.000	1.000		
Else	-.165	.848**	.039	.786-915
Age of Mother				
<19	.000	1.000		
20-29	-.185	.831**	.035	.776-.890
30+	-.147	.863	.184	.602-1.238
Mother education				
Illiterate	.000	1.000		
Literate	-.323	.724**	.040	.670-.783
Father education				
Illiterate	.000	1.00		
Literate	.015	1.015	.038	.943-1.093
Mother work status	.000	1.000		
Not working	.051	1.053	.034	.985-1.126
Working				
Caste				
Sc/St	.000	1.000		
Else	-.148	.863**	.039	.799-.931
Religion				
Hindu	.000	1.000		
Muslim	.037	1.037	.045	.949-1.133
Other	-.104	.902	.082	.767-1.060

Place of residence				
Rural	.000	1.000		
Urban	.017	1.017	.047	.927-1.115
Standard of Living Index				
Low	.000	1.000		
Medium	-.099	.906	.038	.841-976
High	-.531	.588**	.055	.527-655
Source of drinking water				
Good	.000	1.000		
Bad	-.052	.950	.045	.869-1.038
Toilet facility				
No facility	.000	1.000		
Having facility	.215	1.239	.047	1.131-1.359
Radio				
Not expouse	.000	1.000		
Expouse	-.031	.969	.034	.906-1.037
Television				
Not expouse	.000	1.000		
Expouse	-.171	.843**	.039	.781-.910
Age of Child				
<11	.000	1.000		
12-23	1.195	3.302**	.046	3.018-3.613
24-35	1.281	3.599**	.045	3.292-3.935
Note:*p<0.05, **p<0.00				

Table 4: Logistic Regression Analysis of the Low Weight-for Age as a function of selected Explanatory Variables

Variables	B	Exp(B)	S.E.	95.% Confidence Interval
Sex of child				
Male	.000	1.000		
Female	-.013	.987	.036	.921-1.059
Birth order				
1	.000	1.000		
2-3	.147	1.158	.056	1.038-1.292
4+	.347	1.415**	.059	1.260-1.590
Birth interval				
First birth	.000	1.000		
else	-.088	.915	.044	.840-.998
Age of Mother				
<19	.000	1.000		
20-29	-.098	.906	.039	.839-.979
30+	-.425	.654	.247	.403-1.060

Mother education				
Illiterate	.000	1.000		
Literate	-.389	.678**	.046	.620-742
Father education				
Illiterate	.000	1.000		
Literate	-.030	.970	.041	.895-1.052
Mother work status				
Not working	.000	1.000		
working	.107	1.113*	.038	1.033-1.199
Caste				
Sc/St	.000	1.000		
else	-.022	.978	.044	.898-1.066
Religion				
Hindu	.000	1.000		
Muslim	-.060	.941	.052	.851-1.041
Other	-.115	.891	.096	.739-1.075
Place of residence				
Rural	.000	1.000		
Urban	-.010	.990	.056	.888-1.104
Standard of Living Index				
Low	.000	1.000		
Medium	-.158	.854**	.042	.787-..927
High	-.604	.546**	.065	.481-.621
Source of drinking water				
Good	.000	1.000		
bad	-.005	.995	.050	.903-1.097
Toilet facility				
No facility	.000	1.000		
Having facility	.310	1.364**	.055	1.224-1.520
Radio				
Not expouse	.000	1.000		
Expouse	.011	1.011	.039	.936-1.091
Television				
Not expouse	.000	1.000		
Expouse	-.274	.761**	.044	.697-.830
Age of Child				
<11	.000	1.000		
12-23	.426	1.531**	.046	1.399-1.675
24-35	.442	1.556**	.046	1.423-1.702
Note:*p<0.05, **p<0.00				

The odds ratios decline sharply with the education of the mother and particularly with household wealth. Rural children are slightly less likely than urban children to be underweight with all other factors controlled for. Compared with scheduled-caste children, children from scheduled tribes are more likely to be underweight, and children from other backward classes and other castes/ tribes are less likely to underweight. Finally, the risk of being underweight is not significantly related to the sex of the child, the source of drinking water, the type of toilet facility or whether the child was sick with acute respiratory infection in the two weeks before the survey. The overall analysis indicates that undernutrition in young children is most strongly related to socio-economic factors, and to a lesser extent to demographic factors.

DISCUSSION

In India, breast feeding is culturally well accepted but inadequately practiced, partly due to ignorance and partly due to economic compulsions. Lack of knowledge, prevailing misconceptions and cultural taboos significantly contribute to undesirable breast feeding practices such as delayed initiation and discarding of colostrum. On the other hand, poor economic conditions compel women to resume agricultural and other allied activities soon after delivery, forcing them to leave behind the infant at home, which adversely affects adequate breast feeding.

Therefore there is need to educate the women about the importance of correct breast feeding practices as well as create an enabling environment for practicing the same. There is also need of support right from household level to the community at large, in facilitating the same. The following approaches could be adopted (WHO, 2008)[7]:

- Educate women right from pregnancy itself about the importance of consuming adequate diet during pregnancy, initiation of breast feeding soon after delivery, feeding of colostrums' and exclusive breast feeding up to six months.
- The adolescent girls, the 'would be mothers' should also be educated and used as change agents in the community.
- Empower grass root workers like AWWs and ASHA workers, with adequate knowledge to educate women and adolescent girls about proper breast feeding and child rearing practices.
- Encourage community to establish and run crèches, wherever possible, near to workplaces, where women can come breast feed their children, taking a break from work.
- Provision of monetary compensation to women by the government, to encourage them to stay at home to take care of the infant, at least upto first six months.

In India the National Family Health Survey-3 (2005-2006)[3], reveals that only 23.4% children under 3 years are breastfed within one hour of birth compared to 16.1% children and only 46.3% children in the age group 0-5 months are exclusively breastfed. Although there is a marginal improvement of 7.4% in the early initiation of breastfeeding as compared to NFHS-2, this figure is no where near to the national targets, as proposed by the Ministry of Women and Child Development in 2006[8]. We have an opportunity now. Under Janani Suraksha Yojna (JSY) of the Government of India, monetary incentive is being given to the mothers to have delivery at a health care facility. Health care providers must counsel mother not to give prelacteal feed and initiate breastfeeding with in one hour of birth. Similarly on subsequent contacts health personnel must counsel mother to practice exclusive breastfeeding and refrain from giving post lacteal feeds. Similarly under National Rural Health Mission women-Accredited Social Health Activists (ASHA) are being employed to look after pregnant mothers. She must ensure that mother initiates breastfeeding soon after delivery before leaving. On subsequent home visits by ASHA the care of the parturient mother must include breastfeeding. ICDS Anganwadi workers can also make a very good resource for implementing breastfeeding policy in the community. Both ASHA and Anganwadi workers must receive pre-service/in-service training in 'infant and young child feeding counselling' to be able to help women for breastfeeding. Remember breastfeeding has to be started with in one hour of birth, exclusive breastfeeding should be done for first six months and then breastfeeding should continue for at least 2 years or beyond. Breastfeeding, therefore, needs promotion by the health care system.

CONCLUSION

This paper provides clear evidence of the poor state of nutrition among young children, and women in India and lack of progress over times, based on measurements of height and weight, utilization of nutrition programmes, and information on child feeding practices. Young children in India suffer from some of the highest levels of stunting, underweight, and wasting observed in any country in the world. The percentage of children under age five years who are underweight is almost 20 times as high in India as would be expected in a healthy, well-nourished population and is almost twice as high as the average percentage of underweight children in sub-Saharan African counties. Although poverty is an important factor in the poor nutrition situation, nutritional deficiencies are widespread even in households that are economically well off. Inadequate feeding practices for children make it difficult to achieve the needed improvements in children's nutritional status, and nutrition programmes have been unable to make much headway in dealing with these serious nutritional problems.

Breast feeding in India is almost universal, however the rates of early initiation, exclusive breast feeding and timing complementary feeding are well below desirable targets and need improvement. Although health facility delivery and higher household wealth quintiles were associated with early initiation, they were also associated with bottle feeding and less exclusive breastfeeding. Babies delivered by caesarean sections were least likely to receive timely first suck and most likely to be bottle fed. There is strong evidence supporting exclusive breastfeeding for the first four to six months and strong evidence indicating that the stunting and severe stunting risk is reduced if mother does not squeeze the colostrums from her breasts, solids and mushy food are given at about seven months, and the child does not drink from a bottle with a nipple.

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Annexure A Malnutrition of Children (0-3 Years), by State			
S.No.	State	Current Level of Wt-for age below-2 SD	Eleventh Plan Goal-redn. by 50%
1.	Andhra Pradesh	36.5	18.3
2.	Arunachal Pradesh	36.9	18.5
3.	Assam	40.4	20.2
4.	Bihar	58.4	29.2
5.	Jharkhand	59.2	29.6
6.	Goa	29.3	14.7
7.	Gujarat	47.4	23.7
8.	Haryana	41.9	21.0
9.	Himachal Pradesh	36.2	18.1
10.	J& K	29.4	14.7
11.	Karnataka	41.1	20.6
12.	Kerala	28.8	14.4
13.	MP	60.3	30.2
14.	Chattisgarh	52.1	26.1
15.	Maharashtra	39.7	19.9
16.	Manipur	23.8	11.9
17.	Meghalaya	46.3	23.2
18.	Mizoram	21.6	10.8
19.	Nagaland	29.7	14.9
20.	Orissa	44.0	22.0
21.	Punjab	27.0	13.5
22.	Rajasthan	44.0	22.0
23.	Sikkim	22.6	11.3
24.	Tamil Nadu	33.2	16.6
25.	Tripura	39.0	19.5
26.	U.P	47.3	23.7
27.	Uttarakhand	38.0	19.0
28.	West Bangal	43.5	21.8
29.	Delhi	33.1	16.6
	India	45.9	23.0

Note; 1, Figures for current level are that NFHS 2005-06.
2. For State level figures, pro-rata reduction has been applied on the basis of targeted reduction at All India level. Figures for other States are not available.
Source: NFHS- 2005-06[3].

Annexure B State-wise Malnutrition Rate of Children in Various Age Groups			
State	Children age 0-5 months exclusively breasted (%)	Children age 6-9 months receiving solid or semi-solid food and breast milk (%)	Children under 3 years who are underweight (%)
India	46.3	55.8	45.9
Andhra Pradesh	62.7	63.7	36.5
Arunachal Pradesh	60.0	77.6	36.9
Assam	63.1	59.6	40.4
Bihar	27.9	57.3	58.4
Chattisgarh	82.0	54.5	52.1
Delhi	34.5	59.8	33.1
Goa	17.7	69.8	29.3
Gujarat	47.8	57.1	47.4
Haryana	16.9	44.8	41.9
Himachal Pradesh	27.1	66.0	36.2
J& K	42.3	58.3	29.4
Jharkhand	57.8	65.3	59.2
Karnataka	58.0	72.5	41.1
Kerala	56.2	93.6	28.8
Maharashtra	53.0	47.8	39.7
MP	21.6	51.9	60.3
Manipur	61.7	78.1	23.8
Meghalaya	26.3	76.3	46.3
Mizoram	46.1	84.6	21.6
Nagaland	29.2	71.0	29.7
Orissa	50.2	67.5	44.0
Punjab	36.0	50.0	27.0
Rajasthan	33.2	38.7	44.0
Sikkim	37.2	89.6	22.6
Tamil Nadu	33.3	77.9	33.2
Tripura	36.1	59.8	39.0
U.P	51.3	45.5	47.3
Uttarakhand	31.2	51.6	38.0
West Bangal	58.6	55.9	43.5

Source: NFHS-3 (2005-06)[3]; GOI (*Planning Commission*)[6].

NUTRITIONAL STATUS OF GOND TRIBE SPORTS PERSON OF CHHATTISGARH

Abhaya Joglekar, C.D. Agashe***

Abstract: *Assessment of the nutritional status was carried out among 400 Gond tribe sports person, aged 11-18 years. In this cross-sectional study, 24-hours dietary recall method was used to assess dietary intakes of children. Heights and weights of children were classified by WHO criterion (Z-score) using anthropometric indices i.e. weight for age, height for age and weight for height. Mean energy and protein intake per day were measured and compared with Recommended Dietary Allowances (RDA) of Indian standards. More than 90%of the subjects were found to be normal on z scores (zwt, zht). The mean, Z score (wt, ht) for the age group of 11 years (boys and girls) was between the range of 0 to-1, which is considered as a normal (>90%), where as rest of the results were normal. The mean weight and height for boys of all the age group was higher than girls of same age groups, except 11 and 12 year girls' weight. While comparing present results with standards it was lower than ICMR and NCHS standards. While screening for sickle cell anemia, it was found 15.74 %(63) HbAS (sickle cell traits). The consumption of energy and protein were also much lower among Gond sports children than the RDA of India throughout the ages. Under nutrition in the form of underweight, stunting and wasting and low consumption of dietary intake (energy and protein) was found prevalent among Gond tribal sports children. Therefore, an urgent reformation of the current dietary intervention programme is necessary. Further follow up studies are required to investigate the problem and to supplement the key nutrients which are required to ensure a good nutritional status as well as physical fitness in children.*

INTRODUCTION

Nutritional status is a major determinant of health status among children. In developing countries including India, more than 40% children are malnourished and it is mainly due to inadequate diet in relation to their other needs. In India children live in the backward area and drought-prone areas, urban slums and those belonging to socially backward groups like schedule caste and schedule tribe community are highly susceptible to undernutrition.[1-4] The condition is worst among schedule tribe communities. Most of the tribal people of India have their own way of life style; they have their own sociocultural and other activities which may lead to high proportion of malnutrition. Assessment of nutritional status plays an important role in development. Anthropometric measurements are the best indicators for assessment of nutritional status.[5] It is highly sensitive to detect under nutrition, while much of the global childhood stunting is a result of protein-calorie malnutrition. Undernutrition is assessed by dietary surveys. In India, majority of the tribal people show high prevalence of child malnutrition, but there is hardly any study available among the Gond tribal children of Chhattisgarh. Sickle cell disease (SCD) (HbSS) is an autosomal

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recessive genetically transmitted hemoglobinopathy, responsible for considerable morbidity and mortality. It is prevalent in many parts of India including Central India. Sickle cell anaemia is prevalent in primitive tribes of Assam, M.P, Maharashtra, Orissa, Bihar, Jharkhand and Chhattisgarh states with the frequency ranging from 9-34%.[6,7]

The tribe: The newly born Chhattisgarh state is considered as a tribal state. As per 1991 census 57 lakhs (32.5%) population belongs to tribes. There are 42 tribes in Chhattisgarh, out of them the Gond form the largest proportion (55.1%). Other tribes like Oroan, Bhattras and Napesias are also present in substantial percent. The Gond tribe is concentrated in hilly areas of south Chhattisgarh, isolated and far from civilization. Majority of them have poor health status, peculiar health needs and a wide prevalence of red blood cell genetic disorders that complicates their health problems. As the majority of these tribes living in the remote forest areas remain isolated, untouched by civilization, they are largely unaffected by the developmental processes going on in the rest of the state. Therefore, these groups remain backward, particularly in health, education and socio-economic aspects. In Chhattisgarh, according to the survey of Red Cross Society, the frequency of SCD (sickle cell disorder) is 15.47% and the frequency of sickle cell disease (HbSS) is only 1.27%. It is predominantly found in Sahu, Kurmi, Satnami, Gond and Mahar. According to the survey, SCD is found to be 22% in OBC (other backward class) and ST(schedule tribe), in tribal it is found 18.6%, in SC(schedule caste) it is 14.7% and in rest of communities it is 2-8 %.[8]

Keeping this in view the purpose of the present study is to find out the prevalence of sickle cell anaemia and nutritional status of the Gond tribe sports person of Chhattisgarh.

OBJECTIVES

To study the effect of sickle cell anaemia on motor fitness of Gond tribe sports person. To study the prevalence of sickle cell anaemia among Gond tribe sports person. To assess the nutritional status of Gond tribe sports person.

METHODS

The sample - The sample for the present study was collected from 12 tribal sports hostels from Raipur, Durg, Rajnandgaon, Sarguja, Bastar, Kanker, Korba and Ambikapur districts of Chhattisgarh. Out of 12 hostels, 7 were for boys and 5 for girls. Each hostel had a capacity of 100 students, therefore a sample of 400 Gond tribe sports person (218 boys and 182 girls) aged 11-18 years were selected randomly for the present study.

The details of parisars selected are as under

Name & address of the parisars	Status	No. of samples drawn
1 Kanker kridaparisar	Girls	85
2 Ambagard chauki	Girls	51

3	Ambikapur parisar	Girls	40
4	Dharampura kridaparisar	Boys	60
5	Dondi parisar	Boys	72
6	Manendragarh	Boys	42
7	Pendra	Boys	32
8	Other Shiksha parisar	Boys Girls	18
	Total students		400

Age estimation

The age of the children was ascertained from the school registers and subsequently confirmed by the teachers. Ages of most of the children were calculated and cross-checked. The age of the child was recorded in complete years. For analysis of the data the age grouping was done according to the age at the last birthday. All the children who had completed 11 years but less than 12 years were grouped as 11 years and likewise age group was calculated.

Anthropometric measurements

To conduct the study following tools were used to measure as an indicator of health status-anthropometric dimensions (Weights (kg) and heights (m)). Weight was measured by using beam balance, bare footed nearest to 100 gms. Weight was measured thrice and then mean was taken. Height was marked in feet and inches on the wall of kreeda parisar then it was measured using a stretchable tape, bare footed nearest to 1 cm. [5] The assessment of nutritional status of all the children was done according to WHO criteria.

Cut-offs for the z scores Classification*

Weight for age/hfa	Z scores
90%	-1 Z-score
80%	-2 Z-score
70%	-3 Z-score (approx.)
70-60%	-4 Z-score (approx.)

*WHO Growth chart 2007 [5]

Classification of malnutrition according to WHO*

	< -1 to > -2 Z-score	Mild malnutrition
WHO	< -2 to > -3 Z-score	Moderate malnutrition
	< -3 Z-score	severe malnutrition

*WHO Growth chart 2007 [5]

Dietary Survey

The dietary survey was carried out as prescribed by Brahmam (2007).[9] The above method was used to assess dietary intake of the all, as in the hostel the amount of the food for each sports person is fixed by the department. The total cooked food volume of the week was recorded. The quantity of food consumed by all, and the number of persons were recorded. Information was also recorded for the quantity of left-over food. The energy and protein content of diet was calculated using food composition table.[10]

RESULTS

The nutritional anthropometric indices were calculated using reference median as recommended by NCHS and classified according to standard deviation units (termed as Z- scores) based on WHO criterion.[5] Children who were more than two standard deviation below the reference median (<-2 SD) were considered as underweight (weight for age) although weight for age has been unreliable and therefore not included in the analysis, stunted (height for age) and wasted (weight for height) respectively. Mean intake of energy and protein was calculated individually and grouped according to ages and finally compared with Recommended Dietary Allowances (RDA).[10] All the data was statistically analyzed using SPSS programme.

Table 1: Distribution of the children according to their mean weight and height

Boys				Girls		
N	Mean weight ± sd	Mean Height ± sd	Age	N	Mean Weight ±sd	Mean Height ±sd
18	31.417±6.3991	1.406±1.09444	11	12	33.04167±8.6352	1.385833±1.41741
18	38.278±7.6451	1.4706±.09026	12	19	39.02632±5.7312	1.461053±.008173
35	41.829±5.8986	1.5334±.09456	13	49	41.14286±4.6447	1.501837±.00539576
41	47.098±5.4167	1.5146±.24712	14	50	43.06±4.9955	1.5016±1.90781578
53	52.047±4.6701	1.5758±4.6701	15	37	44.94595±4.6305	1.534324±.00498181
38	53.355±5.33	1.6037±.05450	16	11	48.40909±.06885	1.56±.0064276
13	52.077±5.5784	1.6100±.06583	17	04	45.87± .09192	1.52±.00883635
02	58.750±1.7678	1.5850±.09192	18	00	----	-----
Total 218	46.927±8.7000	1.5418±.14061		Total 182	42.23 ±6.0922	1.500± 0.075537

Table 2: Anthropometric measurements of both the sexes between 11-18 years (mean wt, ht, Z-wt, Z-ht)

	Age(years)	wt	ht	Z score(wt)	Z score(ht)
11	Mean	32.067	1.3980	-1.5968751	-.0673203
	N	30	30	30	30
	SD	7.2762	.10025	.91322356	.01387650
12	Mean	38.662	1.4657	-.7690903	-.0579531
	N	37	37	37	37
	SD	6.6459	.08777	.83410564	.01214800
13	Mean	41.429	1.5150	-.4218849	-.0511260
	N	84	84	84	84
	SD	5.1811	.07642	.65027276	.01057723
14	Mean	44.879	3.0958	.0111853	.1676794
	N	91	91	91	91
	SD	5.5414	15.14783	.69549164	2.09664540
15	Mean	49.128	1.5588	.5444241	-.0450667
	N	90	90	90	90
	SD	5.8105	.07468	.72925838	.01033666
16	Mean	52.245	1.5939	.9356464	-.0402084
	N	49	49	49	49
	SD	4.7851	.06013	.60056550	.00832306
17	Mean	50.618	1.5906	.7314140	-.0406637
	N	17	17	17	17
	SD	5.7351	.07894	.71980057	.01092570
18	Mean	58.750	1.5850	1.7520862	-.0414372
	N	2	2	2	2
	SD	1.7678	.09192	.22186820	.01272339
Total	Mean	44.790	1.5230	.0000000	.0000000
	N	400	400	400	400
	SD	7.9676	.1173	1.00000000	1.00000000

Table 3: Anthropometric measurements of girls between 11-18 years (mean wt, ht, Z -wt, Z-ht)

	age (year)	wt	ht	Z score(wt)	Z score(ht)
11	Mean	33.042	1.3858	-.0848539	-1.5083378
	N	12	12	12	12
	SD	8.6352	.11156	.01041481	1.41741415
12	Mean	39.026	1.4611	-.0778314	-.5259924
	N	19	19	19	19
	SD	5.7312	.08755	.00817390	.94074083
13	Mean	41.143	1.5018	-.0740238	-.1785744
	N	49	49	49	49
	SD	4.6447	.05780	.00539576	.76239482
14	Mean	43.060	1.5146	.1958383	.1361134
	N	50	50	50	50
	SD	4.9955	.2471	1.90781578	.81999033
15	Mean	44.946	1.5343	-.0709908	.4456805
	N	37	37	37	37
	SD	4.6305	.05336	.00498181	.76006808
16	Mean	48.409	1.5600	-.0685937	1.0141356
	N	11	11	11	11
	SD	4.4092	.06885	.00642760	.72374202
17	Mean	45.875	1.5275	-.0716279	.5981793
	N	4	4	4	4
	SD	3.4248	.09465	.00883635	.56215889
Total	Mean	42.231	1.500	.0000000	.000000
	N	182	182	182	182
	SD	6.0922	.0755	1.00000000	1.00000000

Table 4: Anthropometric measurements of boys between 11-18 years (mean wt, ht, Z -wt, Z-ht)

	Age (year)	Wt	Ht	Z score(wt)	Z score(ht)
11	Mean	31.417	1.4061	1.7827464	.9649394
	N	18	18	18	18
	SD	6.3991	.09444	.73552703	.67166993
12	Mean	38.278	1.4706	-.9941152	-.5066113
	N	18	18	18	18
	SD	7.6451	.09026	.87874576	.64192265
13	Mean	41.829	1.5334	-.5859792	-.0594592
	N	35	35	35	35
	SD	5.8986	.09456	.67799603	.67248121
14	Mean	47.098	1.5146	.0196500	-.1931249
	N	41	41	41	41
	SD	5.4167	.24712	.62260319	1.75754590
15	Mean	52.047	1.5758	.5885689	.2422348
	N	53	53	53	53
	SD	4.6701	.08277	.53679644	.58869341
16	Mean	53.355	1.6037	.7389240	.4401980
	N	38	38	38	38
	SD	4.3370	.05450	.49850426	.38757679
17	Mean	52.077	1.6100	.5919888	.4851158
	N	13	13	13	13
	SD	5.5784	.06583	.64119398	.46816833
18	Mean	58.750	1.5850	1.3590069	.3073162
	N	2	2	2	2
	SD	1.7678	.09192	.20319101	.65376149
Total	Mean	46.927	1.5418	.0000000	.0000000
	N	218	218	218	218
	SD	8.7000	.14061	1.00000000	1.00000000

Table 5: Nutrient consumption of Gond tribe sports person

Age(yr)	Calorie Exp.	Calorie RDA*		Protein Exp.	RDA*	
		Boys	Girls		Boys	Girls
10-12	2333	2190	1970	59.6	54	57
13-15	2333	2450	2060	59.6	70	65
16-19	2333	2640	2060	59.6	78	63

*nutrient requirements and recommended dietary allowances for Indians (ICMR1995)[10]

Table 6: Comparitive analysis of mean weight and height of boys with standards

Age (yrs)	Present study		ICMR*		NCHS**	
	Wt(kg)	Ht(mts)	Wt(kg)	Ht(mts)	Wt(kg)	Ht (mts)
11	31.417	1.4061	35.26	1.4335	32.2	1.40
12	38.278	1.4706	38.8	1.4891	37.0	1.47
13	41.829	1.5334	42.88	1.5494	40.9	1.53
14	47.098	1.5146	48.26	1.6170	47.0	1.60
15	52.047	1.5758	52.15	1.6533	52.6	1.66
16	53.355	1.6037	55.54	1.6840	58.0	1.77
17	52.077	1.6100	57.91	1.7300	62.7	1.75
18	58.750	1.5850	58.38	1.7205	65.0	1.77

* Nutrient Requirements and Recommended Dietary Allowances for Indians : (ICMR,publication 1995). **NCHS standards

Table 7: Comparitive analysis of mean weight and height of girls with standards

Age (yrs)	Present study		ICMR*		NCHS**	
	Wt(kg)	Ht(mts)	Wt(kg)	ht(mts)	Wt(kg)	Ht(mts)
11	33.042	1.3858	37.17	1.45	33.3	1.42
12	39.026	1.4611	42.97	1.50	38.7	1.48
13	41.143	1.5018	44.54	1.53	44.0	1.55
14	43.060	1.5146	46.70	1.55	48.0	1.59
15	44.946	1.5343	48.75	1.55	51.4	1.61
16	48.409	1.5600	49.75	1.56	53.0	1.62
17	45.875	1.5275	49.92	1.56	54.0	1.63
18	----	--------	49.92	1.56	54.4	1.64

* ICMR Standards **NCHS standards

Anthropometric measurements and dietary pattern were examined to determine the nutritional status of Gond tribe sports person between the age groups of 11-18 yrs. Table 1 shows the distribution of children according to mean weight and height. The overall mean weight and height of boys was better than girls in all age groups, except for the 11 and 12 years of age where girls' weight was found higher than boys. The highest prevalence of stunting was found in 11 years (- .06Zht) for both sexes, similar results were observed by Scott.,[11,12] while comparing both sexes it was observed that the prevalence of stunting was higher in girls of 11 years age (-1.5Zht).

Table 2 shows the mean weight and height and Z scores of all the subjects (400). The overall results indicate under nutrition in the age group of 11, 12 years, where the mean Z-scores were less than (-1.5968751) in the age group of 11 and (-0.7690903) in the age group of 12 years. Table 3 & 4 also shows that 14-18 year-old boys had significantly higher mean weight-for-age Z-scores (WAZ), height-for-age (HAZ). All the results indicate that children aged 11years were found to have suffered by underweight and stunting. Apart from few exceptions the overall results revealed that girls were more sufferer of under nutrition than boys. Table -5, shows the consumption of energy (kcal/day) and protein (gm/day) among the Gond sports persons. As all the subjects were residing in sports hostels, the food distributed to children was of same quality and quantity. The food was supplied by Govt. dept (tribal welfare department). Both boys and girls consumed lower amount of energy and protein than the RDA. [10] As in the present study, all the subjects were sports person and it is well known to every one that the requirement of sports person is higher than normal child. The amount of protein consumed in both the groups was lower than ICMR standards.

DISCUSSION

The overall results revealed that under nutrition in the form of protein calorie malnutrition was prevalent only in 11 and 12 years Gond tribe sports person. All the mean anthropometric parameters of girls were lower than boys. All the results were close to Indian standards but lower than international standards (Table-6,7). There should be immediate dietary modifications for the 11-12 yrs age group to improve the nutritional status. All the subjects were sports person as well as state or national player. So there is an urgent need of food supplementation under proper guidance. As the food was supplied by the govt. it was a fixed allotment of (Rs. 400) per child per month. Out of which Rs. 320 was for the food and Rs.80 for protein food. It should be revised and protein food should be supplied every day for their better performance in sports.

The study based on Saharia primitive tribe of Rajasthan reported the Similar results, with high of underweight and

stunting in 3-5yrs of age group.[4] NFHS (National Family Health Survey-II) also reported high prevalence of undernutrition among tribal children of orissa.[13] Similar results were also observed by Mitra among Kamar tribe children of chhattisgarh[14] and by Kate.[7]

CONCLUSION

This study was conducted during 2007-08, highlights the nutritional status of Gond tribe sports person suffer from under nutrition in the form of underweight and stunting. In our opinion this may be due to the inadequate diet which was supplied by the govt. There is an urgent need to modify the current grant as it was not sufficient to enhance the nutritional status of these sports persons.

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HERBAL MEDICINE FOR THE TREATMENT OF JAUNDICE AMONG THE PEOPLE OF CHHATTISGARH, INDIA

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Abstract: *Plants have traditionally served as men most important weapon against pathogens. Herbal medicines are widely used by all sections of the community, either as folk remedies or as medicaments in the indigenous as well as modern system of medicine. The present work was performed to enumerate the medicinal herbs that tribes and rural people uses for the treatment of jaundice. Data were collected by interviewing local traditional therapists and tribes of the region. Our study revealed that all above herbs and their formulations have been used since quite a long time by the tribes and rural people and no side/ adverse effects were reported.*

INTRODUCTION

India is warehouse of herbal medicines and there are evidences that herbs have been used in the treatment of various diseases for revitalizing body system in almost all ancient civilization. Medicinal plants are our local heritage with global importance. Herbal preparations viz., herbal tablets, herbal tonics, herbal shampoo, herbal cosmetics, herbal paste, herbal sindoor and herbal contraceptives have become popular among consumers. India is sitting on a gold mine of well-recorded and traditionally well-practiced knowledge of herbal medicine. Recently, considerable attention has been paid to utilizing ecofriendly and biofriendly plant-based products for the prevention and cure of different human diseases. The use of herbal medicine in the treatment of liver disorder has been in tradition from long back. The first literature to have reported on it was *Charaka Samhita* in 600 BC. The importance of herbal medicine in the treatment of liver disorder can be traced back to 2100 BC. Jaundice is caused due to raise level of bilirubin in blood serum. The colour of eye (Sclera) and skin become yellowish caused by higher level of bilirubin. But, till today no proven medicine has been developed for the treatment of jaundice. Various scientists and research fellows have documented the utilization of medicinal plants for treatment of jaundice; 19 species of 18 angiosperm families were used for the treatment of jaundice in tribal area of North Maharasthra.[1] Various polyherbal preparations and uses of herbal medicines are available for the treatment of jaundice and viral hepatitis in different region of country such as Himachal Pradesh, Vindhya, Malwa and Nimar region of Madhya Pradesh and Sivagangi district of Tamilnadu. [2-5] The aim of present

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work was to find out the herbs frequently used by the tribal and rural people of the study area in the treatment of jaundice. Special emphasizes were made to record the polyherbal formulation which they use in the treatment.

OBJECTIVES

- To collect and identify the herbs as well as herbal formulations used in treatment of jaundice from Chhattisgarh State of India.
- To explore the method of preparation of various herbal formulations with dose and duration.

METHODOLOGY

The present investigation has been carried out in 11 remote places of Chhattisgarh scattered over three regions (Northern Region, Central Plan and Southern Region). For appropriately and logical study, the study sites were selected bearing in mind the population and density of flora (Table 1). Knowledge about the herbs and formulations used in the treatment of jaundice was obtained from tribal and rural people.

different study sites of Chhattisgarh during April-2008 to August-2009.

During the field trips interview and group discussion were conducted by the author with the tribal and rural people. The information was collected from traditional healers such as *Baiga, Gunia, Sirha* and *Vaidhyas*. The information was verified by observation during field work and compare with the statements of other traditional medicine men and users of these medicines. The plants were identified with the help of standard floras; Flora of Madhya Pradesh, Floristic Diversity of Chhattisgarh (Angiosperms) and Flora of Raipur, Durg and Rajnandgaon. [6-11] The identification of plant was confirmed at the herbarium in the Botanical survey of India, Central Circle, Allahabad and Chhattisgarh State Minor Forest Produce, Raipur.

RESULTS

It has been realized that medicinal herbs are going to play a very important role in future health care system. Most of modern researches on herbal medicine have hinged around traditional folklore

Table1: Study sites

S.No.	Study Area	Name of Study Area
1.	Northern Region	Tuman, Keonchi, Ghatpendari, Kugargarh
2.	Central Plan	Chilpi, Panduka, Navagaon
3.	Southern Region	Geedam, Dadargarh, Dhaurai, Sukma

The first hand informations about the plants and their herbal formulations used by tribal and rural people was gathered during the field trips. The plant specimens were collected by the investigators from

medicine. The synthetic drug attacks the targets blindly thus affecting the several related metabolic systems, while herbal medicines probably work selectively and gently without disturbing the other

system. Further these drugs prepared with the traditional methods hence, conserve all the natural substances, without losing any essential components and maintain the activity and purity of active phyto principles in them. Herbal medicines are cheaper, effective, easily available also their methods of preparations are simple and easier. There is no risk report of any side effects and above all herbs fulfill the social and cultural needs of peoples. During the course of present investigation 22 plants species and their 11 formulations has been revealed from the different study sites of Chhattisgarh used in the treatment of jaundice (Table 2). Information regarding *Aegle marmelos* L., *Holarrhena antidysenterica* Wallich., *Andrographis paniculata* Burm.f., *Lawsonia inermis* L., *Curcuma aromatica* Salisb., *Phyllanthus amarus* Schumach & Thonn., *Cuscuta reflexa* Roxb., *Cissampelos pareira* L. are available in classical ayurvedic literatures.[12] People use these medicines singly or multiple herbal preparations based on severity of disease. This traditional wisdom of medicine is declining as the time passes because the younger generation takes no or little interest to learn the art of healing from their forefathers.

CONCLUSIONS

The present study reveals that the tribal possess spectacular knowledge of herbal drug and their formulations. Various poly herbal formulations has documented for the treatment of jaundice, some species use by the people of Chhattisgarh is available in classical ayurvedic literature. This study may provide valuable information to phytochemist and pharmacologists in screening of individual plant species and to light some new sources of drugs for jaundice. This bio cultural diversity be recorded and preserved by means of proper documentation and an identification of the relative species before it vanishes. It is also of great importance to consider this cultural heritage within the framework of a sustainable management approach, with the aim of preserving all the components of its environmental diversity.

Table 2: Herbal formulations used for Jaundice

Sl.N	Herbal formulations	Dose and duration
1.	Babool *Acacia nilotica* L. willd. 20 g bark + Ber *Ziziphus jujuba* Lamk. 20 g root	Mix all ingredients in equal proportion, 10 gm powder given along with ½ glass water to cure disease for 3 days, once daily in morning.
2.	Ber *Ziziphus jujuba* Lamk. 20 g leaf + Imli *Tamarindus indica* L. 20 g leaf + Bael *Aegle marmelos* L. 20 g pulp.	Mix all ingredients in equal proportion, 05 gm powder given along with ½ glass water to cure disease for 3 days, once daily in morning.
3.	Koria *Holarrhena antidysenterica* Wallich. 10 g bark + Nahadara *Andrographis paniculata* Burm.f. 10 g whole plant + Jamun *Syzygium cumini* L. 10 g root	Decoction of all the herbs, 15 gm decoction given three times daily with water up to three days.

4.	Kusum *Schleichera oleosa* Lour. 50 g bark + Patwan Uraria *picta* Desv. 100 g bark + Dhanmusri *Cassia fistula* L. 10 g root	Decoction of all the herbs, 15 gm decoction given twice times daily with water up to relief.
5.	Manjistha *Rubia cordifo lia* L. 200 g + Chirayata *Andrographis paniculata* Burm.f. 200 g leaf	Decoction of all the herbs, 15 gm decoction given once daily for 3 days.
6.	Mahandi *Lawsonia inermis* L. 100 g root + Aak *Calatrophis procera* Aiton. 100 g root	Mix all the herbs, 20 gm d ecoction given once daily with milk for 3 days.
7.	Haldi *Curcuma aromatica* Salisb. 100 g flower + Nimbu *Citrus aurantifolia* Christon. 50 ml juice + Saja *Terminalia alata* Heyne ex Roth. 100 g Root + Sugar 50 g powdered.	Powder all the ingredients, 25 gm powdered drugs are given along with water once daily for one week.
8.	Bhui aonla *Phyllanthus amarus* Schumach & Thonn. 100 g Whole plant + Safed Punarnava *Boerhavia procumbens* Banks. 200 g Whole plant + Jaggery 10 g	Mix all the ingredients; add 10 g jaggery into 15 g powdered drug with ½ cup water and given twice daily for one week.
9.	Kharhar *Gardenia turgida* Roxb. 10 g root + Salparni *Desmodium gangeticum* L. 10 g root	Cold infusion of all ingredients, ½ glass infusion is given once daily for two days.
10.	Charmuhi *Barleria cristata* L. 50 g root + Amarbel *Cuscuta reflexa* Roxb. 50 g whole plant	Juice of all ingredients, 50 ml juice is given along with 50 ml water twice daily for three days.
11.	Chirayata *Andrographis paniculata* Burm.f. 50 g whole plant + P atkoria *Cissampelos pareira* L. 50 g root	Juice of all ingredients, 25 ml juice is given twice daily for three days.

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PRIMITIVE TRIBES ACCESS TO HEALTH CARE IN TAMIL NADU : A SOCIAL EXCLUSION PERSPECTIVE

*Easwaran Kanagaraj**

Abstract: *The present paper attempts to assess the access of primitive tribes to health care in Tamil Nadu from the perspective of social exclusion. The paper is based on the primary data collected through structured household interview schedule from the primitive tribes in the Nilgiris, Tamil Nadu. The study reveals the significant variation in the household access to health care among the four tribes. The patterns and levels of access to health care of the households of non-scheduled primitive tribe of Badaga were significantly different from those of scheduled tribes of Kota, Irula and Kurumba. Contrary to expectations, the scheduled primitive tribal households have greater access to the health care institutions as compared to the non-scheduled tribe, the Badaga. This could be attributed mainly to access of the former to health care provided by Non-Governmental organisations (NGOs). Exclusion in the context of PTGs in health care is found to occur due to hierarchy in the quality of health care rather due to availability of them to the scheduled primitive tribal households. The study draws the attention of the Government towards improvement of quality of health care in the tribal areas through adequate personnel, infrastructure and promoting sustainable development. The role of grass root organisations and social workers in mobilisation of STs on their rights is also emphasised.*

INTRODUCTION

Schedule Tribes (STs) constitute one of the socially excluded sections of Indian society for centuries. The most excluded and underdeveloped among them are the numerically small primitive tribal groups (PTGs). Government of India recognised the need for focussing on these marginalised section of STs first in 1975-76 and thereafter in 1993. Ever since, the poorest of poor amongst the STs were called Primitive Tribal Groups (PTGs). The Government of India has followed a threefold criterion for identification of such PTGs. They are - (1) at pre-agricultural level of technology, (2) with very low level of literacy; and (3) having a declining or stagnant population. Based on the above mentioned criteria, 75 tribal communities were identified as PTGs spread over what are now 17 States and one UT.[1] The national five-year plans and ongoing tribal sub plan (TSP) approach are focussing on the development of primitive tribal groups (PTGs). In fact, the Government of India has conceded that the problem of extinction of primitive tribes is one of the persisting problems of tribals in the tenth plan.[a]

[a] In the tenth plan document the Government of India pointed out certain unresolved issues and persisting problems with regard to tribal population of the country, which warrant immediate attention of state and non-state actors. The unresolved issues in tribal development planning according to Government of India (1992) are displacement of tribals, tribal land alienation, indebtedness, shifting cultivation, and deprivation of forest rights while the persisting problems are low literacy and high drop-out rates, inadequate and inaccessible health services, nutritional deficiencies and diseases, lack of adequate irrigation facilities, extreme/abject poverty, endangering of intellectual rights, crimes/atrocities against STs, neglect of forest villages, extinction of primitive tribal groups, ineffective implementation of PESA, 1996, and routinised mechanism of TSP.

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According to the 2001 Census the PTGs are about 1.32 million population and constitute 1.57 percent of the total population of the country. The ST population in Tamil Nadu is 6, 51,321 and constitutes over 1 per cent of the population of the state as per the 2001 census. In the state, there are 36 STs, of which 6 viz., Toda, Kota, Kurumbas, Irular, Paniyan and Kattunayakan are PTGs. The PTGs form 33 per cent of the total ST population in the state as per the 2001 census. Health is one of the components of standard of living. It is often construed as one of the basic needs and one of the components of human development. [2] Access to Health care is considered as one of the components of social inclusion and means of tribal integration. Hence, tribal health has been one of the major areas of tribal studies and there is a copious literature on the same in India. Health status of the tribes in different geographic zones has been studied and documented by a number of social science scientist from varied theoretical perspectives and methodological orientations.

Standard demographic indicators like life expectancy,[2] fertility and mortality (for instance[3] were used to show the relatively poor health status of tribals. There are studies which focus on the health disorders among the tribes. For example Zanver *et al.* (1998) attempted to assess the influence of family income, parental occupation and literacy on prevalence of nutritional disorders among tribal preschool children in Maharastra.[4] Basu (1994) reported two genetic disorders viz. sickle cell anaemia and Glucose-6-Phosphate Enzyme Deficiency widely prevalent among the ST population in India.[5,6]

There are some studies, which focus on the health care utilisation among the tribal households.[7-10] Rani Gopal (1996) reported improvement of tribal health status over the years.[11] Hiramani (1997) undertook a study to examine preventive and curative health behaviour of tribal people and their social and cultural attributes associated covering three states. He found that income, media exposure, and number of episodes in the households were positively related with the utilization of health care serves from primary health centre and sub centre among the tribals.[12] Basu (1998) felt that in spite of expansion of health facilities in tribal area and government's efforts to improve health situation of the tribals, hardly any significant impact on the important health indicators of tribal people was achieved.[7] He was of the opinion that the simple linear expansion of the existing health care delivery system is not appropriate to improve health and family welfare of tribal population. Instead, he suggested the location of health facilities should be as per local needs depending on geographical and population consideration, resources and manpower availability. Access to health care has also been discussed in the literature on social exclusion separately or as a sub-component of social services along with education.[13]

In spite of existence of copious literature on health in India, a few studies address the health problems of numerically small primitive tribes.[14] In the context of the PTGs, the inter-tribal

variation in the patterns and levels of access of households to health care has not been adequately probed into. The present study focuses on these issues in the context of Tamil Nadu from theoretical perspective of social exclusion. It compares the levels and patterns of access to health care among households Scheduled primitive tribe of Badaga and scheduled tribes of Kota, Kurumba and Irula. These primitive tribes are at different economic stages. The non scheduled tribe of Badaga were settled agriculturalists. The scheduled primitive tribes were different in their traditional occupations which are mostly continued by them till today. Kotas were artisans mainly serving the other tribes in the Nilgiris while Kurumba were hunters and food gatherers while the Irula were hill cultivators.

The paper is presented in four sections. The first section is devoted to discuss the theoretical perspective. The second section is devoted to discuss various aspects of the methodology followed. In the fourth section, the results are discussed while the fifth section presents the concluding observations.

Social Exclusion Framework

In this section the theoretical framework of social exclusion as well as issues in their application has been discussed. The concept of social exclusion has originated in France and has been introduced into British and other debates. According to de Haan (1998) it has spread European Union (EU) channels: funding for social insertion via the European social fund, the European Anti poverty Network, the second and third anti poverty programmes, and for developing countries, and research funds.[15]

Social exclusion has been conceptualised in different paradigms, which are broadly classified by Silver (1994) as mainstream sociological models (solidarity, specialisation, and monopoly) and organic models (Christian democratic, state corporatist, and consociational).[16] According to her in solidarity paradigm dominant in France, exclusion is the rupture of social bond between the individual and society that is cultural and moral. The social order is conceived as external, moral and normative, rather than grounded in individual, group or class interests. A national consensus, collective conscience or general will, binds the individual to the larger society through vertically inter-related mediating institutions. Cultural boundaries give rise to socially constructed dualistic categories of ordering the world, declining the poor, unemployed and ethic minorities as deviant outsiders. In the specialization, dominant in Britain social differentiation, exclusion reflects discrimination. Social differentiation of spheres should not produce hierarchically ordered social categories if the "excluded" individuals are free to move across the boundaries and in spheres of social life governed by different principles are kept legally separate. The third paradigm perceives exclusion as a consequence of the formation of group monopolies. Powerful groups, often with distinctive cultural identities and institutions, restrict the access of outsiders to valued resources through a process of "social closure."

Silver (1994) clarified that mainstream sociological models (paradigms) of social exclusion as ideal typical i.e. models to observe social reality rather than the reality itself.[16] Each model conceives of exclusion as a social relationship between the excluded and the included. These approaches are applicable to both micro and macro level sociological analysis. The most important clarification on these paradigms, she makes is that of the distinction between them and the organic models of social integration. The organic models of integration are concerned with construction of social order based on functional, regional, or primordial groups. Silver finds three major streams of thought in organic approaches to integration viz., Christian democratic (societal neo-corporatist); state corporatist; and consociational. According to her though they differ in their emphasis on individual rights, they all reject extreme individualism and collectivism. But, they reflect the principles of 'community' and 'subsidiarity'.[17]

Silver (1995) favours the mainstream sociological models of social integration viz. solidarity, specialization, and monopoly over the organic models as the former attributes to greater scope and autonomy to civil society relative to the state and market than do the latter paradigms.[17] She contends that the organic-statist integration itself exclusionary and there is no logic behind their recognition of vertical functional associations based on primordial identities over the horizontal, decentralized participatory and membership associations.[17]

The major theoretical question here is which paradigm suitable to study the micro context of the primitive tribes in India. In the present study, monopoly paradigm has been found to have better interpretative power as the economic stage varies across the primitive tribes in the study area.

METHODOLOGY

The present study is cross sectional in nature and based on the primary data collected through field survey with structured household interview schedule and the household is the unit. The quantitative data collected was supplemented with qualitative data collected through key informant interviews with the leaders and knowledgeable persons of the primitive tribes chosen. Though qualitative data is used, the present study is by and large quantitative in its orientation.

In the present study, a multistage sampling procedure has been followed in the selection of the district, block, tribes, hamlets and households. The first stage is the choice of district. The primitive tribes in Tamil Nadu include six tribes viz., Toda, Kota, Kurumbas, Irular, Paniyan and Kattunayakan forming 31.49 per cent of the total tribal population in Tamil Nadu. In view of the fact that all these tribes are living in the Nilgiris, the district was chosen for the present micro level study. The second stage of sampling is the selection of block. In the Nilgiris district, there are four administrative blocks, viz., Udhagamandalam, Coonoor, Kotagiri and Gudalore. Among these blocks, Gudalur and Kotagiri had high concentration of Tribal population (5-

10%). In view of these criteria of numerical strength and ST population concentration, the Kotagiri block was chosen for the study. Selection of the Tribes forms the third stage of sampling. In the Kotagiri block, five primitive tribes are concentrated. In two ways they may be classified. Firstly, based on their inclusion in ST list, they can be classified as the scheduled primitive tribes of Toda, Kota, Kurumba and Irula and the non-scheduled primitive tribe of the Badaga. Secondly, on the basis of their location on the Nilgiris Mountains, these tribes are generally classified as the massif tribes and sub-tropical tribes. The massif tribes of the Toda, Badaga and Kota are racially different from the sub-tropical tribes the Kurumba and Irula. The former are fair while the latter are dark in complexion and have differential racial affinity.[18] Apart from racial difference, the climate, soil, rainfall and thus the natural resource endowment all are favourable to the tribes on the massif. Among the five primitive tribes the non-scheduled tribe Badaga and scheduled tribes of Kota, Kurumba and Irula were chosen. This is mainly because the concentration of Toda is not sufficient for sampling i.e. they live in only one-hamlet (Mund) constituting around 20 households. As statistical analysis of quantitative data warrants large sample, the Toda was excluded from the sample.

Having chosen the tribes, the next stage of selection is that of hamlets. One hamlet to represent each of the four tribes was chosen. Kannerimukku, Pudukkotagiri, Banagudi and Kunjappanai were the four hamlets chosen to represent the four primitive tribes the Badaga, Kota, Kurumba and Irula respectively. The choice was made after having discussions with the NGO workers, Government grass root level workers, tribal leaders and making a number of visits to the settlements. It was ensured that the socio economic conditions of the village chosen would reflect the general conditions of the particular tribe.

The last stage is the selection of the households. Separate lists of the heads of the households of the four hamlets were prepared in consultation with the key informants of each of the hamlet. From the lists of the four hamlets one half of the households from each of the hamlet, were chosen randomly using Tippets table of random numbers with replacement of the unit chosen. There was no data on the population of households in each of the four tribes was not available either from government of NGOs. Hence, in determination of sample size no standard formula was used. On the other hand, the sample size was arrived at, to ensure large sample in each of the four tribes, as it is needed for analysis of quantitative data. Thus the sample size arrived for Badaga, Kota, Kurumba and Irula were 72, 32, 30 and 38 respectively.

A structured household interview schedule was employed to collect primary data from the sample households. The schedule included demographic, social, economic and political information of each of the households. The schedule was prepared after an intensive pilot study in the tribal hamlets. The structured interview schedule was pre tested and finalised in the light of it. The pilot study helped the research to contextualise the theoretical frameworks, conceptualise

and operationalise the constructs as per the demands of micro level tribal reality. The schedule was administered through personal interviews with most knowledgeable person of the household chosen. The personal interview ranged between 30 to 45 minutes normally. The fieldwork was conducted during the months of January and February 2003 and the reference period was the agricultural year 2002.

The collected data was processed and analysed with computer software. SPSS Software (Version 11.0) was used to analyse the data. Data analysis was done with simple averages, ranks, one-way ANOVA and Spearman's rho. ANOVA with Least Square Difference (LSD) has been used to analyse the intertribal variations in the levels of access to health care while Spearman's rank correlation coefficients (rho) were computed to assess the significance of intertribal differences in their patterns.

RESULTS AND DISCUSSION

Access to health care has always been discussed in the literature on social exclusion separately or as a sub-component of social services along with education. In the present study the pattern of access to health care of the tribal households has been measured in terms of the frequency of visits of the members of household to various health care institutions. In Nilgiris, the major agents promoting health care include Government, Private Sector, NGOs, Christian Missionaries, and Indigenous Medical Practitioners. Government or public health care centres, sub centres and public hospitals constitute a major institutional network providing health care services to the people including tribals in the Nilgiris as elsewhere in India. Private hospitals ranging from dispensaries of individual doctors to huge hospitals with sophisticated medical infrastructure and specialist medical and paramedical professionals who are aiming at profit also function in the Nilgiris catering the health care needs of those are able and willing to pay. The Christian Missionaries run huge hospitals with sophisticated infrastructure and trained medical personnel in the major towns of the Nilgiris. The voluntary organizations or NGOs come next to the missionaries in terms of resources, infrastructure and quality of personnel. Yet, their mobile services and camps in the remote inaccessible tribal hamlets on the one hand and dispensaries in those places make them more accessible to the tribal masses. Tribals have been well known for their own indigenous medical practices and magic and witchcraft. Especially in the Nilgiris the Kurumba have been popular for this over centuries.

The access to heath care institutions was assessed for each of the agency with the help of a 4-point scale viz., always, mostly, sometimes and never. They were assigned 3,2,1 and 0 scores respectively. The total of the scores on each of these six institutions have been obtained at household level and this summary measure is treated as household access to health care. The household scores of the six institutions were analysed with the help of simple averages, and their mean scores were ranked. To study the significance of differences in the patterns of health care the ranks of the institutions across the four tribes were analysed with

Spearman's rho. Further, ANOVA has been used to analyse the intertribal variations in the levels of access to health care. Table 1 presents the means, standard deviations (SD), ranks as well as the results of ANOVA while Table 2 presents the Spearman's inter correlation matrix of ranks of health care institutions among different tribes.

Patterns of Access to Health Care

The basic question the present paper addresses is that weather there is any differences in the patterns of household access to health care among the primitive tribes in Tamil Nadu. The results analysis of Spearman's rho coefficients clearly shows the significant intertribal variation in the patterns of access to health care. The pattern of access to health care differs significantly between the non-scheduled and scheduled primitive tribes. The pattern of access of scheduled primitive tribes of Kota, Kurumba and Irula to health care was significantly different from that of non-scheduled primitive tribe

Table 1: Access to Institutions of Health Care: Mean Scores and Ranks

Sl.No	Institution	Tribe				Total N = 172
		Badaga n = 72	Kota n = 32	Kurumba n = 30	Irula n = 38	
1	Private Hospital	1.88 ± 0.9 (1)	0.94 ± 0.8 (2)	0.43 ± 0.6 (4)	0.66 ± 0.7 (3)	1.18 ± 1.0 (1)
2	Hospital of NGO	0.00 ± 0.0 (6)	2.13 ± 0.8 (1)	1.90 ± 0.8 (1)	2.03 ± 0.8 (1)	1.17 ± 1.1 (2)
3	Government Public Hospital	1.17 ± 0.8 (2)	0.72 ± 0.6 (3)	1.00 ± 0.5 (2)	0.66 ± 0.5 (2)	0.94 ± 0.7 (3)
4	Primary Health Centre	0.44 ± 0.6 (3)	0.09 ± 0.3 (4)	0.53 ± 0.5 (3)	0.66 ± 0.7 (4)	0.44 ± 0.6 (4)
5	Indigenous Medicinal Practice	0.06 ± 0.2 (4)	0.03 ± 0.2 (5)	0.20 ± 0.5 (5)	0.39 ± 0.5 (5)	0.15 ± 0.4 (5)
6	Christian Missionary Hospital	0.04 ± 0.2 (5)	0.00 ± 0.0 (6)	0.00 ± 0.0 (6)	0.00 ± 0.2 (6)	0.02 ± 0.2 (6)
	Access to Health Care	3.53 ± 0.7	3.88^{a} ± 0.6	3.87^{a} ± 0.6	4.00^{a} ± 0.6	3.76 ± 0.7
	F	10.87**				

Source: Computed Figures in parentheses are ranks Mean ± S.D

* Significant at 5% level ** Significant at 1% level

Note: Means with common superscripts not significantly different

Table 2 :Differences in Pattern of Access to Health Care: Spearman's rho(N=6)

Tribe	Badaga	Kota	Kurumba	Irula	Total
Badaga	1	0.14	-0.03	0.09	0.43
Kota	0.14	1	0.83*	0.94**	0.94**
Kurumba	-0.03	0.83*	1	0.94**	0.66
Irula	0.09	0.94**	0.94**	1	0.83**
Total	0.43	0.94**	0.66	0.83**	1

Source: Computed * Significant at 5% level ** Significant at 1% level

of Badaga. The Spearman's rho coefficients of Badaga with Kota (0.14), Irula (-0.03), Kurumba (0.09) were at all not significant even at 5 percent level. On the other hand, there is no significant difference among the scheduled tribes of Kota, Kurumba, and Irula. The computed rho coeffiencients of ranks of health care access scores between Kota and Irula (0.94), Kota and Kurumba (0.83), Irula and Kurumba (0.94) were positive and significant at 5 percent level (Table 2).

The NGO hospitals was the primary source of health care and treatment of chronic as well as acute diseases for the Kota, the Kurumba, and the Irula the three scheduled primitive tribes. On the contrary, for the Badaga the primary source of health care was the private hospitals. The government hospitals, as the second most prominent source of treatment to the Badaga, the Kurumba and the Irula households, while for the Kota it was private hospitals. Of course the Government hospital was third in the order of preference of the Kota. Likewise the Irula household's third preference was the private hospitals. The role of Christian Missionaries in the promotion of tribal health was negligible among the tribes and it was in the last position among all the tribes (Table 1).

Level of Access to Health Care

The next question that is considered here is that of intertribal variation in the household's access to health care. The results of one-way ANOVA clearly demonstrate the significant differences in the levels of assess to health care among the PTGs. The computed F ratio (10.87) for the access score was significant at 1 percent level. The analysis of mean difference in the household health care access score with least square difference (LSD) test reveals the significant difference between the non-scheduled tribe of Badaga on the one hand and the scheduled tribes on the other. On average, the households of scheduled primitive tribes of Kota (3.88), Irula (3.87) and Kurumba (4.00) have significantly greater access score as compared to the Badaga (3.53), the non-scheduled primitive tribe. Further, among the households of scheduled primitive tribes of Kota, Irula, and Kurumba, the difference in the access score was not even significant at 5 percent level (Table 1).

Interestingly, all the tribes had high level of access to health care. The household average of the overall access score of all the four tribes were greater than 3. It seems that the tribals are utilizing the different agencies for fulfilment of their health care needs and they were not left with untreated when they suffer from diseases. The various agencies at work have some how successful in extending the health care to all the tribal households. The comparison of the four tribes according to their access scores to the specific institutions further reveals the variations in the access to health care. There was considerable variation in the utilisation of health care among the four tribes. The Irula had the highest access score (4.00) closely followed by the Kota (3.88), the Kurumba (3.87) and the Badaga (3.53). The greater access of the scheduled tribes to the health care institutions over the non-scheduled tribe the Badaga was mainly

due to their access to health care by voluntary organisations.

The access to private hospital was highest to the Badaga (1.88) followed by the Kota (0.94) the Irula (0.66) and the Kurumba (0.43). The greater access to private health care to the Badaga and the Kota over the Kurumba and the Irula could be attributed to their better economic standing as well as health awareness. As regards the NGO Hospitals, the Badaga had no access, while among the three scheduled tribes the Kota (2.13) had greater access closely followed by the Irula (2.03) and the Kurumba (1.90). The Badaga had no access to NGO hospitals because they were excluded from the Scheduled Tribe in the post independence period. The three scheduled tribes it seems that most of the times had gone for treatment in the NGO Hospitals. It was observed in the field that the members of the Kota, the Irula and the Kurumba mostly visit the hospitals of Nilgiris Adivasi Welfare Association (NAWA) near most of the tribal settlements. Besides, the NAWA also provides mobile health care services periodically to the tribes.

As regards the government hospitals, the Badaga households had greater access (1.17) followed by the Kurumba (1.00), the Kota (0.72) and the Irula (0.66). On the contrary, the Irula households (0.66) had greater utilization of the Government's Primary health centres and sub centres followed by the Kurumba (0.53), the Badaga (0.44) and the Kota (0.09) respectively. The least utilization of the primary health centres by the Kota was mainly due to their proximity to the health centres of NGO hospitals on the one hand and their accessibility to private sector health care.

Only the Kurumba and the Irula households utilized the indigenous health practitioners, while the Badaga and the Kota households made little use of it. Between the sub-tropical primitive tribes, the Irula (0.20) had slightly greater use of the native health practitioners over the Kurumba (0.39). The non-utilization of traditional tribal medicine by the Kota was due to two major reasons. Firstly, their tribesmen have not been traditionally engaged in such art. Secondly, they had greater access to advanced allopathic medical system provided by NAWA hospitals. The continuity of usage of tribal medicine by the Kurumba and the Irula was mainly because it is interwoven with their culture and belief system. It could also be attributed to the easy availability of these practitioners in the villages of the Kurumba and the Irula tribes and their cheaper cost. It is unfortunate to note that the tribal medicine practice widely prevalent among the Badaga community in the past is no where in existence or use. The poor situation is mainly due to the promotion of modern medicine by the Government authorities on the one hand and the neglect of tribal and traditional folk medicine as unscientific and blind faith by the agencies of modernisation without actually testing their utility and effectiveness. The Christian Missionaries, whose role in promoting the health care elsewhere lauded, perceptibly play an insignificant role among the primitive tribes of the Nilgiris. The wide opposition to conversion to Christianity or

proselytisation by the tribal people of the Nilgiris especially their leaders forbade the missionaries to extend their health services.

CONCLUSION AND SUGGESTIONS

At the out set the paper has raised two major interrelated questions in the context of primitive tribes of Tamil Nadu. They pertain to the PTGs level and patterns of access to health care. Social Exclusion framework has been used to identify the agencies contributing access as well as the levels. Though, invariably, the primitive tribal households have high level of access to health care, those belonging to scheduled tribes of Kota Kurumba and Irula had greater access to health care as compared to those of the non-scheduled tribe of Badaga. The former three tribes access the free health care services of NGOs and rely mainly on them while for the latter the main source was private health care for which they pay. In spite of the greater access, the quality of health care provide to the scheduled tribes has been perceived by the leaders as poor and the tribal leaders often complain the inadequacy of the medicine and medical staff in the public hospitals and primary health centres. Such criticisms were even levelled against the NGO sector, the adequacy of whose services in the recent decade (era of LPG) are doubtful in the perception of the tribal leaders.

In the light of the findings of the present study, it can be argued that the exclusion in health care occurs mainly because of the correspondence between hierarchy in the quality of health care and economic stage of tribe. The households of predominantly agricultural tribe (non-scheduled primitive tribe) of Badaga were found to have access to quality private health care while the scheduled tribes rely on the NGO sector as well as sub centres whose quality was questioned by the tribal people. Unfortunately, the matter of fact is that the public intervention in health care could not transcend the economic stage of the tribes. Thus, the main challenge before the policy makers, grass root organisations and social workers in this context of the PTGs at least in Tamil Nadu is not actually improving the access; rather it is on improvement of the quality of health care provided to the tribal masses as well as promoting sustainable development through income generation activities. The State and Central Governments can accomplish this by providing adequate personnel and infrastructure for health care in the tribal areas. In this connection, it is also suggested that the NGOs with high degree of commitment, capacity, and professionalism need to be supported with adequate Government grants and funds for providing health care as well as engaging in sustainable income generation. The social workers, grass root organisations have to come forward towards mobilising, organising and advocating for the tribal right to quality health care and livelihood.

Towards improving the health care among the tribes, there is also a need for promoting indigenous medicine systems among the tribes especially the Kurumbas and Irulas. Efforts for providing adequate training, financial support and

conduct of scientific research can be made by Government agencies, academic institutions, and NGOs individually or in collaboration. The NGOs and social workers need to mobilise, organise, train and promote network among the practitioners of tribal medicine towards sustaining these systems.

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SOCIO-CULTURE ISSUES OF HEALTH SEEKING BEHAVIOUR AND EXPENDITURE ON HEALTH IN TRIBES OF RAJASTHAN

B.L. Nagda*

Abstract: *Tribals constitute around twelve percent of the total population of Rajasthan. The major tribes are Bhils and Minas (95 percent) .Tribes are economically hand to mouth. The tribes felt that without money treatment is not possible hence they always depend on their traditional healer and Bhopas. There is no provision of free medicine and treatment excepting some diseases like malaria, polio, diarrhoea, T.B. etc. Tribals practice different type of diagnosis and treatments during illness. They consider that, interference of supernatural agency is particularly strong in context of health and disease. They believe that the different deities and spirits are connected with different types of diseases. They have specific gods for treatment of diseases, calamities, treatment of diseases of cattle, bite of snakes and dogs and so on. The treatments of any diseases depend on the faith of patients on service providers. In spite of the availability of government health services free of charge, substantial number of patients preferred to go to private health institutions. The health seeking behaviour of the patients depends on his faith and satisfaction associated with the treatment. Tribal masses also search the cheep and effective treatment at the time of sickness of their family member. Their traditional treatment gave first preference to treatment at the time of sickness to herbalist, tantrics/mantrics, home remedies and private parishioners. At the time of any seriousness of the patient, they approach to Govt. allopathic system of treatment.*

The basic factor affecting health of a person is his diet. The tribals have no choice of food. The tribes felt that pregnant woman should be given nutritional diets including Ghee, Green vegetables and pluses etc. It is their perception that eating Brinjal, Banana and Papayya during the pregnancy is harmful for women and spicy food should be avoided during the pregnancy. The perception of tribes about ideal diet of a sick person was that spicy food and heavy foods were harmful for sick persons and they should be avoided. The patients of dog bites, snake bites, mental patients are treated through Bhopas and mantras. Traditional medicines are based on superstitions for illness caused by ghosts, evil spirits, Dayan and people suffered by supernatural impact etc. Home remedies used for some diseases like fiver, dysentery, jaundice, skin diseases, fracture of bones etc. They felt that there are no treatment for patients of measles and chicken pox as these are caused only when goddess became angry and create the health loss. It can be concluded that people are aware of modern health facilities but at the same time the superstitions in their mind are not completely wiped out. In case of failure of modern medicines they find resort in religious remedies, while for some diseases they feel the treatment based on superstitions is the ideal treatment. Therefore, expenditure on health is rare, only in case of seriousness of patient.

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INTRODUCTION

Tribes live in isolation, near to nature and hence are called 'son of the soil'. They 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 are in need of special protection from injustice and exploitation. They are food gathers, hunters, forestland cultivators, and minor forest product collectors. The growth rate of tribal population was reported 29.8 percent during 1991-2001. It is higher than the growth rate of total population of the state of Rajasthan (28.33%). There are a number of tribals inhabited in the state where they constitute around twelve percent of the of the state's total population. The major tribes are Bhils (45%) and the Minas. In tribal areas, there is lack of the physical and manpower infrastructure facilities in the fields of health and family welfare. There is no proper link road between the tribal villages and health centers. Tribals are economically hand to mouth. There is no provision of free medicine and treatment excepting some diseases like malaria, polio diarrhoea, T.B. etc. They felt that without money, treatment is not possible hence they mostly depend on their traditional healer and 'Bhopas'. The health centers are not functioning properly due to lack of staff, building, equipments and inadequate finance. The number of health and medical institutions available were inadequate to serve even minimum needs of their health, at the time of the study. The tribes of Rajasthan are inhabited widely varying ecological and geo-climatic conditions in different concentrations. They have developed strong magico-religious health care system and they wish to survive and live in their own style.

Health Scenario of Tribal Women

Health is the state of complete physical, mental and social well-being and not merely the absence of diseases or infirmity. In Rajasthan and particularly in the tribal areas of the state, health status of women is poor and the number of pregnancy related deaths in the tribal areas is higher in the state. Tribal population in India inhabited in widely varying socio-cultural and Geographical condition and is exposed differently to the various geo-cultural stresses and strain. Socio-cultural milieu of the tribals include diverse factors, such as health practices, health seeking behavior, practice of traditional and modern system of medicine etc. The tribals have their own life style and cultural practices, it includes economic subsistence, diets, occupation, habits, ceremonial, ritualistic and customs. On one hand reproductive health of tribal women generally governs on their poverty, powerlessness and lack of control over resources. Majority of tribal women suffered from malnutrition, infections, early and repeated child bearing which resulted poor reproductive

condition of tribal women. On other hand lack of access of health care with poor quality of delivery system and its responsiveness of women's need exacerbate the reproductive health status.

Socio-Culture Issues of Health

Tribal society is simple and has its own belief and practice concerning disease and evolves its own system of medicine in order to tend diseases in its own way. They practices different type of diagnosis and treatments during illness of a person. The interference of supernatural agency is particularly strong in context of health and disease. They believe that the different deities and spirits are connected with various types of disease. They consider having specific gods for treatment of diseases, diseases of cattle, bite of snacks and dogs, controlling of calamities, and so on. All these deities have their own respective sphere and field. The tribal priest is known as *Bhopa,* whose services are sought after finding out the cause of illness. The *Bhopa* worship the deities during epidemics and disease outbreak in the village. He offers a sacrifice at the sacred place (*Devra*) and is mainly entrusted with the benevolent deities. *Bhopa* controls the malevolent deities. The dependency and belief on *Bhopa* are often responsible for the non-acceptance of modern medicine. The traditional approach establishes faith and assurance in the patients while modern medicine lacks it. The *Bhopa* share the common cultural beliefs and practices of the patients, naturally they have more faith in them. *Bhopa* (Traditional healers) occupy prominent place in tribal community for the treatment of various diseases. If the reason of illness is identified as evil-eye, sorcery or witchcraft, they would always call their *Bhopa* instead of consulting a doctor, as they strongly feel that the doctor is quite helpless against such evil forces.[1] In tribal community, illness and the consequent treatment is not always an individual and familiar affair, but the decision about the nature of treatment to be taken, may be taken at the community level. In case of some specific diseases, not only the diseased person but also the total village community is affected. Health and treatment are very much connected with the environment. The traditional health care system and treatment are based on their deep observation and understanding of nature. The tribal healer is contacted, for population control. This knowledge can be fruitfully utilized in a wider context.[2]

Health Services

Health care system obviously becomes a major component towards the better quality of life of the people. Health care means looking after the people's health in health centre. The health centre is an institution for the promoting the health and welfare services in a area under the direction of health personnel under one roof.[3] Health development is compromised by rapid population growth, not only by the necessarily rapid quantitative

expansion of health services but also indirectly by the retarding effects of sluggish economic development on improvements in housing and nutrition in particular. In tribal areas, 3,000 population is served by a sub centre, 20,000 population served by a PHC and 80,000 population covered by a CHC.[4] In tribal areas, the situation is actually worse than the figures indicate because of, deficiencies in modern equipment and medical supplies. The effectiveness of doctors in tribal area is less than the areas of total population.[5]

Health seeking Behaviour

Health promotion programmes worldwide have long been premised on the idea that providing knowledge about causes of ill health and choices available will go a long way towards promoting a change in individual and more beneficial health seeking behaviour. However, there is growing recognition, in both developed and developing countries, that providing education and knowledge at the individual level is not sufficient in itself to promote a change in health seeking behaviour. It is not just an isolated event. It is part and parcel of the choice of person's, family's or community's, which is the result of an evolving mixture of social, personal, cultural and experiential factors. The process of responding to illness or seeking care involves multiple steps [6] and can rarely be translated into a simple one of choice or act or be explained by a single model of health seeking behaviour. Rahman (2000) demonstrates that a women's decision to attend a particular health care facility is the composite result of personal need, social forces, the action of health care providers, the location of services, the unofficial practices of doctors, and in some contexts has very little to do with physical facilities at a particular service point.[7] The initial impact of a disease can be mediated, i.e. participating in disease prevention behavior eating the right foods, exercising, and controlling stress ill health is influenced by social factors in which individuals and cultures seek health care. An abundance of descriptive studies on health seeking behaviour, highlighting similar and unique factors, demonstrate the complexity of influences on an individual's behaviour at a given time and place. However, they focus almost exclusively on the individual as a purposive and decisive agent, and elsewhere there is a growing concern that factors promoting 'good' health seeking behaviour are not rooted solely in the individual, they also have a more dynamic, collective, interactive element.

The Objectives of this paper is to examine socio-culture issues of health seeking behaviour of tribes and their expenditure on health. Perception regarding health seeking behavior is also assessing with reference to diseases.

METHODOLOGY

Four villages were selected on the basis of availability of health facility near (at least less than 10 km from primary health centre or urban areas) and away from the

villages (at least 10 km or more from primary health centre or urban areas).Villages were selected each from Udaipur and Rajsamand districts. (From each selected tribal village 40 households were selected through systematic random sampling. The information was obtained through structured schedule. The present study is based on a sample of 160 households from four selected villages.

RESULTS

Background Characteristics of Respondents

Health seeking behaviour and health expenditure of tribal households is associated with socio-economic, demographic and household characteristics of the respondents. Table 1 reveals that about 90 percent of the respondents were married in both the types of tribal villages. About 44 percent of the husbands of the tribal villages having the health facility near to their villages and 47.50 percent husbands of tribal villages having the health facility far away from their villages were in age group 25-35 years. About 60 percent of the wives of both types of the tribal villages having the health facility near to their villages and having the health facility far away from their villages were in ages of less than 35 years. The majority of respondents lived in nuclear family in both the type of the tribal villages. Illiteracy is wide spread among the tribals. Illiterate husbands were higher in the villages, having the facility, far away from their villages (65%) in comparison to husbands living in the villages, having the health facility near to their villages (60.0%). Educational status of tribal women is very poor. About 71 percent and about 76.25 percent of wives of the villages were having the health facility near to their villages and villages having the facility far away from their villages were illiterate respectively. Few numbers of tribal women was educated 12th and more in both types of villages.

About 85 percent and about 89 percent of husbands of the villages having the health facility near to their villages and villages having the facility far away from their villages were engaged in agriculture/labour and its allied activities respectively. Very little percentage of husbands were engaged in services. More than 90 percent of tribal women of both the types of villages were engaged in agriculture and work as labour. About 88 percent and 74 percent of the family of the villages were having the health facility near to their villages and villages having the facility far away from their villages having monthly income in Rs 600 and less, respectively, indicates that majority tribals were living under poverty line. About 60 percent and 57 percent of the family were having the health facility near to their villages and villages having the facility far away from their villages having four and more members in the family respectively. About three fourth of family of both the type of villages were having three and more children.

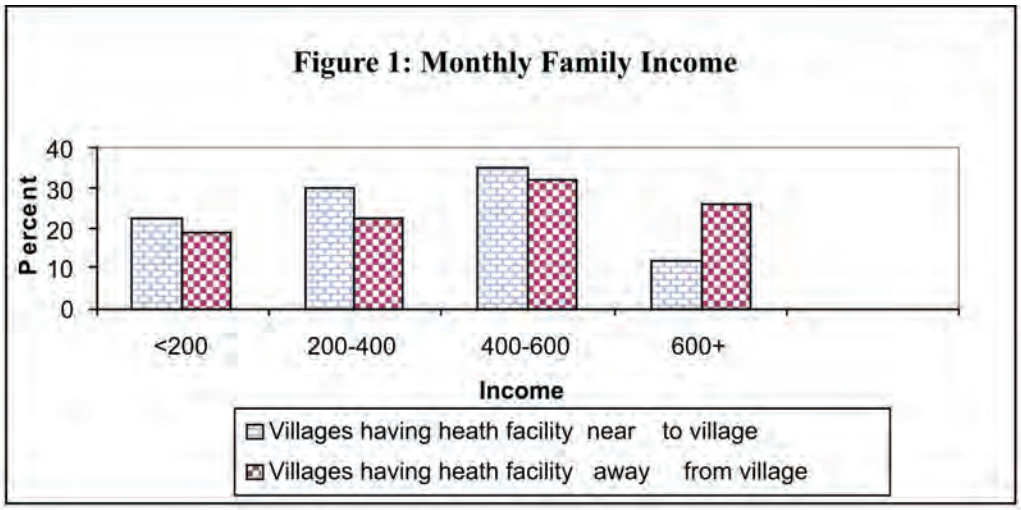


Table 1: Background Characteristics of Tribal Respondents

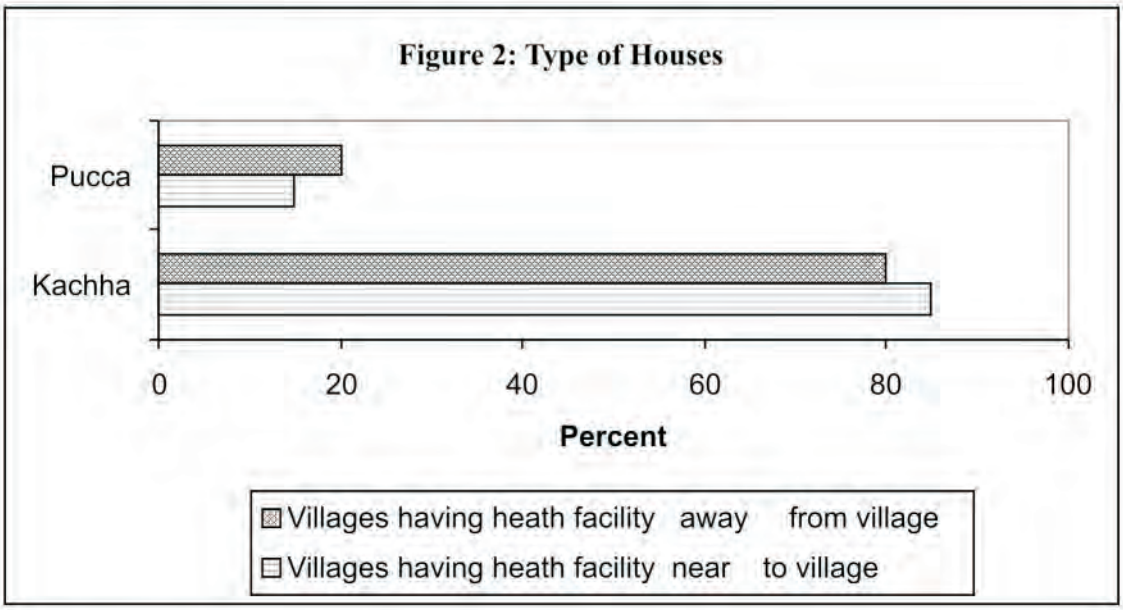
Background of Respondents	Tribal villages having health facility near to village N=80	Tribal villages having health facility away from village N=80
Marital Status		
Married	90.00	88.75
Divorce/separate	1.25	0.00
Widow/widower	8.75	11.25
Age of husband		
<25	10.00	7.50
25-35	43.75	47.50
35-45	38.75	36.25
45+	7.50	8.75
Age of wife		
<25	16.25	22.50
25-35	45.00	37.50
35-45	35.00	33.75
45+	3.75	6.25
Type of Family		
Nuclear	78.75	73.75
Joint	21.25	26.25

Education of husband		
Illiterate	60.0	65.0
>5	13.75	11.25
5-8	7.5	10.00
9-12	11.25	8.75
12+	7.5	5.0
Education of wife		
Illiterate	71.25	76.25
>5	7.50	8.75
5-8	5.0	3.75
9-12	10.00	6.25
12+	6.25	5.00
Occupation of Husband		
Labour/Agriculture	85.25	88.75
Traditional occupation	6.25	8.75
Service	7.50	2.50
Occupation of wife		
Household	5.00	7.5
Agriculture	26.25	23.75
Labour	65.00	67.50
Service	3.75	1.25
Monthly income of family		
<200	22.5	18.75
200-400	30.00	22.5
400-600	35.00	32.5
600+	12.00	26.25
Mean income	478	513
Number of family member live with		
2	6.25	30.75
3	33.75	38.75
4	36.25	30.00
5	13.75	22.50
6+	10.00	5.00
Number of Children in family		
0		
1	6.25	5.00
2	17.50	18.75
3	28.75	31.25
4+	32.50	27.50
	15.00	17.50

Household Characteristics

Household characteristics of respondents are shown in Table 2. About 85 percent and 80 percent of the families were having the health facility near to their villages and villages having the facility far away from their villages living in Kachha houses (*Tapara*) respectively.

health facility near to their villages and villages having the facility far away from their villages were using surface water for drinking purpose (pond water, open well water, river and springs water etc) respectively. About 31 percent of the families of the villages having the health facility near to their villages and 33.75



Crowded housing conditions may also affect health as well as the quality of life. About 75 percent and 83.75 percent of the families the villages having the health facility near to their villages and villages having the facility far away from their villages had only one room. About 67 percent of the families of the villages having the health facility near to their villages and 60 percent of the families the villages having the facility far away from their villages were using crude lamp for lighting at the time of the survey.

About 63 percent and 56.25 percent of the families of the villages having the

percent of the families of the villages having the facility far away from their villages were using ground water. About 8.75 percentage of respondents of the villages having the health facility near to their villages and 20 percent of the respondents of the villages having the facility far away from their villages listened radio daily. About 58 percent and 44 percent of the respondents of the villages having the health facility near to their villages and villages having the facility far away from their villages were listening radio some times respectively (Table-2).

Table 2: Household Characteristics of tribal Respondents

House hold background	Villages having health facility near to village N=80	Villages having health facility away from village N=80
Type of House		
Kachha	85.0	80.0
Pucca	15.00	20.0
Number of Rooms		
1	75.00	83.75
2	16.25	10.00
3+	8.75	6.25
Source of lighting:		
Electricity	22.50	23.75
Crude lamp	60.00	67.50
Other	17.50	8.75
Source of drinking water		
Piped water	6.28	
Ground water	31.25	10.0
Surface water	62.50	33.75
		56.25
You listen Radio		
Daily	8.75	20.00
Some times	58.75	43.75
Never	32.50	36.25

Life style of tribes

Life style is an important component to assess the health seeking behaviour. Table 3 reveals that about 36 percentage of respondents and 46.25 percent of their family member of the villages having the health facility near to their villages and 43.75 percent of the respondents and 52 .5 percent of their family members of the villages having the facility far away from their villages used pan massla / tobacco. About 16 percent of the respondents and 12.50 percent of their family members of the villages having the health facility near to their villages drank alcohol / wine whereas, 23.75 percent of the respondents and 18.75 percent of their family members of the villages having the facility far away from their villages drank alcohol /wine. About 31.25 percentage of respondents and 28.75 percent of their family member of the villages having the health facility near to their villages and 37.5 percent of the respondents and 33.75 percent of their family members of the villages having the facility far away from their villages used smoking.

Figure:3 Life Style of Tribal

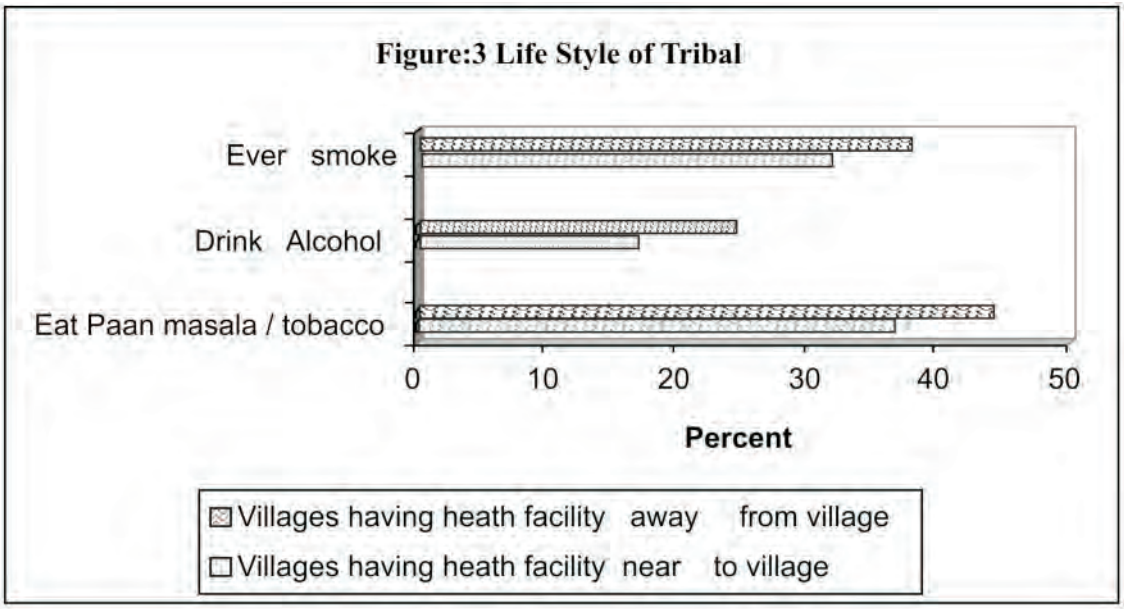


Table 3: Life style of Tribal Respondents

Life style indicators	Villages having health facility near to village N=80	Villages having health facility away from village N=80
Eat Paan masala / tobacco	36.25	43.75
Any persons of your family ever used Paan Masala / tobacco	46.25	52.15
Drink Alcohol	16.25	23.75
Any persons of your family ever drink alcohol	12.50	18.75
Ever smoke	31.25	37.50
Any person of your family ever smoke	28.75	33.75

First preference of Treatment

First preference to treatment at the time of sickness of any family member is shown(Table-4).Respondents of the tribal villages having health facility near to village mentioned that 12.50%, 8.75%,7.50%,16.25%,33.75% and 7.50% gave first preference of treatment to Govt. allopathic treatment , Private. Allopathic treatment, Aurvedhic treatment, Herbal treatment, Tantrics/Mantrics and others respectively. While first preference of treatment given by the respondents at the time of illness of any family member of the tribal villages having health facility away from

their villages stated that 21.25 percent gave first preference to Tantrics/Mantrics, 17.50 percent like herbal treatment,15 percent gave first preference to Private allopathic treatment, only 6.25 percent of the respondents gave first preference to Govt. allopathic treatment. It shows that faith of the tribals in Govt. allopathic treatment is less because of lack of timely availability of physical and human resources for treatment.

in villages having health facility away from their village had higher number of male patients (60.87%). About 32 percent and 36.96 percent patients were under the age of 15 years in villages having health facility near to village and villages having health facility away from their village respectively. Fever, cough cold, Gastrointestinal and Chicken pox / measles were main diseases in both types of tribal villages. About 40 percent

Table 4: First preference of Treatment at the time of sickness in the Family

First preference of treatment	Tribal villages having health facility near to village N=80	tribal villages having health facility away from village N=80
Govt. allopathic treatment	12.50	6.25
Private.allopathic treatment	8.75	15.00
Aurvedhic	7.50	12.50
Herbal treatment	16.25	21.25
Tantrics/Mantrics	33.75	39.25
Others	13.75	23.75

Characteristics of Minor illness of patients and expenditure on treatment

Table 5 shows that there were 152 and 230 family members of the tribal families suffered by minor illness in the villages having health facility near to their village and villages having health facility away from their village one year prior to the survey respectively. The villages having health facility near to villages had higher number of female patient (57.89%) while

of the patients of the villages having health facility near to their village and 61 percent patients of the villages having health facility away from their village suffered for seven and more days. As far as sources of treatment are concerned, in the villages having health facility near to their village sick persons took the treatment from private allopathic institutes (32%), aurvedhic (21.05%), herbal treatment (15.19%) and govt.

allopathic institutes (13.16%). Whereas, in the villages having health facility away from village, about 33 percent patient took treatment from private allopathic institute, 23.91 percent patient took the treatment from govt. allopathic institutes. About 15 percent and 8.70 percent patients took herbal and aurvedhic treatment. The treatment through tantrics/mantrics was also prevailing in both types of tribal villages.

Further table shows that that about one fourth of the patients of villages having health facility near to their village and villages having health facility away from their village spend less than Rs.300 per year on minor treatment of diseases. About 40 percent patients of the villages having health facility near to their village and about 63 percent of the patients of the villages having health facility away from their villages spend more than Rs.600 per year on the treatment of minor illness.

Figure:4 Annual Expenditure on Minor illness

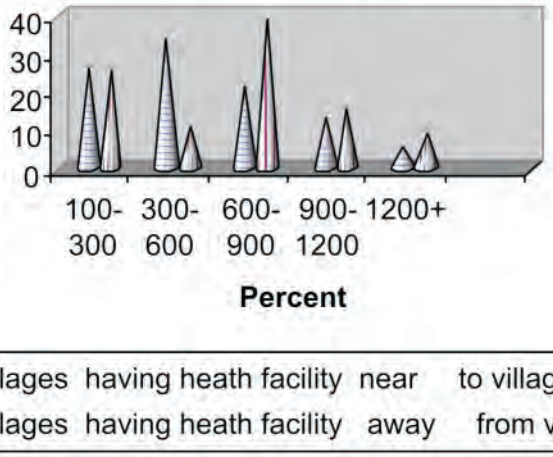


Table 5: Family Members Suffered From Minor Illness and Expenditure on Treatment

Patient Characteristics	Villages having health facility near to village N=80	Villages having health facility away from village N=80
Number of Family members suffered by minor illness	152	230
Sex of patient		
Male	42.11	60.87
Female	57.89	39.13

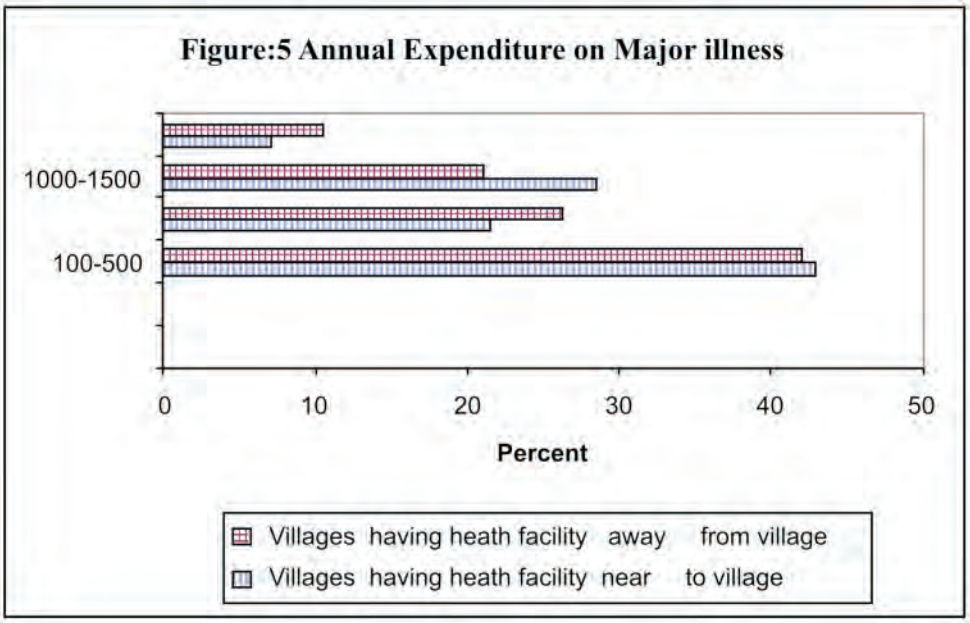
Age of patient		
<15	31.58	36.96
15-35	42.11	43.48
35+	26.32	19.57
Diseases		
Fever	26.32	32.61
Cough cold	36.84	19.57
Body Pain	7.89	10.87
Gastrointestinal	18.42	23.91
Chicken pox/ measles	7.89	8.70
Others	2.63	4.35
Duration of illness		
<7 days	57.89	39.13
7-15	26.32	41.30
15+	15.89	19.57
Sources of treatment		
Govt. allopathic institute	13.16	23.91
Private. allopathic institute	31.58	32.61
Aurvedhic	21.05	8.70
Herbal treatment	15.79	15.22
Tantrics/Mantrics	5.26	6.52
Others	13.16	13.04
Expenditure on minor illness of patient (in Rs.)		
100-300	26.32	26.09
300-600	34.21	10.87
600-900	21.05	39.13
900-1200	13.16	15.22
1200+	5.26	8.70

Characteristics of Major illness of patients and expenditure on treatment

Table 6 shows that there were 14 patients and 19 patients of tribal family suffered from the villages having health facility near to their village and villages having health facility away from their village reported major illness respectively during one year prior to survey. The male patients were higher than the females in both types of villages. About 64 percent of the patients of villages having health

facility near to their village and about 53 percent patients of the villages having health facility away from their village were in age group 15-35 years. In the villages having health facility near to their village about 36 percent patients suffered from typhoid/ Jaundice,28.57 percent from respiratory diseases, tuberculosis, 21.43 percent under gone the operation and 14 percent ,accidental cases . While the villages having health facility away from their village, about 32 percent suffered from typhoid/Jaundice, 21 percent from respiratory diseases, 10.53 percent from tuberculosis 31.58 percent under gone the operation, and 5.26 percent patients' diagnosis cancer. About 64 percent of the patients of the villages having health facility near to their village and 42 percent patients of the villages having health facility away from their village suffered in between one to two months. About 14 percent and 31.58 percent of the patients of villages having health facility near to their village and villages having health facility away from their village suffered more than two months respectively. The treatment of the patients of tuberculosis and cancer was continuing at the time of survey. As far as the sources of treatment are concerned, in the villages having health facility near to their village, 57.14 percent sick persons took the treatment from private allopathic institutes, 35.71 percent from govt. allopathic institutes and 7.14 percent from other sources like herbal treatment, treatment from tantrics / mantrics. Whereas, in the villages having health facility away from village, about 57.89 percent of the patients took treatment from Govt. allopathic institute, 31.58 percent patient took the treatment from private allopathic institutes.

Figure:5 Annual Expenditure on Major illness



About 42 percent of patients spend Rs100-500 in both the villages while assessing annual expenditure on major illness of the patents are concerned, About one third of patients of villages having health facility near to their village spend in between Rs.1000 and more on treatment. While, in the villages having health facility away from village, about 32 percent patents spend Rs.1000 and above on their treatment. The tribals are very poor and most of them, under the poverty line so they could not afford the costly treatment, even some of them took the treatment free of charge as a BPL patient.

Table 6: Family members suffered from major illness and expenditure on treatment

Patient Characteristics	Villages having health facility near to village	Villages having health facility away from village
Number of Family members suffered by Major illness	14	19
Sex of patient		
Male	64.29	57.89
Female	42.86	42.11
Age of patient		
<15	7.14	21.05
15-35	64.29	52.63
35+	28.57	26.32
Diseases		
Typhoid/ Jaundice	35.71	31.58
Respiratory Diseases	28.57	21.05
Tuberculosis	0.00	10.53
Any operation	21.43	31.58
Accidents	14.29	0.00
Cancer	0.00	5.26
Duration of illness		
< one month	21.43	26.32
1-2	64.29	42.11
2+	14.29	31.58

Sources of treatment		
Govt. allopathic institutes	35.71	57.89
Private allopathic institutes	57.14	31.58
Others	7.14	10.53
Expenditure on major ill ness of patient (in Rs.)		
100-500	42.86	42.11
500-1000	21.43	26.32
1000-1500	28.57	21.05
1500+	7.14	10.53

Perception of Tribal about Health

The basic factor affecting health of a person is his diet. The tribes consumed very simple foods like roti, onion and chilly. Some times they took vegetables with roti. Though they were non vegetarian but very occasionally they took non vegetarian food as they could hardly afford it. The tribals had no choice of food. They had very limited food storage; they used to earn daily and purchase the food items according to their earning. Therefore they are malnourished due to the absence of proper availability of qualitative and quantitative of food items.

Tribal perceptions regarding the diet of a pregnant woman is concerned, about 73 percent of the respondents from villages having health facility near to their village and 89 percent of the respondents of villages having health facility away from their villages felt that pregnant woman should be given nutritional diets including ghee, green vegetables and pluses etc. About 18 percent respondents of villages having health facility near to their villages and 26 percent of respondents of villages having health facility away from their villages felt that milk, fats and fruits are necessary during pregnancy. However, 43 percent of the respondents of the villages having health facility near to their villages and 63 percent of respondents of villages having health facility away from their villages felt that pregnant women should take a square meal consisting of vegetables, fruits, pulses and milk, fats etc. About 39 per cent of the respondents of the villages having health facility near to their villages and 45 per cent respondents of villages having health facility away from villages mentioned that eating Brinjal, Banana and Papayya during the pregnancy were considered harmful for women. About 19 percent and 23 percent of the respondents of villages were having health facility near to their villages and villages having health facility far away from their villages felt that spicy food should be avoided by the pregnant women. The perception of tribes about ideal diet of a sick person, about 37

percent of the respondents of the villages having health facility near to their villages and 28 per cent of respondents of villages having health facility away from villages opined that Dalia, milk, fruit juice are ideal intake of sick person. A good proportion of the respondents (26 per cent of villages having health facility near to their villages and 36 per cent of respondents having health facility away from their villages) mentioned that spicy food and heavy food is harmful to sick persons and they should avoid it. About 14 per cent of the respondents of villages having health facility near to their villages and 24 per cent respondents of villages having health facility away from their villages expressed that sick people should be given fresh home cooked meal.

Perceptions about Treatment of Diseases

The open ended questions were asked to the respondents about their preference of the treatment at the time of sickness of their family member for various diseases. A question was asked as to what are the diseases which can be cured by religious rituals or can be cured by Bhapas, Mantras, etc. About 59 per cent of the respondents of the villages having health facility near to their villages and 68 percent respondents of the villages having health facility away from their villages stated that dog bites, snack bites, mental patients were treated through Bhopas and mantras. Some of the respondents (23%) stated that people of the villages gave the first preference to hospital treatment, but when doctor's treatment failed such remedies were tried as the last resort. The questions regarding the utility of traditional cures or cures based on superstitions. About 42 percent and 53 percent respondents of the villages having health facility near to their villages and villages having health facility away from villages stated that need of traditional medicines or cures based on superstitions only for illness caused by ghosts, evil spirits, dayan and people suffered by supernatural impact etc. Beside this more than one forth of respondents of both types of villages were also mentioned the home remedies of some diseases like fiver, dysentery, Jaundice, skin diseases, facture of bones etc. one third of respondents of villages having health facility near to their villages and about 37 percent respondents of villages having health facility away from villages suggested that no treatment given to measles or chicken pox patients otherwise goddess became angry and create the health loss they also optioned that treatment based on superstitions for measles and chicken pox, e.g. offering worship to Goddess who causes these diseases. It can be concluded that people were aware of modern health facilities but at the same time the superstitions in their mind were not completely wiped out. In case of failure of modern medicines they find resort in religious remedies, while for some diseases they feel the treatment based on superstition was the ideal treatment. At this point it is necessary to note that traditional herbal remedies are

based on previous experience and are found to be useful in many cases.

CONCLUSIONS

The health and wealth are poor in the tribes. The life style of tribal people is simple. The smoking and drinking country liquor is part of the life, even male and female both had the habits of drinking and smoking. The major part of their daily earning was spent on drinking. About 16 percent of the respondents and 12.50 percent of their family members of the villages had the health facility near to their villages drink alcohol / country liquor whereas, 23.75 percent of the respondents and 18.75 percent of their family members of the villages had the facility far away from their villages. The majority of tribal people gave first preference of treatment to tantrics / mantrics and herbalist. Food intake is not choice of the tribes. Quality and quantity of food intake was depending on the economic condition. They were daily wage earners and quality and quantity of food was part of their earning. Fever, cough cold, dysentery, chicken pox / measles and diseases related to malnourishment and unhygienic environment were main diseases of tribes. At the initial stage of diseases they approached local health healers and at last stage they approached modern system of medicine. In case of major illness in the later stage they started allopathic treatment. They are non-vegetarian but mostly they consumed vegetarian food as they were unable to afford non-vegetarian foods.

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