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NON-INSTITUTIONAL DELIVERY AMONG ANDH TRIBE: CAUSES AND SOLUTIONS (SPECIAL REFERENCE ON PUSAD TALUKA OF YAVATMAL DISTRICT)

Archana Bhalkar*

Abstract: *The current study examines the causes behind the preference to non-institutional delivery over institutional delivery by Andh tribal women residing in Yavatmal district of Maharashtra state. For this study, data from 126 ever married women of reproductive age residing in three villages of Pusad taluka during the year 2013-2014 were collected. The results showed that due to the insufficient health facilities and number of medical personnel in government health institutions as compared to the population of Pusad taluka was the predominant reason for Andh tribe to prefer private hospitals and home deliveries. Besides this poverty and low educational level of women also was major reason. Percent institutional delivery was 38.89 % and non-institutional delivery was 61.11 %. The percent home delivery by trained health workers was 26.98. About 54% of women fed colostrums to newborn babies. Poverty, compulsion to work as agricultural labor, lower educational level, marriage before the legal age of marriage and the practice of traditional methods of post-natal care among Andh tribe are the major socio-cultural factors responsible for non-institutional delivery. The study indicates a need for improvement in economic status of the Andh tribe, increase in literacy level of women, along with the need to increase the number of medical personnel and facilities in government health institutions.*

Key words: *Andh women, Institutional delivery, Non-institutional delivery*

INTRODUCTION

Institutional delivery means giving birth to a child in a medical institution under the overall supervision of trained and competent health personnel, where there are more amenities available to handle the situation and save the life of the mother and child. In India, it is a prevalent practice to deliver the child at home instead of institutional delivery. If the child is born at home, then chances of getting infected from unhygienic environment are more and it is very tough and sometimes impossible to handle child birth complications.[1] This is the reason behind the higher rates of maternal mortality (178 per 100,000 live births) and infant mortality (42 per 1000 live births), especially neonatal mortality in India.[2] Home delivery with the help of a professional or a trained obstetric care personnel is the most cost-effective way to reduce maternal deaths.[3] Many programs implemented by the Government of India like Child Survival and Safe Motherhood (CSSM), Reproductive and Child Health (RCH) programme and Janani Suraksha Yojana (JSY) under the National Rural Health Mission are focused on this aspect. Despite many governmental efforts, it has not been possible to achieve desired goals for

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safe delivery mentioned in National Population Policy (2000) and National Health Policy (2002). In India, there are a number of obstructing factors which are responsible for reducing the cases of institutional delivery. Keeping the fact in mind, the present study was carried out to identify the causes of non-institutional delivery by the Andh tribe residing in Pusad taluka of Yavatmal district.

METHODOLOGY

A survey was conducted in Pusad taluka of Yavatmal district of Maharashtra state. Three villages of Andh tribe situated within 30 km distance from the government hospital of Pusad taluka namely Mansad, Sandwa and Jawali were selected for the actual sample survey. One hundred twenty-six ever married women of the age group of 15-49 years from these villages were selected by purposive sampling method. A semi structured interview schedule was used to collect data during the year 2013 to 2014. The reference period was from 2009 to 2014, i.e. those Andh women who conceived pregnancy during this period were selected for the study.

Location of villages selected for the study

A large number of Andh tribal people inhabit in Jawali, Sandwa and Mansad villages, located at 19, 12 and 9 km distance from the government hospital of Pusad city, respectively. Primary health centers and allopathic clinics are available within 10 km radius from these tribal villages located in the forest and hilly areas. Because of the non-availability of transportation system, villagers are unable to take advantage of health facilities.

Introduction to Andh tribe

The Andh tribe are found in Yavatmal, Akola and Buldhana districts of Vidarbha region of Maharashtra state. Their total population in Yavatmal district is 1,21,138.[4] It is patrilineal and patriarchal society with characteristics of the Porto Australoid racial group that inhabit in forests and hill slopes in Pusad taluka in a large numbers. Customs and lifestyle of Marathi-speaking Andh tribe have a special influence of Warkari sect.

RESULTS AND DISCUSSIONS

Socio-economic and demographic status of Andh tribe

In present study the socio-economic status of selected Andh women was found to be very low. Among the participants, 57.94 % of women were members of nuclear family and 42.06 % women were from joint families. The average family size was found to be 5.5. During the study, 75.4 % of women and 80 % of men were found found to be literate. However, only 19.84 % of women and 36 % of men had obtained more than ten years of education. The main reason for low educational levels of Andh tribe was poverty and compulsion to work as agriculture laborers. The 65.08 % families among selected respondents were landless. Among the remaining 34.92 % of families, a number of Andh couples were working as agricultural laborers. In all, 9.52 % of women were farmers, 77.78 % were agricultural laborers, 9.52 % were farmers cum agricultural laborers, 0.79 % women were skilled laborers and 2.38 %

of women were unemployed. Similarly, 8% of men were farmers, 80% were agricultural laborers, 9.6% were farmers as well as agricultural laborers and 2.4% men were carrying out other professions. Due to the practice of adolescent marriage, the average marital age was found to be 16.82 ± 2.00 years among Andh women and 20.94 ± 2.65 years among men. About 54 % of Andh women were married before the completion of eighteen years of age and 44.8% of men were married prior to attaining the age of 21 years.

Institutional and non-institutional delivery among Andh tribe

Despite of the selected villages being located in a short distance from the government medical institutions, the percent institutional delivery were low, and was only 38.89%. Andh women preferred private medical institutions instead of government medical institutions for institutional delivery. In general, 9.52% women gave birth to their child in government hospitals, 1.59% of women in primary health centers and 1.59% of women in primary health sub-centers and 26.19% of women delivered in private medical institutions. Comparatively higher rates of delivery in private medical institutions shows the dependency on private medical institutions despite low economic status of Andh tribe.

In Andh tribe new blade was used to cut the umbilical cord, but oil and turmeric were traditionally used to dry the umbilical cord. In the case of non-institutional delivery 57.93% of women used oil and turmeric, 0.79% of women used oil and kunku, 0.79% of women used only oil while 1.59% women used medicated powder or ointment to dry the umbilical cord. In all, 29.37% of women used oil and turmeric in case of institutional delivery as traditional practice, 0.79% of women used only oil and 8.73% of women used medicinal powder or ointment.

In first few days after birth, colostrum is considered to be the best diet as it is very rich in nutrients and antibodies.[5] Mothers are encouraged by the Government to rejuvenate newborn babies by colostrum feeding and to rely solely on breastfeeding for the first six months after birth.[6] In present study, it was found that in cases of institutional delivery 36.51% and in cases of non-institutional delivery 16.67% of the Andh women fed colostrums to their newborn from the first hour after delivery. In case of institutional delivery 2.38% of women gave jaggery-water (hot water mixed with jaggery) instead of colostrums to the newborn. In case of non-institutional delivery 11.11%of women started breastfeeding after first day of delivery, 11.90% of women started after 2 days, 11.11% of women started after 3 days and 10.32% of women started breastfeeding after 5 days of delivery.

Factors responsible for non-institutional delivery among Andh tribe

Table 1 shows the distribution of Andh women on the basis of socio-cultural factors and place of delivery. To identify the responsible factors for non-

institutional delivery among Andh tribe some socio-cultural factors such as type of occupation of women and men, educational level and marital age and traditional practices (jaggery-water as first feed to the newborn) were selected to examine their connection with institutional and non-institutional delivery.

Occupation

Type of occupation of Andh women and men affects the cases of non-institutional delivery. Non-institutional delivery was preferred by a large number of women agricultural laborers (65.31 %). In farmer families, women were not compelled to work in fields every day because of better economic condition in those families. These families gave special attention for taking care of woman during childbirth. In contrast, women agricultural laborers were compelled to go to the work every day to earn bread for their families. They visited nearby Anganwadi center for antenatal checkups during pregnancy and gave birth to their babies at home so that their spouse could go to the work like other days for earning money. In general, non-working women were financially dependent on their life partners, they gave birth to their babies at home.

Table 1: Distribution of Andh women on the basis of childbirth and socio-cultural factors

Indicators	**Institutional Delivery** Number (%)	**Non-institutional Delivery** Number (%)	Total
Occupation of women			
Farmer	75 (9)	25 (3)	(12)
Agricultural laborer	34.69 (34)	65.31 (64)	(98)
Farmer and Agricultural laborer	33.33 (4)	66.67 (8)	(12)
Skilled laborer	100 (1)	0	(1)
Not working	33.33 (1)	66.67 (2)	(3)
Occupation of life partner			
Farmer	50 (5)	50 (5)	(10)
Agricultural laborer	37 (37)	63 (63)	(100)
Farmer and Agricultural laborer	33.33 (4)	66.67 (8)	(12)
Job	100 (3)	0	(3)
Education of women			
Illiterate	19.35 (6)	80.65 (25)	(31)
Primary school	37.78 (17)	62.22 (28)	(45)
Middle school	40 (10)	60 (15)	(25)
High school	46.15 (6)	53.85 (7)	(13)
Higher secondary school	83.33 (10)	16.67 (2)	(12)
Education of life partner			
Illiterate	28 (7)	72 (18)	(25)
Primary school	46.87 (15)	53.13 (17)	(32)
Middle school	43.48 (10)	56.52 (13)	(23)

Indicators	Institutional Delivery Number (%)	Non-institutional Delivery Number (%)	Total
			(23)
High school	42.86 (9)	57.14 (12)	(21)
Higher secondary school	41.67 (10)	58.33 (14)	(24)
Marital age of women			
< 18 years	33.82 (23)	66.18 (45)	(68)
≥ 18 years	46.55 (27)	53.45 (31)	(58)
Marital age of life partner			
< 21years	28.57 (16)	71.43 (40)	(56)
≥ 21 years	47.83 (33)	52.17 (36)	(69)
First feed to the newborn			
Colostrums	68.66 (46)	31.34 (21)	(67)
Jaggery water	5.08 (3)	94.92 (56)	(59)

Note: Number of selected women = 126, number of widow woman = 1, number of men = 125

Level of Education

Non-institutional delivery was more influenced by the education of women compared to the education of men. The percentage of non-institutional delivery (80.65 %) among illiterate women was found to be high. As well as increasing educational level, the percentage of non-institutional delivery decreased in linearly. The percentage of non-institutional delivery was 62.22 % in women with primary education while it was 60 %, 53.85 % and 16.67 % in women with secondary, higher and higher secondary levels of education respectively.

Marital age

Marital age of a man and woman in a particular society is indicative of social backwardness. In Andh tribe, the lower marital age was identified as a responsible factor for increasing cases of non-institutional delivery. The percentage of non-institutional delivery of women who married under the age of 18 years was 66.18 % while among the spouse of men who married under the age of 21 years it was 71.43 %.

Traditional practices

In Andh tribe the newborn babies were given jaggery-water instead of colostrums which exhibits their deep connection with tradition. The highest (94.92 %) percentage of non-institutional delivery was found among women who followed the traditional practice of feeding jaggery-water to the newborn babies.

Other important factors responsible for non-institutional delivery

The total population of Pusad taluka spread over an area of 1183 sq km was 341186, of which 175905 were male and 165,281 were female. There was only one government hospital, a single dispensary (clinic), seven maternity homes, six primary health centers, 47 primary health sub-centers. Here only 34 doctors and Vaidya, and 47 nurses were available and providing health care services.[7] There were about 2.37 doctors and nurses per

10000 population in the government medical institutions in this taluka. This figure reflects the dependency of large population on small number of government medical personnel in Pusad taluka.

According to the World Health Organization's assessment, if there are less than 23 doctors and nurses per 10000 population, priorities of primary health care intermediaries suggested under Millennium Development Goals cannot be achieved.[8] Obviously, in such a situation doctors and nurses cannot give sufficient time and attention to each patient or pregnant woman, which they often require. Due to the high number of patients or pregnant women, the entire day passes in antenatal checkup alone. Because of this fact most of the rural women who were daily wage workers preferred to deliver at home by trained medical personnel or elderly women after getting antenatal checkup in nearby Anganwadi center.

Further, regarding the availability of beds, out of the total available facilities in hospitals of Pusad taluka, only 86 beds in government hospitals were available, of which 44 beds were only allotted to women. On the other hand, in private medical institutions (39 clinics and 25 maternity homes) 391 beds were available.[9] In other words, in government and private medical institutions of Pusad taluka, there were 2.52 and 11.46 beds (13.98 beds per 10000 population) available to per 10000 population respectively. This indicated that there was insufficiency of beds in government medical institutions in proportion to the population, as compared to higher number of beds in private medical institutions. This figure was much lower than the 25 beds per 10000 persons globally.

Insufficiency of government doctors, health workers and available health facilities in Pusad taluka forces the Andh women living in this taluka to seek services from private health providers/ institutions and bear expensive medical treatment. In general, this is the main cause for their seeking private health institutions or delivary at home.

CONCLUSION

In India's National Population Policy 2000, National Socio Demo-graphic Goal was set to provide 80 percent institutional delivery and 100 percent delivery in the presence of trained medical personnel in order to promote safe motherhood. It is clear from the findings of the present study that we are still far away from achieving this goal. The impact of insufficient government medical facilities in proportion to the population and the burden of treatment of a large number of patients on small number of government medical personnel in Pusad taluka clearly reflected upon institutional delivery. Apart from this, socio-cultural factors such as poverty of the tribal population and compulsion to work as agricultural labourer, lower educational level, marriage before the legal age of marriage and traditional practice of post-natal care etc. were identified as other responsible factors for non-institutional delivery. Most important factor was the education of the women.

There is a need to formulate strategies by identifying responsible causes for non-institutional delivery to increase the cases of institutional delivery. There is an urgent need to take efforts by the government to improve the financial condition and educational level and create awareness regarding women health among Andh tribes. More efforts are required in the field of women's education.

On the auspicious occasion of Republic Day on January 26, 2017 the Prime Minister of India has announced the financial support of Rs. 6000 for the institutional delivery of pregnant women of 650 districts of India in order to promote institutional delivery for the purpose of reducing maternal and infant mortality, which is definitely a very important decision. However, till the number of medical personnel and government medical facilities in the selected districts are not being increased, it is impossible for women to take advantage of this financial help provided by the government. Apart from increasing the number of doctors and nurses in government medical institutions of Pusad taluka, the government should immediately take concrete steps to improve and enhance the facilities available there to enable Andh tribes to benefit from these facilities.

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CONTRACEPTIVE PRACTICES AMONG A REMOTE TRIBAL POPULATION IN SOUTH INDIA

Contraception among Indian tribes

Alice Knowles,[1] Mahantu Yalsangi,[2] Susmita Chandra Mouleeswaran[2]* Shylaja Devi Menon[3]

Abstract: *The aim of the National Population Policy is to expand voluntary and informed use of contraceptives. The present study intended to obtain information about contraceptive use among vulnerable and marginalized tribal communities in a remote mountainous area of South India. Data from 2300 eligible tribal couples, belonging to four tribes, residing in the Nilgiris district, Tamil Nadu were obtained. Qualitative data was obtained from a focus group discussion with tribal health animators to understand patterns of use and reasons for discontinuation. Quantitative data was analyzed using Statistical Package for Social Studies (SPSS) version 20.0. The overall contraceptive prevalence rate was 40.6%, and varied from 57.1 to 33.1% among the different communities. Permanent modes of sterilization were preferred by 73% of the protected couples having had tubectomies. Older women, more living children, and members of the tribe with higher socio-economic status were more likely to use contraception. Misconceptions, lack of awareness, lack of engagement by men, and shyness in procurement were themes for non-usage and discontinuation in the focus group discussion. Use of contraception was lesser than the national average of 47% and temporary methods were limited. This was due to low awareness, misconceptions, and access. Younger women requiring contraception for spacing represent a specific area of need.*

Keywords: Contraception, Tribals, South India

INTRODUCTION

The family planning programme is a priority area with regard to development in India.[1] The National Population Policy states that various methods of contraception are to be made available, affordable, and accessible to all, with a long term goal of achieving a stable population by 2045.[2] According to the District Level Household Survey 3, the prevalence of modern contraceptive use was 47.1% overall, and 44.4% in rural areas. The unmet need for contraception in India, which is the proportion of women in reproductive age group in relationships who wish to space or limit the number of children but do not have access to contraceptives was 21.3%.[3]

Contraceptive use was recently studied in five developing countries (including India), through a multi-centre prospective study. This had demonstrated that 65.6% of eligible couples used contraception postpartum, in an urban site in India.[4] About 27.3% of women in an urban centre in India had an unmet need for contraception.[5] However, in certain parts of rural India, nearly 84% of women did not use contraception, despite wishing to do so.[6] The unmet

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need for family planning in the state of Tamil Nadu, in which present study was done, was 27%.[7]

Contraceptive use is governed by multiple factors including awareness, accessibility, and affordability. Socio-economic status and literacy also influence use of modern contraceptives. Despite constituting 8.6% of the population on India (Census 2011), tribals are some of the most isolated, marginalized and vulnerable communities in the country. [8] They traditionally have poorer access to health care, often live in remote areas, and face many socio-economic challenges, and are therefore less likely to have lesser usage of modern contraceptives than non-tribal communities.[9] Contraceptive practices among few such communities in India have been studied.[9,10]

The Association for Health Welfare in the Nilgiris (ASHWINI) is an NGO providing comprehensive health care to over 20000 tribal people living in 300 hamlets spread over the Gudalur and Pandalur taluks of the Nilgiris district in Tamil Nadu, for the last 25 years. Family planning is one of the aspects of the community health programme which is monitored by the health animators (HA)/tribal health nurses. Means of family planning available include oral contraceptive pills (OCPs), condoms, intra-uterine contraceptive devices (copper-t), tubectomy, and vasectomy. These are provided to the couples of tribal community, free of cost, and are available at the area centres and at the Gudalur Adivasi Hospital. The tribal communities living here include the Mullakurumbas, Paniyas, Bettakurumbas and the Kattunayakans.

Justification: The current study was focussed on the contraception usage among a very vulnerable and isolated community, and possible barriers they face through the use of a quantitative and qualitative approach. This could help assess the penetration of the National Population Policy into some of the most marginalized and geographically isolated people in India. Understanding the barriers they face in using contraception could help with addressing issues including specific concerns unique to these people.

MATERIALS AND METHODS

A mixed methodology was used with both quantitative and qualitative methods of data collection.

Quantitative: The Gudalur and Pandalur taluks are divided into 8 geographic areas. Each area is served by one or two health animators. These are trained nurses from the tribal community, who visit the villages in each area on a monthly basis for service provision and data collection. The data for present study was obtained retrospectively from the systematic records collected by the HAs for the year 2011-12. Ethical clearance to access the records was obtained from the hospital committee and from community representatives. Data regarding eligible couples, socio-demographic details, contraceptive use, and associated factors were collected. The data collected about each couple included socio-demographic details, tribe, type of contraception used, and the number of living children. The data was anonymized

and the patient names were not included in the study.

The data was entered into Statistical Package for the Social Sciences (SPSS) Version 20 by double data entry technique. Frequencies, means and standard deviations were used to describe the sample characteristics. Chi square, *t*-test, one way ANOVA, and binary log regression were used to study the association between variables.

Qualitative:

A focus group discussion was conducted with 15 HAs to discuss about trends of contraceptive usage over the last two decades and reasons for preferring or not preferring individual contraceptive methods. Most of the HAs were working in their areas for more than twenty years, and their knowledge of the community was very high. The discussion was recorded, transcribed verbatim, and broad themes and areas of consensus were identified. The authors were familiar with the languages used and did not required translators.

RESULTS

There were 2306 eligible tribal couples in the Gudalur and Pandalur taluks. Of these, information about 2300 couples was obtained. Paniyas were the most populous tribe and accounted for nearly 57% of the total population. The Mullukurumbas were the least numerous and comprised only 8% of the total. Other baseline factors studied included the age of the mother, and the number of living children of the couple **(Table 1).**

Table 1: Baseline dataa

Tribe	Frequency	Percentage (%)	Mother's age Mean (yrs)	Std. Dev.	No. of living children Mean	Std. Dev.
Paniya	1300	56.5	29.25	6.31	2.32	1.49
Bettakurumba	471	20.5	29.00	6.40	2.48	1.58
Kattunaikan	344	15.0	28.42	6.32	2.40	1.63
Mullakurumba	185	8.0	31.42	6.76	1.66	0.98
Total	2300	100.0				

The prevalence of contraception use among the Mullukurumbas was highest at 57.1%, and was 40.6% for the entire tribal community (Table 2). Permanent sterilization through tubectomy was the most commonly used form of contraception, accounting for 74.4% of the total (Table 3).

Table 2: Contraceptive prevalence rate

	No. of couples using any contraception	Percentage (%)	Total population
Paniya	518	39.9	10314
Bettakurumba	193	41.4	3944
Kattunaikan	114	33.1	2451
Mullukurumba	105	57.1	1256
Total	930	40.6	17965

Table 3: Types of contraception used

Types	Frequency (%)
Copper T	152 (16.2)
Condom	3 (0.3)
OCP	38 (4.0)
Permanent postpartum sterilization	695 (74.4)
Vasectomy	46 (4.9)
Total	934

Factors affecting use of contraception

Bivariate analysis including one way ANOVA and chi square tests were done to study the association between certain factors and the use of any form of contraception (Tables 4, 4a, 4b, and 4c).

Table 4: Factors associated with contraceptive usage

Factors studied	Significance (p value)
Mean no. of living children	0.000
Increasing mothers age	0.000
Tribe	0.000

Table 4a: Mean no. of living children vs. contraception use (one way ANOVA)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	57.157	3	19.052	87.671	.000
Within Groups	469.190	2159	.217		
Total	526.348	2162			

Table 4b: Tribe vs. use of any contraception

	Any contraception		Total	Pearson's Chi square
	Yes	No		
P	518	780	1298	0.000
BK	193	273	466	
KN	114	230	344	
MK	105	79	184	
Total (missing 8)	930	1362	2292	

Table 4c: Mother's age vs. use of any contraception

Mother's age in years	Any contraception		Total	Pearson's Chi Square
	Yes	No		
16-19	9	73	82	0.000
20-24	93	416	509	
25-29	198	364	562	
30-34	280	270	550	
35-39	236	160	396	
40-44	89	44	133	
45-49	12	8	20	
Total (missing 48)	917	1335	2252	

Multivariate analysis: A logistic regression was performed to ascertain the effects of mother's age, number of living children, and tribe on the likelihood that the participants used contraception. The logistic regression model was statistically significant (chi square = 74.813, p= 0.000). The model explained 26.7% of the variance in contraceptive use and correctly classified 71.6% of the cases. The Mullukurumbas were 4.1 times more likely to use contraception than the Paniyas. Increasing age and more number of children were associated with increased likelihood of using contraception (Table 5).

Table 5: Factors predicting contraception use

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Mother_Age	-.051	.009	31.426	1	.000	.950	.933	.967
	Tribe			46.303	3	.000			
	Tribe(1)	1.046	.177	35.069	1	.000	2.847	2.014	4.025
	Tribe(2)	.945	.199	22.578	1	.000	2.572	1.742	3.798
	Tribe(3)	1.417	.215	43.363	1	.000	4.123	2.705	6.285
	Living_Children	-.594	.044	180.326	1	.000	.552	.506	.602
	Constant	2.278	.306	55.369	1	.000	9.759		

There were 153 couples among the unsterilized couples in the community with high birth order of four or more living children who were not using any form of contraception.

Qualitative Data

General trends on contraceptive use in the last two decades:

"Initially there were more people with vasectomy. During the eighties, and late seventies, during the Emergency, many tribal men including those who were unmarried were taken for vasectomy forcefully. As a result, the population in many villages came down. Since the population was less, they were frequently asked to have three children or wait until two children become grownups, before sterilization."

On vasectomy:

"People are scared of it after the experience before. They are afraid that after vasectomy they can't do heavy work, or climb trees. Even women do not allow husbands to get it done for this reason."

"There is more risk of infection, so they won't do it"

"There is more risk of failure. One couple had a child after vasectomy, and the husband became very suspicious. So, the women don't want their husbands to go for it."

On tubectomy:

"There is more in recent times. We ask the women to wait till the children are grownup, because of high prevalence of sickle cell and infant mortality, but they get it done with private doctors."

"Very few are scared of it because of falling ill, dying during surgery."

On copper T:

"They are afraid they will become very thin, have abdominal and back pain, have heavy bleeding or discharge"

"People at home scare them and say that they will fall ill after copper T"

"Their husbands are very abusive, drink alcohol, and do not allow them to use copper T. The women are afraid of their husbands"

On Oral contraceptive pills (Mala-D):

"They don't know where to get it"

"It reduced breast feeds, and they don't use it till the baby is one year old"

"They are afraid of weight gain."

"Women don't prefer it as they have to take it every day and they often forget it."

On Condoms:

"They feel very shy to ask for it"

"There is no privacy to keep it at home or to dispose it outside"

"Very few people use it"

DISCUSSION

It was found that the contraceptive prevalence rate in studied population, which is the proportion of eligible couples using contraception, was 40.6%. A majority of protected couples had opted for permanent sterilizations, predominantly tubectomy (74.4% of protected couples). Reasons for not using contraception, as revealed in the focus group discussion, included misconceptions, fear of adverse effects, lack of support from male partners, and shyness in procuring methods.

More than half the respondents belonged to the Paniya tribe. The other tribes in decreasing order of population were the Bettakurumbas, Kattunayakans, and the Mullukurumbas. Among 75% couples the woman's age was less than 34 years. About 70% of the respondents had 1 to 3 living children.

In present study, the Mullakurumba community had the highest contraceptive prevalence rate with 57.1%, while only 33.1% of Kattunayakan community used any form of contraception. This could reflect the fact that the Mullukurumba community had the highest socio-economic status and literacy among the four tribal communities studied. This agreed with the findings from previous studies among tribals in India that reflected the promotive effect of education and SES on contraceptive usage.[9]

Factors found to be associated with the use of any form of contraception included increasing maternal age, increasing number of living children, and belonging to the Mullukurumba tribe. It could be speculated that the first two factors imply a greater use of contraception for the purpose of completing the family than for spacing. This agreed with the fact that permanent methods of contraception were most commonly used.

The usage of contraceptive methods was lesser as compared to the Indian average. Both client (such as lack of knowledge) and contraception related (cost) factors had been reported as reasons for their unmet need for contraception, in another centre in Tamil Nadu.[5] The use of contraception was

40.2% among a tribal community in North Bengal.[10] Overall, use of contraception among many tribal communities in India, and their knowledge on contraception seem quite low.[9]

Permanent methods of contraception were most commonly used with 32.3% of the protected couples had undergone permanent sterilization. Of these, only 2% were vasectomies. This reflects general trends in India, with a predominance of female sterilization.[11, 12] Misconceptions regarding vasectomy and the patriarchal family system could explain this finding.

Copper T was the most commonly used temporary method of contraception with 6.6% of eligible couples using it. However, adverse events related to its usage, resistance from partners, and misconceptions limited its usage. Utilization of other forms of contraceptives such as oral contraceptives and condoms was found to be very low at 1.7% and 0.1% respectively. Utilization of condoms might be higher in the community due to the presence of several condom outlets; however obtaining the information of usage is difficult. In the focus group discussion, issues related to condoms included shyness to procure it, lack of privacy in using, storing and disposing them.

This trend for not preferring temporary methods of sterilization is in agreement with findings from other tribal communities in India. Overall, the awareness about temporary contraception and their use seems lower in tribal as compared to non-tribal women.[9] Some of the reasons for this appeared to be lack of information, costs, and limited access.[9, 13] Although these methods were available in our centres free of cost, remoteness of some villages, misconceptions, and lack of awareness contributed to their non-utilization. Reasons for not using contraception among a tribal community in North East India included inadequate health services, health concerns, and wish to have more than two children.[13] Preference for sons also influenced the family size and contraceptive use according to a previous study in the Nilgiris.[14]

CONCLUSIONS

It appears that the use of contraception in general, and temporary methods in particular seem to be less in this tribal population. An area of special need appear to be young women with need for spacing the family. The focus group discussion revealed misconceptions, practical difficulties, cultural taboos, and fears regarding contraceptive usage. Possible solutions for this problem could be through increased focus on contraception, family planning advice, addressing fears related to use of temporary contraceptive methods, engaging with the men, increasing access, and conducting outreach visits addressing gender dynamics. These have been demonstrated to increase contraceptive use in other rural parts of India.

There is a requirement to conduct a prospective future study on the unmet need for contraception and reasons for the same among this community.

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COMMUNITY KNOWLEDGE, PERCEPTION ABOUT MALARIA AND CARE-SEEKING AMONG THREE MAJOR TRIBES OF MADHYA PRADESH

Mrigendra Pal Singh[1,2]

Abstract: *Social and behavioral factors of the community play a vital role in success of malaria control program and elimination goal. Improper knowledge about disease etiology, transmission, sign and symptoms, delay in seeking treatment, and non-adherence to treatment are the major challenges to malaria control and elimination. Therefore, a better understanding of social, behavioral and cultural practices is important for improving the use of existing health interventions. Large number of the studies explored the misconceptions and inappropriate practices about malaria which are the major concern in disease control program and burden on household. An in-depth interview of head of households was conducted to assess the knowledge, perception and care-seeking practices regarding malaria among three major tribes i.e. Gond, Baiga and Bhil of Madhya Pradesh. Results revealed that knowledge about etiology of malaria transmission, symptoms of disease and diagnosis was considerably higher among Baiga followed by Bhil and Gonds. Practices of malaria prevention measures were also observed highest among Baiga followed by Bhil and least among Gonds. Gond and Baiga mostly preferred informal health providers as their first line of treatment for malaria illness, however, Bhils preferred government health providers. Need of the hour is to sensitize the tribes on malaria dynamics, essentiality of prompt diagnosis and treatment and its sources. There is also a need to strengthen the anti-malarial program in these remote, inaccessible tribal areas.*

Keywords : Malaria, Knowledge perception, Cultural practices, Treatment seeking, Tribe

INTRODUCTION

The social and behavioral factors of the community such as people's perception, health beliefs and taboos, practices on preventive aspects and seeking treatment are playing vital role in success of malaria control program and elimination goal. These social and cultural practices may adversely influence the choice, acceptance and use of malaria control interventions.[1-3] Inappropriate knowledge about disease etiology of transmission, its sign and symptoms, delay in seeking treatment and non-adherence to treatment are the major challenges for malaria control programme.[4-5] Proper implementation of malaria control strategies require adequate synergy between supply (service provider) and demand (community response).[6] Ignorance of social, behavioral and cultural factors are common in any disease interventions, as a result these interventions are sub-optimally utilized by the community.[7-10] Therefore, a better understanding of

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social, behavioral and cultural practices is important for improved use of the existing health interventions.[11-12]

Large number of the studies on community knowledge and perception, attitude, behavior and treatment practices relating to the malaria illness have been carried out in different epidemiological settings, ecological zones and population from different parts of India.[13-31] Most of these studies explored the misconceptions and inappropriate practices about malaria which are the major concern in disease control program and burden on household. Some studies also analyzed the predictors of people perceptions related to the malaria.[20, 32-33] The current study aim to assess the community knowledge, perception and practices related to malaria among three major tribal communities i.e. Gond, Baiga and Bhil of Madhya Pradesh, India.

MATERIAL AND METHODS

The data for the present analysis was extracted from the study on estimation of economic loss due to malaria carried out in four districts namely Jabalpur, Chhindwara, Balaghat and Jhabua of Madhya Pradesh during March 2015 to August 2016. In-depth interview was conducted with the head of the households or any elder family member if head of household was not present at the time of visit. Interview schedule contained questions relating to their demography, socioeconomic status (SES), knowledge regarding sign and symptoms of malaria and severe malaria, source of transmission, prevention practices for protection from mosquito bite, diagnosis and treatment. Standard of Living Index (SLI) was calculated from weighted frequency of SES indicator variables like type of housing, electricity, water and sanitation facility, household assets, livestock and agriculture land and crops cultivated. Categorical data was tabulated in frequency distribution with percentages. Chi square test of significance was applied for 2 x 2 contingency distributions and *t*-test used for comparison between two independent means.

All study subjects were interviewed after obtaining voluntary, informed consent, assuring them about confidentiality of the information sought from them and their right to withdraw from the study at any time. The study was approved by institutional ethics committee of ICMR-National Institute of Malaria Research, New Delhi (ECR/65/Inst/DL/2013).

RESULTS

The study results are presented in **Table 1** and it revealed that more than 50% head of the households were within the age group of 25 – 44 years. The computed family size for Bhil was 7.22±2.47 and it was significantly larger than Gond (5.68±2.13) and Baiga (5.35±2.02) ($P<0.0001$). Literacy of household's head was significantly lower among Bhil (24.33%) compared to the Gond (55.46%) and Baiga (52.20%) ($P<0.0001$). Agriculture and labour was the main occupation for household livelihood among all three tribes. SLI showed that Bhil households were economically better than Baiga and Gond ($P<0.0001$). The probable reason could be that more Bhil population was engaged in regular salaried job either

Table 1: Socio-demographic characteristics, malaria related knowledge and practices among tribes

Variables	Group	Tribe		
		Gond (N=559)	Baiga (N=205)	Bhil (N=374)
		n (%)	n (%)	n (%)
Socio-Demography				
Age group	15 - 24 yrs	29(5.19)	7(3.41)	18(4.81)
	25 - 34 yrs	136(24.33)	45(21.95)	96(25.67)
	35 - 44 yrs	178(31.84)	67(32.68)	98(26.20)
	45 - 54 yrs	124(22.18)	52(25.37)	75(20.05)
	55 - 64 yrs	73(13.06)	26(12.68)	63(16.84)
	65+ yrs	19(3.40)	8(3.90)	24(6.42)
Size of family	Upto 5 members	292(52.24)	122(59.51)	92(24.60)
	More than 5 members	267(47.76)	83(40.49)	282(75.40)
Education	Illiterate	250(44.72)	98(47.80)	284(75.94)
	Primary	158(28.26)	59(28.78)	44(11.76)
	Middle	76(13.60)	31(15.12)	21(5.61)
	Secondary and above	75(13.42)	17(8.29)	25(6.68)
Main occupation	Agriculture	392(70.13)	140(68.29)	321(85.83)
	Small business	4(0.72)	1(0.49)	2(0.53)
	Salaried job	8(1.43)	4(1.95)	8(2.14)
	Casual labour	155(27.73)	60(29.27)	43(11.50)
Standard of Living Index	Low	292(52.24)	120(58.54)	94(25.13)
	Middle	236(42.22)	75(36.59)	178(47.59)
	High	31(5.55)	10(4.88)	102(27.27)
Knowledge				
Knew symptoms		106(18.96)	91(44.39)	89(23.80)
Knew cause		402(71.91)	185(90.24)	295(78.88)
Knew diagnosis		396(70.84)	166(80.98)	247(66.04)
Knew place of diagnosis		285(50.98)	98(47.80)	170(45.45)
Practices				
Used any preventive measures		468(83.72)	196(95.61)	355(94.92)
Used coil/cake		13(2.33)	13(6.34)	21(5.61)
Used bed-net		145(25.94)	77(37.56)	125(33.42)
Sought treatment within 24hr		193(34.53)	100(48.78)	254(67.91)
Treatment source	Informal	341(61.00)	83(40.49)	133(35.56)
	Private	80(14.31)	71(34.63)	24(6.42)
	Government	138(24.69)	51(24.88)	217(58.02)

government or private and adult members of the households were often migrating to various industrial areas adjoining Gujarat state for livelihood. They were also cultivating cotton as a cash crop which enhances their economic condition.

Knowledge regarding etiology of malaria transmission, symptoms of disease and diagnosis was considerably higher among Baiga followed by Bhil and Gond. Practices of malaria prevention measures was also observed highest among Baiga followed by Bhil and least among Gond. Gond and Baiga mostly preferred informal health providers which include self medication, traditional healers, witchcraft, unqualified health providers and chemist shop as their first line for seeking treatment for malaria illness, however, Bhil preferred government health providers.

DISCUSSION

The results have shown that knowledge regarding disease etiology, its mode of transmission was reasonably good among households and this information is in agreement with some other studies.[34-36] However, Adongo et al. (2005)[3], Mazigo et al. (2010)[37] and Chovatiya et al. (2013)[38] contradicted the above findings. About 25% household knew about malaria and related symptoms. Health facility and/or health workers were the main source of information. The findings are similar to that as reported by Hlongwan et al. (2011)[39] but in contrast with other studies where mass media (TV/newspaper) and individual's experience with malaria was the main source of information.[40-41] Households knew that fever with chills and rigor is the main sign and symptoms of malaria and high grade fever and convulsion is the major symptoms for sever malaria infection. Although, most of households (78%) knew that malaria is transmitted through mosquitoes but regarding mosquito breeding place largely they had misconceptions that it breeds in garbage, cow dung, mud and forest, instead of stagnant water. Burning leaf and cow dung was the most common practice (81%) for keeping the mosquito away. Only 30% households owned bed-net and un-affordability was the major reason reported for non procurement of the bed-nets.

Therefore, they used one or other preventive measures to protect themselves and family members from mosquito bite. However, modern preventive measures were poorly used due to un-affordability. Need of the hour is to sensitize the tribes on malaria dynamics, essentiality of prompt diagnosis and treatment and its sources. There is also a need to strengthen the anti-malarial program in these remote, inaccessible tribal areas.

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PHYTO-MEDICINE FOR SNAKE-BITE AND SCORPION-STING IN CHHATTISGARH, INDIA

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Abstract: *Snake bite and Scorpion sting is a common public hazard that leads to high mortality and morbidity in the Chhattisgarh state. An ethno-medicinal survey was carried out during April 2008 to December 2009 to collect information on the use of phyto-medicines for the treatment of snake-bite and scorpion-sting among tribals in Chhattisgarh, India. In present investigation, 58 species used by the tribal healers are documented. The people of Chhattisgarh use 58 plant species for the treatment of snake bite and scorpion sting out of which 9 plant species were used in both. The root is major plant part used for the medicinal purpose by the traditional healers. Many Indian medicinal plants are mentioned in literature, which are used for the treatment of snake bite and scorpion sting in the tribal and rural areas. Phyto-medicines may prove beneficial for the treatment of snake bite and scorpion sting. Therefore, phyto-chemical analysis is required to obtain biologically active compounds as well as there is a need for suitable clinical trials for its scientific validation.*

Keywords: Phyto-medicine, Snake bite, Scorpion sting, Chhattisgarh

INTRODUCTION

Medicinal plant wealth of Chhattisgarh is very rich and diversified. Medicinal plants or phyto-medicines are the important source of drugs for health care in remote hamlets of Chhattisgarh, India. The tribal healers of state use various phyto-medicines or plant-based medicines for the treatment of snake bite or scorpion sting. Snake bite and scorpion sting is one of the major health hazards in the state that leads to high morbidity and mortality. Chhattisgarh is one of the states in India having high prevalence of snake bite death.[1] The actual number of snake bite cases may be much higher as majority of cases occurring in rural and tribal hilly area remained unreported. Bites were more common in males, and the male: female ratio was 5:3. Maximum cases occurred during the monsoon season and involved the lower limbs.[2] According to the National Crime Record Bureau 780 deaths were recorded in 2013, the third highest mortality recorded in India after Maharashtra and Madhya Pradesh.[3] A survey was conducted in and around *Chikmagalur* district. Single herbal preparations and compound preparations were explored by the folklore *Vaidyas*. The use of total 26 plants by folklore *Vaidyas* were reported for snake bite management.[4] There were 20 plant species belonging to 16 families

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used by the tribal communities and medicinal healers of Paschim Medinipur district, West Bengal for snake-bite treatment.[5] Around 30 folk remedies for snake-bite, 18 for scorpion-sting and 4 for dog-bite were reported from tribes of Eastern Ghats of Kolli Hills, Tamilnadu.[6] The tribal communities of Tumkur district Karnataka state used 40 plant species known to possess anti-venom properties against snakes, rats, dogs, scorpion and insect bites/stings. Out of 40 species, 30 are known to plant science as antidote plants. The other 7 plants are *Andrographis serpyllifolia* (Vahl.) Wt., *Canthium parviflorum* L., *Citrullus colocynthis* (L) Schrad., *Coleus amboinicus Lour.*, *Croton bonplandianum* Baill., *Dipteracanthus prostratus* (Poir) Nees., and *Sterospermum colais* (Buch-Ham, ex. Dillw) Mabbe. that have been reported for the first time as phyto-antidotes and 3 are for multipurpose use.[7] Tribes of South Surguja use 10 plants for snake-bite and 5 plants for scorpion-sting. Each family uses a particular variety of a plant species as a tradition for the treatment of snake-bite and scorpion-sting.[8]

MATERIAL AND METHODS

Chhattisgarh state is rich in forest density that covers 44% of the total geographical area of the state. Hence, Chhattisgarh has been declared as "Herbal State", owing to its rich floral diversity and encompassing wealth of invaluable indigenous traditional knowledge base, inherent with tribal folk. The field trip was conducted in different Forest Divisions of the Chhattisgarh during 2008– 2009 and collected phyto-medicinal information from Baiga, Hill Korwa, Kodaku, Gonds, Halba, Kanwar, Binjhwar, Saora, Muria, Mariya, Cherwa, Pando, etc. tribal communities especially traditional healers and experienced community people. The data was collected by using pretested interview schedule and group discussion. Information on medicinal plants, local name, plant parts used, and mode of administration was recorded. The plants were recorded, identified and verified by using standard Flora and herbarium specimens from Botanical Survey of India Central Circle, Allahabad, India. The tribal traditional healers posses vast knowledge of medicinal plants for the treatment of various ailments, so the present study was an attempt to document phyto-medicinal practices by the tribal of Chhattisgarh for snake-bite and scorpion-sting.

RESULTS AND DISCUSSION

The present paper focused on phyto-medicines (medicinal plants) used by the tribal of Chhattisgarh for the treatment of Snake-bite and Scorpion-sting. The information of 58 species of medicinal plants belongs to 38 families and 57 genera are given. Out of 58 medicinal plants 33 are used for snake-bite, 13 plants for scorpion-sting and 9 plants are used for both snake-bite and scorpion-sting. *Azadirachta indica*, *Andrographis paniculata*, *Achyranthes aspera*, *Hemidesmus indicus*, *Musa paradisiaca*, *Tamarindus indica*, *Buchanania lanzan*, *Butea monosperma*, *Diospyrus melanoxylum*, *Moringa oleifera* and *Madhuca longifolia* has been reviewed to

be used as an anti-snake venom medicinal plants of Chhattisgarh.[9] *Mucuna pruriens*, *Strychnos-nux-vomica*, *Tamarindus indica*, *Curcuma longa*, *Argemone Mexicana*, *Rauwolfia serpentian* and *Tephrosia purpura* has been investigated for their pharmacological potential against snake-bite.[10] *Calotropis gigantea*, *Rader-machera xylocarpa* are reported being used by Thakur tribes of Raigad district, Maharastra for the treatment of snake-bite and scorpion-bite.[11]

The phyto-medicinal investigation reveals that tribal people and Vaidhyas (Traditional Healers) use various plants for the treatment of snake-bite and scorpion-sting in single or in combination with different part of plants and mantras. Regarding the plants part used, roots with 54.79 % followed by bark 16.44 %, leaf 13.70 % and seed 05.48 % (Figure 1).

The tribal people have deep rooted faith with traditional healers and medicinal plants since the time immemorial. The tribals rely on their traditional health care practices based on medicinal plants or magico-religious acts.

The details of medicinal plants like botanical names, family, local name, part used and recipes about snake-bite (Table 1), scorpion-sting (Table 2) and both (Table 3) are represented. *Cordia macleodii* (Griff.) Hook F. & Thoms, *Trichosanthes bracteata* (Lam.) Voigt., Grewia hirsuta Vahl., *Citrullus colocynthis* (L.) Kuntz., *Catunaregam spinosa* (Thunb.) Tirvengadum, *Jatropha curcas* L., *Eranthemum nervosum* (Vahl.) R. Br., etc. are important and less known medicinal plants used by the tribal people residing in forest hamlet of Chhattisgarh State.

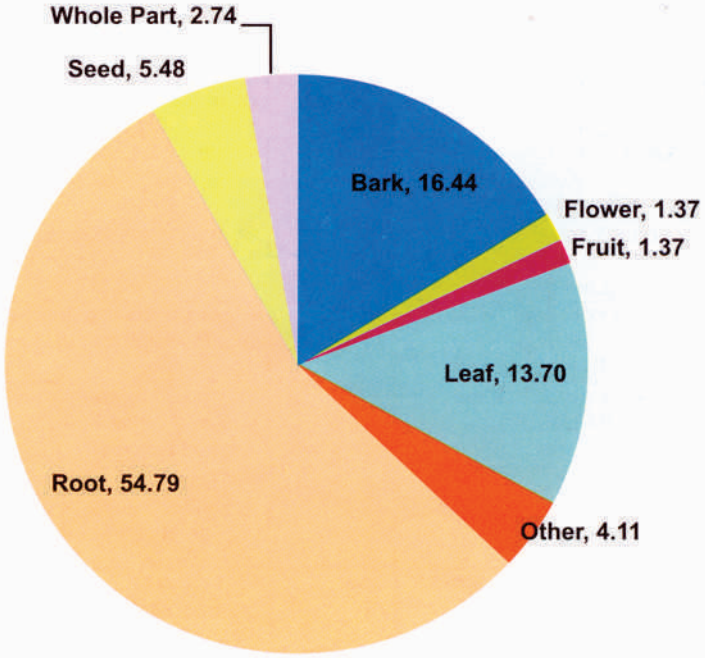

Figure 1: Percentage of part used for medicinal purpose

Table 1: Plants used against snake-bite in Chhattisgarh

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
1	Amaltas	*Cassia fistula* [Caesalpiniaceae]	Bark	05 gms of fresh bark with 100 gms of Tulsi *Ocimum gratissimum* L. (leaf) and 02 gms of Sugandhi *Hemidesmus indicus* (L.) R. Br. (root) are made into juice and poured through nostrils and ears once a day.
			Root	Aqueous extract of root is prepared in water and given orally once a day.
			Root	10 gms of root and 10 gms of doodh mongra (root) are made into juice with 50 ml water and given orally once a day for one day.
2	Bagdol	*Trichosanthes bracteata* (Lam.) Voigt. [Cucurbitaceae]	Root	Extract of root prepared with water and given orally once daily for three days.
3	Bahera	*Terminalia bellirica* (Gaertn.) Roxb. [Combretaceae]	Bark	Aqueous extract of bark is prepared with water and given orally once only.
4	Bhuineem	*Andrographis paniculata* (Burm.f.) Wallich ex Nees [Acanthaceae]	Leaf	10 gms of fresh leaf and lahsun *Allium sativum* L. are crushed and mixed with water, aqueous extract is given orally once a day.
5	Charota	*Cassia tora* L. [Caesalpiniaceae]	Seed	Aqueous extract of seed is prepared in water and given orally once a day.
6	Cherai godwa	*Vitex peduncularis* Wallich ex. Schauer [Verbenaceae]	Leaf	Aqueous extract of leaf is prepared in water and given orally once a day.
7	Dahiman	*Cordia macleodii* (Griff.) Hook F. & Thoms [Boraginaceae]	Bark	Aqueous extract of bark is prepared in water and given orally once a day.
8	Doodhi, Anantmool	*Hemidesmus indicus* (L.) R. Br. [Asclepiadaceae]	Root	Aqueous extract of 05 gms root is prepared with water and given orally twice a day for two days.
9	Garud	*Radermachera xylocarpa* . (Roxb.) K. Schum. [Bignoniaceae]	Root, Bark, Fruit	Aqueous extract of root or bark is prepared with water and given orally once a day. 01 gm fruit powder with 50 ml water is prepared and given orally once a day.
10	Gursankhri	*Grewia hirsuta* Vahl. [Tiliaceae]	Whole Part	Aqueous extract of whole plant is prepared and given orally once a day for one day.
11	Indravan	*Citrullus colocynthis* (L.) Kuntz. [Cucurbitaceae]	Root	10 gms of root extract is prepared with 50 ml water and given orally twice a day.
12	Jhumka	*Leonotis nepetifolia* (L.) R Br. [Lamiaceae]	Root	05 gms of fresh root are eaten once only.
13	Karmi, Haldu	*Adina cordifolia* (Roxb.) Hook. f. [Rubiaceae]	Bark, Leaf	Extract of bark or leaf is prepared with water and given orally twice a day for one day.
14	Kela	*Musa paradisiaca* L. [Musaceae]	Root	10 gms of fresh root with 10 gms of supli *Caryota urens* L. (root) are made into paste and applied externally; juice is given orally once daily.
15	Keonch	*Mucuna pruriens* (L.) DC. [Fabaceae]	Root	Aqueous extract of root is prepared in water and given orally after every one hr for one day.
16	Kharati	*Tylophora indica* (Burm.f.) Merr. [Asclepiadaceae]	Leaf	Extract of 10 gms leaf with 50 ml water and given orally thrice a day for one day.
17	Khas	*Vitiveria zinzioidis* [Poaceae]	Root	Aqueous extract of root is prepared in water and given orally thrice a day.

P.T.O.

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
18	Koria	*Holarrhena antidysenterica* Wallich. [Apocynaceae]	Leaf	Extract of 5 gms leaf is prepared with 50 ml water and given orally once a day.
19	Manj	*Catunaregam spinosa* (Thunb.) Tirvengadum [Rubiaceae]	Root	Extract of 5 gms leaf root is prepared with 50 ml water and given orally once a day.
20	Meetha Bariyari	*Murraya koenigii* (L.) Spreng [Rutaceae]	Whole Part	10 gms of whole plant and 10 gms of bhui aonla *Phyllanthus aisy - shawii* Brunel ex Roux. (Whole plant) are made into juice with 50 ml water and given orally once a day.
21	Memri	*Thalictrum foliolosum* DC. [Ranunculaceae]	Leaf, Bark	Aqueous extract of fresh leaf or bark is prepared and given orally once only a day.
22	Mohlain	*Bauhinia vahlii* Wight. & Arnott. [Caesalpiniaceae]	Root	10 gms of root and 10 gms of tendu *Diospyros melanoxylon* Roxb. (root) are made into juice with 200 ml water and given orally twice a day for two day.
23	Neem	*Azadirachta indica* A. Juss. [Meliaceae]	Leaf	Aqueous extract of fresh leaf is prepared and given orally twice a day.
24	Ratanjot	*Jatropha curcas* L. [Euphorbiaceae]	Root	Extract of 10 gms root with 100 ml water and given orally thrice a day for one day.
25	Rohina	*Soymida febrifuga* (Roxb.) A Juss [Miliaceae]	Bark	50 gms of stem bark and 50 gms of pat koria *Cissampelos pareira* L. (root) are made into juice with 100 ml water and given orally thrice a day for three days.
26	Safed Keonch	*Mucuna pruriens* (L.) DC. [Fabaceae]	Root	Extract of 10 gms leaf is prepared with 50 ml water and given orally once a day.
27	Sarpgandha	*Rauvolfia serpentina* (L.) Benth. ex Kurz. [Apocynaceae]	Root	Extract of 10 gms root is prepared with 50 ml water and given orally once a day.
28	Sarphoonka	*Tephrosia purpurea* (L.) Pers. [Fabaceae]	Root	Extract of 50 gms root is prepared with 100 ml water and given orally once a day.
30	Shukla ghas	*Heteropogon contortus* (L.) P. Beauv. ex Roem. & Shult. [Poaceae]	Root	10 gms of fresh root are eaten once only.
31	Tinpatiya	*Desmodium pulchellum* (L.) Benth. [Fabaceae]	Root	Aqueous extract of fresh root is prepared and given orally once only for one day.
32	Umjan	*Celastrus paniculatus* Willd. [Celasteraceae]	Root	25 gms of root and 25 gms of parsa *Butea monosperma* (Lam.) Taub. (stem bark) are made into juice with 50 ml water and given orally twice a day for one day.
33	Vishkhapri	*Eranthemum nervosum* (Vahl.) R. Br. [Acanthaceae]	Root	50 gms of root is pounded and given orally twice daily for three days.

Table 2: Plants used against scorpion-sting in Chhattisgarh

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
1	Aak	*Calotropis gigantea* [Asclepiadaceae]	Milky latex	Milky latex is applied externally twice daily for 7 days on to scorpion string
2	Arandi	*Ricinus communis* Linn. [Euphorbiaceae]	Root	100 gms fresh roots are pounded and made extract in water and filtered. Juice of root is given orally twice a day and filtrate is applied on to scorpion string.

P.T.O.

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
3	Barha kand	*Dioscorea pentaphylla* L. [Dioscoreaceae]	Root	5 gms fresh roots are pounded and made extract in water and filtered. Juice of root is given orally upto relief and filtrate is applied on to scorpion string.
4	Ber	*Ziziphus mauritiana* Lam. [Rhamnaceae]	Root	Fresh root is chew for one hrs on to scorpion string.
5	Beshram	*Ipomoea carnea* Jacq. [Convolvalaceae]	Leaf	Paste of fresh leafs are applied externally on to scorpion string
6	Bhatkattiya	*Solanum xanthocarpum* Schard. & Wendl. [Solanaceae]	Root	Aqueous extract of fresh root with water and given orally once a day for one day on to scorpion string.
7	Char	*Buchanania lanzan* Spreng. [Anacardiaceae]	Resin	Paste of resin is mixed with water and applied externally once only on to scorpion string.
8	Lahsun	*Allium sativum* L. [Liliaceae]	Bulb	Paste of bulb is prepared and applied externally twice a day for one day on to scorpion string.
9	Munga	*Moringa oleifera* Lam. [Moringaceae]	Root	Paste of root or bark is applied externally once only on to scorpion string.
10	Saliha	*Boswellia serrata* Roxb. Ex Colebr [Burseraceae]	Bark	Paste of fresh stem bark is prepared and applied externally once only on to scorpion string.
11	Sem	*Dolichos lablab* L. [Fabaceae]	Seed, Root	Paste of fresh seed is prepared and applied externally once only on to scorpion string.
12	Van hirwa	*Cajanus scarabaeoides* (L.) du Petit - Thou. [Fabaceae]	Root	50 gms of root is pounded and given orally twice daily for three days on to scorpion string.
13	Van Kodo	*Paspalum scrobiculatum* L. [Poaceae]	Root	Paste of 20 gms of root is prepared and applied externally once only on to scorpion string.

Table 3: Plants used against snake-bite and scorpion-sting in Chhattisgarh

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
1	Bariyari	*Sida cordifolia* L. [Malvaceae]	Bark	Aqueous extract of stem bark is prepared and given orally twice a day for one day.
			Leaf	Paste of leaf is prepared and applied externally once a day on to scorpion string.
2	Chirchita	*Achyranthes aspera* L. [Amaranthaceae]	Root	Aqueous extract of root is prepared in water and given orally once a day.
			Root	Paste of fresh root is applied externally on to scorpion string.
3	Imli	*Tamarindus indica* L. [Caesalpiniaceae]	Seed	Equal half of one seed is placed on to snake bite for relief once only.
			Seed	Paste of seed is prepared and applied externally twice for one day on to scorpion string.

P.T.O.

S.No.	Local Name	Botanical Name	Part Used	Mode of Application
4	Karra. Karla	*Cleistanthus collinus* (Roxb.) Benth. ex Hook. F [Euphorbiaceae]	Leaf	10 gms of fresh leaf with 10 gms of koria *Holarrhena antidysenterica* Wallich. (leaf) are made into juice and given orally once daily.
			Bark	Paste of bark is prepared and applied externally once for one day on to scorpion string.
5	Kharhar	*Gardenia turgida* Roxb. [Rubiaceae]	Root	05 gms of fresh root are eaten for 2 - 3 hrs for relief on to scorpion string.
			Root	10 gms of root with 10 gms of tendu *Diospyros melanoxylon* Roxb. (root) and 10 gms of dahiman *Cordia macleodii* (Griff.) Hook F. & Thoms (stem bark) are made into juice with 50 ml water and given orally twice daily for two days.
6	Konchla	*Strychnos nax-vomica* L. [Loganiaceae]	Root	Aqueous extract of root is prepared in water and given orally once a day.
			Root	Paste of root is applied externally on to scorpion string.
7	Mahua	*Madhuca indica* L. [Sapotaceae]	Flower, Bark	Paste of bark or flower is applied externally on to scorpion string.
			Root, Bark	Paste of root or bark is applied externally once only.
8	Nagar motha	*Cyperus rotundus* L. [Cyperaceae]	Root	10 gms of root and 10 gms of haldi *Curcuma longa* L. (root) are made into juice with 50 ml water and given orally once a day on to scorpion string.
			Root	Juice of root is prepared with sarsoon (Mustard) oil and given orally once a day.
9	Tendu	*Diospyros melanoxylon* Roxb. [Ebenaceae]	Root	Aqueous extract of fresh root is prepared and given orally once only for one day.
			Root	Paste of fresh stem bark is prepared and applied externally once only on to scorpion string.

CONCLUSION

Chhattisgarh, the premier herbal state of India possesses a rich and diverse cultural tradition held by thousands of herbalists, bone setters and spiritual healers. The State has enormous stock of rare and endangered medicinal plants which can address the growing global demand on herbal medicines. Traditional healers have a rich knowledge and expertise in rendering miraculous cure to various ailments by administration of crude herbal formulations. The traditional healers are dwindling in numbers; the younger generations are not interested to carry on this traditional healing wisdom. Hence, there is a likelihood of disappearance of this traditional knowledge. Therefore, it is required to collect the information and systematically document the traditional medicinal knowledge for its availability to benefit the whole world. The phyto-medicines are going to play a very significant role in

future health care system. Plants are richest source of phyto-chemicals and biological active compounds for preparation of better quality medicine. Phyto-chemical investigations with suitable clinical trials are required to scientifically validate the folk claims and obtain biological active compounds against snakes-bite and scorpion-sting.

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TRIBES IN INDIA

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Abstract: *Tribes or aboriginal people or 'indigenous inhabitants' are generally socially, educationally and economically deprived groups for centuries, living in geographical isolation all over world. As per 2011 census there are 705 ethnic groups notified as schedule tribes in 30 states/UT in the country with total population of 104281034(8.6%) out of which 93819162(11.3%) were rural and 10461872 (2.8%) were urban. Although, their history cannot be traced exactly because of the unrecorded past, the ancient and epic literatures such as, the Vedas, the Purans, the Ramayana and the Mahabharata present good accounts about the tribal people. Tribes in general are a unified society, an insignificant population and are found in isolation, within hills, forests and other unidentified places. Till today tribes are the most backward section of the population in India, facing a lot of problems all over the country.*

Keywords: Aboriginal, Indigenous inhabitants, Geographical isolation, Ethnic groups.

INTRODUCTION

Tribes originate from one of the oldest ethnological sections of population, usually known as aboriginal people or 'indigenous inhabitants' of a region. They are generally socially, educationally and economically underprivileged groups that live in geographical isolation all over the world since centuries. Tribe is a group of people who share common patterns of communication, territory, cultural characteristics, and religious belief. Since time immemorial, the different groups and sub-groups of tribes live in the forests, hills, deserts, naturally isolated, in varying environmental and ecological conditions in different parts of the country. The word used for the tribe is 'Adivasi' which comprise of two words 'Adi' means aboriginal and 'Vasi' means inhabitants. The other popular names of tribes are vanyajati, vanvasi, pahari, adimjati, janjati, and anusuchit janjati or schedule tribe (*Constitutional Name*).

The process of identification of tribes is based on the procedures and provisions made in the constitution of India. The criteria followed for specification of communities, as schedule tribes are indications of primitive traits, distinctive culture, geographical isolation, shyness of contact with the community at large, and backwardness. There is no religious criterion for this purpose and a tribal can belong to any religion. As per *Article 342* of the constitution, initially the tribes were notified on a State/ UT wise basis by a presidential notification. Later on keeping in view the precarious condition of certain tribal communities and groups who are still living in the primitive stage, 75 primitive tribes have been identified in 17 states and 2 union territories. As per 2011 census there are 705 ethnic groups notified as schedule tribes (with about 170 sub-groups/ segments), in 30 states/UT in the country. Total schedule tribes population was 104281034 (8.6%)

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out of which 93819162 (11.3%) was rural and 10461872 (2.8%) was urban. In India primitive tribes constitute about 13 lakh of the tribal population. Out of total, over 72% tribal population lives in a long swathe of forested land that cuts across the heart of India from Gujarat and Rajasthan in the west, through Madhya Pradesh, Maharashtra, Chhattisgarh and Jharkhand to Odisha and West Bengal in the east. Nearly 9% of tribal population lives in Andhra Pradesh and Karnataka and rest 19% live in north east and rest of India.

Definitions

The term tribe has assumed different meaning in different historical contexts. For the first time Ghurye (1943) brought forward a wealth of evidences from classical, medieval and modern sources to demonstrate the interpretation of tribal cultural practices and social organization.

According to dictionary of Anthropology "A tribe is a social group usually with a definite area, dialect, cultured homogeneity and unifying social organization. It may include social sub-groups, such as sib or villages".

Piddington (1956) said that "A tribe is a group of people speaking a common dialect, inhabiting a common territory and displaying certain homogeneity in their culture".

Hoebel (1949) opined that "A tribe is a social group speaking a distinctive language or dialect and possessing a distinctive culture that marks it off from other tribe it is not necessarily organized politically".

'The meaning of tribes shifts uneasily with changing world views. Its earliest usage refers to a group of people who live in primitive or even barbaric conditions under a chief or head man. Tribe came to mean a group connected through descent from a common ancestor, organized around an ascribed status structure'.

Tribes through ages

Tribes in ancient India: The tribes in the early historical period appeared to have lived in a state of internal movement cutting across the country and their movements were generally guided by the rivers, valleys and destinations were the hills and the forest regions of the country. Tribes are an integral part of the Indian civilization. It is believed that they were the earliest among the present inhabitants of the country. The ancient and epic literature, the Vedas, the Purans, the Ramayana and the Mahabharata, presents good accounts about the tribal people. During the long Hindu period of Indian history only a few scattered references of tribals are there. Their history cannot be traced exactly because of the unrecorded past. There have been continuous migration during the historic period; therefore it is not possible to locate their original place in the absence of records.

Tribes in medieval India: Before the medieval period tribes enjoyed sovereignty, but during the medieval period, the tribal people all over India, were harassed and disturbed by Muslim rulers or by the regional rulers. Those tribes who came into direct conflict were destroyed. Some tribes gradually lost their status and surrendered to Islam.

Tribes in modern India: Prior to the intervention of the outside agencies i.e.

Britishers, tribal people had free access into the land owned by their respective communities; individual ownership of land was unknown in their customary rule. During the British period several tribes faced the problem of conversion into Christianity, they created factions into two sections, i.e. tribals and Christian tribals. The conversion as well as the excluded area policy gave rise to a somewhat separate identity in the minds of the tribals of the region.

Tribes in Independent India: The situation of tribes in the country after the independence was not very satisfactory. They were in worse condition than their agrarian folks. The poor condition of the tribal community was due to the exploitation by the non-tribals. The traders, money lenders and revenue disrupted the tribal identity in some or the other ways. Unbridled exploitation was the root cause of their loss of land, backwardness, illiteracy and above all a poverty-stricken life. The intensity of tribal exploitation was not similar all over the country; it differed from region to region. Even today, since the tribal people live within the forest coverage and/or near the forest and hills, their dependence on forest still prevails. Forest and hills influences their livelihood, personality, worldviews and ideology.

Theories regarding Tribes

Theory of isolation- Elwin (1939) after his research on tribes gave the isolationist theory also known as 'National Park Theory'. According to him the tribes living in the interior parts of the country had a happy life and they are away from the evils of civilized society. He also argued that if tribes were allowed to break their isolation and began to mix with the non tribal society, they would suffer and acquire all bad habits from them. He also suggested that tribes should be encouraged to retain their isolation in the hills and forests (Vidhyarthi and Rai, 2000).

Theory of assimilation- Ghurye (1959) advocated this theory. According to Ghurye, a large section of tribes has assimilated in the Hindu society (also in Christians). These tribes had accepted Hindu gods, goddesses, festivals, ceremonies, rituals, customs and traditions etc. He coined the word 'backward hindus' for tribals (Vidhyarthi and Rai, 2000).

Theory of integration- Majumdar (1956) gave third approach. He argued that there was nothing substantial in the argument of keeping the people in isolation from the main currents of society. He also said that it is not justified that one segment of the society should be deprived from the benefits of modern technology in the name of keeping away from the civilization evils. He pleaded for the integration of tribes in the mainline civilization (Vidhyarthi and Rai, 2000).

Nehru's approach - Jawaharlal Lal Nehru was very conscious about the poor living conditions of tribal people. He had observed the evil impact of British Raj on the tribes of the country. He was aware that how Britishers brutally suppressed and ended their relative isolation and brought them fully within the domain of colonialism. They introduced a large number of money lenders and middle men among the tribes, who not only exploited them but also took possession of their lands. The British government

challenged the authority of tribes on forests and usurped the forest lands and restrict them to access forest products, cultivation of forest and village common lands. Nehru disapproved the assimilation theory and argued that the tribes were not Hindus. They were inhabitants of forest and hills and need more safety and security. The reason for giving privileged position to tribes was their exploitation by the non-tribals and the colonial rules. He explicitly made his tribal policy very clear and propounded the theory of panchsheel, i.e., five principals to approach to the tribal society. His major contention in his theory is that the state should not impose anything on the tribals. They should develop on their own genius i.e. primordiality. They should not be even administrated. The members of tribals should be appointed to work among them. They have their own traditions, customs, rituals, religion and culture, therefore any social change or culture change should not be imposed on them (Nehru, 1946).

The Social Organization of Tribes

Tribes are in general a unified society, an insignificant population and are found in isolation, within hills and forests. It is a fact that if untouchability was the basic problem of harijans; isolation was the basic problem of tribes. Even at the village habitation level, they practice isolation that is; they usually prefer living in village outskirts. Almost all the tribal communities have more or less similarities found in the composition and functioning of their family. They neither have joint family like traditional Hindus, nor do they have modern nuclear family. According to Dube (1971), the India tribal design consists of a family, Clan, phratry, and tribe. The system of succession and inheritance with a little variation is more or less common in all the tribes. The social life of tribes is very specific in nature and has their own ways of life. The four main qualities of tribes are distinctiveness, smallness, homogeneity, and self sufficiency. The Tribes have all intermingled organizations i.e. socio-economic, socio-political, religio economic and so on. Tribes have their own structure and organization, a common name, dialect, culture, behavior, tattoos, full faith in their deities; leaders; and priests. They form a small community of their own in a particular territory and their relations are direct and intimate. They have retained their customs, traditions, practices and regulations and are guided by their own elders or chiefs in their internal and external affairs (Hooja, 2004).

The Dheber Commission (1961) observed four different layers among schedule tribe members

1. The top-most is the acculturated layer who has adopted more or less the way of life of non-tribal sections forming the upper crust of the society, e.g. Meenas;
2. The second are the settled scheduled tribes, agriculturists in the fringe plains, being no longer isolated and are in the process of transformation, e.g. Santhal, Munda, Oraon, Gond etc;
3. The third category is that of highlanders who having hardly shifted from their habitat, have undergone little transformation and may still practice shifting

cultivation; Khasis, Muria and Maria;

4. The fourth and last category which is an extremely under developed stage, isolated backwards groups, including the so called primitive groups e.g. . Onge, Cholanaick, Kadars etc. (Hooja, 2004).

Political Life of the Tribes

There seems to be no society where political activities are non-existent. Even the smallest community requires some form of political activity. Tribal political associations are of various kinds and incorporate individuals, elders, families, a clan group, a village and a tribal territory. The political institutions are mainly of five kinds, viz, the council of elders, the village headman, the village panchayat, the union of villages, and the tribal chief. The introduction of British rule disrupted the tribal solidarity and deteriorated the authority of tribal leaders. In the post independence period, with the inauguration of formal panchayti raj institution gave a set back to the traditional panchayat. Due to increasing interference of police and courts, the powers of tribal leaders are now totally reduced or they have become powerless. *Article 330* and *332* provides reservation for the schedule tribes in lok sabha and state legislative assemblies respectively. 73rd and 74th amendment Act provides reservation for tribes in panchayat and Urban local bodies respectively. The tribals have taken to political life, the opportunities for which are amply available with the reservation in the parliament, legislative assemblies and panchayati raj. This has created a political awakening among the tribals.

Economic Classification

The socio-economic structure of tribes is distinctly different from that of the non-tribals. They have a very simple technology which fits well with their ecological surroundings and conservative outlook. The structure of the tribal economy is generally based on forest products. The simple technology and absence of technological aids is the other structural feature of the tribal economy. The family is a unit of both production and consumption. The communities itself works like a co-operative unit. The distribution is generally based on gifts and ceremonial exchange. The other features of tribal economy are the absence of profit in economic dealing and presence of periodical markets. The tribals obtain their numerous requirements from the area they inhabit with the help of most simple implements and without any technological aid from outside.

Majumdar and Madan (1971) classified the Indian tribes on the basis of their economic life and occupation such as (i) food gathering; (ii) agriculture; (iii) shifting axe cultivation; (iv) handicrafts; (v) pastoralism; and (vi) industrial labour.

Presently the majority of tribals live on agriculture or agriculture related labour, while others have occupations like hunting, gathering of forest produces, pasturing and government jobs. The tribes of south India (*Andaman Nicobar*) are more economically poorer, primitive, and far from mainstream in comparison of north India. Till today tribes are the most backward section of the population in India, facing a lot of problems all over the country.

Geographical Classification

There are several Geographical classifications of tribes:

Majumdar and Madan (1956) in their study demarcated three tribal zones.

(i) The northern and north eastern zone- includes the areas of eastern Jammu and Kashmir, Himachal Pradesh, the tarai area of UP and whole Northern-Eastern region;

(ii) The central a middle zone includes west Bengal, Bihar, southern UP, Madhya Pradesh, Orissa, Rajasthan, Gujarat, and Maharashtra;

(iii) The Southern Zone includes all the four south India states and Andaman Nicobar.

Dube (1960) classified tribes on the geographical basis viz. (i) north and north eastern zone; (ii) middle zone; (iii) south zone; and (iv) west zone.

The Dhebar Commission (1961) report classified the tribes as:

1. Those scattered over south-western India in the hills and along the lines of the ghats.
2. Those occupying the central half of the hills and plateaus along the dividing line between peninsular India and the gangetic plain.
3. Those living in the northern and north-eastern zone in the mountain, valleys and eastern frontiers of India (Vidhyarthi and Rai, 2000).

Roy Burman (1971) divided tribal areas into five territorial groups, i.e. (i) north- east India; (ii) Sub-Himalayan region of north and north-west India; (iii) central and east India; (iv) south India; and (v) west India.

Linguistic Classification

The tribal languages in India belong to all the major language families' i.e. the Austric; the Dravidian; and the tibeti-chinese. The tribal population of India has been found to speak 105 different languages and 225 subsidiary languages. The languages found among tribes can be classified as follows:-

1. Dravidian language used in south India and in some areas of middle India in chota Nagpur.
2. Austro-Asiatic languages are spoken in the north eastern region in Meghalaya, in Nicobar island and extensively in middle India and adjoining western India.
3. Tibeti-Chinese is used in the Himalayan region.
4. The Indo-European language is found in rest of India.

Racial Classification

There are three main racial groups on India.

(i) Proto-Australoids, which form the most dominant group, consists of Munda, Orion, ho, Ghond, Gond and other tribes of north and central India ;

(ii) Mongols reside in the sub-himalyan belt, especially in the north east and

(iii) Negrito who are found the south Indian part of the country.

Although racial classifications were done by Hutton, Guha and Majumdar but

the most accepted classification is of Guha (1935) i.e., (i) Negrito; (ii) the Proto-Australoids; (iii) The Mangoloid, (iv) The Mediterranean; (v) The Western Brachycephels; and (vi) the Nordic.

Religious Classification

Tribes in India live in their own religious world, practicing some distinct and typical religious rituals and are considered as having a separate religious identity. Several religious agencies tried to assimilate the tribes into their religious culture to help in breaking their isolation. Several Christian missionary, Bodh and Hindu religious bodies have attempted to assimilate (convert) tribes into their religious structure. The conversion of tribes by different religious agencies generates a crisis of their identity and ethnicity, and it has often disrupted the tribal cultural fabric or social solidarity. As per the census of India 2011 about 90% of the tribals in India are considered Hindus, 6% are Christians, and rest 4% percent are others.

CONCLUSION

Tribes usually known as aboriginals or indigenous inhabitants of region, and they are socio-economic deprived groups live in isolation all over the world. In India several tribes live in the forests, hills, deserts, outskirts of the village or in naturally isolated environment. In India as per *Article 342* of the constitution, the tribes were notified as schedule tribes. In 2011 there are 705 ethnic groups in 30 States/Ut have been notified as schedule tribes i.e. 8.6% of total population. Tribes in past enjoyed an autonomous status but during the medieval and modern period their status and identity was destructed. Even after independence the condition of tribes was not satisfactory and till today tribes are the most backward section of the population in India.

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PSYCHO-SOCIAL PROBLEMS OF ELDERLY WOMEN AMONG MUTHUVAN TRIBES OF KERALA

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Abstract: *The phenomenon of population ageing is becoming a major concern all over the world. Tribes constitute 8.61% of the total population of the country and cover about 15% of the country's area and most of them remain at the lowest stratum of the society. The elderly women in tribes are the most vulnerable and marginalized section. The study was conducted among elderly women in Muthuvan tribal community of Urangattri Gram Panchayath, Areacode Block, Malappuram district of Kerala. The research design was descriptive, and quantitative and qualitative inputs were used. The data was collected by interviewing the elderly women using interview schedule and observation techniques. The study revealed that 50% of the respondents were in the age group of 60-64 years. About 83% belonged to the nuclear family. Ninety-three per cent of the respondents were illiterate and 83% of the respondent's monthly income was between Rs.1000-2000. Fifty per cent of the respondent's health condition was poor and a similar per cent of the respondents feeling depressed and lonely. Majority of the respondents opined that they need sufficient money or financial security for future life.*

Key Words: Elderly, Elderly women, Psycho-social problems, Muthuvan Tribes in Kerala

INTRODUCTION

Ageing process is multi-disciplinary in nature, as it results from a complex phenomena related with the physio-logical, psychological and social factors. It is not only a biological reality with its own dynamics, largely beyond the human control, but also subject of influence by the society. Old age begins approximately at the age of sixty years and characterized by certain physical and psychological changes that leads to the poor adjustment and psycho-social problems. These changes are marked by individual differences due to effects of ageing. The tribes are the children of the nature and their life style is conditioned by the ecological systems and forest. The total scheduled tribe population of India stands at 104,281,034 as per 2011 census and accounts for 8.6% of the total population of the country (Census 2011, Government of India).

According to the 2011 Census, the total tribal population of Kerala was 426,208. This constitutes only 1.28% of the total population of the state. Chandrika & Nandakumar (2014) opined that major problems faced by the tribal population of Kerala are, land alienation, displacement from traditional avenue of employment, malnutrition, ill health, erosion of traditional knowledge and culture, dwindling biodiversity, denial of or restricted access to common property resources (CPRs), lack of educational

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opportunities, gender inequality, sexual exploitation and violence against women, alcoholism and vulnerability due to socio-economic and political powerlessness. The tribal population of Kerala comprised of 36 different communities. Among these, the marginalized and economically and socially backward community is the Muthuvan tribal community. Muthuvan tribal community is mainly concentrated in Idukki, Eranakulam, Thrissur, Palakkad, Malappuram, Kozhikode districts of Kerala. Their total population in state is 19163 according to 2011 census. This community came from the erstwhile parts of Pandya Kingdom in Tamil Nadu. Etymologically, it is said that '*Muthu*' means back and '*van*' means one who carries weight on the back. The dialect spoken by them is closely related to Tamil. The social organization of Muthuvan community is unique and they have '*Chavadis*' (dormitories) system in every settlement to house both boys and girls separately. The headman called '*Moopan*' holds supreme control of the community and presides over the council of elders. In some area, a '*Kani*' is nominated to deal with the officials.

Muthuvan community in Malappuram district of Kerala is residing the eastern side of *Chaliyar* River, which flows through Malappuram and Kozhikode districts of Kerala. The headman controls the affairs of this community. Traditionally, they have been expert in cultivations and depended on forest produces. Now they subsist on agriculture labor, forest labor and cultivation. Geographical isolation has affected their educational development. There are 733 families (14.92%) in Malappuram district of Kerala. The elderly women in Muthuvan tribes are one of the most affected and low socio-economic population in Kerala.

Health problems

The health related problems in elderly people are a serious issue since it is accentuated by an increasing number of physical handicaps, more frequent and serious illnesses, mental disturbances, and a general reaction among the aged that ill health is their major burden (Anand, 2015). In recent times, as a result of changing circumstances due to demographic transition, the rapid industrialization and urbanization, disintegration of joint family structures into unitary ones, the older people are more vulnerable, which is leading to their social, economic and emotional alienation and isolation. Healthy longevity has always been a cherished dream. It is not only of a biological or medical concern but also of a significant personal, social and psychological concern. With declining health, individuals can lose their independence, social roles, feel and experience economic hardship, and change in self-perception. The elderly usually have repeatedly cited poor health as their major problem (Kerketta et al., 2009). The susceptibility to sickness increases with advancing age and strongly corroborate with the health status of the elderly (Manikanta, 2013). Towards this, attention needs to be paid to understand the effects of ill health on elderly women in Muthuvan tribes in Kerala.

Economic problems

The economic aspects play an important role in the lives of the elderly affecting their health, social relationships, living

arrangements, community activities, and even their political participation. The employment patterns of the past and present affect their economic status (Santhosam and Samuel, 2013). The economic insecurity in the old age brings a feeling of vulnerability due to lack of economic resources. The most of the elderly in tribes have had worked in the unorganized sectors which means no social security, no pension, no gratuity and no medical schemes which leave the old people economically insecure and vulnerable.

Social problems

The elderly suffer social problems like inability to manage on their own in their life. Others in the family or community do not have time to look after the needs of elderly. They are busy with day to day affairs of the family. Taunts and barbs from the younger able-bodied do little to help. There is a further dip in when they are unable to do what they could do in their younger days. The old feeling of being useful members of society is replaced with a feeling of total dependency resulting in low self-esteem and social isolation of the elderly. The elderly suffer neglect from their own near and dear ones and from society because of the mindsets that elderly are a spent force and burnt out (Turlapati, 2011). Neglect also occurs due to younger members of the family being busy with their own concerns or just not motivated or interested enough to include the elderly in their scheme of things or include them in their discussions.

Psychological problems

With onset of old age, mindset also changes. First of all is the fear which they face due to idleness. There is another in which old age person is made to believe in that he or she is not physically productive or useful. It occurs due to infused inactivity, lack of personal goals, and withdrawal from responsibilities. This has a huge negative emotional impact on person and lowers the self-esteem (Jee, 2012). It includes neglect and reduction of responsibility, decrease of value, deteriorating worth, helplessness, depression, loneliness and isolation to the elderly. The common psychological problems of the older persons experience are feeling of powerlessness, feeling of inferiority, depression, uselessness, isolation and reduced competence. These problems along with social disabilities like widowhood, societal prejudice and segregation aggravate the frustration of elderly people (Madagundi and Jayashree, 2013).

OBJECTIVES OF THE STUDY

The primary objective of the study was to assess the psycho-social problems of elderly women among Muthuvan tribes of Kerala. In addition, the supplementary objectives of the study were as follows;

i. To understand the socio-demographic profile of the respondents
ii. To understand the socio-economic problems of the respondents
iii. To understand the psychological and health problems of the respondents
iv. To suggest suitable social work and policy interventions to reduce psycho-social problems of elderly women in Muthuvan tribes of Kerala

MATERIALS AND METHODS

The research design of the study was descriptive in nature and a mixed methodology was used in this study to give both qualitative and quantitative inputs. In the present study, the researcher identified all elderly women in Muthuvan Tribes in Kerala as the universe of their study. A thorough review of records of tribal department of Kerala was carried to select the study area. Prior to deciding study area, informal discussion with the concerned authorities was held. Based on the preliminary review, four Muthuvan tribal settlement colonies of Urangatrri Grama Panchayath, Areacode Block, Malappuram district of Kerala, and namely Kudumbuzha tribal settlement colony, Nallayi tribal settlement colony, Mangulam tribal settlement colony and Kuriri tribal settlement colonies were selected. All respondents belonged to the four tribal settlement colonies namely Kudumbuzha tribal settlement colony, Nallayi tribal settlement colony, Mangulam tribal settlement colony and Kuriri tribal settlement colony. Study was based on Non-probability sampling method and Purposive sampling technique. The procedure adopted in Purposive sampling technique was deliberate selection of sampling units that conform to some pre-determined criteria based on the inclusion and exclusion criteria of the research. Therefore, the researchers purposively selected respondents from each tribal settlement colony. The sampling size consisted of 30 Muthuvan tribal elderly women in the age of 60 and above. The sample size was fixed in virtue of time, money and other resources availability. Tool for data collection was self-constructed interview schedule. Interview schedules consisted of 70 questions relating information about their socio-demographic details, social, health, economic and psychological problems, and opinions of elderly women in Muthuvan tribal community. The study was carried out during the academic year 2015-16. The study period was December 1, 2015 to January 30, 2016. The processing and analysis of collected data was done with the help of following techniques; the collected data were edited and checked. Each item was appropriately coded and entered in to the master sheet according to the identifying code. For the statistical analysis of data, researcher used statistical software SPSS. The statistical methods like percentage, frequency and interpretations were used.

RESULTS AND DISCUSSIONS

Looking at the socio-demographic profiles of the elderly women in Muthuvan tribes

The study found that nearly half (50%) of the respondents belonged to the age group of 60-64 years (Young Elderly), about 83% were unemployed, and 83% were from nuclear family. Most of the respondents were illiterate (93%) and about 67% of the respondents were married, 10% were single, 23% were widow and 44% of the respondent's family size consisted of 4-6 members and the average family size was 3-5 members.

Looking at the social life of the elderly women in Muthuvan tribes

More than half (60%) of the respondents were staying with the spouse and child, while only 10% of them were staying

alone. Nearly 1/3rd of the respondents (34%) were much attached to their son and grand children because they were living in nuclear families. Majority (83%) of the elderly women spent vast time with their friends. They felt it as one mode of being happy and 50% of the respondents were spending 1-2 hours per day with nearby friends and about 67% of the respondents were the members of social organization like Kudumbasree etc. About 44% of the respondents spent their free time in carrying out house hold chores of their family, and half (50%) of the respondents spend 3-5 hours every day on religious activities. Vast majority (93%) of the elderly women in the Muthuvan tribes were not interested in reading due to lack of literacy. About 53.3% of the respondents were doing household activities for being active during old age, 40% of the respondents shared their problems with son and daughter, and nearly 1/3rd of (33%) of them responded that their family consults them regarding children's marriage and daily activities of the family.

Looking at the economic aspects of elderly women in Muthuvan tribes

Majority (83%) of the elderly are currently not working and 33% of them depend on their children and pension for managing their day today needs, and 17% of them depends on relatives. About 83% of the respondent's income is between Rs. 1000-2000 and the 67% of the respondents had no savings, while 23% of them kept their savings in bank/fixed deposit and 10% of them in Postal Saving bank account. The 67% of the respondents had no immovable property while 33% of them had immovable properties in terms of agricultural land and/or house. The 83% of the elderly women in Muthuvan tribes face difficulty in managing everyday needs.

Looking at the health conditions of elderly women in Muthuvan tribes

The half (50%) of the respondent's health condition were poor, 33% were satisfactory and 36% of the respondents had hearing problems, 27% had low vision and digestive problems, 10% had hypertension and related ailments. About 76% of the respondents were taking Allopathic medicine during illness and only 17% of them were taking Ayurvedic medicine. Eighty per cent respondents took treatment from the government hospitals during illness as it is cost effective or free. The most of (67%) the respondent were cared for by their son/daughter during ill health. The half (50%) of the respondent's monthly expenditure of medicine were between Rs 500-1000 and the average expenses were Rs 750-1250. For almost 84% of the respondents, the cost of medicine was borne by their son/daughter, and was not postpone due to lack of money. The vast majorities (90%) of the respondents were able to move independently but were afflicted with minor health ailments. The 50% of the respondents informed that family members' attitude changed due to their illness.

Looking at the psychological problems of elderly women in Muthuvan tribes

No depression was reported by 50% of the respondents while only 33% of the respondents felt depressed, thinking about their future life and finance or lack

of money. Forty-three per cent respondents stated religious activities and helping in household activities was method for relief from depression. More than half (67%) of the respondents felt isolated/lonely at times and about 60% of informed that lack of money and worry about future as the reason for feeling isolated and lonely. All the respondents felt helplessness (50% of them always felt helplessness while rest of 50% felt this sometimes). The reason for the feeling of helplessness was mainly due to the health issues, their concern regarding future life and lack of money.

Looking of the opinion and suggestions of elderly women in Muthuvan tribes

The greater part (83%) of the respondents opined that they need sufficient money for future life and more than half (66%) of the respondents had a plan to spend their future life with their families and the vast majority (83%) of the respondents agreed that the taking care of the elderly is the responsibility of their children.

SUGGESTIONS AND RECOMMENDATIONS

On the basis of various factors that were identified throughout the study, the researchers made certain suggestions and recommendations as following;

- There should be facilities for recreation and empowerment for the elderly women in tribes.
- The awareness about social security measures should be provided and schemes of the government for the elderly community among tribes should be popularized.
- Provision for the financial security measures by the government or ensure pension facilities for all elderly.
- Provide special intensive programmes for the elderly women in tribes with help of Private Public Partnership (PPP Model).
- Provision for geriatric counseling centers in tribal areas.
- Ensure the active participation of homecare workers and healthcare workers like ASHA workers of NRHM and Pain and Palliatives Workers for the betterment of bedridden elderly.
- Compulsory and timely healthcare checkup and clinical facilities for elderly in tribal area.
- Educate the community and younger generation about elder's care, needs, problems, rights and provisions.

RECOMMENDATIONS

Based on the findings, the researchers recommend few strategies to the people, the policy makers and civil society organizations;

- Ensure the active involvement and participation of elderly in Kudumbasree and other social organizations.
- Strengthening and ensuring the palliative care facilities to the ill-health or bedridden elderly in tribal areas.
- Government should ensure a special mechanism to redress the psychological problems of elderly in tribes through projects like

Vayomithram Project of Kerala, Social Security Mission (Govt. of Kerala) and Pakal Veedu Project (Govt. of Kerala) etc. that should expand in tribal areas also.

- Recommended further research on elderly living in home settings at tribal areas.
- Strengthening, assuring and evaluating the grass root level workers like Tribal Promoters, Anganwadi Workers and ASHA workers of NRHM in tribal area.
- Ensure and encourage the participation of younger elderly in MNREGA scheme of government of India.
- Involvement and participation of Non-Government Organization (NGOs) for ensuring, implementation and evaluation of programme for the betterment of elderly in tribes.

CONCLUSION

The forgoing study dealt with the psycho-social problems of elderly women in Muthuvan tribes of Kerala. The investigator mainly focused on their socio-economic, health and psychological problems due to the progression of age. The design of study was descriptive in nature. The study areas were the four Muthuvan tribal settlement colonies in Urangattri Gram Panchayath, Areacode Block of Malappuram district of Kerala. The study was conducted in family settings and elderly women residing in home. The study analyzed and observed that their socio-economic conditions were poor and they were facing lot of psycho-social problems in their late life. The study observed that the major problems of the elderly women were health, money to meet their basic needs and immediate expenses like medicine, food etc., and most of them depends on their family members. At the end of the study, the researchers suggested some interventions to enhance the later life of the elderly women in Muthuvan tribes of Kerala. The researchers observed that the psycho-social problems of the elderly women in Muthuvan tribes were of multiple natures and it needed special attention in order to improve. It may be concluded that there is an urgent need of efforts from the Government and Non-Governmental Organization to ensure and guarantee the fulfillment of requirement of aged women which will certainly reduce the psycho-social problems of elderly women among Muthuvan Tribes of Kerala.

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GROWTH PATTERN AMONG KORKU & GOND TRIBAL BOYS OF BETUL DISTRICT, MADHYA PRADESH, INDIA

Pragya Dubey[1] and K.K.N. Sharma[2]

ABSTRACT: *Physical growth is a biological process which involves rate, directions, and patterns of change and development. It is affected by a variety of diverse and complex external and internal factors and causes. Most of these factors are described in adult physique and reflect differential growth. Therefore such framework documents are significant for the policy makers for the formulation of various plans and policies. Tribal represent 8.6% of the total Indian population and for their improving health such studies are very important. Keeping in view, the present study was carried out among 332 Korku and 376 Gond Boys (aged 6-18 years) of Bhimpur block of Betul district. The included measurements were height, weight, sitting height; circumferences such as head, arm, chest and calf, and t-Test were computed. Related type of growth trends has been observed in both tribal and non tribal groups as they reside in same type of ecological condition and share similar socio-economic and nutritional status.*

Keywords: *Height, Weight, Growth pattern, Distance curve, Velocity curve.*

INTRODUCTION

Growth is a developmental biological process and is affected by a variety of diverse and complex external and internal factors.[1] Most of these factors are described in adult physique and reflect differential growth.[2] Genetic and environmental factors are of nearly equal importance in their influence on growth.[3] A crude overall measure of skeletal growth reveals little about local or specific changes in the human body during successive generations. Human growth always has remarkable attention for the physical anthropologists as well as the health scientists.[4] A major defect would be permanent (or would require life-time treatment or major surgical intervention) and would interfere with normal growth and complete utilization of other abilities.[5] Psycho-social deprivation negatively impacts all three major physical growth parameters; height, weight, and head circumference.[6] Social, economic, political, and environmental conditions operate through proximal factors such as food availability, access to health services, and hygienic provisions for water and sanitation. These resources then affect behaviors such as food preparation, breastfeeding, and management of infectious diseases, affecting physical growth. These factors are recognized as key determinants affecting more proximal causes of physical growth.[7] Growth may also serve as important tool in the clinical evaluation of children.[8]

India is the second most populous country of tribal population in the world.

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There are many tribes residing in the country that face several physical, social, economical, educational and especially health problems. Tribal form an important segment of Indian population structure, and their children being the future citizens of nation are the core of population dynamics. Healthy nutrition of children is an indispensible component of healthy life. A very few studies have been conducted in this field especially among Korku and Gond tribal boys of Betul district, Madhya Pradesh. Thus, keeping above things in mind, the present study was conducted among Korku and Gond tribal boys of Betul district of Madhya Pradesh.

The tribal constitute about 8.6% of the total population of the entire country (census 2011). Tribe is being defined as the people who are dependent on land for their livelihood, have a common geographical area or territory, are endogamous and speak a common dialect. The central regions of the country especially Madhya Pradesh, Chhattisgarh, Jharkhand, Orissa, etc. are also dominated by tribal people. As far as Madhya Pradesh is concerned, this state also has dense tribal population who are enlisted in the Indian constitution. Some of them are Gond, Bhil, Bhariya, Korku, Halba, Kaul, Maria, Sahariya, Saur, Pradhan, Oraon, Meena, Mawasi, etc. The most populous tribe among the state is Bhil followed by Gond, Kol, Korku, Sahariya and Baiga (92.2% of the total ST population of the state).

The Gond

The Gonds are among the largest tribal groups in South Asia and perhaps the world. The term Gond refers to the tribal people who live all over Indian Deccan Peninsula. Most describe themselves as Gonds (hill people) or as Koi or Koitur. Scholars believe that Gonds settled in Gondwana, now known as eastern Madhya Pradesh, between the ninth and thirteenth centuries AD. Muslim writers described the rise of Gond state after the fourteenth century. Gond dynasties ruled in four kingdoms (Garha-Mandla, Deogarh, Chanda, and Kherla) of central India between the sixteenth and mid-eighteenth centuries. Etymologically, the root terms for Gond are Go + And where 'Go' means forest and 'And' means place of origin, hence 'Gond' meaning forest dwellers and also known as green mountains in the Dravidian idiom. In ancient times a large area was called Gondwana. Their myths mention various Gond forts and kings.[9] Speaking Gondi as "Koiture" the universal equivalent of that name in Gondi dialects, confirms their arrival from the south. Gondi is part of Dravidian language group. Through their songs, the Gonds expressed their anguish. Through their festivals and rituals, songs and dances, they remained rooted in their culture. According to the census 2001, the total population of Gond in Madhya Pradesh was 4,357,918 (4,11, 209 in Betul district).

The Korku

The Korku language is the language of the Korku tribe of central India. It belongs to the Kolarian or Munda family, isolated in the midst of a Dravidian (Gondi) population. Korkus are also closely associated with the Nihali people, many of whom have traditionally lived in special quarters of Korku villages. Korku belong to scheduled tribe (ST) community mainly

found in the East Nimar (Khandwa and Burhanpur), Betul and Chhindwara district of Madhya Pradesh and adjacent areas in Melghat region of Maharastra India. The Korkus are the branch of the great Mundas tribe and are placed here in the locality of the great tribe- the Gonds.[10] Korkus are believed to be a hunting-gathering community dwelling in the forests of Satpura ranges. Korku is considered the most "westward munda speaking tribes", which is a member of the Austro asiatic language family. Korkus have derived their name from the combination of the word 'koru' means man and 'ku' which makes it plural meaning tribal men.[11] According to the Tribal Research Institute Bhopal, the total population of Korku in Madhya Pradesh is 5,59,344 (1,38,798 in Betul district).

MATERIAL AND METHODS

The present study was conducted on 708 Korku and Gond tribal boys (332 Korku boys and 376 Gond boys) who were selected purposively from the age group of 6 to 18 years, studying in different schools of Bhimpur block of Betul district, Madhya Pradesh, which is located 43 Km towards west from district head quarter. Every student was measured for height, sitting height, weight, head circumference, arm circumference, chest circumference, calf circumference, and skin folds i.e. biceps, triceps, and calf. Measurements were taken by standard methods. Instrument used for taking measurement were anthropometric rod, digital weighing machine, measuring tape, and Holton's skin fold calipers. Absolute growth (total increase in size of an organism or a particular organ or part) and Growth rate (the percentage change of a specific variable within a specific time period, given a certain context) was also measured.

RESULT AND DISCUSSION

The average deviation of growth measurements with their annual growth among Korku and Gond boys (6 -18 years of age) was observed. The pattern of growth is represented through Distance curves and Velocity curves using anthropometric tools. **Figure 1(a)** and **1(b)**, represents the Distance curve and Velocity curve of various measurements respectively. The average values of all somatometric measurements like height, weight, circumferences and folds were found increasing with increasing age 6 to 18 years among both the tribal boys. No significant difference of parameters between both tribal boys was obtained.

Table 1 (a) indicates absolute growth and rate of growth among Korku and Gond boys with respect to height, sitting height, weight, head circumference and arm circumference. In all measurements absolute growth was lowest at the age 8 to 9 years and 15 to 16 years, and it was highest in the age 11 to 12 years and 12 to 13 years, similar rate of growth were found in both tribal boys. **Table 1 (b)** shows absolute growth and growth rate of other measurements such as chest circumference, calf circumference, biceps, triceps and calf skin fold. Both variable expressed minimum value at the age 6 to 7 years and 11 to 12 years and was maximum at the age 12 to 13 years and 17 to 18 years.

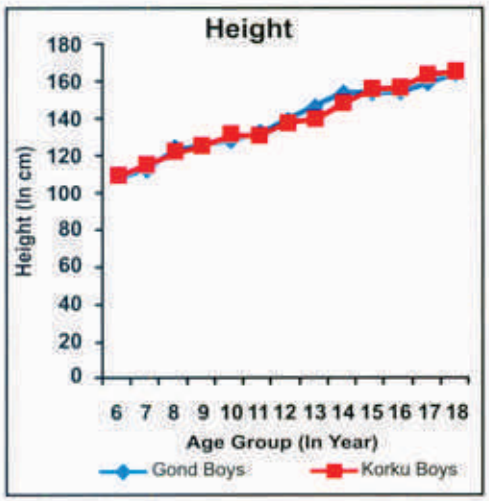
In **Table 2**, the result of *t*-test value of growth measurements among Korku and Gond boys are shown. There was a

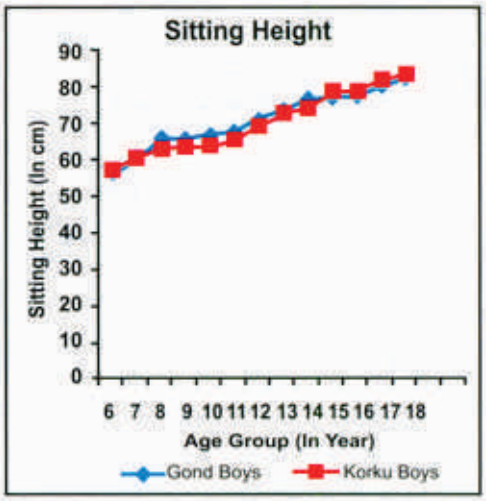
significant difference of weight, calf circumference and triceps fold among 6 year old Korku and Gond boys. Among 7 and 9 years group no significant difference was observed while among 8 year old boys the only significant difference was in their sitting height. Among 10 year old boys, a significant *t*-test value was obtained for sitting height, weight, head circumference and chest circumference. For 11 years old group, the *t*-test value was significant only for sitting height while for the age group of 12 to 18 years no statistically significant difference was obtained.

There were only few studies available on growth of tribal children.[12-16] There is a lack of information regarding the growth of Korku and Gond boys of Bhimpur block in Betul District, hence the study was made to understand the growth pattern of Korku and Gond boys.

Growth pattern of Korku and Gond boys living in similar environment was compared. It was found that the growth of Korku and Gond boys were below than WHO standard (WHO 2007). For better understanding of growth patterns among Korku and Gond boys, the findings were compared with National Centre of Health Statistics (NCHS, 2007). **Figure 2(a)** shows the comparison of the height of tribal boys with NCHS (2007) while **Figure 2(b)** represents the comparison for weight. Growth of both tribal group boys was lower than reference population and the difference was increasing with growing age, especially after 9 years of age.

The reason to use NCHS as a reference population was due to the fact that the well-nourished children in all communities follow very parallel growth patterns.[11] The nutrition foundation of India also advocated the incorporation of WHO standard to the studies related to Indian children. Hence the reference values from the NCHS were used in the present study.





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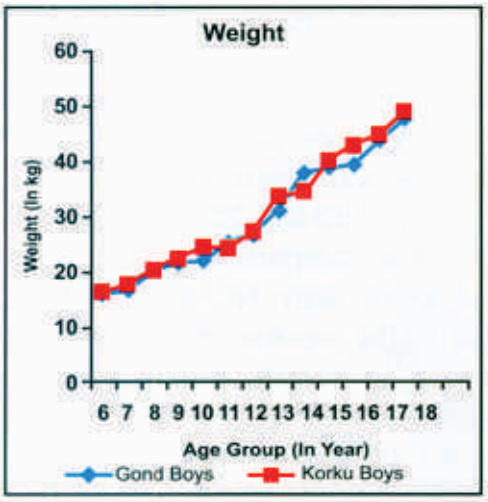

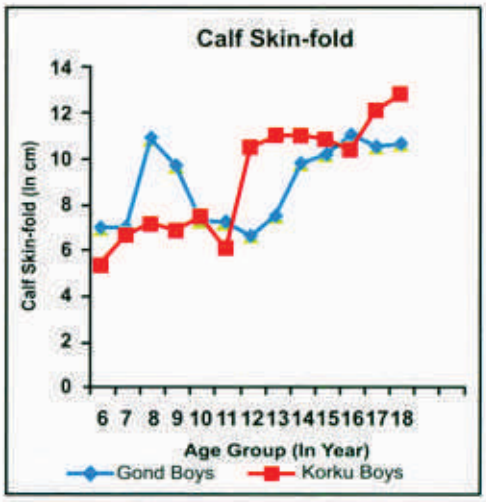

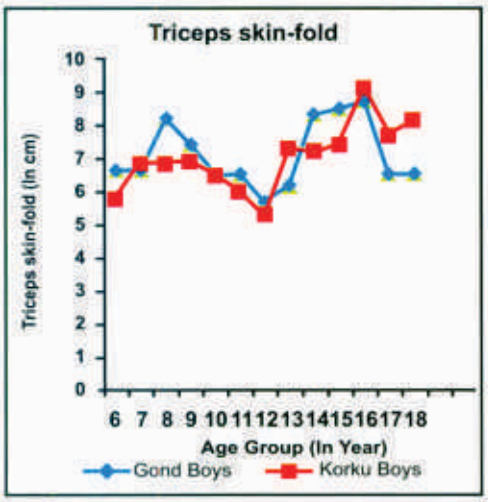

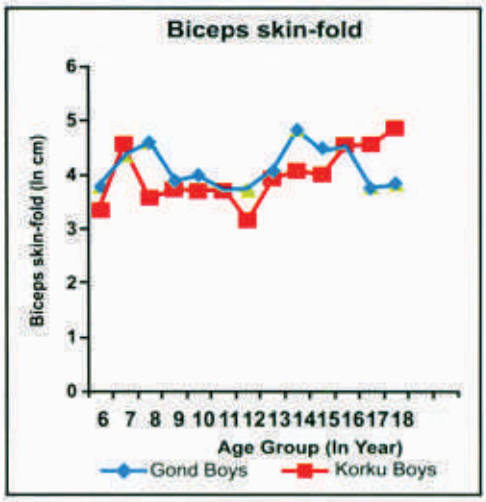

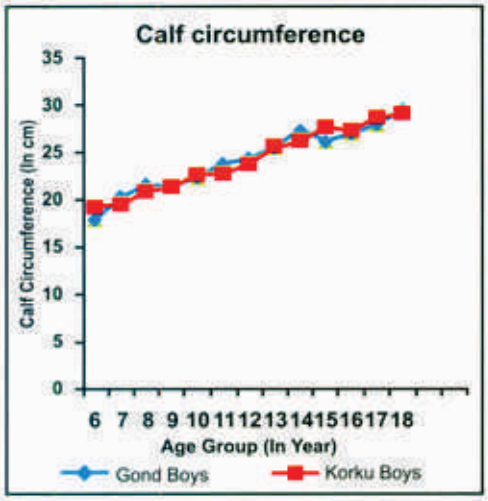

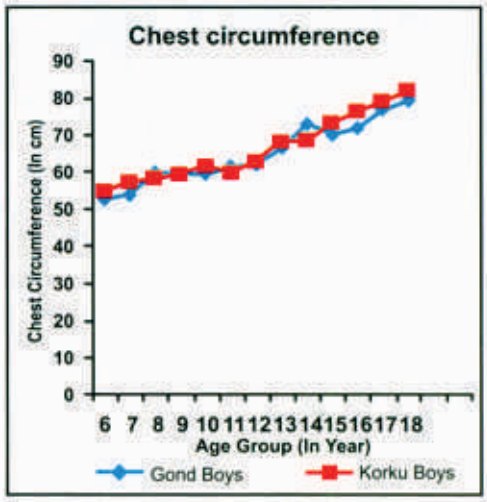

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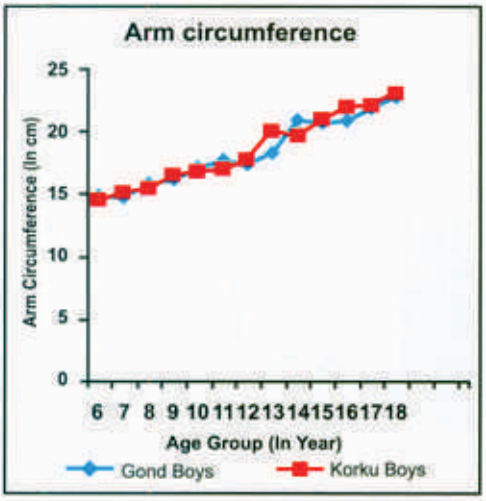


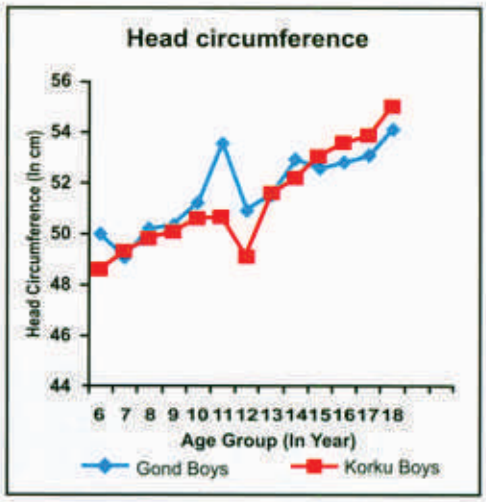
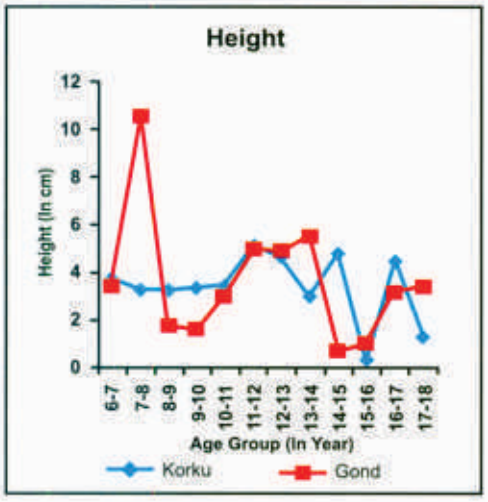
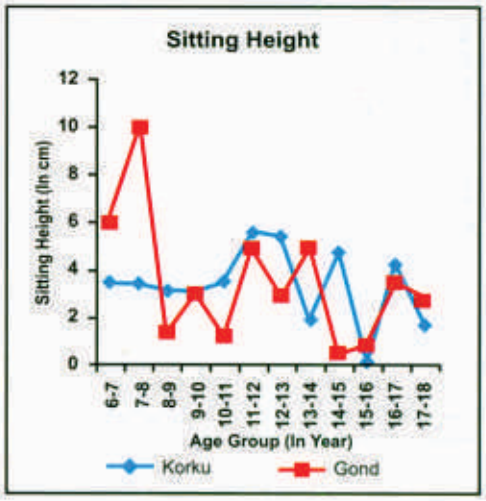
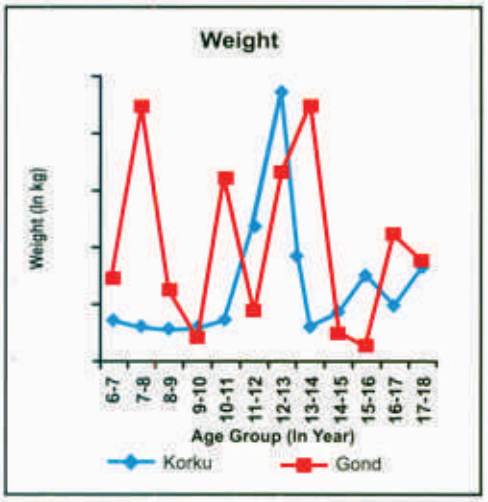
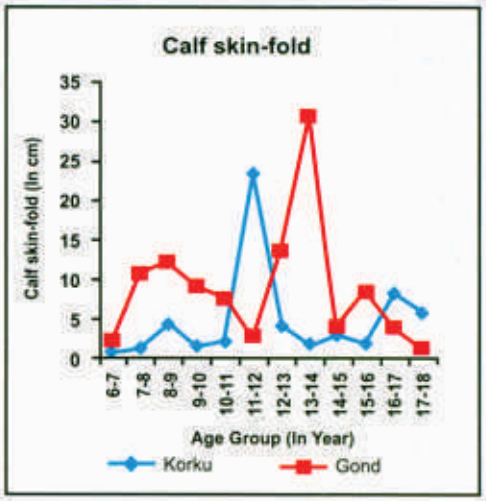


Figure 1(a): Distance curves of Height, Sitting height, Weight, Calf skin-fold, Triceps skin-fold, Biceps skin-fold, Calf circumference, Chest circumference, Arm circumference, Head circumference









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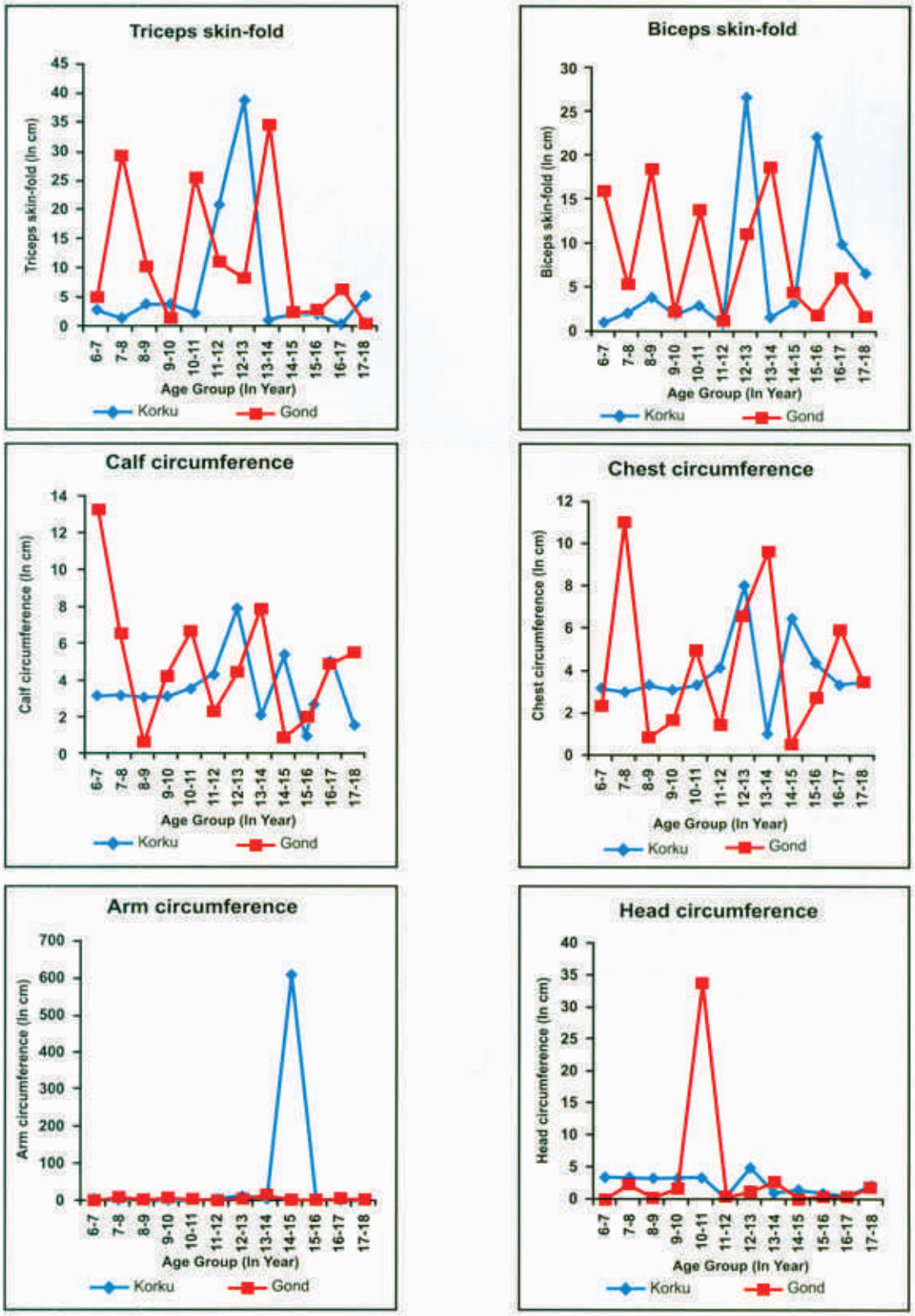

Figure 1(b): Velocity curves of Height, Sitting height, Weight, Calf skin-fold, Triceps skin-fold, Biceps skin-fold, Calf circumference, Chest circumference, Arm circumference, Head circumference

Table 1 (a): Absolute growth and rate of growth among Korku and Gond boys

Age (In years)	Height (in cm)				Sitting Height (in cm)				Weight (in kg)				Head Circumference (in cm)				Arm Circumference (in cm)			
	Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth	
	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond
6-7	3.6	3.46	3.31	3.18	3.42	5.98	5.85	10.5	3.54	7.28	20.5	47.3	3.57	0.08	7.51	0.17	3.43	1.38	23.4	9.42
7-8	3.2	10.5	2.74	9.40	3.39	9.92	5.56	16.5	2.99	22.3	15.2	35.2	3.38	2.35	7.02	4.79	3.14	8.31	20.8	57.2
8-9	3.2	1.73	2.66	1.38	3.09	1.35	5.00	2.08	2.80	6.29	12.7	31.1	3.44	0.30	7.11	0.60	3.11	2.59	19.4	16.4
9-10	3.3	1.65	2.63	1.30	2.99	2.98	4.83	4.57	2.84	2.11	11.9	9.86	3.37	1.76	6.88	3.49	3.12	5.67	19.0	35.1
10-11	3.3	3.05	2.66	2.37	3.46	1.19	5.84	1.77	3.55	16.0	15.0	73.2	3.51	33.8	7.18	66.0	3.43	3.47	20.6	20.3
11-12	5.1	4.98	3.93	3.75	5.56	4.88	8.50	7.19	11.8	4.39	48.4	17.2	0.7	0.58	1.38	1.16	3.93	1.31	22.9	7.62
12-13	4.6	4.90	3.38	5.51	5.36	2.91	7.76	4.09	23.6	16.5	86.5	62.4	5.07	1.21	10.3	2.38	12.7	5.13	71.4	29.5
13-14	2.6	5.47	2.05	3.74	1.89	4.90	2.59	6.69	2.97	22.4	8.79	72.5	1.18	2.68	2.28	5.20	4.08	14.3	21.5	78.3
14-15	4.7	0.73	3.19	0.48	4.71	0.49	6.27	0.63	4.24	2.51	11.0	6.64	1.65	0.06	3.16	0.11	613	0.68	31.0	3.29
15-16	0.3	1.02	0.20	0.67	0.08	0.81	0.11	1.05	7.53	1.31	18.8	3.37	1.02	0.49	1.92	0.93	5.35	0.80	25.5	3.86
16-17	4.4	3.20	2.82	2.07	4.19	3.44	5.33	4.49	4.80	11.2	11.1	28.5	0.53	0.47	0.98	0.88	0.80	4.99	3.65	23.9
17-18	1.2	3.45	0.78	2.16	1.64	2.67	2.00	3.32	8.33	8.79	18.4	20.1	2.14	1.91	3.97	3.60	4.05	3.82	18.2	17.4

Table 1 (b): Absolute growth and rate of growth among Korku and Gond boys

Age (In years)	Chest Circumferenc (in cm)				Calf Circumference (in cm)				Biceps Skin fold (in cm)				Triceps Skin fold (in cm)				Calf Skin fold (in cm)			
	Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth		Absolute Growth		Rate of Growth	
	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond	Koru	Gond
6-7	3.24	2.32	8.80	4.40	3.21	13.28	17.02	74.67	1.06	15.90	23.98	43.08	3.02	5.06	4.52	8.01	0.58	2.06	8.73	3.04
7-8	3.04	11.04	5.35	20.4	3.24	6.52	16.07	32.35	2.15	5.30	6.27	12.37	1.53	29.54	2.33	46.73	1.20	10.74	1.69	10.97
8-9	3.37	0.82	5.85	1.38	3.16	0.66	15.27	3.08	3.91	18.37	11.09	48.22	4.02	10.53	6.03	14.20	4.28	12.11	6.50	12.53
9-10	3.15	1.64	5.26	2.79	3.20	4.26	14.57	19.98	2.08	2.18	5.83	5.72	3.96	1.40	6.31	2.19	1.50	9.09	2.04	13.65
10-11	3.34	5.02	5.70	8.56	3.62	6.64	16.41	29.90	3.03	13.82	8.59	4.33	2.43	25.73	4.12	49.75	2.07	7.61	3.46	11.36
11-12	4.19	1.45	6.92	2.36	4.37	2.34	19.13	9.88	0.92	1.11	25.34	31.04	21.05	11.14	34.92	21.80	23.42	2.69	38.37	4.20
12-13	8.10	6.57	12.8	10.5	7.95	4.42	33.39	18.22	26.67	11.02	87.16	30.70	39.24	8.59	74.46	15.12	4.10	13.56	38.36	20.63
13-14	1.05	9.67	1.53	14.6	2.17	7.86	8.42	31.02	1.66	18.71	42.16	46.90	1.13	34.74	1.56	56.30	1.81	30.65	16.74	41.08
14-15	6.53	0.50	9.46	0.72	5.44	0.81	20.72	3.14	3.31	4.29	8.73	10.20	2.48	2.29	3.40	2.75	2.95	4.10	28.01	4.20
15-16	4.41	2.70	6.00	3.83	0.98	1.95	3.62	7.49	22.14	1.79	56.32	40.98	2.28	2.76	3.06	3.42	1.77	8.37	17.37	8.25
16-17	3.40	5.97	4.43	8.20	5.09	4.89	18.60	18.38	10.03	6.01	24.57	17.36	0.49	6.33	6.41	10.32	8.11	3.72	38.48	3.67
17-18	3.55	3.46	4.47	4.49	1.64	5.46	5.69	19.60	6.71	1.63	14.94	44.55	5.39	0.36	7.70	5.52	5.75	1.18	47.51	1.21

Table 2: Independent sample *t*-test for growth measurements among Korku & Gond boys

Age (in years)	Measurements									
	Body stature			Body circumference				Skinfold thickness		
	Height	Sitting Height	Weight	Head Circumference	Arm Circumference	Chest Circumference	Calf Circumference	Biceps	Triceps	Calf Fold
6	Not Significant (0.22)	Not Significant (0.68)	**Significant (0.00*)**	Not Significant (0.58)	Not Significant (0.11)	Not Significant (0.78)	**Significant (0.00*)**	Not Significant (0.90)	**Significant (0.02*)**	Not Significant (0.47)
7	Not Significant (0.13)	Not Significant (1.04)	Not Significant (0.67)	Not Significant (0.56)	Not Significant (0.07)	Not Significant (0.20)	Not Significant (0.31)	Not Significant (0.24)	Not Significant (0.90)	Not Significant (0.11)
8	Not Significant (0.30)	**Significant (0.01*)**	Not Significant (0.61)	Not Significant (0.15)	Not Significant (0.10)	Not Significant (0.13)	Not Significant (0.34)	Not Significant (0.87)	Not Significant (0.84)	Not Significant (0.36)
9	Not Significant (0.08)	Not Significant (0.24)	Not Significant (0.51)	Not Significant (0.91)	Not Significant (0.09)	Not Significant (0.42)	Not Significant (0.21)	Not Significant (0.20)	Not Significant (0.21)	Not Significant (0.18)
10	Not Significant (0.11)	**Significant (0.00*)**	**Significant (0.03*)**	**Significant (0.02*)**	Not Significant (0.90)	**Significant (0.01*)**	Not Significant (0.27)	Not Significant (0.68)	Not Significant (0.62)	Not Significant (0.38)
11	Not Significant (0.15)	**Significant (0.02*)**	Not Significant (0.31)	Not Significant (0.95)	Not Significant (0.33)	Not Significant (0.75)	Not Significant (0.18)	Not Significant (0.30)	Not Significant (0.81)	Not Significant (0.07)
12	Not Significant (0.18)	Not Significant (0.57)	Not Significant (0.58)	Not Significant (0.51)	Not Significant (0.48)	Not Significant (0.13)	Not Significant (0.46)	Not Significant (0.84)	Not Significant (0.21)	Not Significant (0.82)
13	Not Significant (0.55)	Not Significant (0.98)	Not Significant (0.33)	Not Significant (0.42)	Not Significant (0.14)	Not Significant (0.09)	Not Significant (0.13)	Not Significant (0.82)	Not Significant (0.34)	Not Significant (0.57)
14	Not Significant (0.90)	Not Significant (0.32)	Not Significant (0.91)	Not Significant (0.69)	Not Significant (0.38)	Not Significant (0.80)	Not Significant (0.56)	Not Significant (0.13)	Not Significant (0.78)	Not Significant (0.65)
15	Not Significant (0.19)	Not Significant (0.94)	Not Significant (0.96)	Not Significant (0.17)	Not Significant (0.72)	Not Significant (0.84)	Not Significant (0.14)	Not Significant (0.31)	Not Significant (0.77)	Not Significant (0.81)
16	Not Significant (0.12)	Not Significant (0.84)	Not Significant (0.72)	Not Significant (0.29)	Not Significant (0.81)	Not Significant (0.33)	Not Significant (0.16)	Not Significant (0.16)	Not Significant (0.08)	Not Significant (0.68)
17	Not Significant (0.52)	Not Significant (0.90)	Not Significant (0.86)	Not Significant (0.16)	Not Significant (0.14)	Not Significant (0.27)	Not Significant (0.31)	Not Significant (0.42)	Not Significant (0.05)	Not Significant (0.46)
18	Not Significant (0.63)	Not Significant (0.42)	Not Significant (0.18)	Not Significant (0.90)	Not Significant (0.79)	Not Significant (0.40)	Not Significant (0.86)	Not Significant (0.21)	Not Significant (0.34)	Not Significant (0.82)

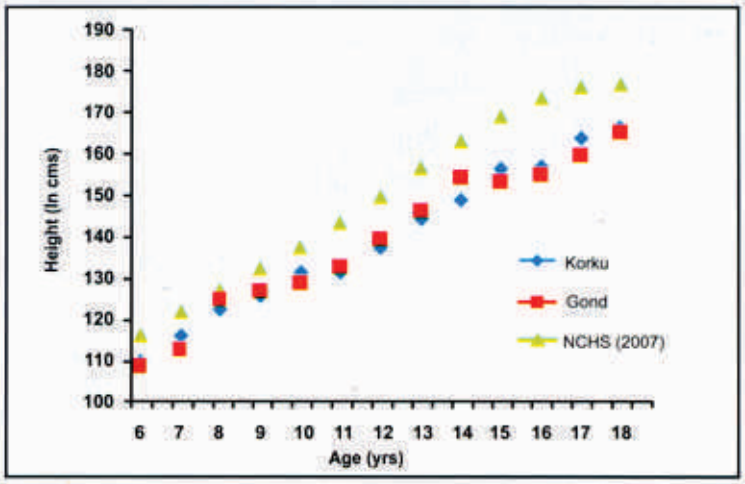

Figure 2(a): Comparison of growth of height among Korku & Gond boys with NCHS (2007)

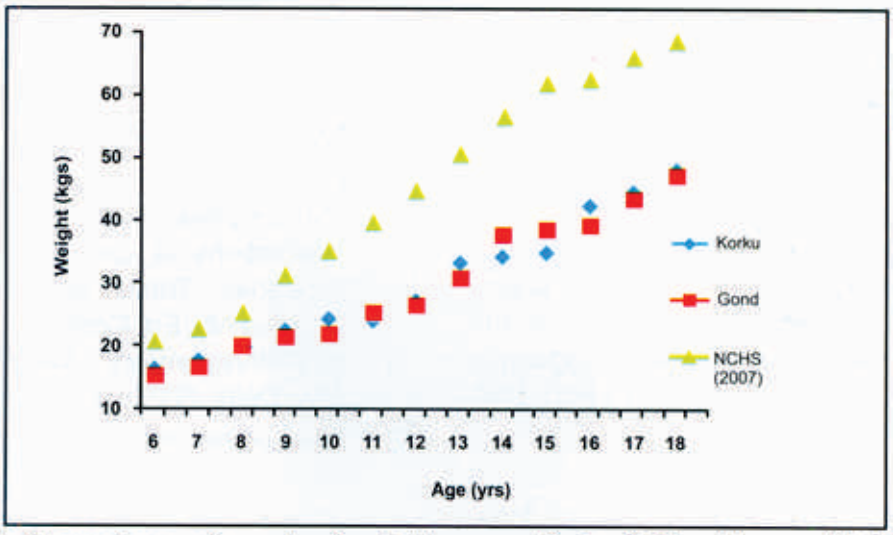

Figure 2(b): Comparison of growth of weight among Korku & Gond boys with NCHS (2007)

CONCLUSION

The absolute or annual increment and growth rate of Gond boys was high for the age group of 7 to 8 years while in Korku boys it was among age group 12 to 13 years. The highest growth measured for both tribal boys were at the age group of 8 to 10 years, 13 to 16 years and 17 to 18 years. The present study on Gond and Korku boys did not found much variation in all measurements with respect to their age increasing from 6 to 18 years. Similar type of growth trend was observed for both the tribal groups as they reside in same type of ecological conditions and had similar socio-economic and nutritional status. At the same time, the Gond and Korku boys were found poor in growth as compared to NCHS standard. Such study may prove beneficial for the people who are working towards the betterment of tribal health.

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