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OBSTETRIC MORBIDITIES AND TREATMENT SEEKING BEHAVIOUR AMONG TRIBAL WOMEN IN INDIA

Snigdha Banerjee[1], Apyayee Sil[2]

Abstract: This study is aimed at understanding the types and factors associated with obstetric morbidities and treatment seeking behavior among currently married scheduled tribe women in India in the age-group of 15-49 as identified from DLHS-4 (2012-13) data. Emergency obstetric care plays a vital role in the reduction of obstetric risk as most of the maternal deaths are result of lack of obstetric emergencies. Majorly reported obstetric problems were swelling of hands and feet followed by excessive vomiting and prolonged labor. Women with severe obstetric morbidities had normal deliveries by untrained personnel's irrespective of their place of residence. The results revealed that around 52% and 72.9% women did not seek any treatment during their pregnancy and post-delivery period respectively. The results from logistic regression analysis suggest significant association of the socio-economic and demographic factors with pregnancy-related complications. This study concluded that scheduled caste women are living with a very poor standard of health as a result of lack of education, unemployment and fewer health care centers.

Key words: Pregnancy complications, treatment-seeking behavior, tribal population.

INTRODUCTION

Good health and well-being are among one of the main indicators of Sustainable Development Goal (SDG 2015). The International Conference on Population and Development (1994) indicated the importance of women's health, especially reproductive and sexual health for overall development. Obstetric morbidity is one of the major reproductive health problem and is defined as "morbidity in a woman who has been pregnant (regardless of site or duration of the pregnancy) resulting from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes"[1]. Child birth is a significant event in woman's life, but this could be dangerous in the absence of adequate medical care and ignorance in times of complication during pregnancy. Reproductive morbidity in general is not only the result of biological factors but also could be attributed to women's poverty, lack of economic or financial independence, malnutrition, infection, early and repeated childbearing and high fertility poor maternal health conditions in India[2]. Women especially from backward

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sections in the developing countries have limited access to skilled obstetrical care. India is home to more than half of the world's tribal population. Approximately more than five hundred tribes are spread across different parts of India [3]. Thus, it is plausible to argue that women belonging to scheduled tribes have higher chance of obstetric morbidities and less health-seeking behavior as a result of their living in difficult or isolated areas where modern health facilities are scarce. Obstetric morbidity of women was not of significant importance and rarely addressed in a country like India where it is considered as a part of natural process. Therefore, the obstetric health problems of tribal women deserve special attention as tribal groups have existed on the fringe of Indian society[4]. These groups are ignorant and insensitive towards reproductive morbidities compared to the non-tribal population. From the footsteps of Cairo conference, attention is gathered on the general health and morbidity status of women in India, however reproduction morbidity of tribal women has not yet received the desired attention. Earlier studies have shown very little idea about the several dimensions of obstetric morbidity, though the magnitude of the problems associated with this morbidity is not properly understood. On the other hand, the problems of obstetric morbidity have been reported by many tribal women, but due to lack of social awareness and low decision-making power, the use of healthcare facilities remain indifferent. Mostly, the problems of obstetric morbidity are not diagnosed properly at right time which may cause a vulnerable situation and result in women's death[5]. Given the common prevalence of the obstetric morbidity, it is essential to understand and identify the underlying correlates which place women's life at perpetual risk. Therefore in this study, an attempt has been made to shed light on obstetric morbidity situations and identification of socio-demographic determinants and health-seeking behavior among the tribal women in India.

DATA AND METHODS

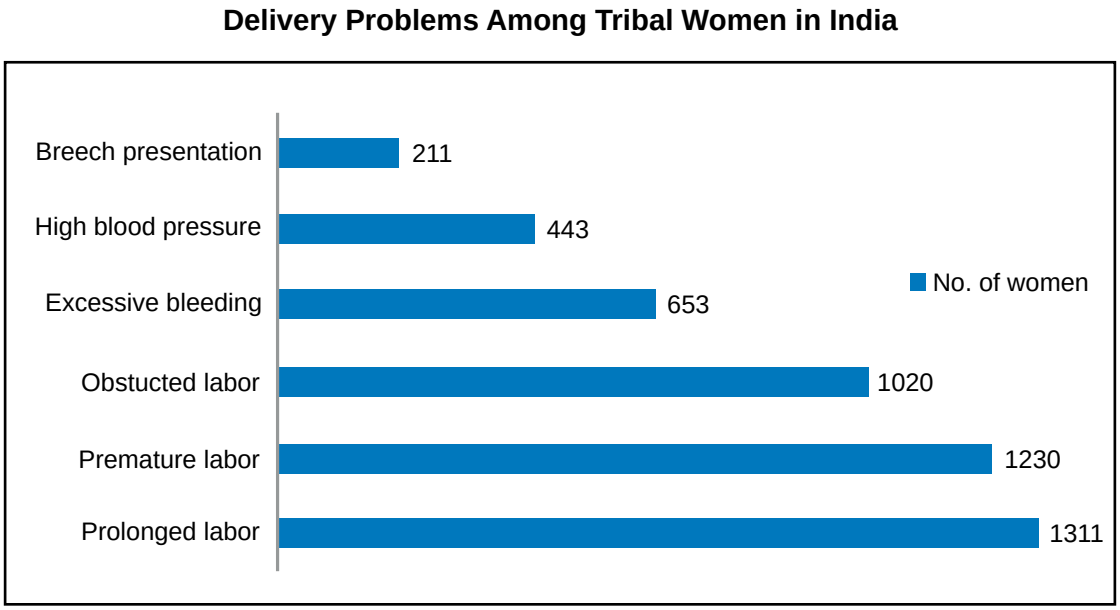
The District Level Household and Facility Survey (DLHS) provided opportunities to study obstetric morbidity status of married women. So, DLHS-4 (2012-2013) data for tribal women was used for the analysis. Currently married women in the age group 15-49 who gave birth after 2008 were selected for the analysis.

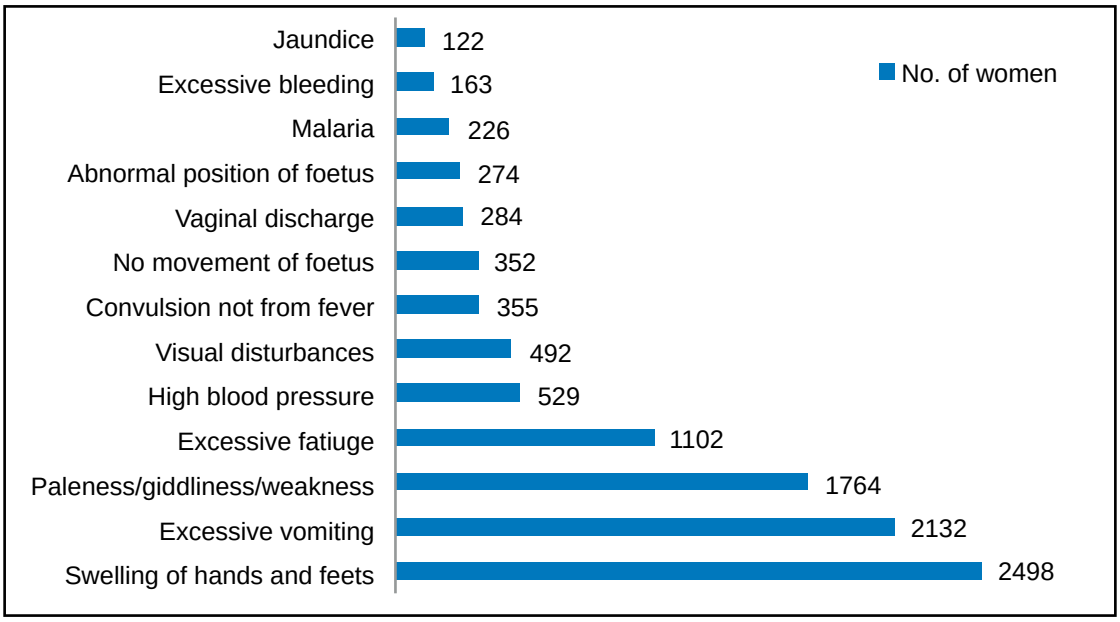
The surveys collected information on various types of complications during pregnancy, delivery and post-delivery period. The complications were divided during pregnancy, delivery and post-delivery period. For subsequent detailed analysis 3 dichotomous variables were computed: women with any pregnancy, delivery and post-delivery complications. With the help of these 3 dichotomous variables, dependent variable "obstetric morbidity" was computed. Another dependent variable was treatment-seeking behavior for these morbidities.

The independent variables were birth order, age at marriage caste, place of residence, place of delivery, type of delivery; RTI, etc. Bi-variate and multivariate analysis were carried out using STATA-13.0.

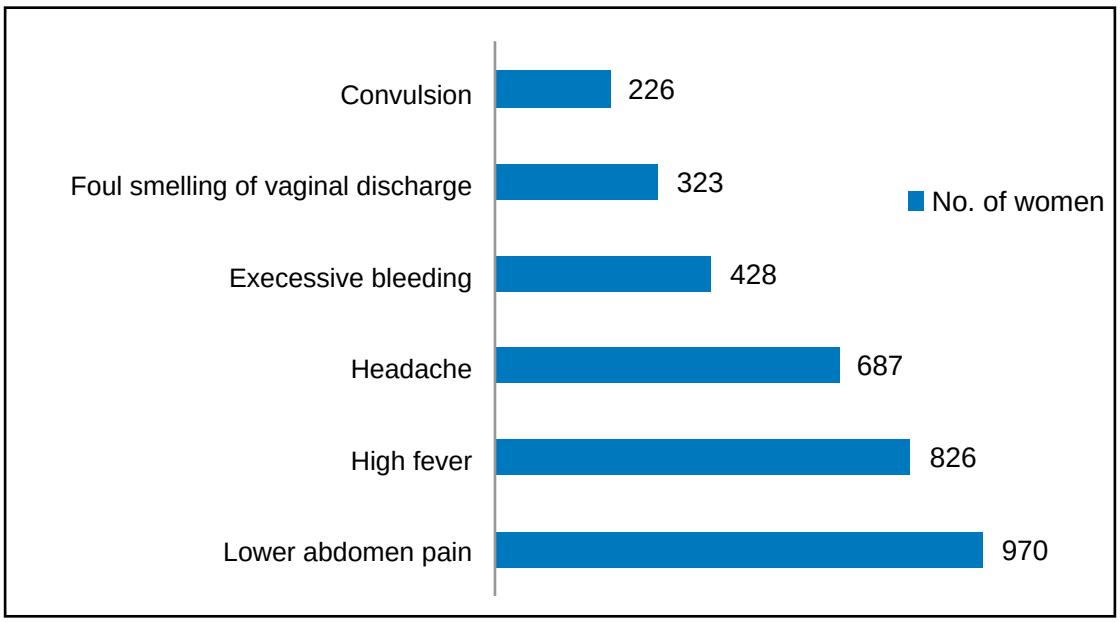
RESULTS

Figure 1: Types of Obstetric Morbidity among Tribal Women in India





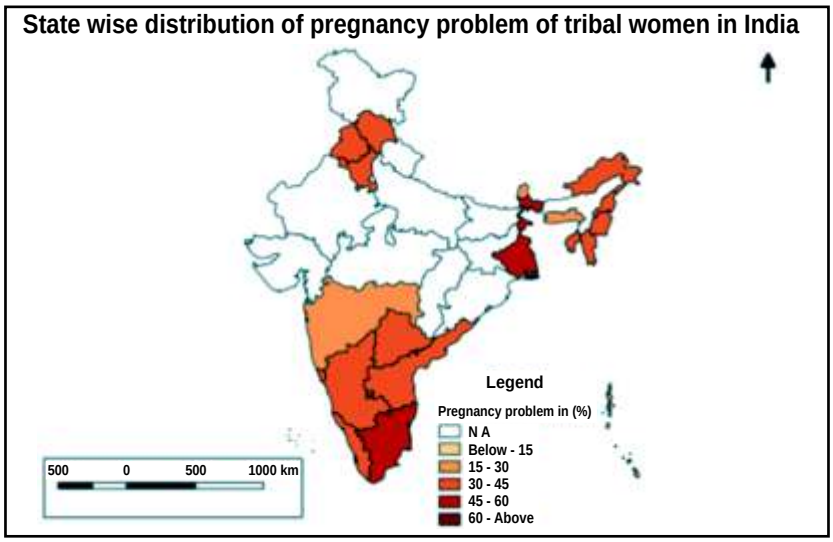
Post Pregnancy Problems Among Tribal Women in India

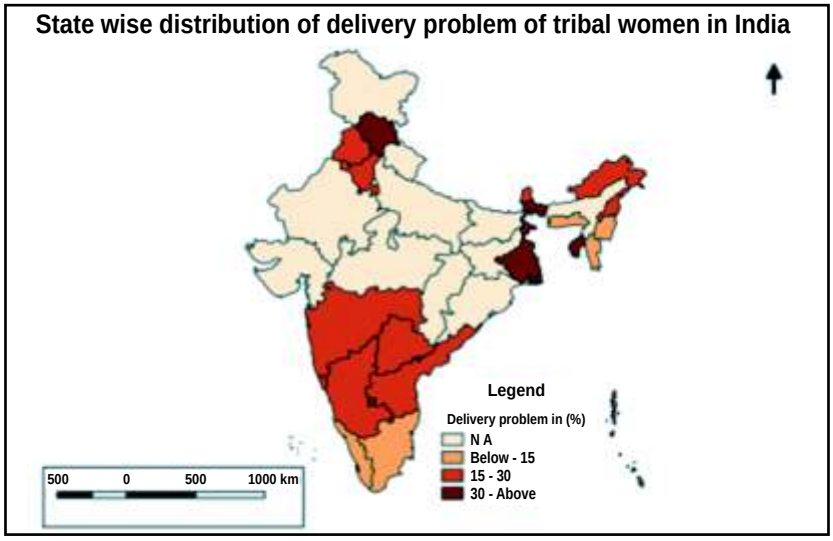


Types of Obstetric Morbidity

Different types of pregnancy problems were reported by currently married tribal women in the selected state (Figure 2) Obstetric morbidities are classified into 3 parts – first part depicts that women have complication during partum time; second part depicts women facing problems at the time of ante partum and last part depicts women having complications during post-partum period. Swelling of hands and feet (15.09%) was most commonly reported followed by excessive vomiting. Excessive fatigue (6.6%) was another major problem which women face during pregnancy. Other problems also place an important role like high blood pressure (3.28%), weakness and paleness (10%). The major delivery complications experienced by women who had still or live births in the three years preceeding the survey includes prolonged labor (7.8%), premature labor (7.4%), obstructed labor (6.24%), excessive bleeding (3.3%) etc. Around 12% women had at least one complication during post-partum delivery. A higher number of women reported lower abdomen related problem (5.8%), high fever and headache (4.9%) as major post-partum problems. 2.0 % of women reported foul smell from vaginal discharge.

Figure 2: State Wise Distribution of Obstetric Morbidity of Tribal Women in India





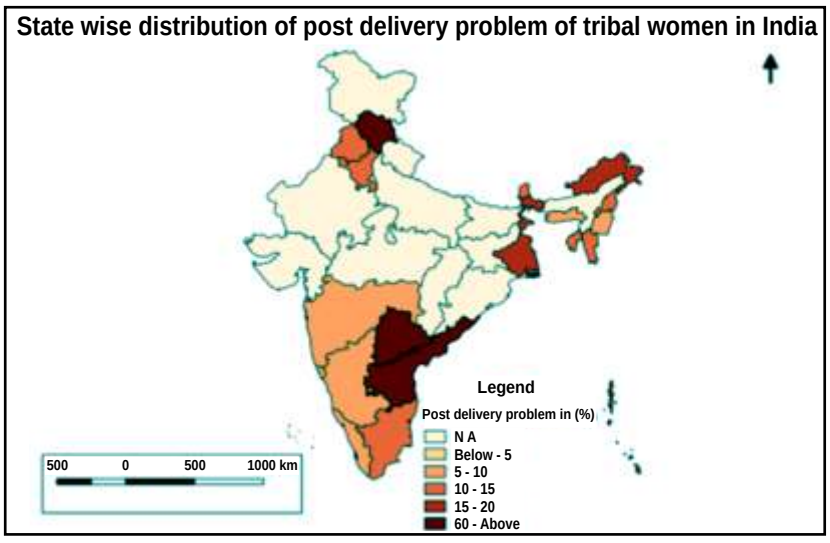


Table 1: Odds Ratio of the Likelihood of Obstetric Morbidity among Currently Married Tribal Women in India.

Variables	Odds Ratio
Women's Age	
15-19®	
20-24	0.94
25-29	0.97
30-34	0.99
>35	1.02
Women's Education	
Illiterate®	
Up to Primary	0.99
Upper primary	1.03
Secondary	1.15*
Graduate and over	1.20*
Husband's Education	
Illiterate®	
Up to Primary	1.12
Upper primary	1.10
Secondary	1.08
Graduate and over	1.01
Place Of Residence	
Rural®	
Urban	1.09*
Wealth Index	
Poorest®	
Poorer	1.01
Middle	0.98
Richer	1.05
Richest	1.20
Age At First Marriage	
Less Than 15 Years®	
16-30	0.90
>30	0.86
Birth Order	
First®	
Second	0.83**
Third	0.76***
Forth	0.80**
Age At First Birth	
Less Than 15 Years®	
16-24	1.08
25-34	1.20
35-44	0.96
Reproductive tract infection	
Yes®	
No	0.32***
ANC Visit Last Pregnancy	
Less Than 3 Visits®	
3-6 Visits	0.90
More Than 6 Visits	1.04
Working Status Of Women	
Yes®	
No	1.05

Seventy-nine percent currently married tribal women in Puducherry and 53% women in Tamil Nadu have reported at least one pregnancy-related problem. In India, delivery related problems have been mostly found in West Bengal (42.49%) followed by Haryana (29.49%), while Kerala (6.25%) has lowest percentage of delivery problem. In India, only 6% tribal women have reported about post-delivery problems of which highest numbers of tribal women are from Puducherry.

Multivariate logistic regression analysis was used to examine the effect of socio-economic and demographic factors on obstetric morbidity. The dependent variables were 'no obstetric morbidity' and 'any obstetric morbidity' which is dichotomous. The independent variables selected were age of the women, birth order, age at first birth, age at marriage, education of women, education of her husband, work status, place of residence, her frequency of ANC visit during last pregnancy and whether she is having RTI problem. Women with secondary (1.15, p<.01) and higher education (1.20, p<.01) were more likely to have obstetric problems as compared to women with no education. Urban women were 1.09 times (p<.01) more likely to have obstetric morbidity than rural women. The likelihood of obstetric morbidity is decreasing with increment in birth order. Odds of women having second, third and fourth birth order are respectively 0.17 times, 0.24 times and 0.20 times significantly lower than women having first birth order. Women without any RTI problem were 0.68 times less likely to have obstetric morbidity.

Health seeking behavior

Table 2 shows the health-seeking behavior among tribal women in India. 32.74% tribal women in India have at least one illness during pregnancy and among them 47.57% women seek treatment. Almost all women prefer to visit Government hospital (34.7%) followed by Private hospital (22%) and PHC (15%). It was found that 18.08% women in India have at least one delivery problem and most of them prefer institutional delivery (69.14%). The main reasons for not opting for institutional delivery among tribal women are no transportation, far away, no time for going to the institution, and their perception to avail better care at home. 11.83% women in India suffer from at least one illness in post-delivery period, of which half of the women seek treatment after the delivery (53.88%) and most of them prefer to go Govt. hospital (46.38%) followed by private hospital (22.6%).

Table 2: Health Seeking Behavior among Tribal Women

Phases of Pregnancy	Percentage of women having complication	Seeking treatment	place of Consultation	Percentage
Pregnancy Problem	32.74	47.57	Integrated Child Development Services-Centre	0.71
			Sub-Center	6.75
			Primary Health Center	15.11
			Community Health center	7.76
			Uhc-Uhp-Ufwc	0.95
			Dispensary-Clinic	0.67
			Hospital	34.69
			Mobile-Medical-Unit	0.03
			Private-Dispensary-Clinic	9.54
			Private -Hospital	22.58
			Private -Ayush-Hospital-Clinic	0.07
			Non-Governmental Organization (NGO)	0.49
			Other	0.66
Delivery	18.08		Institution	69.14
			Home	30.76
Post Delivery Problems	11.83	53.88	Sub-Center	4.39
			Primary Health Center	12.46
			Community Health center	7.28
			Uhc/Uhp/Ufwc	1.45
			Dispensary-Clinic	0.29
			Hospital	46.38
			Mobile Medical Unit	0.07
			Private-Dispensary-Clinic	2.11
			Private -Ayush-Hospital-Clinic	22.6
			Non-Governmental Organization (NGO)	0.17
			At Home	2.7
			Other	0.12

Table 3: Percentage of Women seeking treatment during Pregnancy, and Post Delivery Period by Selected Background Characteristics.

Variables	Treatment Seeking	
	No	**Yes**
Women Age		
15-19	19.9	80.1
20-24	19.95	80.05
25-29	19.55	80.45
30-34	17.7	82.3
>35	14.86	85.14
Place of Residence		
Urban	16.75	83.25
Rural	25.14	74.86
Women Education		
Illiterate	12.79	87.21
Primary	17.59	82.41
Secondary	21.48	78.52
Higher	26.8	73.2
Husband Education		
Illiterate	10.2	89.8
Primary	16.91	83.09
Secondary	19.97	80.03
Higher	24.52	75.48
Birth Order		
First	22.03	77.97
Second	18.78	81.22
Third	16.51	83.49
Forth	15.29	84.71
Reproductive Tract Infection		
No	32.55	67.45
Yes	16.31	83.69

The Table 3 shows the percentage of women seeking treatment during pregnancy and post-delivery period by selected background characteristics. The percentage of treatment-seeking behavior among tribal women in India is almost constant (in the age-group, 15-29) (the percentage varies from 80.1 to 80.45), and then it increases (in the age group, 30 years and above). Percentage of women seeking treatment among tribal women in India increases with birth order (77.9 in first birth order to 84.71 in fourth birth order). Treatment-seeking behavior decreases with women's education and their husband's education. Percentage of tribal women residing in urban area significantly takes more

treatment (83.25%) than rural women (74.86%). Women with RTI (67.45%) seek significantly more treatment than women without RTI problem (83.69%).

DISCUSSION AND CONCLUSION

Health is not only a function of medical care but also forms an integral part of the developmental process of the society. It is not possible to raise the health status and quality of life of the people unless such efforts are integrated with efforts to promote overall well being of the society. The first objective of this study was to examine the prevalence of obstetric morbidities among tribal women during partum; ante partum and post-partum period in India. Secondly to study the effect of socio-economic and demographic factors associated with obstetric complications.

The results revealed that the majorly reported excessive vomiting, swelling of hands, feet and fatigue during pregnancy period while labor pain, excessive bleeding and lower abdomen pain are more serious problems during delivery and post delivery period. The proportion of obstetric complications varied according to socio economic and demographic characteristics of women. Women with higher education are more likely to identify and report obstetric morbidity compared to less educated women. This holds true as educated women are more aware of such type of problems and report them often whereas illiterate women are unaware of such problems and consider them as normal. Place of residence, standard of living, reproductive tract infection are highly associated with safe delivery as well as obstetric morbidity[6]. The consequences of STIs/RTIs for reproductive health can be severe and life-threatening such as pelvic inflammatory disease (PID), infertility (in both women and men), ectopic pregnancy and adverse pregnancy. Outcomes of adverse pregnancy include miscarriage, still birth, preterm birth and congenital infection which may lead to prelabor rupture of membranes and preterm delivery[7].

There exists an inverse relation to pregnancy complications and number of children born to a woman i.e., women with four and more children reported less complications during pregnancy as compared to women with one or two children[8]. Tribal people differ from other communities by cultural settings. Their health care problems stem from illiteracy, poor infrastructure, poor sanitation and also from some customs and traditions peculiar to these groups[9]. This study showed that less than half of the women opt for treatment during pregnancy, delivery and post-delivery period. The rate of maternal mortality in developing countries is still high mainly due to the maternal causes which are related to the life-giving event and mostly due to inadequate medical care at the time of childbirth[10]. Therefore this study concludes that separate and special strategies are required to provide health facilities for tribal women. As most of the

tribal communities are economically backward, they cannot bear the expenses of private medical sector which is often more costly as opposed to public health sector. Secondly, tribal population lives in geographically scattered areas which are not easily accessible; therefore, number of health centers with effective treatment and equipped infrastructures are required to meet their basic reproductive health needs. Awareness needs to be created to educate and encourage tribal population to seek better treatment.

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TRIBAL POPULATION AND TRIBAL COMMUNITIES OF UTTAR PRADESH, INDIA: ANALYSIS OF CENSUS DATA 2011

Dr. Binod Kumar Singh[1]

Abstract: The population characteristics of Scheduled Tribe (ST) population viz. size, growth and their geographical distribution with comparative inter-tribe differences within the tribal communities of Uttar Pradesh (UP) has been presented in this paper. Tribal population constitute 8.6% of the total population as per 2011 census. Last four decades have witnessed the contribution of STs to total population and its strength has increased in urban areas with the increase in absolute number of tribal population. UP has the 17th largest number of STs in India (1.13 million persons in 2011 census) which is higher than the total population of Mizoram. The number of STs has increased by 10.5 times in 2011 from 2001 Census. Of the 97,814 villages inhabited by ST, which encompass about 91.0% of the total tribal population of the state, ST peoples have returned to their native from 10,557 villages only and from the 457 of 915 towns in the state according to 2011 census Three districts namely- Sonbhadra, Ballia and Deoria inhabits more than one-half of the total ST population of which more than one-thirds of the total STs are back to their natives from the Sonbhadra district. There are 15 tribal communities along with generic tribes in UP.

Gond / Dhuria / Nayak / Ojha / Pathari / Raj Gond, Kharwar / Khairwar, Tharu, Saharia and Chero are the five significant tribal communities, which comprise of more than four-fifth (83.6%) of total ST population of UP. Gond / Dhuria / Nayak / Ojha / Pathari / Raj Gond are the largest tribal community with about 50.0% of total ST population and inhabits the 18 districts of eastern UP. As a result, this tribal community ranks first among the sixteen districts of the state. Kharwar or Khairwar are the second largest tribal community located in eastern districts of UP and share borders with Bihar and Jharkhand state. Tharu, the third largest tribal community with about 9.0% of total ST population is widely distributed in 63 districts of UP and holds the first rank among the tribal communities in the eleven districts in the state. Tribal communities of UP are poor and primarily work as agricultural labour for their livelihood. In contrast, other ST communities are involved in cultivation as main occupation.

Key words : Tribal communities, Uttar Pradesh, Census Date 2011, schedule caste & tribes.

INTRODUCTION

The STs are populated in all 71 districts of UP and inhabit a total of 10,557 out of 97,814 villages and 468 out of 915 towns. 15 individually ethnic groups are notified as STs and lawful within the UP, of which 10 of them were notified in 2003 after the 2001 census and were listed for the first time in 2011 census. These ethnic groups are as: 1) Agariya (in the district of Sonbhadra); 2) Baiga (in the district of Sonbhadra); 3) Bhuiya/Bhuinya (in the district of Sonbhadra); 4) Chero (in the districts of Sonbhadra and Varanasi); 5) Gond/Dhuria/Nayak/Ojha/Pathari/Raj Gond (in the districts of Mahrajganj,

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Siddharthnagar, Basti, Gorakhpur, Deoria, Mau, Azamgarh, Jaunpur, Ballia, Ghazipur, Varanasi, Mirzapur and Sonbhadra); 6) Kharwar/Khairwar (in the districts of Deoria, Ballia, Ghazipur, Varanasi and Sonbhadra); 7) Pankha/ Panika (in the districts of Sonbhadra and Mirzapur); 8) Parahiya; 9) Patari (in the district of Sonbhadra) and 10) Saharya (in the district of Lalitpur). The tribal population of UP is 1.13 million as per 2011 census which constitutes 0.6% of the total population of UP and 1.1% of the total tribal population of India. The number of STs in UP are higher than the total population of Mizoram and Sikkim. The tribal population of UP has increased indefinitely in past two decades (1991-2011). The change in the size of Scheduled Caste (SC) population are determined by fertility, mortality and migration. The constitutional provisions of article 341 and 342 dictates the growth of ST population which depends upon notification of particular castes by the state concerned. The tribal population of UP has increased by 10.5 times in 2011 from 2001 census which could be attributed to inclusion of 10 new STs by the government. However, there was a meagre increase in the proportion of tribal population from 0.1% in 2001 to 0.6% in 2011 as compared to the total population of UP. There was a total growth of 950.5% in the tribal population during the decade, 2001-11 against the 20.2% of the entire population of UP of which about 91% of tribal population live in rural areas of UP.

Languages, economic activities, social structure, traditional beliefs, practices and cultural background differs within tribal communities. Economic and educational levels also varies among the tribes. Socio-economic and demographic characteristic of a population is determined by its socio-cultural practices and inhabitation. Tribal communities inhabit different ecological and geo-climatic conditions which range from plains and forests to hills and inaccessible areas. Tribal groups exist at different stages of social, economic and educational development with some tribal communities adopting a mainstream way of life while others still being at primitive stage. UP is home to a large tribal population which has been cut off from the mainstream development. This makes UP one of the least developed states with a Human Development Index (HDI) value of 0.380 (2007-8) which is lower than the national average of 0.467 making it stand at 18th rank among Indian States/UTs. Of the 15 STs notified, five tribes namely Gond/Dhuria/Nayak/ Ojha/Pathari/Raj Gond, Kharwar/ Khairwar, Tharu, Saharya and Chero constitute 83.6% of the total tribal population of UP. These tribes occupy uplands and dense forests and are at different level of development, facing socially and culturally distinct problems. Buksa and Raji tribal groups have been designated as Particularly Vulnerable Tribal Groups (PVTGs) in the state of UP and Uttarakhand by Ministry of Home Affairs. Hence, the present study is an

attempt to understand the population characteristics like size, growth and spatial distribution between the tribal communities based on recent census data of 2011.

MATERIAL AND METHODS

Study Area and Population

UP in northern India was created on 1st April 1937 as the United Provinces during British rule and renamed as Uttar Pradesh in 1950, came into its present form on November 9, 2000 following its division to form a new state of Uttarakhand. UP is the most populous state and country subdivision in the world with over 200 million inhabitants. The state of UP falls between 23^0 52'N and 30^0 25'N latitudes and 77^0 4'E and 84^0 38'E longitudes. The state is surrounded by Himachal Pradesh, Uttarakhand and Nepal in the North, Madhya Pradesh and Chhattisgarh in the South, Bihar and Jharkhand in the East and Rajasthan, Haryana and NCT of Delhi in the West. Administratively, UP has 18 divisions and 71 districts according to 2011 census. Physiographically, UP is flat with fertile plains, dissected plateaus and ranks 5th in terms of its area and comprise 7.3% of the country's total area of 32,87,469 Km^2. There was a four-fold increase in population of UP from 46.6 million in 1901 to 60.3 million in 1951 which further increased to 199.8 million in 2011 with a three-fold increment post independence. The female to male sex ratio has declined substantially in UP in the 20th century, resulting in a substantial deficit of female population.

There are 15 tribal communities inhabiting state of UP (Gond/Dhuria/ Nayak/Ojha/Pathari/Raj Gond, Kharwar/ Khairwar, Tharu, Saharya, Chero, Baiga, Pankha/Panika, Agariya, Bhuiya/ Bhuinya, Bhotia, Buksa, Jaunsari, Raji, Parahiya and Patari). Buksa and Raji are the PVTG tribes found in Uttar Pradesh. Gond/Dhuria/Nayak/Ojha/Pathari/Raj Gond sub-tribal groups are the largest tribal community which accounts for more than 50% of the total tribal population of the state

Hypothesis

This paper has made an attempt to answer the following research questions from the analysis of 2011 census data.

1. What is the total size and growth of tribal population in UP and other states of central India?
2. What is the spatial pattern of growth and distribution of tribal population at the district level in UP and how it has changed in the last decade from 2001-11 ?
3. Which tribal community occupy first rank at district level and what is the significance attached to such a spatial distribution/concentration?

Data and indicators

In the present study, data was compiled from different tables of 2011 census. The different indicators like the number of inhabited villages, population size, total population and tribal population were computed from Primary Census Abstract (PCA). The data on individual tribe at the State level was computed from

the State Primary Census Abstract (PCA). The district wise population for each ST on the basis of sex and residence has been computed from Table-11 of Census 2011 (Appendix).

RESULTS

Tribal Population of Uttar Pradesh: Size and Distribution

Table-1 presents detail about number of villages / towns and size of the tribal population. 10,557 villages (10.8%) of 97,814 inhabited villages have returned 1,031,076 tribal population while 457 towns (49.9%) of the total 915 towns, have registered 103,197 tribal population. Nearly 91% of the total population of UP resides in rural areas and 9% in urban areas of the state.

2,960 villages have a tribal population size of less than 10. Nearly one-tenth of the rural tribal population resides in the 32 villages with a population size of more than 2,000 but less than 10,000. Three villages namely Panari, Jogaeal and Kota of Sonbhadra district with population size of more than 10,000 and above have 4.2% of tribal population. Table-1 shows the percentage of tribal population inhabiting villages of various population sizes with reference to the total rural tribal population in 2011. 1.1% of the tribal people live in villages with population range of 'Less than 10'. The population range of 200-499 has the highest percentage of 19.9. However, majority of rural tribal population reside in the villages with the size groups of 500-999 and 1,000-1,999.

273 towns have a tribal population size of less than 50. 49.1% of the urban tribal population reside in just 14 towns with population size of more than 2,000 but less than 10,000. Table-1 shows the percentage of tribal population inhabiting towns of various population sizes with reference to the total urban tribal population in 2011. 0.5% of the tribal people live in towns with population range of 'Less than 10'.

Table 1: Villages/Towns by Tribal Population Size in Uttar Pradesh, 2011

Villages/Towns by Tribal Population Size Class	Total number of inhabited villages[*]	Total Rural tribal population[^]	Total number of Towns[#]	Total Urban tribal population[$]
10000 and above	3 (0.03)	42979 (4.2)	0	0
5000-9999	2 (0.02)	16713 (1.6)	3 (1.6)	18862 (18.3)
2000-4999	30 (0.28)	87923 (8.5)	11 (2.4)	31773 (30.8)
1000-1999	104 (0.99)	141092 (13.7)	9 (2.0)	12413 (12.0)
500-999	210 (1.99)	144749 (14.0)	20 (4.4)	13061 (12.7)
200-499	677 (6.41)	204704 (19.9)	43 (9.4)	13304 (12.9)

100-199	1188 (11.25)	165741 (16.1)	41 (9.0)	6017 (5.8)
50-99	1686 (15.97)	119818 (11.6)	57 (12.5)	4337 (4.2)
10-49	3700 (35.05)	95725 (9.3)	127 (27.8)	2877 (2.8)
Less than 10	2960 (28.04)	11632 (1.1)	146 (31.9)	553 (0.5)
Total	**10557 (100.0)**	**1031076 (100.0)**	**457 (100.0)**	**103197 (100.0)**

Source: Author's Calculation based on PCA, 2011 Census
*Value in the parentheses is proportion to total number of inhabited villages having tribal population
^ Value in the parentheses is proportion to total number of rural tribal population
#Value in the parentheses is proportion to total number of inhabited villages having tribal population
$ Value in the parentheses is proportion to total number of rural tribal population

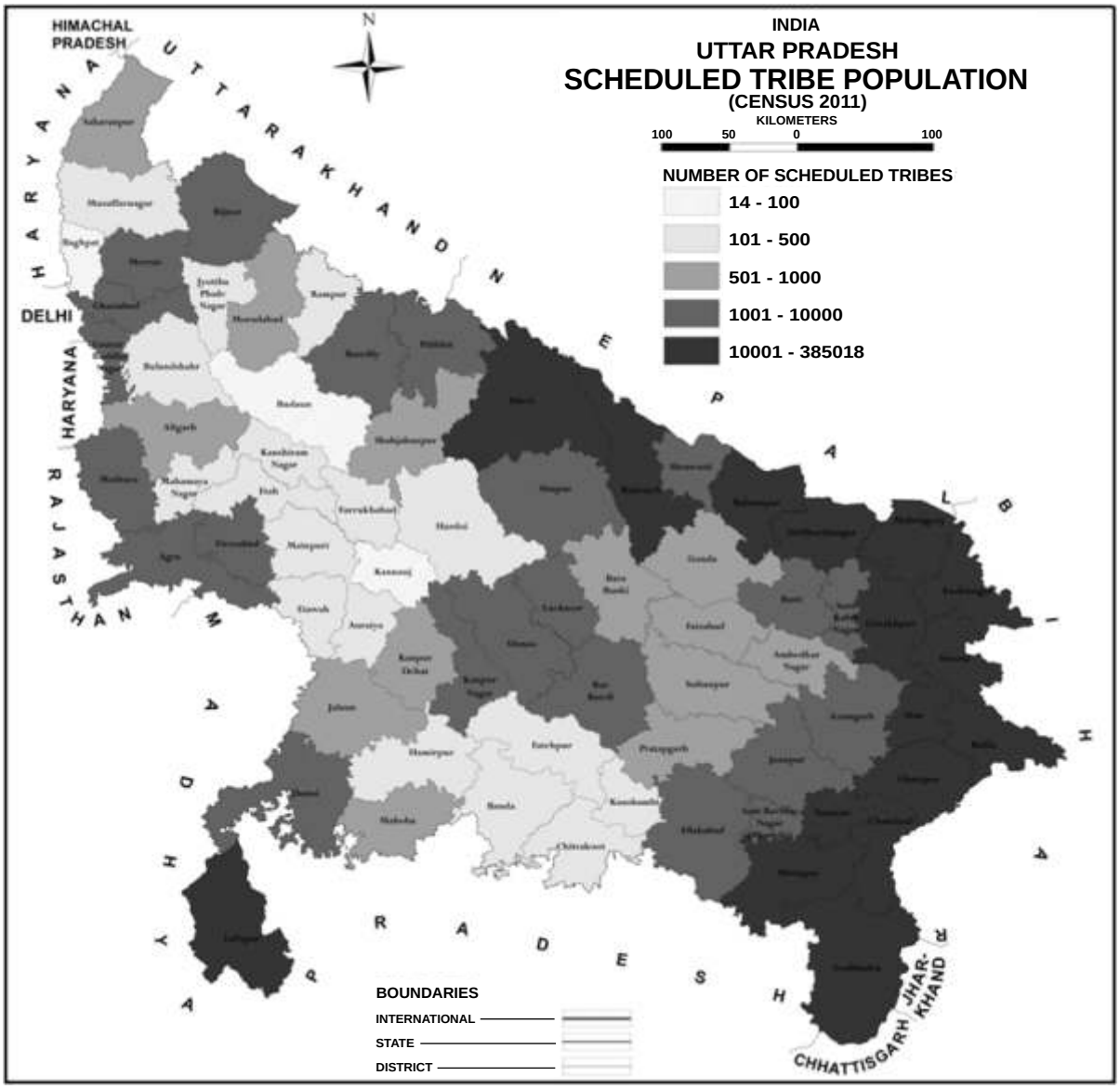

Figure 1: Number and distribution of ST population in the districts of Uttar Pradesh, 2011.

UP stands 17th in terms of number of STs among all the states in India. According to 2011 census, 1.13 million tribal population constituted 0.6% of the total population of UP. The tribal population of UP was more than the total population of Mizoram and Sikkim; greater than the combined population of four union territories namely Daman & Diu, Dadra & Nagar Haveli, Lakshadweep and Andaman & Nicobar Islands; and more than the total ST population of many Indian states namely Tamil Nadu, Kerala, Goa, Mizoram, Manipur, Arunachal Pradesh, Sikkim and Uttarakhand. Approximately 84% of the total tribal population lived in eastern parts of UP. Geographically, 36% of the tribal population was found in Mirzapur Uplands which comprised of Sonbhadra (33.9%) and Mirzapur (1.8%) districts. The size of tribal population differed widely across the sub-regions and districts. Western region has the lowest proportion while Bundelkhand (6.8%) and Avadh (6.4%) regions constituted 13.2% of the total tribal population of the four geographical divisions of the state, namely Avadh (Central), Bundelkhand, Eastern and Western. Five districts namely Sonbhadra (33.9%), Ballia (9.71%), Deoria (9.69%), Kushinagar (7.08%), and Lalitpur (6.31%) constituted more than two-third of the total tribal population. The size of tribal population ranges from 3.85 lakh people in Sonbhadra to only 14 people in Baghpat district followed by Kannauj (15) and Budaun (58).

The tribal population of Sonbhadra district was higher than the national average of 8.6% in 2011 and 12 districts witnessed a higher than the state average of 0.6%. Sonbhadra district had a high range of 20.7% while it was low in Kannauj district with only 0.001%. Tribal population was less than 0.1% of total population in 33 out of 71 districts. A continuous decrease in the overall population was observed (25.85% from 1991 to 2001, and 20.23% from 2001 to 2011). However, there was an unprecedented increase of 950.6% among the tribal population from 2001 to 2011

Tribal Communities of Uttar Pradesh: Size and Distribution

UP has 15 tribal communities including Agariya, Baiga, Bhuiya/ Bhuinya, Chero, Gond/Dhuria/ Nayak/ Ojha/Pathari/Raj Gond, Kharwar/ Khairwar, Pankha/Panika, Parahiya, Patari and Saharya listed for the first time as STs in 2003 after the 2001 census when ,only five tribal communities namely Bhotia, Buksa, Jaunsari, Raji and Tharu were enumerated as STs in UP. These tribal communities have diversity in their population size. In 2011, the Gonds along with the sub-ethnic groups (Dhuria, Nayak, Ojha, Pathari, Raj Gond) was the largest and most dominant tribal community accounting for 50.2% of all STs and inhabited 18 districts of eastern UP with 5,69,035 persons while Patari was home to only 132 persons in Sonbhadra district. In other words, every second tribe in UP is Gond along with their sub-ethnic groups. The Kharwar or Khairwar is the second largest tribal community inhabiting 8 districts of eastern UP which accounted for 14.2% STs. The combined population of these two tribes was 64.4% or roughly

constituted two-third of all ST population in UP. The Tharu is the third largest tribal community with population growth of 26.0% from 83,544 in 2001 to 1,05,291 in 2011 and was enlisted in both 2001 and 2011 census. Tharu tribe was enumerated in 63 districts in 2011 as compared to 55 districts in 2001. The percentage share of Tharu tribe in all STs has decreased from 77.4% in 2001 to 9.3% in 2011. The Saharya is the fourth largest tribal community found only in Lalitpur district and constitutes about 6.2% of STs. The Chero is the fifth largest tribal community inhabiting 4 districts and constitutes about 3.7% of STs. The combined populations of these 5 significant tribal communities of UP was 83.6% according to census 2011. Five tribal communities namely Baiga, Agariya, Bhuiya or Bhuinya, Parahiya and Patari constitutes 5.7% of STs and inhabits only in Sonbhadra district. The Pankha or Panika is the seventh largest tribal community constituting 2.6% of STs and inhabited Sonbhadra and Mirzapur districts. Besides Tharu tribe, Bhotia, Buksa, Jaunsari and Raji tribal communities were also enumerated in both 2001 and 2011 census. These four tribal communities together constitute about 9.6% in 2001 and 1.3% in 2011. The percentage share of these four tribal commmuties decreased by 8.3% from 2001-11. Table 2 presents population size by tribal community in Uttar Pradesh as per 2001 and 2011 Census.

Table 2: Population Size by Tribal Community in Uttar Pradesh from 2001-2011

Rank in 2011	ST Community Name	Total Population		% w.r.t. All ST		No. districts (Enumerated in Census)	
		2011	2001	2011	2001	2011	2001
	All Scheduled Tribes	**1,134,273**	**107,963**	**100.0**	**100.0**	**71**	**71**
1	Gond, Dhuria, Nayak, Ojha, Pathari, Raj Gond	569,035	-	50.2	-	18	-
2	Kharwar, Khairwar	160,676	-	14.2	-	8	-
3	Tharu	105,291	83,544	9.3	77.4	63	55
4	Saharya	70,634	-	6.2	-	1 (Lalitpur)	-
5	Chero	42,227	-	3.7	-	4	-
6	Baiga	30,006	-	2.6	-	1 (Sonbhadra)	-
7	Pankha, Panika	24,862	-	2.2	-	2 (Sonbhadra and Mirzapur)	-
8	Agariya	17,376	-	1.5	-	1 Sonbhadra	-
9	Bhuiya, Bhuinya	15,599	-	1.4	-	1 Sonbhadra	-
10	Bhotia	5,196	3,491	0.5	3.2	57	49

11	Buksa	4,710	4,367	0.4	4.0	46	32
12	Jaunsari	3,720	1,467	0.3	1.4	40	28
13	Raji	1,295	998	0.1	0.9	30	29
14	Parahiya	901	-	0.1	-	1(Sonbhadra)	-
15	Patari	132	-	0.01	-	1(Sonbhadra)	-
	Generic Tribes etc.	82,613	14,096	7.3	13.1	-	67

Source: Author's Calculation based on A-11 Table, State PCA for Individual Scheduled Tribes, 2001-2011 Census.

Tribal Communities of Uttar Pradesh: Spatial Distribution and Concentration

The geographical distribution of ST population in UP suggests densely and scarcely populated areas. Five (Sonbhadra, Ballia, Deoria, Kushinagar and Lalitpur districts; Table 3) of the 71 districts have more than two-third (66.7%) of ST population as per census 2011. Sonbhadra district constituted more than one-third (33.94%) and along with Deoria and Ballia districts have more than one-half (53.34%) of total ST population. Table 3 highlights the top twenty districts that contribute more than 94.0% of the total ST population while 51 districts contribute only about 6.0% of the total ST population. Baghpat had the smallest population size of 14 persons preceded by Kannauj (15) and Budaun (58). Figure 1 shows the spatial distribution of ST population among the districts of UP as per 2011 census where all 71 districts are categorised into 5 groups based on the strength of ST population. Figure 1 shows that 3 districts (Baghpat, Kannauj and Budaun) had ST population below 100. The second group from 101-500 has 17 districts; third group of 501-1000 has 13 districts; fourth group from 1001-10,000 has 22 districts and 16 districts in fifth group have more than 10,000 ST individuals. Six districts (Sonbhadra, Ballia, Deoria, Kushinagar, Lalitpur and Kheri) have more than 50,000 ST populations inhabiting eastern UP.

The distribution of tribal communities by districts has been examined. Table 3 highlights the distribution of top 10 tribal communities in combination with 'others' and generic tribes. 'Others' included Buksa, Jaunsari, Raji, Parahiya and Patari tribes while Generic tribes are those who returned as Anusuchit Jan-jati, Girijan, Adivasi, etc. The distribution and convergence of each tribal community for individual district has been separately mapped in 2011 Census. The key purpose is to comprehend the internal composition of different tribal communities in both individual district and group of districts from sub-regional and area-based perspective which affects the delivery of welfare benefits, political and resource mobilisation. Thus accelerating the political power and administrative commitments. Figures 2 and 3 maps

all 15 tribal communities enumerated in different districts of UP during 2011 Census. Figure 4 depicts the convergence of a particular tribal community or communities in a district or group of districts as per analyses of 2011 census data. Table 4 shows rank wise tribal communities in different districts of UP as per 2011 census. Table 5 summarizes convergence of leading tribal communities in a district or group of districts.

In 2011, Gond (including sub-ethnic groups- Dhuria, Nayak, Ojha, Pathari, Raj Gond) was the largest tribal community in 16 districts (Table 4). Kharwar or Khairwar did not lead in any of the districts despite being the second largest tribal community. Tharu, the third largest tribal community dominated in 11 districts (Table 4). Saharia was dominant in Lalitpur district. Bhotia, the tenth largest tribal community dominated in Hamirpur and Mahoba districts. Other tribal communities (Buksa, Jaunsari, Raji, Parahiya and Patari) were dominant in Bijnor district while Generic tribes were primary in all other districts of UP. However, none of the six tribal communities namely Chero, Pankha or Panika, Baiga, Agariya and Bhuiya or Bhuinya dominated in any districts. This indicates disparity in their spatial distribution in the state.

The geographical distribution of ST population could also be examined from convergence of tribal community or communities in a particular district or group of districts. It is evident from figure 4 and table 5 that 3 districts-Baghpat, Kannauj and Chitrakoot have only Generic tribes constituting 0.03% STs. Pratapgarh and Kaushambi districts have only Tharu tribal community. Seven districts comprise of 2 tribal communities such as Mahoba district has Bhotia and Buksa; Gonda district has Bhotia and Tharu and Auraiya has Buksa and Tharu communities. Mahrajganj and Mau districts have Gond and Tharu while Mainpuri and Etah districts have registered Bhotia and Jaunsari communities.

Three tribal communities were noted in 11 districts accounting for 21.01% STs. Bhotia, Buksa and Tharu were found in 5 districts; Bhotia, Jaunsari and Tharu were recorded in another 5 districts while Buksa, Jaunsari and Tharu were recorded in Fatehpur district (Table 5). Four tribal communities were found in as many as 25 districts constituting 21.01% STs. Bhotia, Buksa, Jaunsari and Tharu were found in 12 districts; Bhotia, Jaunsari, Raji and Tharu were recorded in 3 districts; Bhotia, Buksa, Gond and Tharu were found in 2 districts (Sant Kabir Nagar and Azamgarh); and a group of Buksa, Gond, Raji and Tharu were recorded in 2 districts (Basti and Jaunpur). Six individual districts- Sultanpur, Ballia, Kushinagar, Ambedkar Nagar, Faizabad and Sant Ravidas Nagar (Bhadohi) were found to have a group of four different tribal communities. Five tribal communities were recorded in

20 districts of the state constituting 33.5% STs. A group of five tribal communities - Bhotia, Buksa, Jaunsari, Raji and Tharu were recorded in 14 districts. Six individual districts (Ghazipur, Chandauli, Mirzapur, Siddharthnagar, Lalitpur and Deoria) has recorded a group of five different tribal communities. Gorakhpur district has at least six tribal communities (Bhotia, Buksa, Gond, Jaunsari, Raji and Tharu) constituting 1.6% STs while Varanasi district has at least 8 tribal communities (Bhotia, Buksa, Chero, Gond, Jaunsari, Kharwar, Raji and Tharu) constituting 2.5% of STs. Sonbhadra district has 12 tribal communities (Agariya, Baiga, Bhotia, Bhuinya, Chero, Gond, Kharwar, Pankha, Parahiya, Patari, Raji and Tharu) constituting the largest share of 33.9% of STs.

Table 3: Population Size by Tribal Communities in Districts of Uttar Pradesh during 2011

Rank	State/District	All STs	Gond	Kharwar	Tharu	Saharya	Chero	Baiga	Pankha	Agariya	Bhuiya	Bhotia	Others	Generic
	Uttar Pradesh	1134273	569035	160676	105291	70634	42227	30006	24862	17376	15599	5196	10758	82613
1	Sonbhadra	385018	171099	82000	52		39255	30006	23881	17376	15599	22	1040	4688
2	Ballia	110114	83564	18577								8	3	7962
3	Deoria	109894	93668	12088	8								25	4105
4	Kushinagar	80269	64234	15599	19							3	0	414
5	Lalitpur	71610			8	70634						97	3	868
6	Kheri	53375			47628							497	3339	1911
7	Chandauli	41725	20098	18333			2900					1	5	388
8	Ghazipur	28712	14856	12058	2							2	7	1787
9	Varanasi	28617	24376	1950	24		55					69	68	2075
10	Balrampur	24887			24030							25	1	831
11	Mau	22915	21924		10								0	981
12	Mirzapur	20132	18278		29				981			5	7	832
13	Gorakhpur	18172	15168		323							10	5	2666
14	Mahrajganj	16435	11818		3721								0	896
15	Siddharthnagar	12021	11066		125							6	71	753
16	Bahraich	11159			10641							189	3	326
17	Azamgarh	9327	8400		7							1	10	909
18	Allahabad	7955			1190							71	14	6680
19	Lucknow	7506			4029							270	577	2630
20	Agra	7255			40							958	245	6012
	Others	67175	10486	71	13405	0	17	0	0	0	0	2962	5335	34899

Source: Author's Calculation based on A-11 (Appendix) Table, District wise ST Population (for each Tribe), 2011 Census

Table 4: Rank issue Tribal community in District of Uttar Pradesh, 2011

Name of the District	Name of First Ranking Tribal Community	Percentage Share of First Ranking Tribal Community	Name of the District	Name of First Ranking Tribal Community	Percentage Share of First Ranking Tribal Community
1.Basti	Gond	97.7	17.Lalitpur	**Saharya**	98.6
2.Mau	Gond	95.7	18.Balrampur	Tharu	96.6
3.Siddharthnagar	Gond	92.1	19.Bahraich	Tharu	95.4
4.Mirzapur	Gond	90.8	20.Kheri	Tharu	89.2
5.Azamgarh	Gond	90.1	21.Shrawasti	Tharu	86.2
6.SRN (Bhadohi)	Gond	88.0	22.Unnao	Tharu	80.3
7.Deoria	Gond	85.2	23.Kanpur Dehat	Tharu	74.8
8.Varanasi	Gond	85.2	24.Kaushambi	Tharu	72.0
9.Gorakhpur	Gond	83.5	25.Rae Bareli	Tharu	58.9
10.Ambedkar Nagar	Gond	81.1	26.Pilibhit	Tharu	58.9
11.Kushinagar	Gond	80.0	27.Lucknow	Tharu	53.7
12.Jaunpur	Gond	77.5	28.Budaun	Tharu	53.4
13.Ballia	Gond	75.9	29.Hamirpur	Bhotia	77.4
14.Mahrajganj	Gond	71.9	30.Mahoba	Bhotia	55.3
15.Sant Kabir Nagar	Gond	64.5	31.Bijnor	**Other Tribes**	95.7
16.Ghazipur	Gond	51.7	**32.All Other Districts**	**Generic Tribes**	82.5

Source: Author's Calculation based on A-11 (Appendix) Table, District wise ST Population (for each Tribe), 2011 Census

Table 5: District wise Distribution and Concentration of Tribal Communities in the Districts of Uttar Pradesh, 2011

Dominating ST Community Name and Share in All ST (%)	Districts
1.Only Generic Tribes : 0.03%	1.Baghpat, 2.Kannauj and 3.Chitrakoot
2.One ST Community (Tharu) : 0.08%	4.Pratapgarh and 5.Kaushambi
3.Two ST Communities : 3.67%	
i. Gond and Tharu (3.47%)	6.Mahrajganj and 7.Mau
ii. Bhotia and Jaunsari (0.05%	8.Mainpuri and 9.Etah
iii. Bhotia and Buksa (0.06%)	10.Mahoba
iv. Bhotia and Tharu (0.08%)	11.Gonda
v. Buksa and Tharu (0.01%)	12.Auraiya
4.Three ST Communities : 3.64%	
i. Bhotia, Buksa and Tharu (2.48%)	13.Rae Bareli, 14.Kanpur Dehat, 15.Hamirpur, 16.Banda and 17.Balrampur
ii. Bhotia, Jaunsari and Tharu (1.13%)	18.Moradabad, 19.Rampur, 20.Mahamaya Nagar, 21.Hardoi and 22.Bahraich
iii. Buksa, Jaunsari and Tharu (0.03%)	23.Fatehpur
5. Four ST Communities : 21.01%	
i. Bhotia, Buksa, Jaunsari and Tharu (1.74%)	24.Saharanpur, 25.Muzaffarnagar, 26.Bijnor, 27.Bulandshahr, 28.Aligarh, 29.Agra, 30.Budaun, 31.Shahjahanpur, 32.Etawah, 33.Jalaun, 34.Shrawasti and 35.Kanshiram Nagar
ii. Bhotia, Buksa, Gond and Tharu (0.96%)	36.Sant Kabir Nagar and 37.Azamgarh
iii. Bhotia, Jaunsari, Raji and Tharu (0.42%)	38.Jyotiba Phule Nagar, 39.Ghaziabad and 40.Bara Banki
iv. Buksa, Gond, Raji and Tharu (0.74%)	41.Basti and 42.Jaunpur
v. Bhotia, Buksa, Raji and Tharu (0.06%)	43.Sultanpur
vi. Bhotia, Gond, Kharwar and Raji (9.71%)	44.Ballia

vii. Bhotia, Gond, Kharwar and Tharu (7.08%)	45.Kushinagar
viii. Bhotia, Gond, Raji and Tharu (0.07%)	46.Ambedkar Nagar
ix. Buksa, Jaunsari, Raji and Tharu (0.08%)	47.Faizabad
x. Chero, Gond, Kharwar and Tharu (0.17%)	48.Sant Ravidas Nagar (Bhadohi)
6.Five ST Communities : 33.50%	
i. Bhotia, Buksa, Jaunsari, Raji and Tharu (8.45%)	49.Meerut, 50.Gautam Buddha Nagar, 51.Mathura, 52.Firozabad, 53.Bareilly, 54.Pilibhit, 55.Kheri, 56.Sitapur, 57.Unnao, 58.Lucknow, 59.Farrukhabad, 60.Kanpur Nagar, 61.Jhansi and 62.Allahabad
ii. Bhotia, Gond, Kharwar, Raji and Tharu (2.53%)	63.Ghazipur
iii. Bhotia, Buksa, Chero, Gond and Kharwar (3.68%)	64.Chandauli
iv. Bhotia, Buksa, Gond, Pankha and Tharu (1.77%)	65.Mirzapur
v. Bhotia, Buksa, Gond, Raji and Tharu (1.06%)	66.Siddharthnagar
vi. Bhotia, Buksa, Raji, Saharya and Tharu (6.31%)	67.Lalitpur
vii. Buksa, Gond, Kharwar, Raji and Tharu (9.69%)	68.Deoria
7.Six ST Communities : 1.60%	
i. Bhotia, Buksa, Gond, Jaunsari, Raji and Tharu (1.60%)	69.Gorakhpur
8.Eight ST Communities : 2.52%	
i. Bhotia, Buksa, Chero, Gond, Jaunsari, Kharwar, Raji and Tharu (2.52%)	70.Varanasi
9.Twelve ST Communities : 33.94%	
i. Agariya, Baiga, Bhotia, Bhuinya, Chero, Gond, Kharwar, Pankha, Parahiya, Patari, Raji and Tharu (33.94%)	71.Sonbhadra

Source: Author's Compilation based on A-11 (Appendix) Table, District wise ST Population (for each Tribe), A2011 Census

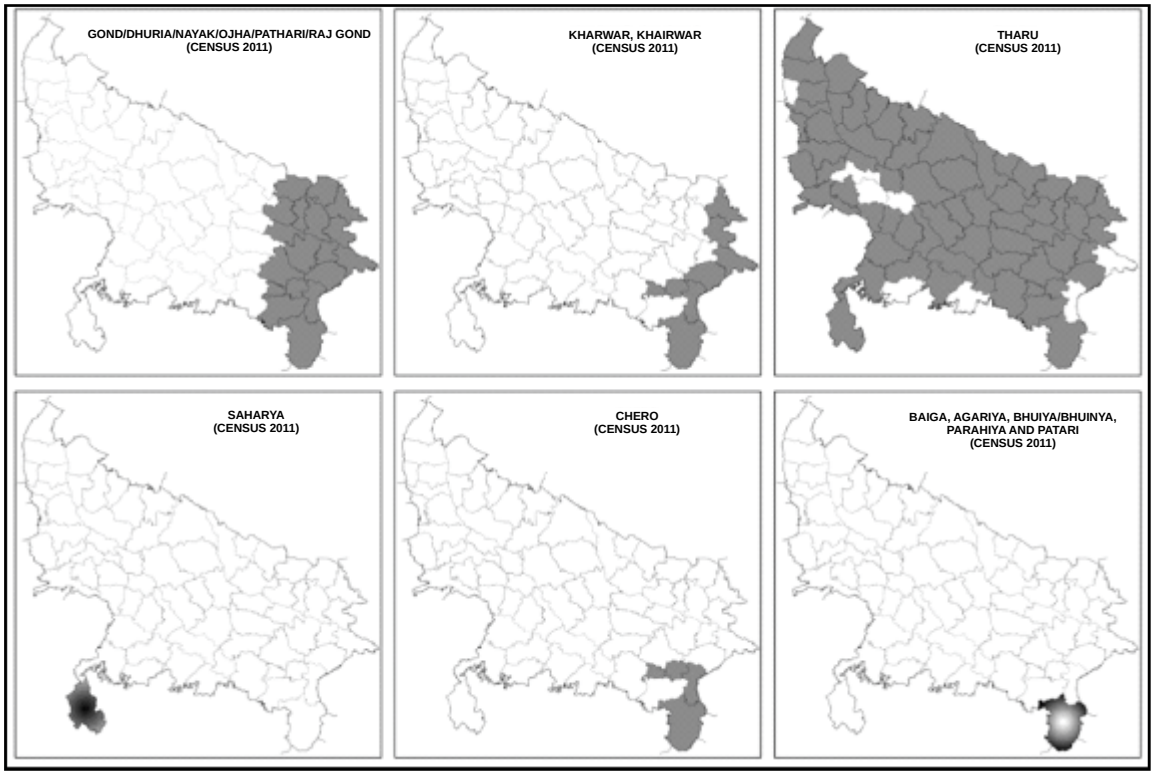

Figure 2: Mapping of major tribal communities enumerated in the districts of Uttar Pradesh, 2011.

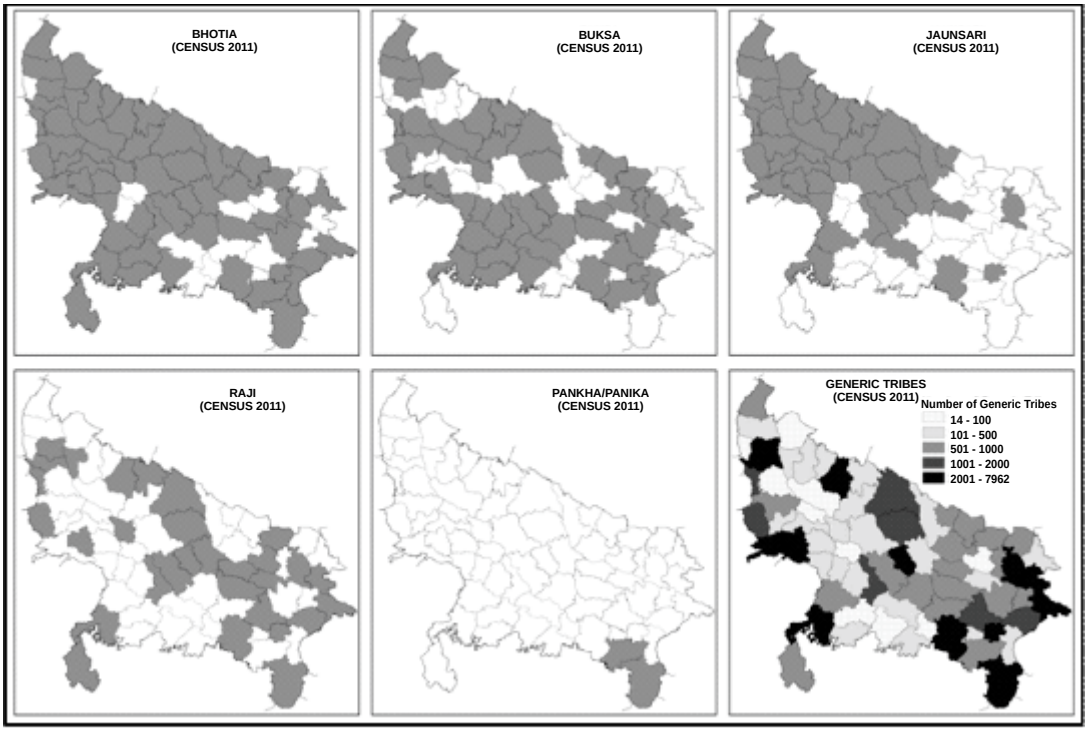

Figure 3: Mapping of major tribal communities including generic tribes enumerated in different districts of Uttar Pradesh, 2011.

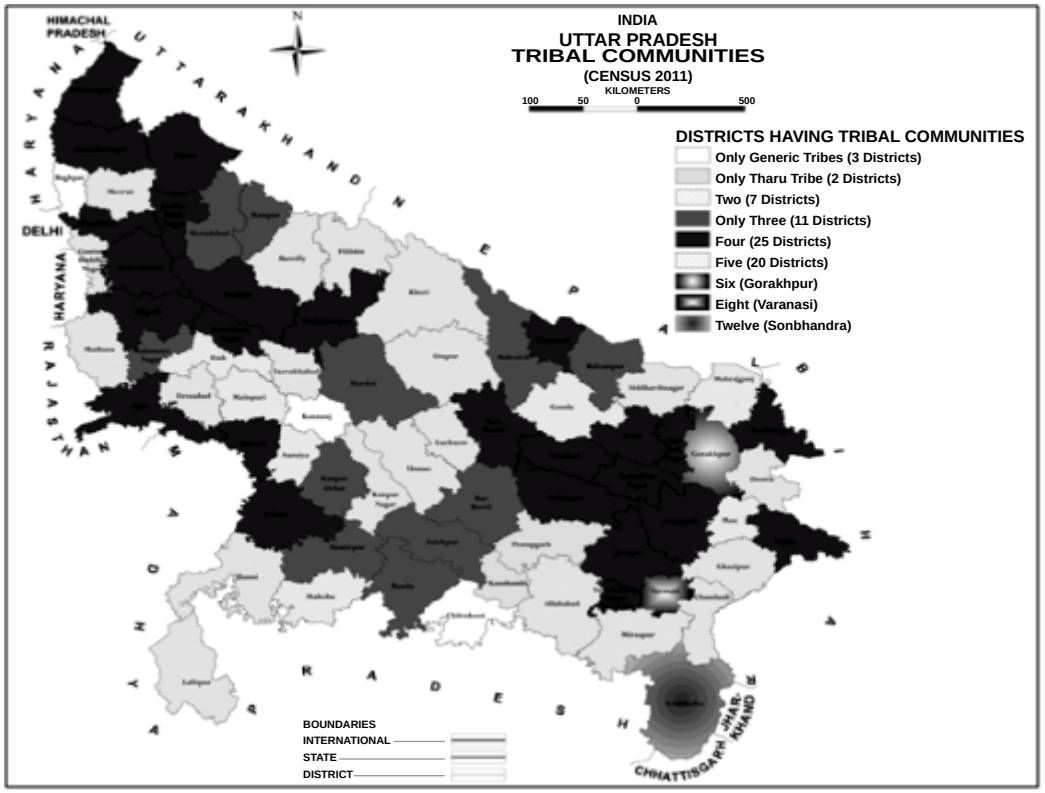

Figure 4: Concentration of particular tribal community/communities in a district or a group of the districts of Uttar Pradesh, 2011.

DISCUSSION AND CONCLUSIONS

Globally, India is home to largest number of ethnic (ST) population. About 104.3 million people were recorded as ST during 2011 population census. The ST population was higher as compared to the total population of Northern Europe (group of 11 countries). ST population has increased by more than 23% between 2001 and 2011 which is almost 6% higher than the national average, but the growth pattern among the tribal communities varied widely within and across districts of the states. The population size among two-fifth of states has grown faster than the national average, with one-tenth showing an increase in growth by 20% or more. Despite increase in the ST population, few states (Nagaland, Manipur and Puducherry) have shown decline in ST population over the past decade.

UP constitutes 1.1% STs among all the states and union territories of India. ST population of UP increased by more than 950% in last decade (2001-2011) with 1.13 million people in 2011, which was more than the entire population of Mizoram. The ST population of UP differs not only within the state in many characteristics like size, growth and spatial distribution but also distinguish them from other states of India. The three topmost districts constituted 53.3% while the remaining 30 districts constituted, only 1.0% total ST population. At the level of individual districts, Sonbhadra constituted 3.85 lakh persons (34.0%) of the total ST population.

There are 15 tribal communities in UP. Buksa and Raji tribal groups were identified as Particularly Vulnerable Tribal Groups (PVTGs) as a result of their socioeconomic development. Ten of the 15 tribal communities notified in 2003 as STs were enumerated for the first time in 2011 census. Five tribal communities (Tharu, Bhotia, Buksa, Jaunsari and Raji) were enumerated in both 2001 and 2011 census. Of these, Tharu, Bhotia and Buksa tribal communities constituted about one-tenth or 10.2% and along with Jaunsari and Raji, these tribal communities constituted about 10.6% of the total ST population. Tharu alone were 9.3% of the total ST population of UP. Jaunsari community mostly inhabits western and central districts of UP while Raji tribe is scattered across the districts. Gond along with sub-ethnic groups is the largest tribal community mainly inhabiting 18 districts in eastern UP and constitutes more than half or 50.2% ST population. Kharwar or Khairwar is the second largest tribal community with 14.2% ST population inhabiting eight districts of eastern UP.

Saharya, the fourth largest tribal community is found only in Lalitpur district and constitutes 6.2% ST population. Chero, the fifth largest community constitutes 3.7% and along with Pankha or Panika tribes which inhabit Mirzapur Uplands, constitute 6.0% ST population. Five tribal communities (Baiga, Agariya, Bhuiya or Bhuinya, Parahiya and Patari) mainly inhabiting Sonbhadra district constituted 5.6% ST population.

This study showed that UP has witnessed unprecedented increase in the number of STs from 2001 to 2011. The increase could be attributed to enlisting of

ten Scheduled Castes as Scheduled Tribes in 2003, after 2001 census and were, enumerated first time in 2011 census. Study also reveals that the growth patterns varied widely across tribal communities. Jaunsari tribe has the highest growth rate of 153.6% followed by Tharu (48.8%) while some tribal communities like Buksa have shown growth rate below 10.0% during the last decade (2001-11). This study also found that group of tribal communities are located in individual districts like Sonbhadra where twelve tribal communities (Agariya, Baiga, Bhotia, Bhuinya, Chero, Gond, Kharwar, Pankha, Parahiya, Patari, Raji and Tharu) are located and constitutes about 34.0% ST population. Varanasi district has a group of eight tribal communities (Bhotia, Buksa, Chero, Gond, Jaunsari, Kharwar, Raji and Tharu) constituting 2.5% and Gorakhpur district with a group of six tribal communities (Bhotia, Buksa, Gond, Jaunsari, Raji and Tharu) make up about 1.6% ST population. It was also observed that Generic Tribes (returned as Anusuchit jan-jati, Girijan, Adivasi, etc.) inhabiting Baghpat, Kannauj and Chitrakoot districts constituted 13.1% during 2001 and 7.3% during 2011 census. Generic Tribes were enumerated in 63 out of 70 districts during 2001 and in all the districts during 2011 census.

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MANAGEMENT OF CLUB FOOT - A GMC EXPERIENCE

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Abstract: Congenital talipes equino varus[1] (CTEV) is the commonest congenital anomaly with an incidence of one to two per 1000 live births. Over the centuries, CTEV has been treated by various modalities but its strong tendency to relapse is the major dilemma that surgeons face.

Club foot is defined as a fixation of foots in a hand-like orientation (in adduction, supination and varus) with concomitant soft tissue abnormalities. Despite advances in treatment, disability often persists. The etiology of the condition has been little studied and is poorly understood. Neurological, muscular, bony, connective tissue and vascular mechanisms have been proposed but the only firm evidence is that the mildest cases appear to be associated with intra-uterine posture. There is evidence for a genetic contribution to congenital talipes equino varus etiology. Its incidence varies with ethnic group and it was found that a family history is present in 24-50% of cases depending on the population studied.

Key words: Congenital Talipes Equino Varus (CTEV), Tenotomy, PMSTR (postermedial soft tissue release), FAB (Foot Abduction Brace), Ponseti, Pirani score.

INTRODUCTION

Congenital talipes equinovarus (CTEV) often known as 'club-foot' is a common but modestly studied developmental disorder of the lower limb. It is defined as fixation of the foot in adduction, supination and in varus, i.e. inclined inward, axially rotated outward and pointing downward positions. The calcaneus, navicular and cuboid bones are medially rotated in relation to talus and are held in adduction and inversion by ligaments and tendons. Although the foot is supinated, the front of the foot is pronated in relation to back of the foot causing cavus. In addition, the first metatarsal is more plantar flexed. Congenital talipes equino varus is termed 'syndrome' when it occurs in association with other features as part of a genetic syndrome or in isolation in which case it may be termed as 'idiopathic'. Syndromic talipes equino varus arises in many neurological and neuromuscular disorders; for example spina bifida or spinal muscular atrophy, but the idiopathic form is the most common. However, the upper limb is normal in idiopathic CTEV.

The equino varus deformity can be classified as congenital and acquired. The congenital is further classified into idiopathic and non-idiopathic types. The idiopathic type is typically an isolated skeletal anomaly, usually bilateral and has a higher response rate

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to conservative treatment and a tendency towards late recurrence.

Pathoanatomy

Numerous anatomical studies of club foot have confirmed the gross pathological changes in the shape and position of the talus, navicular, calcaneum and cuboid[2]. The tendons, tendon sheaths, ligaments and fascia of foot have undergone adaptive changes and became fibrotic or contractured. The talocalcaneocuboid joints are subluxated. Nevertheless until today, the question still remains the same as to where the initial anatomical changes first occurred in the tarsal bones followed by soft tissue adaptation, or vice versa.

Classification

The purpose of a classification system is to help in subsequent management and prognosis of club foot[3]. Dimeglio in 1991, categorised the club foot based on joint motion and its ability to reduce the foot deformities.

1. Soft foot	Also called postural foot and corrected by standard casting or physiotherapy treatment.
2. Soft>Stiff foot	It is usually a long foot which is normally more than 50% reducible and responds to casting.
3. Stiff> Soft foot	It is less than 50% reducible and after casting or physiotherapy requires surgery later.
4. Stiff foot	It is teratologic, poorly reducible, in severe equines deformity and always need surgery.

INVESTIGATIONS

Radiological assessment: At present, there exists no satisfactory method for an early objective assessment. In 1896, a plain radio-graphs was introduced by Barwell to assess the exact status of clubfoot[4]. However, at birth, as only the ossification centre of the talus, calcaneum and metatarsals are present, clinical examination is more informative that radiological. These two tarsal bones appear as small rounded ossicles[5]. Thus, the plain radiograph film does not facilitate evaluation of shape and orientation of the tarsal angle. Radiological evaluations give a more accurate objective record than clinical evaluation by ossification of tarsal bones after 3 to 4 months. Radiological assessments were performed by some authors through anteroposterior and lateral projection films before and after surgical correction.

Podogram: Foot prints were taken prior to and after the procedure in every follow up to see prognosis[6].

Management

In our Study, a total of 63 club foot cases were treated of which

23 cases were operated and remaining were treated conservatively at GMC Rajnandgoan (C.G.) from April 2016 till date. The management of club foot continues to present itself as an alarming complexity owing to current views on its pathoanatomy and available treatment. The results of any form of treatment vary according to the severity of deformity and the surgeon's philosophy on this deformity[7].

The aim of club foot treatment is to achieve anatomically and functionally normal feet in all patients. However, this makes it to be unrealistic in view of the joints deformity and ligaments of the foot and the ankle are sometimes too severely deformed to be corrected wholly. Conservative treatment of clubfoots is well accepted and has reported successful result ranging from as low as 50% to as high as 90% in good correction. Recent trends have shown the popularity of gentle plaster manipulation[8].

DISCUSSION & CONCLUSION

Club foot treatment depends upon the classification and varies with the selection of patient for treating CTEV. National efforts should be encouraged to adopt Ponseti method[9] as a gold standard for the treatment of congenital club foot as it is very safe and effective method which drastically reduces the need for extensive surgery. The Ponseti method corrects most club foot merely with gentle manipulation, casting and percutaneous tenotomy using Pirani score. D-Bracing is the key determinant to long term success of Ponseti method[10]. Ponseti method is the most successful treatment technique for idiopathic clubfoot**.** In our Study, 63 cases were treated both conservatively and by surgical method of tenotomy/PMSTR[11] depending upon types associated with club foot along with excellent result in follow up.

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SCHEDULED TRIBE POPULATION AND TRIBAL COMMUNITIES IN JAMMU AND KASHMIR STATE OF INDIA: A SPATIO-TEMPORAL ANALYSIS

Binod Kumar Singh[1], Ravendra K. Sharma[2*]

Abstract : Jammu and Kashmir (J&K) State of India is home to about 1.5 million Scheduled Tribe populations and constitutes 11.9% of the total population. Twelve tribal communities enumerated in census 2011 live in rural areas (94.2%) and scattered across all districts and valleys of the state. Tribal communities are strewn at different stages of social, economic and educational development. They are unevenly distributed in valleys/ districts of the state. Hence an attempt has been made to study the distribution of socio-economic and demographic variations among the scheduled tribe populations of state from 2001 and 2011 census data.

The analysis revealed that the proportion of tribal population increased from 10.9% in 2001 to 11.9% in 2011 in the state of J&K. District wise tribal population varied from a maximum of 86.9% in Kargil to 0.7% in Srinagar in the 2011 census. Among the tribal communities, Gujjar was the largest tribal group in the state constituting 65.7% of the tribal population followed by Bakarwal (7.6%) while Beda was the smallest tribal group preceded by Garra (0.03% each). The tribal population increased by 35% against 23.6% growth rate of overall population of the state during 2001-11. The highest decadal growth rate (2001-11) was observed among Beda tribe (228.1%) followed by Bakarwal (86.4%). However, the population of Changpa tribe decreased by 47.2% followed by Sippi (9.1%), Bot, Boto (5.4%) and Garra (0.6%) during 2001-11. The child sex ratio among tribal population declined substantially (68 points) from 979 in 2001 to 912 in 2011 and child sex ratio declined mostly in all the tribal communities.

The literacy rate showed an increment among tribal population by 13.1% points from 37.5% in 2001 to 50.6% in 2011 with Sippi tribe (19.4%) showing the highest while Purigpa (6.6%) demonstrating the lowest increase in literacy rate. The work participation rate declined by 8% point from 43.9% in 2001 to 35.7% in 2011 with the highest decline in Tue (19) and the lowest in Bot, Boto tribes (1%). However, the work participation rate increased for the Changpa tribe. The proportion of main workers among tribal workers decreased by 12% points from 57.4% in 2001 to 45.2% in 2011 with the highest decline recorded in Purigpa (19%) and the lowest in Bot, Boto tribes (2%) while the proportion of main workers increased among Garra, Tue and Brokpa, Drokpa, Dard and Shin tribes. The proportion of cultivators among tribal workers decreased by 16% points from 58.5% in 2001 to 42.3% in 2011 where the highest decline was observed among Brokpa, Drokpa, Dard and Shin tribes (44%) and the lowest in Bot, Boto tribes (6%), The proportion of workers engaged in 'Other work' increased from 32.7% in 2001 to 38.6% in 2011 with an highest increase recorded among Brokpa, Drokpa, Dard and Shin tribes (37%) and the lowest in Bot, Boto tribes (3%). However, the proportion of workers engaged in 'Other work' decreased among Changpa and Bakarwal tribes. This analysis exhibited vast differences among socio-economic status of tribes of J & K.

Key words: Tribes, Tribal Communities, Spatio-temporal analysis, Scheduled Tribes, Jammu and Kashmir

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INTRODUCTION

The state of Jammu & Kashmir (J&K) is situated in extreme north of India and lies between 32^0 35' and 37^0 5' north latitudes and 72^0 35' and 80^0 20' east longitudes. The state is surrounded by China in the north-east, Afghanistan in the north-west, Pakistan in the west and Punjab and Himachal Pradesh states border in the south (RGI, 2004). The state of J&K earlier been under Hindu and Muslim Sultan rulers, became part of the Mughal Empire under Akbar and was annexed to the Sikh kingdom of the Punjab in 1819. British supremacy was recognised until the Indian Independence Act 1947 (Raina, 2002). The state had nine districts in census 1961. One new district was added during 1961-71 with further creation and addition of four new districts in 1971-81, thereby the total number of districts reached 14 and remained same during census 2001. However, four new districts were created during 2001-11. Census 2011 covered 22 Districts, 82 Sub-districts (Tahsils), 122 towns (86 Statutory Towns and 36 Census Towns) and 6,553 Villages (6,337 inhabited and 216 un-inhabited villages). According to census 2011, the total population of J&K state was 1,25,41,302 which is 1.04% of the total population of the country.

In J&K state, eight communities vide the Constitution (Jammu & Kashmir) Scheduled Tribes Order, 1989 and four communities, namely Gujjar, Bakarwal, Gaddi and Sippi were notified as Scheduled Tribes (STs) which vide the Constitution (Scheduled Tribes) Order (Amendment) Act, 1991. All the twelve (12) STs were enumerated officially for the first time during the 2001 census and recorded a population size of 11,05,979. As per Census 2001, the STs accounted for 10.9% of the total population of the J&K and 1.3% of the total tribal population of the country. However, according to the Census 2011, the total tribal population of J&K state was 14,93,299 which is 1.43% of the total tribal population of the country.

Inclusive growth is the essence of developmental strategy across all social and economic uplift policy and programme in India. Since the introduction of economic reforms in early nineties, there has been greater focus on development and planning towards enhancement of human well-being and reduction in inequalities along with growth of per capita income especially targeting vulnerable social groups, viz. STs, SCs, etc. This well-being encompass individuals accomplishment in the areas of education, employment, health care, nutritional level and amenities like electricity, water supply, sanitation, housing, etc. (GoI, 2013; GoJK, 2016). In Last decade, a rapid economic growth and improvement in social and health indicators were observed in the J&K state, but vast differences prevails among social groups and within most backward tribal communities which offers a unique state of affairs to study the distribution of tribal population and tribal communities from

regional perspective. In the present paper, an attempt has been made to examine the socio-economic and demographic characteristics of the tribal population and tribal communities of J&K along with regional variations, size, growth and distribution patterns and trends.

MATERIAL AND METHODS

Data used in this study was mostly taken from the 2001 and 2011 population censuses. The primary census abstract (PCA) for STs were used to compute socio-economic indicators and compared for 2001 and 2011 census and within tribal communities. For regional trends, all 22 districts of the state are distributed into four NSSO natural regions: Mountainous comprising 3 districts, Kathua, Jammu and Samba; Outer Hills comprising 7 districts (Punch, Rajouri, Doda, Ramban, Kishtwar, Udhampur and Reasi), Jhelam Valley comprising 10 districts (Kupwara, Badgam, Baramula, Bandipore, Srinagar, Ganderbal, Pulwama, Shupiyan, Anantnag and Kulgam); and Ladakh comprising 2 districts, Leh and Kargil.

The socio-economic and demographic status was measured for household size, population, sex ratio, proportion of child population in age group 0-6 years, child sex ratio, literacy, gender gap in literacy, workers, work participator rate, workers by type of activity (main workers & marginal workers) and workers by occupation of tribal population as per 2001 and 2011 censuses. The socio-economic and demographic profiles of tribal communities of J&K were compared on the basis of composite index, which incorporates 16 different indicators – Urbanization, Sex ratio, Child sex ratio (0-6 years), % Child population, Male and Female Literacy rates, Male and Female Work participation rates, Proportion of male and female Main Workers, Proportion of male and female workers engaged in Cultivations, Household industries and other jobs. However, before computing a composite index all indicators were standardized. The selected 16 indicators were positive indicators and standardized as:-

$$Xi = \frac{Vi - V\,min}{V\,max - V\,min} * 100$$

Where *Vi* is the value of a indicator for i^{th} tribal community and V_{max} *and* V_{min} are the maximum and minimum value of that particular indicator. Further, each indicator was assigned a weight where the weight for each indicator was computed as: -

$$Wi = \frac{\frac{1}{\sqrt{Var(Xi)}}}{\sum \frac{1}{\sqrt{Var(Xi)}}}$$

Finally, using these weights composite index was computed as

$$Ci = \sum_{i=1}^{n} Wi * Xi$$

Where *Xi* is the standardized value of an indicator and *Wi* is the weight assigned to that particular indicator and *n* is the number of indicators included in the composite index.

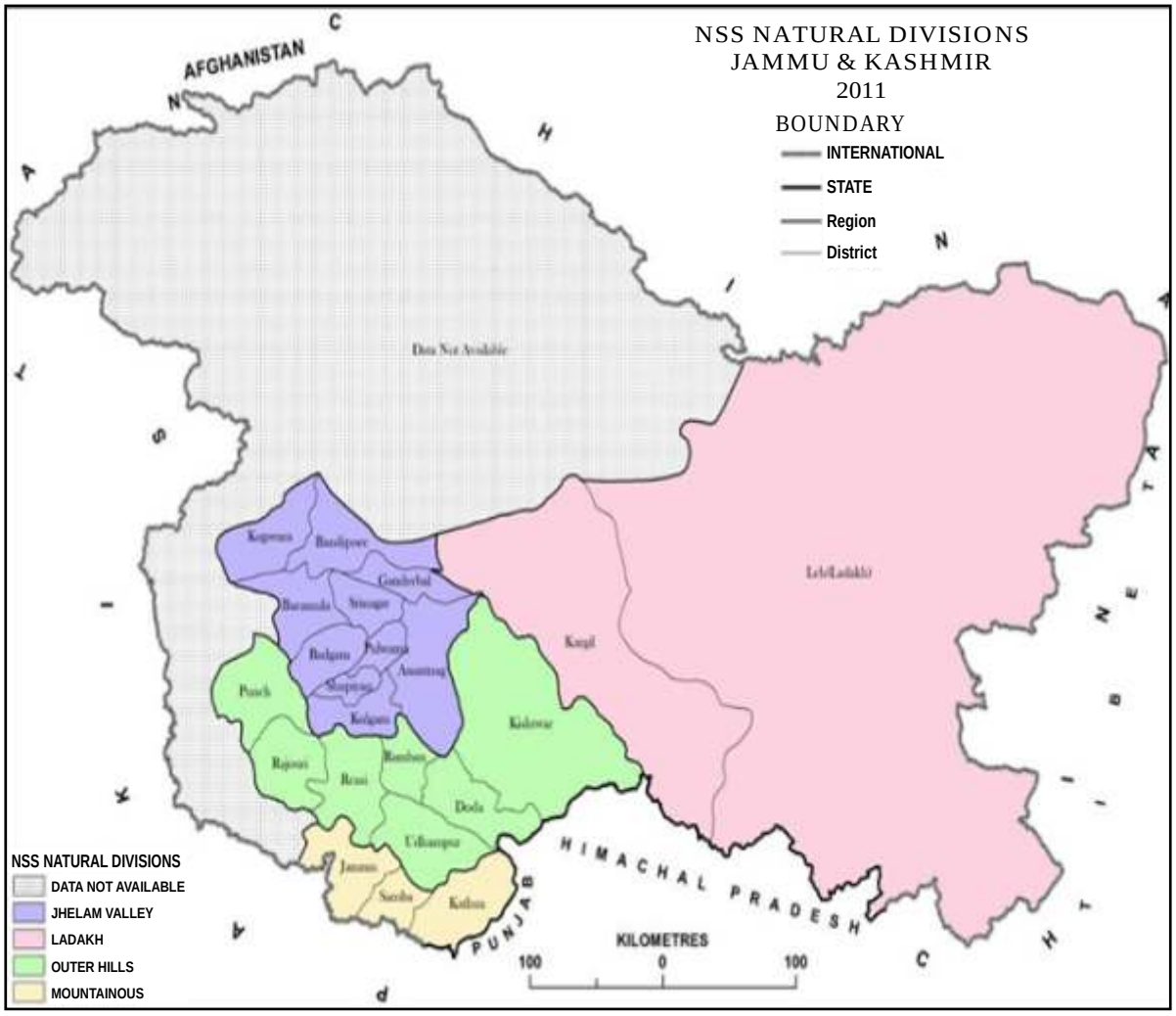


Figure 1: Natural divisions of Jammu & Kashmir state of India, 2011

The base map for the study area was reproduced from the raster image published in the Administrative Atlas of India, Census of India, 2011 (Figure 1). The raster map image was digitized, edited and modified by ArcGIS 10.0 software and NSS regionalisation scheme was adopted as published in Sample Registration System Statistical Report 2010, for the purpose of this study. The data was analysed with MS-Excel and SPSS 20 software.

RESULTS

Tribal Population in Jammu & Kashmir: Size, Growth and Distribution

According to 2011 census, the total population of J&K stands at 12.54 million. The contribution of tribal population was 16.15% for the total increase of 2.40 million in the last decade. The total tribal population of J&K was 14,93,299, with a rural tribal population of 14,06,833 (94.2%) and the urban tribal population of 86,466 (5.8%). Among the regions, Outer

Hills has the largest tribal population of 0.67 million (44.9% of the state's tribal population), whereas mountainous region has the lowest population of 0.14 million (14.6% of the state's tribal population). Table 1 lists the distribution of population by regions of J&K from 2001-2011. Among the districts, Rajouri has the largest tribal population of 2,32,815 (15.6% of state's tribal population), whereas Srinagar has the lowest tribal population of 8,935 persons (0.6% of state's tribal population, Census, 2011). In percentage terms, the tribal population constituted 11.9% of the total population, 15.4% of the rural population and 2.5% of the urban population. There was an increase of 1.6% in the rural and 1.5% in urban tribal population during 2001-11. Kargil district (86.9%) has the largest proportion of tribal population followed by Leh (Ladakh) (71.8%), Punch (36.9%) and Rajouri (36.2%), while Srinagar district (0.7%) has recorded the lowest proportion of tribal population preceded by Badgam (3.2%), Baramula (3.7%) and Pulwama (4.0%). Figure 2 depicts the number of STs and % distribution of tribal population to total population at district level for 2001 and 2011 censuses.

Table 1: Distribution of Total and Tribal Population by Geographical Regions in Jammu & Kashmir, 2001 & 2011

State/Regions	Total Population		% w.r.t. Total Population		Tribal Population		% w.r.t. Tribal Population	
	2001	2011	2001	2011	2001	2011	2001	2011
Mountainous	2138856	2465291	21.1	19.7	87478	140073	7.9	9.4
Outer Hills	2291335	2913247	22.6	23.2	498685	670727	45.1	44.9
Jhelam Valley	5476970	6888475	54.0	54.9	318265	464306	28.8	31.1
Ladakh	236539	274289	2.3	2.2	201551	218193	18.2	14.6
Jammu & Kashmir	10143700	12541302	100.0	100.0	1105979	1493299	100.0	100.0

Source: Authors calculation based on census data, 2001 & 2011.

In the state of J&K, 6417 villages enumerated in 2001 census declined to 6337 villages in the 2011 census. No tribal populations were reported from 2986 (47.1%) villages during 2011 census as compared to 3673 (57.2%) villages in 2001 of the total 6337 villages. Table 2 presents the distribution of villages by tribal population size in J&K according to 2001 and 2011 censuses revealing that two villages recorded more than 10,000 tribal persons. Forest Block village of Ganderbal district registered the largest tribal population of 12,826 (85.6% tribal population) while the Kalarooch village of Kupwara district recorded the second largest tribal population of 12,038 (32.3% of total population). Four villages reported the tribal population size of 5000-9999, 116 (4.3%) villages had a tribal population

size 2000-4999 and 274 (6.5%) villages documented the tribal population size of 1000-1999. Overall, 21% total rural population and 77% tribal population comprised of villages with 500 or more tribal population size.

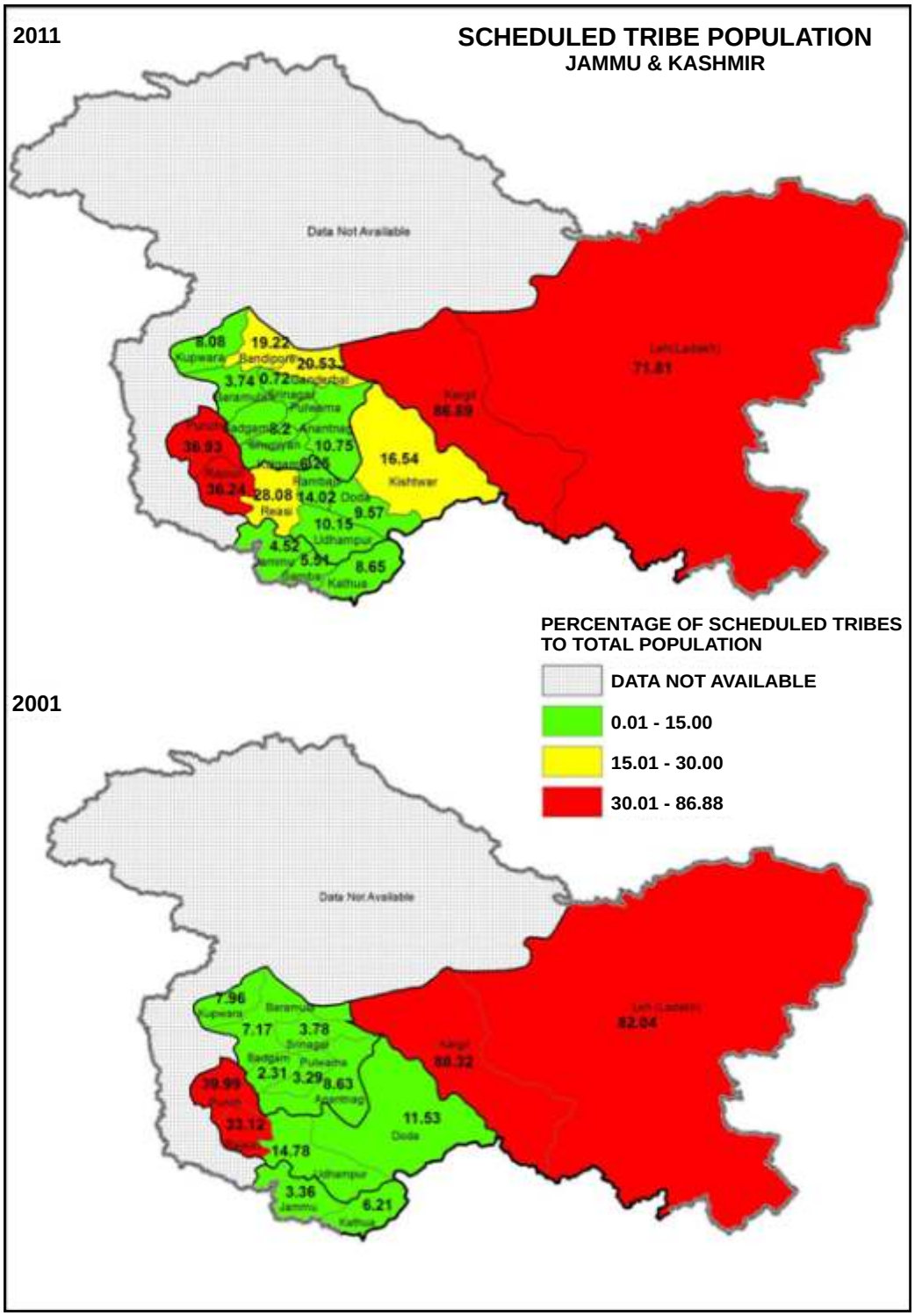


Figure 2: Distribution of tribal population in Jammu & Kashmir

Table 2: Villages by Tribal Population Size, Jammu & Kashmir, 2001 & 2011

Scheduled Tribe Population Size	Total number of inhabited villages				Total Population				Scheduled Tribe Population			
	2001		2011		2001		2011		2001		2011	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
No ST Population	3673	57.2	2986	47.1	3456777	45.3	3143437	34.5	0	0.0	0	0.0
Less than 100	1178	18.4	1472	23.2	1364964	17.9	1943414	21.3	41163	3.9	47665	3.4
100-199	354	5.5	419	6.6	434164	5.7	604223	6.6	51309	4.9	60414	4.3
200-499	600	9.4	645	10.2	782474	10.3	989593	10.9	196077	18.6	213250	15.2
500-999	321	5.0	413	6.5	593114	7.8	868143	9.5	230506	21.9	293466	20.9
1000-1999	226	3.5	274	4.3	650359	8.5	809150	8.9	319241	30.3	383549	27.3
2000-4999	59	0.9	116	1.8	268914	3.5	606812	6.7	165739	15.7	319900	22.7
5000-9999	4	0.1	10	0.2	36982	0.5	91080	1.0	28147	2.7	63725	4.5
10000 and above	2	0.0	2	0.0	39314	0.5	52208	0.6	22306	2.1	24864	1.8
Total	**6417**	**100.0**	**6337**	**100.0**	**7627062**	**100.0**	**9108060**	**100.0**	**1054488**	**100.0**	**1406833**	**100.0**

Source: Authors calculation based on census data, 2001 & 2011

Table 3: Distribution of tribal villages and population by percent of tribal population in the village, Jammu & Kashmir, 2001-2011

Percentage of ST Population to Total Population	Total number of inhabited villages				Scheduled Tribe Population			
	2001		2011		2001		2011	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%
100%	157	5.7	89	2.7	65462	6.2	25743	1.8
90.01-99.99	201	7.3	280	8.4	179658	17.0	254986	18.1
80.01-90.00	73	2.7	73	2.2	86729	8.2	109038	7.8
70.01-80.00	71	2.6	83	2.5	76285	7.2	107401	7.6
60.01-70.00	88	3.2	90	2.7	88587	8.4	107080	7.6
50.01-60.00	120	4.4	151	4.5	111956	10.6	159420	11.3
40.01-50.00	132	4.8	172	5.1	106606	10.1	147781	10.5
30.01-40.00	196	7.1	215	6.4	88367	8.4	142425	10.1
20.01-30.00	254	9.3	311	9.3	102115	9.7	138287	9.8
10.01-20.01	382	13.9	457	13.6	86417	8.2	126435	9.0
5.01-10.01	324	11.8	393	11.7	39513	3.7	56805	4.0
5.00 and Below	746	27.2	1037	30.9	22793	2.2	31432	2.2
Total	**2744**	100.0	**3351**	100.0	**1054488**	100.0	**1406833**	100.0

Source: Authors calculation based on census data, 2001 & 2011

Table 3 shows the distribution of tribal villages by the percentage of tribal population in the villages. Out of 3351 villages with some tribal population, 89 (2.7%) villages had 100% tribal population in 2011 compared to 157 villages (5.7%) of 2744 villages in 2001. These 89 villages compared only 1.8% of total tribal population. Most of the tribal population (90.01-99.99%) resided in 280 villages (8.4%) and comprised of 18.1% of tribal population. More than one thousand villages (1037, 30.9%) had tribal population less than 5% compared to total population and comprised only about 2% of total rural tribal population. However, in 2001 census only 246 (27.1%) out of 2744 villages had less than 5% tribal population. This shows that the proportion of villages with 100% tribal population declined and the villages with less than 5% tribal population had increased over last decade.

A total population of 25% and 27% was enumerated in urban areas during 2001 and 2011 censuses respectively. In contrast to above mentioned fact only 4.7% and 5.8% tribal population was residing in urban areas during these censuses. Out of 122 towns enumerated in 2011 census, tribal population was concentrated in 101 towns of J&K, while 21 towns did not have any tribal population. Table 4 presents the distribution of towns by tribal population in J&K for 2001 and 2011 censuses. Jammu (M Corp. + OG) recorded the largest tribal population of 18,566 (21.5%) followed by Leh Ladakh (MC), Kargil (MC), Srinagar (M Corp. + OG), Rajauri (MC) and Punch (M Cl) together accounting for 65.6% of the total tribal population residing in urban areas of J&K, while remaining 95 towns of the state reported only 34.4% of the total tribal population residing in urban areas. The proportion of tribal population increased considerably in majority of towns during 2001-11, but this proportion declined in Leh Ladakh (MC), Rajauri (MC), and Punch (MC). The proportion of tribal population in Leh-Ladakh (MC) was 36.1% in 2001 census which declined to 19.0% in 2011 census.

Table 4: Tribal Population in urban towns of Jammu & Kashmir, 2001 & 2011

Towns	Population		% w.r.t. Population		Tribal Population		% w.r.t. Tribal Population	
	2001	2011	2001	2011	2001	2011	2001	2011
Jammu (M Corp. + OG)	549791	576198	21.8	16.8	9576	18566	18.6	21.5
Leh Ladakh (MC)	28639	30870	1.1	0.9	18566	16391	36.1	19.0
Kargil (MC)	10657	16338	0.4	0.5	8473	11496	16.5	13.3
Srinagar (M Corp. + OG)	952324	1206419	37.8	35.1	1248	6190	2.4	7.2
Rajauri (MC)	21580	29486	0.9	0.9	1595	2284	3.1	2.6
Punch (M Cl)	23978	26854	1.0	0.8	1341	1783	2.6	2.1
Other Towns	822683	1410232	32.7	41.1	10692	29756	20.8	34.4
Towns with No ST Pop	106986	136845	4.3	4.0	0	0	0.0	0.0
Total Urban	**2516638**	**3433242**	**100.0**	**100.0**	**51491**	**86466**	**100.0**	**100.0**

Source: Authors calculation based on census data, 2001 & 2011

Tribal Communities in Jammu & Kashmir

A study of size, growth trends and distribution of tribal population is important to comprehend the comparative status of tribal communities. J&K has 12 different STs enumerated during 2001 and 2011 census. The tribes which could not be categorized under a specific tribe were classified as generic or unknown tribes in the censuses. Generic tribes are those who returned as

Anusuchit jan-jati, Girijan, Adivasi, etc. in the census but the tribal specific information pertaining to them was missing. The different demographic and socioeconomic characteristics of these tribes are herewith discussed.

Population Size

In 2011 census, Gujjar tribe was the most populous tribe of J&K with a population of 980,654, thereby accounting for 65.7% of the state's total ST population. Bakarwal was the second major tribe (113,198) followed by Bot/Boto (91,495), Balti (51,918), and Brokpa/Drokpa/Dard/Shin (48,439). Gujjars along with these four major tribes constituted 86.1% of the state's total tribal population. Gaddi and Purigpa tribes comprised of 46,489 and 39101 populations while remaining five tribes, Sippi, Changpa, Tue, Garra and Beda along with generic tribes constituted only 8.2% tribal population in 2011 census. Among all the tribes, Beda was the smallest tribal community with a population size of 420 (Table 5).

Decadal Growth Rate (%)

A comparative study of growth patterns of all tribal communities revealed important patterns in last decade (2001-2011, Table 5). The decadal growth rate of tribal population recorded was 35.0% (Rural- 33.4% and Urban- 67.9%), 11.3% points higher than the growth rate of tribal population in the country as whole (23.7%). Among all the tribes, Beda recorded the highest decadal growth rate of 228.13% followed by Bakarwal, Balti, Gaddi, Gujjar, Tue and Purigpa tribes. Beda and Bakarwal registered decadal growth rate higher than the over all growth rate of tribal population while the population of five tribal communities i.e., Changpa, Sippi, Brokpa/Drokpa/Dard/Shin, Bot/Boto and Garra declined during 2001 and 2011 censuses. The highest decline was recorded for Changpa (-47.18%), followed by Sippi (-9.07%), whereas the lowest decline was observed for Garra (-0.59%) tribes.

Distribution of Tribal Communities

In terms of proportion, the ST population constituted 11.9% of the total population in 2011 census which increased from 10.9% of 2001 census with a net increase of 1.0% during the last decade. The proportion of Bakarwal and Beda increased while the proportion of all other communities decreased amongst tribal communities of J&K during the last decade. Regional distribution of tribes showed that Gujjar, Bakarwal and Gaddi tribes are mainly concentrated in the Outer Hills; Bot/Boto, Balti, Purigpa, Garra, Changpa, Tue and Beda are concentrated in Ladakh region; Brokpa/Drokpa/Dard/Shin and generic tribes are vastly concentrated in Jhelam valley and Ladakh regions and Sippi tribe is highly concentrated in the Mountainous region. Figure 3 and 4 displays the number of ST population and proportionate distribution of tribal communities in each district of J&K as per 2001 and 2011 censuses.

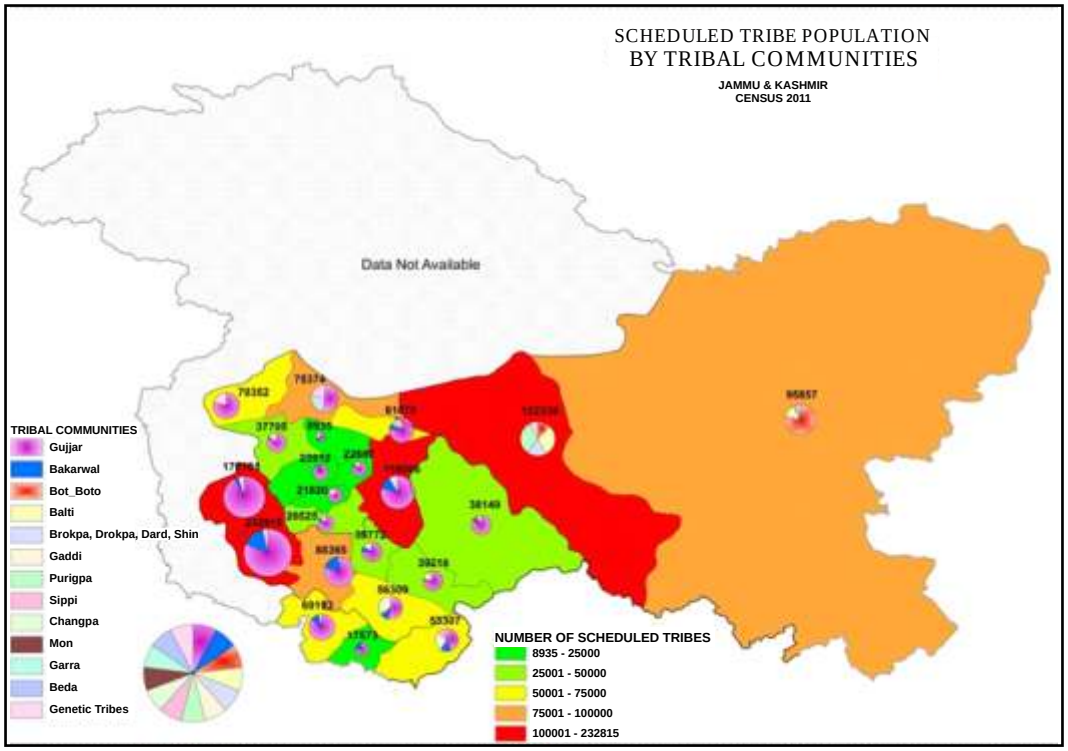


Figure 3: Distribution of ST communities in Jammu & Kashmir, 2011

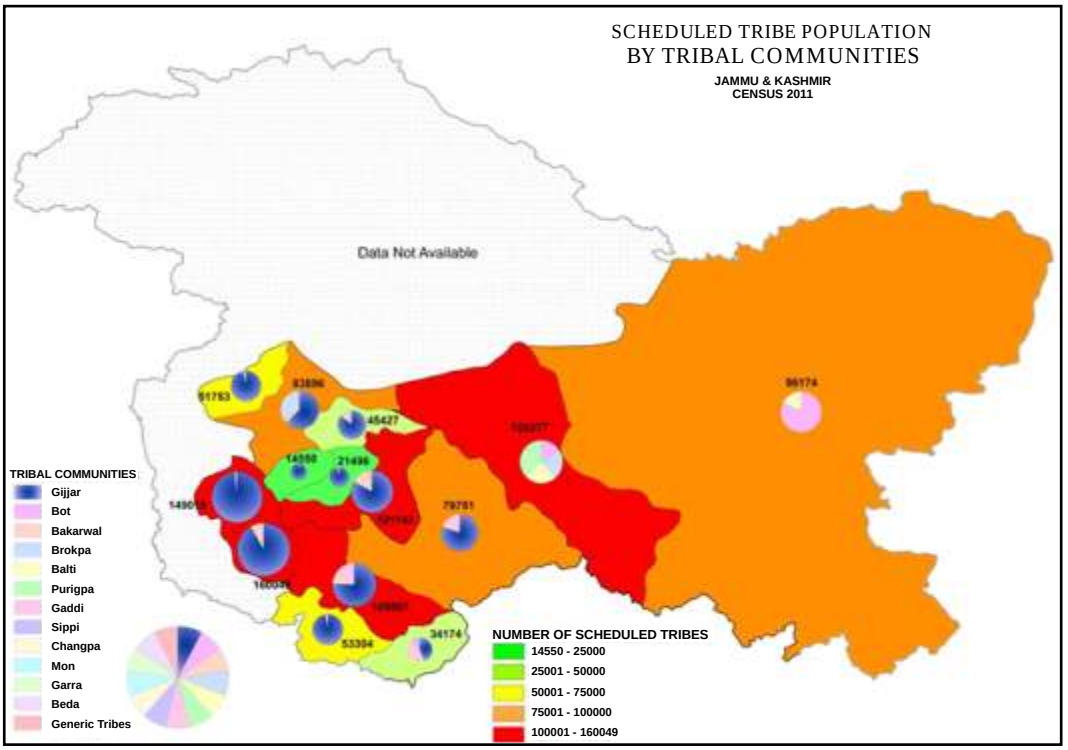
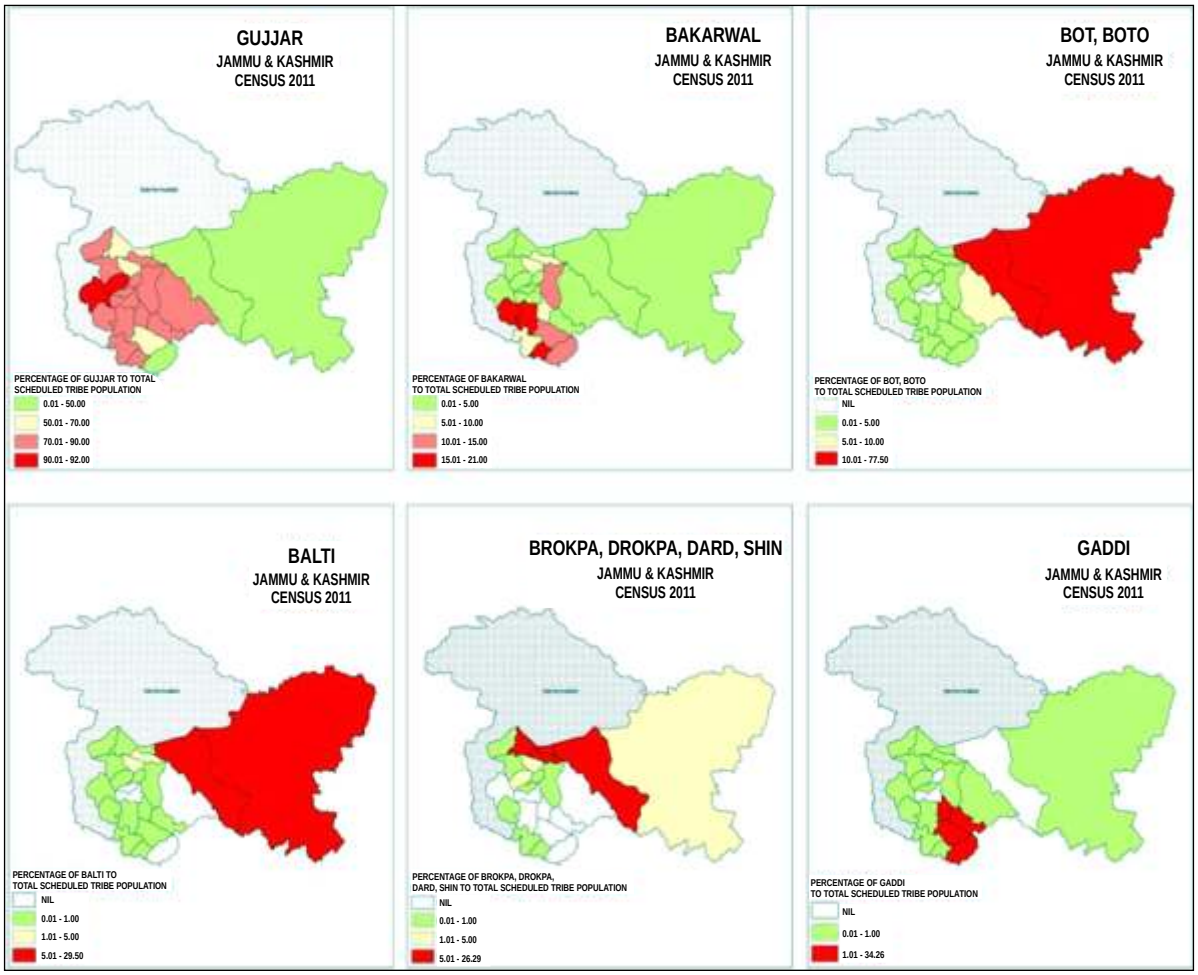


Figure 4: Distribution of ST communities in Jammu & Kashmir, 2001

Figure 5 shows the proportion distribution of tribal communities in each district of J&K as per 2011 census. Gujjar tribe was distributed in all 22 districts of the state which varied from a maximum of 19.2% in Rajauri to a minimum of 0.005% in Kargil. Punch (16.4%), Anantnag (9.2%), Reasi (7.2%) and Jammu (6.0%) along with Kargil districts accounted for 58.0% of the total Gujjar tribe in the state. Bakarwal tribe was also distributed in all the districts of the state and according to 2011 census, about one-third (31.9%) of the Bakarwal tribe was concentrated in Rajauri, 14.5% in Reasi and 12.6% in Anantnag district. About three-fifths of the Bakarwal tribe was found in these three districts of the state. However, the lowest concentration of Bakarwal was found in Kupwara (0.011%) followed by Kargil (0.012%) and Leh (Ladakh). Bot/Boto tribe was distributed among 20 out of 22 districts of the state with highest concentration observed in Leh (Ladakh) followed by Kargil (16.2%) and not recorded in Kulgam and Shupiyan districts in 2011 census. Balti tribe was distributed among 18 out of 22 districts of the state and not recorded in Kulgam, Shupiyan, Kishtwar and Kathua districts.



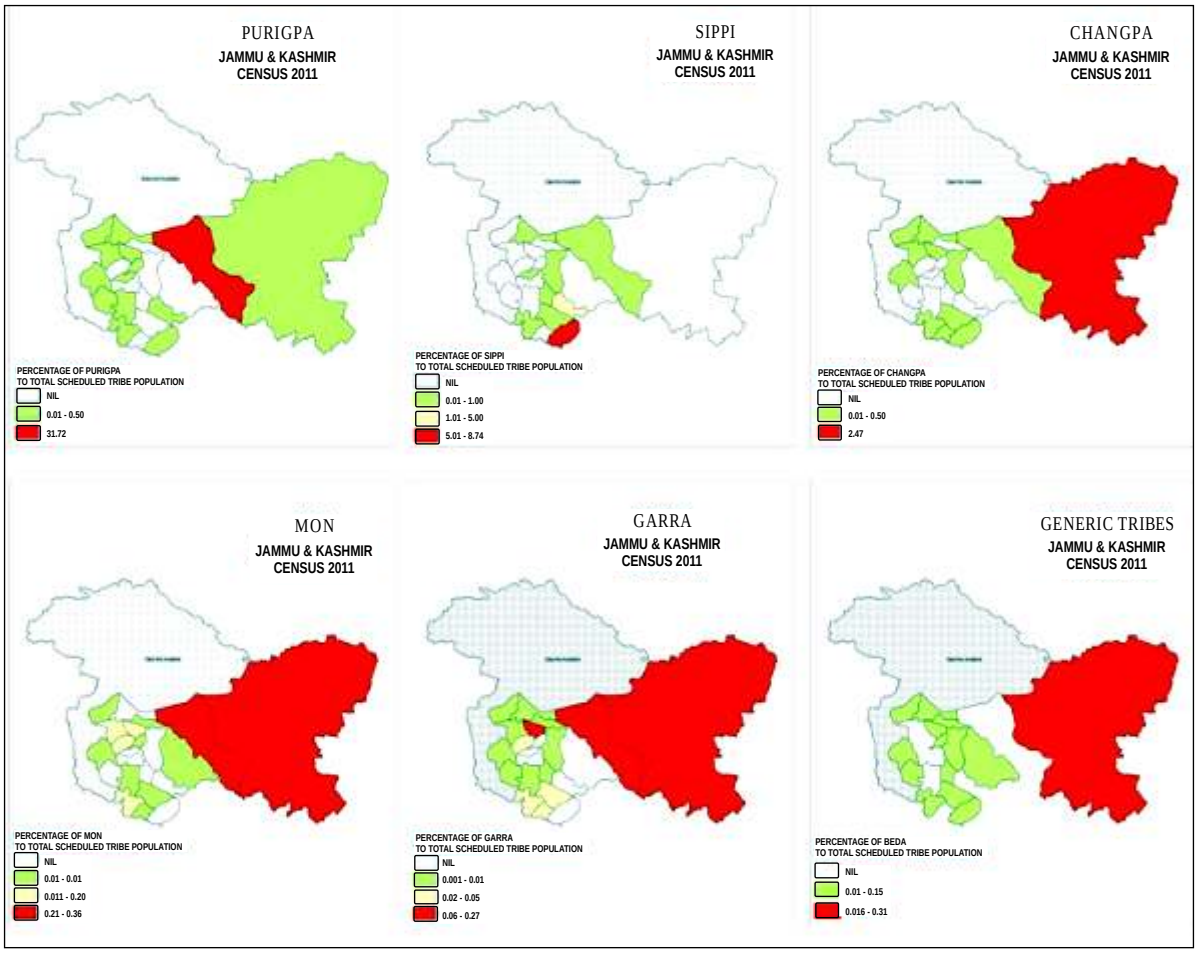


Figure 5: Tribe-wise distribution of ST communities in Jammu & Kashmir, 2011

The highest concentration of Balti tribe was observed in Kargil (69.5%) followed by Leh (Ladakh) (24.9%). Brokpa/ Drokpa/Dard/Shin tribe was distributed among 14 out of 22 districts of the state with highest concentration observed in Kargil (45.5%) followed by Bandipore (40.9%), Ganderbal (6.6%) districts and not recorded in Kulgam, Reasi, Udhampur, Kishtwar, Ramban, Doda, Punch and Kathua districts during the last census. Gaddi tribe found in 19 districts of the state,was not enumerated in the Kargil, Kulgam and Pulwama districts during last census while it was highly concentrated in Udhampur district (41.5%) followed by Kathua (31.1%) and Doda (12.9%). Purigpa spreaded among 14 out of 22 districts of the state was mainly concentrated in Kargil (99.2%). However, it was not recorded in Kulgam, Anantnag, Ganderbal, Badgam, Udhampur, Kishtwar, Ramban and Samba districts. Sippi tribe distributed in 9 out of 22 districts of the state was highly concentrated in Kathua (78.2%) followed by Doda (13.6%), Udhampur (6.3%) and Ramban (1.2%). Of the total, remaining 0.7% of Sippi was recorded from Bandipore,

Kargil, Jammu, Shupiyan, Anantnag and Samba districts. Changpa tribe was distributed in 12 out of 22 districts of the state with about 89.2% of the Changpa tribe located in Leh (Ladakh) followed by Baramula (3.5%), Bandipore (2.2%), Kargil (1.8%) and Punch (1.5%) and remaining 1.8% distributed in Udhampur, Jammu, Srinagar, Samba, Anantnag, Kathua and Kupwara districts. Mon tribe was distributed in 14 districts and found mainly in Kargil (46.8%) followed by Leh (Ladakh) (41.7%), Baramula (7.7%) and Jammu (1.2%) with remaining 2.5% Mons distributed in Kathua, Rajauri, Doda, Ramban, Bandipore, Shupiyan, Anantnag and Kulgam districts. Garra tribe was distributed in 16 districts with about 52% of the Garra tribe concentrated in Leh (Ladakh) followed by Kargil (30.4%), Jammu (5.6%), Srinagar (2.6%), Anantnag (1.8%), Samba (1.4%), Udhampur (1.2%), Badgam and Bandipore (1.0% each) and remaining 3.6% distributed in Punch, Reasi, Kupwara, Rajauri, Ramban, Baramula and Ganderbal districts. Beda tribe was distributed in 15 districts with about 72% found in Leh (Ladakh) followed by Punch (8.3%), Anantnag (5.2%), Jammu (5.0%), Srinagar (2.9%), Udhampur (1.9%), Kathua and Ramban (1.0% each), Kishtwar and Kupwara (0.5% each), Reasi, Bandipore, Ganderbal, and Pulwama (0.2% each). Generic tribes/unclassified tribes were found in all districts of the state with highest percentage in Bandipore district (14.2%) followed by Kupwara (12.6%) and Anantnag (9.1%). However, the lowest percentage was recorded in Udhampur (0.4%) and Samba (0.5%) districts.

Urbanization

In 2011 census, 94.2% of tribal population inhabited rural areas and only 5.8% of the total tribal population inhabited urban areas. Lately, there had been an increase of 1.1% in the proportion of urban tribal population in the last decade. However, four tribal communities namely Tue/Mon, Garra, Purigpa and Generic tribes showed a decline in the proportion of tribals living in urban areas in past one decade. Sippi tribe (1.6%) depicted the smallest proportion residing in urban areas, while Beda tribe (49.0%) recorded the highest proportion of urban tribal population.

Sex Ratio (Females per 1,000 Males)

The sex ratio among tribal population of the state was 910 in 2001 which increased by 14 points to 924 in 2011. In rural areas the sex ratio increased from 916 to 927 during 2001-11 censuses while the corresponding increment in urban areas was 73 points (799 to 872) from 2001-11. The Bot/Boto tribe (1,020) recorded sex ratio of more than thousand marks in 2011, while the sex ratio for Beda tribe was 1098 in 2001, i.e. a declination of 78 females per 1000 males. The lowest sex ratio was recorded for Garra tribe (833). Three tribal communities namely Beda, Garra, and Sippi showed drop in the sex ratio while remaining tribal communities showed an improvement in the sex ratio from 2001-2011 censuses.

The Garra, Bakarwal and Gujjar tribal communities showed lower sex ratio than state average for total tribal communities during the census 2011.

Child Population (0-6 years)

The tribal child population in the age group of 0-6 years were enumerated as 303,118 in the census 2011, of which 291,256 (96.1%) inhabited rural areas and 11,862 (3.9%) occupied urban areas. Overall, the proportion of child population was 18.4% in 2001 census, which improved to 20.3% in 2011 census thereby the tribal child population increased by 99,248 (48.7%). Thus in terms of proportion of tribal child population to the total tribal population, there was an increase of 1.9% points in total tribal population, 2.0% points in rural areas and 0.8% points in urban areas.

The Gujjars (22.0%) recorded the highest proportion of child population in census 2011 while Bot/Boto tribe (11.0%) recorded the lowest proportion. Five tribal communities namely Bakarwal, Gujjar, Garra, Tue/Mon, Beda along with generic tribes etc. showed an increase in the child population. However, only Gujjars (22%) and Bakarwals (20.5%) had higher proportion of child population in comparison to total ST population of the state.

Table 5: Population and demographic indicators of tribes of Jammu & Kashmir, 2001-11

Tribes	Population		Decadal Growth Rate (%)	Urbanization (%)		Child Population (%)		Sex ratio		Child sex ratio	
	2011	2001	2001-11	2011	2001	2011	2001	2011	2001	2011	2001
All ST	**14,93,299**	**11,05,979**	**35.0**	**5.8**	**4.7**	**20.3**	**18.4**	**924**	**910**	**912**	**979**
Gujjar	9,80,654	7,63,806	28.4	3.6	1.3	22.0	19.5	920	908	904	985
Bakarwal	1,13,198	60,724	86.4	15.5	11.5	20.5	18.2	899	868	892	928
Bot, Boto	91,495	96,698	-5.4	49.0	22.7	11.0	11.4	1020	941	957	965
Balti	51,918	38,818	33.7	21.2	17.8	15.1	16.5	961	936	971	994
Brokpa, Drokpa, Dard, Shin	48,439	51,957	-6.8	5.4	3.2	18.8	19.6	919	916	930	938
Gaddi	46,489	35,765	30	15.2	0.5	17.7	18.6	953	948	935	989
Purigpa	39,101	37,700	3.7	1.7	0.8	14.9	17.0	943	903	971	1019
Sippi	5,966	6,561	-9.1	13.3	14.4	19.8	20.6	947	949	960	954
Changpa	2,661	5,038	-47.2	4.0	2.8	13.1	13.9	964	940	983	897
Tue	829	732	13.3	13.5	14.2	16.4	13.7	983	942	1000	639
Garra	504	507	-0.6	10.2	11.4	13.7	11.0	833	892	1029	1074
Beda	420	128	228.1	1.6	0.6	17.9	10.2	944	1098	1344	2250
Generic Tribes	111625	103690	1379.4	7.1	14.8	19.3	16.7	924	763	925	942

Child Sex Ratio (0-6 years) (Girls per thousand Boys)

Census 2011 marked a substantial drop in tribal child sex ratio (age group, 0-6) from 979 to 912 (69 points) from 2001-2011. In rural areas, child sex ratio declined to 70 points (981 in census 2001 to 911 in census 2011) while in urban areas a modest improvement of 2 points (915 in census 2001 to 917 in census 2011) was observed in the last decade. The Bedas recorded the highest (1344)

while Bakarwals had the lowest (892) child sex ratio amongst the tribal communities of J&K. Table 5 provides tribe wise child sex ratio for 2001 and 2011 censuses. Most of the tribal communities recorded reduction in child sex ratio during last one decade, except for Tues, Gaadis, and Bedas communities. The Gaadis recorded highest improvement of 361 points (child sex ratio 1000 in 2011 from 639 in 2001) for last two censuses.

Literates (Age 7 years and above)

The literacy rate among tribal population of J&K was recorded at 50.6% (Rural - 49.1%; Urban - 71.7%) in 2011. There was an increase of 13.1% points in the literacy rate during the last decade (Table 6) with the highest literacy rate recorded among Tue and Mon tribes (72.3%) followed by Garra (71.3%) and Balti (71.1%) and lowest in Bakarwal (31.8%) followed by Gujjar (47.3%) and Sippi (53.1%). The Sippi tribe registered the highest improvement in literacy rate from 33.6% in 2001 to 53.1% in 2011(increment of 19.4% points) while the Bakarwal tribe recorded the lowest increment (9.3% points).

Work Participation Rates

The Work Participation Rate (WPR), i.e. the proportion of workers among tribal population (35.7%) in J&K was considerably lower than the corresponding WPR of 43.9% in census 2001. Changpa tribe (53.6%) recorded highest WPR and Brokpa/Drokpa/ Dard/Shin tribe (27.2%) had the lowest WPR. Among tribal communities, only Changpa tribe registered an improvement in WPR from 48.2% in 2001 to 53.6% in 2011, while all other tribal communities registered a decline in the WPR during last decade. The highest decline in WPR (18.8% points) was recorded for Tue/Mon tribe followed by Purigpa (15.3%), Beda (14.7%) and Balti tribes (10.9%) while the lowest decline was witnessed for Garra tribe (0.2% points) during 2001-11.

Table 6: Socio-economic indicators of tribes of Jammu & Kashmir, 2001-11

Sl. No.	Tribes	Literacy Rates		Work Participation Rates		Main Workers		Marginal Workers	
		2011	2001	2011	2001	2011	2001	2011	2001
	All Schedule Tribes	**50.6**	**37.5**	**35.7**	**43.9**	**45.2**	**57.4**	**54.8**	**42.6**
1	Bakarwal	31.8	22.5	41.6	49.5	47.3	60.8	52.7	39.2
2	Balti	71.1	62.1	31.4	42.3	53.1	67.3	46.9	32.7
3	Beda	68.7	60.9	32.1	46.9	68.1	80	31.9	20
4	Bot, Boto	70.3	61.3	46.2	47.1	63.2	65.6	36.8	34.4
5	Brokpa, Drokpa, Dard, Shin	67.9	55.5	27.2	36.9	47.9	44.8	52.1	55.2
6	Changpa	57	42.6	53.6	48.2	50.9	55.4	49.1	44.6
7	Gaddi	53.5	37.3	44.6	47	56.8	71.5	43.2	28.5
8	Garra	71.3	56.3	44.8	45	66.8	57.9	33.2	42.1
9	Gujjar	47.3	31.7	34.4	43.3	41.5	55.2	58.5	44.8
10	Tue	72.3	55.7	33.3	52	67.0	59.3	33.0	40.7
11	Purigpa	67.5	60.9	29.0	44.3	41.2	60.5	58.8	39.5
12	Sippi	53.1	33.6	40.1	48.8	60.4	72.6	39.6	27.4
13	Generic Tribes etc.	53.7	32.1	36.1	43.2	44.6	57.2	55.4	42.8

Main and Marginal Workers

As per 2011 Census, the total number of tribal main workers (who have worked for at least six months or 180 days during the reference year) in J&K was 241,087. The number of tribal main workers declined by 37,360 in the last decade (2001-2011) and registered a negative growth of 13.4%. Gujjar tribe (140,083, 58.1%) recorded the highest number of main workers. The proportion of tribal main workers to total tribal workers varied among tribal communities from a maximum of 68.1% in Beda tribe followed by Tue/Mon (67.0%) and Garra (66.8%) to a minimum of 41.2% in Purigpa tribe preceded by Gujjar (41.5%) and Bakarwal (47.3%) tribes. The proportion of tribal main workers increased only in three tribal communities namely Garra, Tue/Mon and Brokpa/ Drokpa/ Dard/Shin tribes.

The total numbers of tribal marginal workers who worked for at least one day but less than 180 days in the reference year in J&K was 2,92,242, of which 156,731 (53.6%) were males and 135,511 (46.2%) were females (2011 census). The tribal marginal workers registered a growth of 41.5% during the decade. The highest number of marginal workers was recorded among Gujjar tribe (197,503) accounting for 67.6% of the total tribal marginal workers in the state. The proportion of tribal marginal workers to total tribal workers varied among tribal communities from a maximum of 58.1% in Purigpa tribe followed by Gujjar tribe (58.5%) to a minimum of 31.9% in Beda tribe preceded by Tue/Mon (33.0%). Though the proportion of marginal workers increased among all tribes, their proportion declined in three tribal communities namely Garra, Tue/Mon and Brokpa/Brokpa/ Dard/Shin (Table 6).

Categories of Economic Activities of the Workers

The broad categories of economic activities also known as a four-fold classification of the workers include Cultivators (CL), Agricultural Labourers (AL) working in Household Industries (HHI) and Other Workers (OW). The cultivators and agricultural labourers broadly represent the workers engaged in the agricultural sector except for those engaged in plantation activities which over the censuses have been considered as a part of 'other workers'. Table 7 provides the distribution of total tribal workers by occupational categories as per 2001 and 2011 census for J&K.

Out of total 533,329 tribal workers enumerated in 2011 census, 225,512 (42.3%) were registered as cultivators. The percentage share of Cultivators to total tribal workers reduced from 58.5% in 2001 to 42.3%. The highest number of cultivators was recorded among Gujjar tribe (153,378) accounting for 68.0% of the total tribal cultivators in the state while the lowest was reported from Beda tribe (16). The proportion of cultivators to total tribal workers varied considerably among tribal communities from a maximum of 68.0% in Gaddi tribe followed by Sippi tribe (59.8%) to a minimum of 11.9% in

Beda tribe preceded by Purigpa tribe (15.6%). The proportion of cultivators among total workers had increased only in two tribal communities namely Changpa and Bakarwal during the decade; otherwise all tribal communities experienced a reduction in the number of cultivators.

The percentage share of Agricultural Labourers to total tribal workers increased from 6.4% in 2001 to 16.4% in 2011 with the highest number recorded among Gujjar tribe (67,590) accounting for 77.2% of the total tribal agricultural labourers in the state while the lowest was recorded in the Beda tribe (7 only). The proportion of agricultural labourers to total tribal workers varied from a maximum of 20.0% in Gujjar tribe followed by Bakarwal tribe (11.2%) to a minimum of 4.4% in Sippi tribe preceded by Gaddi tribe (4.6%). Though the proportion of agricultural labourer improved in all tribal communities during last decade, the proportion of tribal agricultural labourers declined in Changpa tribe along with generic tribes.

The percentage share of tribal workers engaged in Household Industries slightly increased (0.3% points) from 2001-2011 with the highest number recorded among Gujjar tribe (8,028) accounting for 55.8% of the total tribal workers while no workers of Beda tribe and only 5 workers from Tue/Mon tribe were reported to be engaged in Household industries. The proportion of workers engaged in household industries to total tribal workers varied from a maximum of 9.7% in Changpa tribe followed by Purigpa tribe (4.0%) to a minimum of 0.9% in Sippi tribe preceded by Gaddi tribe (1.4%) in 2011 census. The proportion of tribal workers engaged in household industries declined in three tribal communities namely Garra, Sippi and Gujjar along with generic tribes; otherwise an improvement was reported in all other tribal communities during 2001-11.

Table 7: Proportion of tribal workers in different economic sectors, 2001-11

Sl. No.	Tribes	Cultivators		Agricultural labourers		Household industry		Other Work	
		2011	2001	2011	2001	2011	2001	2011	2001
	All Schedule Tribes	**42.3**	**58.5**	**16.4**	**6.4**	**2.7**	**2.4**	**38.6**	**32.7**
1	Bakarwal	39.7	37.6	11.2	3.5	2.5	2.3	46.6	56.7
2	Balti	26.8	48.9	4.8	2.4	3.2	2.1	65.3	46.5
3	Beda	11.9	18.3	5.2	1.7	0	0	83	80
4	Bot, Boto	43.5	49.1	6.9	4.3	1.8	1.6	47.8	45
5	Brokpa, Drokpa, Dard, Shin	15.8	59.8	8.7	3.5	3.5	1.6	72	35
6	Changpa	35.4	19.2	5.7	5.9	9.7	0.5	49.2	74.4
7	Gaddi	68	78	4.6	1.8	1.4	1	26	19.2
8	Garra	30.5	48.7	8	3.9	3.1	6.1	58.4	41.2
9	Gujjar	45.4	61.5	20	7.7	2.4	2.7	32.2	28
10	Tue	28.6	52.5	7.6	6	1.8	1.3	62	40.2
11	Purigpa	15.6	55.9	6.2	1.2	4	1	74.2	41.9
12	Sippi	59.8	77.7	4.4	2.3	0.9	1.3	34.9	18.7
13	Generic Tribes etc.	26.3	36.3	19.7	24.2	6.3	2.5	47.7	37.1

The proportion of workers engaged in non-agriculture sector is an important indicator of economic development where 205,896 workers (38.6% of the total workers) were recorded as 'Other Workers' of the total tribal workers in 2011 census. Overall, the percentage share of other workers increased to 38.6% in 2011 from 32.7% in 2001 with the highest number of 'other workers' recorded among Gujjar tribe (108,590) accounting for 52.7% of the total tribal 'other workers' while the lowest was recorded in Beda tribe (112). The proportion of 'other workers' varied from a maximum of 83.0% in Beda tribe followed by Purigpa tribe (74.2%) to a minimum of 26.0% in Gaddi tribe preceded by Gujjar tribe (32.2%). Though, the proportion of workers engaged in 'other works' has improved in all tribal communities during last decade, a decline was recorded among two tribal communities namely- Changpa and Bakarwal along with generic tribes of the state (Table 7).

Ranking of Tribes

All tribes were ranked according to value of the overall socio-economic development composite index computed separately for 2001 and 2011 census. Table 8 shows the index values and ranking of all twelve tribes where the value of composite index varied from 0.35 (lowest) to 0.60 (highest) in 2001 census and 0.32 (lowest) to 0.6 (highest) in the 2011 census. The least populated tribe, Beda was the best performing tribe and stood first among all the twelve tribes. In 2001 census, Beda (1st rank), Balti (2nd rank) and Bot/Boto (3rd rank) were the three best performing tribes and Gujjar (10th rank), Changpa (11th rank) and Brokpa/Drokpa/Dard/Shin (12th rank) were the three poorest tribal communities of J&K. However in 2011 census, the top developed tribes were Beda (1st rank), Changpa (2nd rank) and Bot/Boto (3rd rank) while the three most deprived tribal communities were Brokpa/Drokpa/Dard/Shin (10th rank), Bakarwal (11th rank) and Gujjar tribes (12th rank). Among twelve tribes, Bedas, Bot/Botos, Mon/Tues and Gaddis maintained positions alike from 2001 and 2011 censuses whereas the ranking of Changpa, Garra, and Brokpa/Drokpa/Dard/Shin tribes improved during the last decade. Among all tribes, Changpa made most significant improvement with a value of development indicator enhanced from 0.37 (ranked 11th) in 2001 to 0.54 (ranked 2nd) in 2011. Conversely, the rankings of Baltis (2nd in 2001 to 6th in 2011), Sippi (4th in 2001 to 8th in 2011), Purigpa (6nd in 2001 to 9th in 2011), Bakarwals (9th in 2001 to 11th in 2011) and Gujjars (10th in 2001 to 12th in 2011) worsened over the last decade. The most considerable decline was observed among Baltis and Sippi tribes.

Table 8: Overall ranking of tribal communities based on their demographic, socioeconomic indicators, 2001-11

Tribes	2001		2011	
	Index	Rank	Index	Rank
Bakarwal	0.37	9	0.32	11
Balti	0.51	2	0.44	6
Beda	0.60	1	0.60	1
Bot, Boto	0.50	3	0.53	3
Brokpa, Drokpa, Dard, Shin	0.35	12	0.38	10
Changpa	0.37	11	0.54	2
Gaddi	0.45	7	0.43	7
Garra	0.44	8	0.51	4
Gujjar	0.37	10	0.31	12
Mon	0.46	5	0.50	5
Purigpa	0.46	6	0.39	9
Sippi	0.47	4	0.43	8

Summary & Conclusion

The total tribal population of J&K state was 14,93,299 accounting for 1.43% of the total tribal population of the country as per Census 2011. The STs are predominantly rural as most of them reside in villages and occupies bottom position in the social structure of the society and are mostly economically backward. In J&K state, twelve communities were being nominated as STs and enumerated in both 2001 and 2011 censuses. In last census, overall 14,93,299 (11.9%) persons were classified as STs of which Gujjar tribe was the most populated (65.7%) followed by the Bakarwals (7.6%). The tribal population increased by 35.0%, much higher than the growth rate of tribal population in the country as whole (23.7%). Amongst all the tribes, Beda recorded the highest decadal growth rate (228.13%) followed by Bakarwal, Balti, Gaddi, Gujjar, Tue and Purigpa tribes. However, the population of five tribal communities i.e., Changpa, Sippi, Brokpa/Drokpa/Dard/Shin, Bot/Boto and Garra had decreased during 2001 and 2011 censuses with the highest decline recorded for Changpa (-47.18%), followed by Sippi (-9.07%) and the lowest decline was observed for Garra tribes (-0.59%). Gujjar and Bakarwal tribes were the most dominant tribes and distributed in all 22 districts of the state. Although, tribal communities observed an improvement in the overall sex ratio during last decade, Beda, Garra and Shippi recorded a decline in the sex ratio.

The overall literacy recorded was more than 70% among Tue/Mon, Garra and Balti tribes. However, half or more than half population of tribal communities like Bakarwal, Gujjar and Sippi was illiterate. The work participation rate

(WPR) i.e., the proportion of workers among tribal population was 35.7% which varied from highest in Changpa tribe (53.6%) to lowest in Brokpa / Drokpa / Dard / Shin tribes (27.2%). The share of Cultivators to total tribal workers reduced from 58.5% in 2001 to 42.3% in census 2011 whereas the share of Agricultural Labourers to total tribal workers increased from 6.4% in 2001 to 16.4% in census 2011. Overall, the petite tribal community Beda was the best perforating tribe and ranked 1st among all twelve tribes of J&K followed by Changpa and Bot/Boto while the three most socio-economically backward tribal communities were Brokpa /Drokpa/Dard/Shin, Bakarwal and Gujjar. The most populated tribal community Gujjar was the least developed tribal community whereas the Changpas made most significant improvement during last decade.

This analysis revealed vast differences among socio-economic indicators that existed among twelve tribal communities of the state which showed that the communities with negative decadal growth rates need immediate attention and causes of negative growth should be explored/rectified and preventive measures needs to be taken by the government. The tribal communities' desire special attention in general for their overall improvement, but the communities with poorest socio-economic indicators require more focused interventions. Overall, the state should take tribe specific approach to deal and address the tribal issues. However, a general policy or programme may not be equally beneficial to all tribal communities.

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SOME ASPECTS OF FERTILITY, REPRODUCTIVE WASTAGE, AND MORTALITY AMONG THE SONOWAL KACHARIS OF DIBRUGARH DISTRICT, ASSAM

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Abstract: Fertility and mortality are the two most important factors affecting population size and its structure. Fertility of a woman or couple is defined as the actual reproductive performance during her or their lifespan while mortality is defined as the state of being mortal. Both fertility and mortality are contradictory to each other and can help in determining the population growth and declination. The present paper analyzes and interprets some aspects of reproductive variables wherein the data was collected from 159 ever married Sonowal Kachari women of Paroliguri village of Dibrugarh district, Assam having minimum one child.

The Sonowal Kachari is a populous plain inhabiting scheduled tribes of Assam. The study results were summarised as a) Total Fertility Rate (TFR) was recorded low among the studied population; b) The proportion of prenatal wastage was comparatively higher than the postnatal mortality and c) The adopter of family planning measures was also found higher than the nonadopters.

Key words: Fertility. Pre-natal Wastage. Post-natal Mortality. Sonowal Kachari. Dibrugarh. Assam.

INTRODUCTION

Fertility as an important demographic variable embodies itself as a mechanism for the biological continuance of human society. Mortality is another imperative demographic variable indicating death, meaning discontinuance of life. Fertility and mortality represent a fine scenario of the relationship between population and biology. Fertility and mortality rate varies geographically along with the individuals in the communities which they represent. Menarcheal age, age at marriage, age at first childbirth, maternal nutrition, family type, level of education and occupation of the parents, place of residence, religion, etc are some of the bio-social proximate factors reported by various scholars at different time periods responsible for fertility and mortality. These factors have a tremendous and profound impact on the fertility performance and mortality differential of a population in different manners. Family planning considered as one of the most influential determinants of fertility also depends on some socio-cultural factors. However, fertility is also closely related to mortality and Gautam et al (2007)[1] observed high fertility performance associated with the higher incidence of mortality among the Baiga tribe of Central India. The reason

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attributed to high fertility among the Baiga tribe was the feeling of compensation as a result of their high mortality.

OBJECTIVES

This paper analyzed the various aspects of fertility, reproductive wastage as well as mortality among the Sonowal Kachari women of Dibrugarh district of Assam.

MATERIALS AND METHODS

The information with regards to fertility and mortality was collected from 159 ever married Sonowal Kachari women living in the Paroliguri village of Barbaruah of Dibrugarh district, Assam. The analysis was confined to women having minimum one child and included women whose husbands were alive at the time of this investigation. Spontaneous abortion cases were considered in the present study. Before collecting data written consent (in local language) was collected from the subjects, their guardians as well as from the village head. A specially designed pretested schedule was executed for data collection on fertility performance and mortality differential. Observation and interview methods were also used to collect and cross-check the data provided by the respondents. The data for the present study was calculated for frequency, percentages, means, standard deviation and standard error. Most of the data was calculated manually while in some cases, it was analyzed through Microsoft Office Excel 2007.

Demographically the Sonowal Kacharis form the third largest plain tribal group of Assam with a population of 2,35,88 as per the census 2011. They inhabit various districts of Upper Assam namely, Dibrugarh, Lakhimpur, Sivsagar, Jorhat and belong to the Bodo group, tracing a close relationship with other tribal groups like Barmans, Boro Kacharis, Thengal, and Dimasas of Assam.

RESULTS AND DISCUSSION

Table 1 shows the number of conceptions per ever married women of Sonowal Kachari tribe. The maximum number of conceptions experienced by the Sonowal Kachari women was 6. 34.88% mothers conceived two times followed by 34.33% mothers who conceived 3 times. The number of the mother declined with high incidence of conceptions. The mean conception (2.31 ± 0.18) was lower compared to many other tribal and caste population of Assam. Similar mean conception of the present sample observed for Sonowal Kachari population was 2.55 (Saikia, 2015)[2]; Bodo 2.22; (Das, 2014) and 2.36; (Dutta Das and Saikia, 2010)[3,4]; Assamese Sikh residing in urban (2.36) and rural (2.52) areas (Kaur, 2010)[5]; Dibongiya Deori inhabiting urban area - 2.43 (Borah, 2017)[6] and Rabha -2.65 (Das, 2014)[3] population in Assam. Relatively higher mean conception compared to Sonowal Kachari population was recorded among the working Assamese women -2.87 (Sarma, 2015)[7];

Dibongiya Deori from rural areas- 2.91 (Borah, 2017)[6], Ahom from urban 2.92 and rural (3.65) areas (Gogoi, 2001)[8]; Khamyang 3.01 (Ahmed Das et al, 2008)[9]; Bengali -3.01 (Chakravarti, 2001)[10]; non-working Assamese women (3.09; Sarma, 2015)[7]; Khamti (3.19; Borah and Sengupta, 2013 and 3.67; Choudhury et al, 1994)[11,12]; Pnar (3.56; Khongsdier et al, 2001)[13]; Lalung (3.61; Das et al, 1980)[14]; Ahom (3.66; Gogoi, 2016, 3.83; Baruah and Sengupta, 2009, 4.68; Das and Das, 1982)[15,16,17]; Manipuri Meitei (4.06; Ahmed Das and Barua, 1999)[18]; Rengma Naga (4.13; Seb Rengma, 2014)[19]; Mishing (4.32; Baruah and Sengupta, 2009, 5.57; Sengupta and Dutta, 2000 and 5.64; Das and Das, 1982)[16,20,17]; Chutiya (4.43; Das and Das, 1982)[17]; Deori (5.62; Das and Das, 1982)[17]; Semsa (4.72; Limbu and Khongsdier, 2000)[21]; Oraon (5.0; Ahmed Das and Konwar, 2002)[22]; Moran (5.75; Das and Das, 1982)[17] and also among Sonowal Kachari population studied earlier by Sengupta and Kalita (4.01, 2001)[23] and Baruah and Sengupta (3.63, 2009)[16].

Table 1: Number of conceptions per ever-married women

Number of conceptions	No of mothers (%)	Total conceptions
1	34 (9.26)	34
2	64 (34.88)	128
3	42 (34.33)	126
4	17 (18.53)	68
5	1 (1.36)	5
6	1 (1.63)	6
Total Mean ± SE	159 (100.00) -	367 2.31 ± 0.18

Note: Figure within parentheses indicates the percentage

From Table 2, it can be seen that the respondent Sonowal Kachari women have contributed to maximum six live births and of these, 37.96% number of mothers have given birth to two live-children. The proportion of women contributing to high number of live-born issues was meagrely distributed and the mean live birth among them was 2.22 ± 0.18. However, similarity was observed in this regard to Bodo (2.10; Das, 2014 and 2.25; Dutta Das and Saikia, 2010)[3,4]; Dibongiya Deori inhabiting urban area (2.22; Borah, 2017)[6]; Assamese Sikh inhabiting urban (2.26) and rural (2.45) (Kaur, 2010)[5], Rabha (2.42; Das, 2014)[3]; Ahom population residing in urban area (2.48; Gogoi, 2001)[8]; Bengali (2.61; Chakravarti, 2001)[10] and also among Sonowal Kachari (2.37; Saikia, 2015)[2] population in Assam. The population groups like Dibongiya Deori inhabiting

rural area (2.72; Borah (2017)[6]; working (3.04) and non-working (2.79) Assamese women (Sarma, 2015)[7]; Assamese (2.95; Chakravarti, 2001)[10], rural Ahom (3.00; Gogoi, 2001)[8]; Khamti (3.02; Borah and Sengupta, 2013 and 3.57; Choudhury et al, 1994)[11,12]; Ahom (3.32; Baruah and Sengupta, 2009, 3.44; Gogoi, 2016 and 4.45; Das and Das, 1982)[16,15,17]; Pnar (3.35; Khongsdier et al, 2001)[13]; Tangsa (3.51; Saikia and Dutta Das, 2006)[24]; Lalung (3.55; Das et al, 1980)[14]; Rengma Naga (3.60; Seb Rengma, 2014)[19]; Manipuri Meitei (3.97; Ahmed Das and Barua, 1999)[18]; Mishing (3.99; Baruah and Sengupta, 2009, 4.98; Sengupta and Dutta, 2000 and 5.34; Das and Das, 1982)[16,20,17]; Semsa (4.28; Limbu and Khongsdier, 2000)[21]; Chutiya (4.40; Das and Das, 1982)[17]; Oraon (4.7; Ahmed Das and Konwar, 2002)[22]; Moran (5.52) and Deori (5.54) studied by Das and Das, 1982)[17] and Sonowal Kachari population studied earlier by Sengupta and Kalita (3.76, 2001)[23] and Baruah and Sengupta (3.21, 2009)[16] showed relatively higher mean live birth compared to the present sample.

Age-Specific Fertility Rate (ASFR) is one of the important measures in fertility studies. It helps understand the likelihood of a particular population for bearing children by age. The total fertility rate is also of pivotal importance to furnish an idea about the average number of children to be born per woman during her entire span of reproductive period.

Table 2: Number of live births per ever married women

Number of live births	No of mothers (%)	Number of children
1	38 (10.76)	38
2	67 (37.96)	134
3	38 (32.29)	114
4	14 (15.86)	56
5	1 (1.42)	5
6	1 (1.70)	6
Total Mean ± SE	159 (100.00) -	353 2.22 ± 0.18

Note: Figure within parentheses indicates the percentage

Table 3 shows the ASFR among the ever married Sonowal Kachari women. The highest ASFR was found in the age group of 20-24 years (1.18) followed by the 25-29 years age group (0.76). A gradual decreasing trend in the ASFR rate was observed among the higher reproductive age groups. The total fertility rate of 2.89 was lower compared to many other population groups of Assam. The notable work conducted among the Dibongiya Deori (urban, 3.07 and rural, 4.13) studied by Borah (2017)[6]; Borgonya (4.03), Dibongiya (4.18) and Tengapania

(4.55) Deoris studied by Gogoi (2006)[25]; Ahom (4.69) and Mishing (5.72) studied by Baruah (2007)[26] and Sonowal Kachari (4.41; Baruah, 2007 and 3.69; Saikia, 2015) [26, 2] population in Assam is worth mentioning.

Table 3: Age-specific fertility rate (ASFR) among the ever-married women

Age groups (in years)	No. of mothers	No. of live births	ASFR
≤ 19	70	52	0.74
20-24	142	167	1.18
25-29	139	107	0.76
30-34	129	26	0.20
35-39	86	1	0.01
Total Fertility Rate (TFR)	2.89		

Table 4 shows the proportion of prenatal wastages and postnatal mortality among the ever married Sonowal Kachari women. The proportions of embryonic wastage (4.36%, miscarriage and still birth) were markedly higher compared to the post-natal mortality (2.27%). The proportion of miscarriage and still birth was recorded as 3.00% and 1.36% respectively of the total 367 conceptions. Conformity was observed in the studied Sonowal Kachari sample (3.00) with that of Manipuri Meitei (2.89; Ahmed Das and Barua, 1999)[18]; Semsa (3.34; Limbu and Khongsdier, 2000)[21] and Khamyang (3.39; Ahmed Das et al, 2008)[9] with regards to the proportion of miscarriage and abortion. Markedly higher incidence of miscarriage than the studied sample was observed among the Ahom (12.26); followed by Sonowal Kachari (9.84; Baruah and Sengupta, 2009 and 5.69; Saikia, 2015)[17,2]; Dibongiya Deori (urban, 7.05 and rural, 5.18; Borah, 2017)[6]; Rabha (6.80; Das, 2014)[3]; Khamyang (6.36; Das, 1985)[27]; Mishing (6.62; Sengupta and Dutta, 2000 and 6.08; Baruah and Sengupta, 2009)[20,16]; Ahom (5.58; Gogoi, 2016)[15], Khamti (5.10; Borah and Sengupta, 2013)[11]; Bodo (4.73; Das, 2014 and 3.88; Dutta Das and Saikia, 2010)[3,4] and Pnar (4.63; Khongsdier et al, 2001)[13] population in Assam. Turung (2.31; Das, 1985)[27] and Sonowal Kachari population (1.35) studied by Sengupta and Kalita (2001)[23] reported lower mean value of miscarriage compared to the present sample. However, a very low incidence of miscarriage as compared to the present studied population was observed among the Rengma Naga (0.30; Seb Rengma, 2014)[19], Moran (0.84), Mishing (0.48), Ahom (0.97) and Deori population (0.46)

as studied by Das and Das (1982)[17]. Similarity in the present finding (1.36) was observed in case of still birth with the Sonowal Kachari (1.17; Sengupta and Kalita, 2001 and 1.15; Saikia, 2015)[23,2], Pnar (1.54; Khongsdier et al, 2001)[13], Ahom (1.11; Baruah and Sengupta, 2009 and 1.09; Gogoi, 2016)[16,15], Bodo (0.95; Das, 2014)[3], Deori (0.91; Das and Das, 1982)[17] and Khamyang (0.84; Ahmed Das et al, 2008)[9] population in Assam. Higher incidences of still birth was observed for the present sample compared with that of Sonowal Kachari (2.09; Baruah and Sengupta, 2009)[16], Rabha (1.96; Das, 2014)[3], Khamyang (2.11; Das, 1985)[27], Dibongiya Deori (rural, 2.29 and urban, 2.90) as studied by Borah (2017)[6], Moran (2.95; Das and Das, 1982)[17], Semsa (2.56; Limbu and Khongsdier, 2000)[21], Ahom (3.88; Das and Das, 1982)[17], Mishing (4.72; Das and Das, 1982, 4.07; Sengupta and Dutta, 2000 and 2.10; Baruah and Sengupta, 2009)[17,20,16] and Turung (5.31; Das, 1985)[27] population in Assam. On the other hand, comparatively lower incidence of still birth than the present sample was observed among the Rengma Naga (0.22; Seb Rengma, 2014)[19], Khamti (0.51; Borah and Sengupta, 2013)[11], Lalung (0.58; Das et al, 1980)[14], Bodo (0.65; Dutta Das and Saikia, 2010)[4] and Chutiya (0.75; Das and Das, 1982)[17] population in Assam.

The proportion of death at infant stage (1.98) was higher than the child mortality (0.28) with regards to postnatal mortality. However, no incidence of death was recorded at the juvenile stage among the present population. A similarity in present finding with regards to infant mortality was observed with the Rabha (1.66) and Bodo (1.51) as studied by Das (2014)[3]. Most of the population groups from various parts of Assam including the Sonowal Kachari recorded high incidence of mortality at the infant stage. The notable work for the population groups of Assam like Sonowal Kachari (4.38; Sengupta and Kalita, 2001 and 4.04; Baruah and Sengupta, 2009)[23,16], Chutiya (2.64) and Deori (3.20) studied by Das and Das (1982)[17], Rengma Naga (3.25; Seb Rengma, 2014)[19], Dibongiya Deori (urban, 3.64 and rural, 4.35) studied by Borah (2017)[6], Manipuri Meitei (4.13; Ahmed Das and Barua, 1999)[18], Pnar (4.20; Khongsdier et al, 2001)[13], Oraon (4.56; Ahmed Das and Konwar, 2002)[22], Moran (4.70; Das and Das, 1982)[17], Bodo (4.75; Dutta Das and Saikia, 2010)[4], Ahom (5.42; Das and Das, 1982, 2.39; Baruah and Sengupta, 2009 and 5.45; Gogoi, 2016)[17,16,15], Mishing (7.26; Sengupta and Dutta, 2000, 3.80; Baruah and Sengupta, 2009 and 11.35; Das and Das, 1982)[20,16,17], Semsa (7.55; Limbu and Khongsdier, 2000), Khamti (11.21; Choudhury et al, 1994 and 3.21; Borah and Sengupta, 2013)[21,12,11] in this regard is worth mentioning. The incidence of child mortality (0.28) was comparatively lower than many other population groups of Assam. The proportion of mortality at childhood stage varies from 13.09 among the Semsa

(Limbu and Khongsdier, 2000)[21] to 1.11 among the Ahom (Baruah and Sengupta, 2009)[16] population of Assam from the reported data. Significantly high child mortality compared to the present sample was recorded among the population groups like Sonowal Kachari (3.98; Sengupta and Kalita, 2001 and 2.10; Baruah and Sengupta, 2009)[23,16], Ahom (1.69; Das and Das, 1982, 1.10; Baruah and Sengupta, 2009 and 3.14; Gogoi, 2016)[17,16,15], Chutiya (2.26; Das and Das, 1982)[17], Lalung (2.35; Das et al, 1980)[14], Deori (3.20; Das and Das, 1982)[17], Khamti (4.67; Choudhury et al, 1994)[12], Mishing studied by Das and Das (4.02, 1982)[17], Sengupta and Dutta (3.99, 2000)[20], Baruah and Sengupta (2.28, 2009)[16], Semsa (13.09; Limbu and Khongsdier, 2000)[21], Rengma Naga (4.40; Seb Rengma, 2014)[19], Moran (12.1; Das and Das, 1982)[17]. Dibongiya Deori (rural, 0.54 and urban, 1.82) studied by Borah (2017)[6] was also found to have high incidence of child mortality as compared to the present population.

Table 4 Prenatal wastage and postnatal mortality among the ever married women

Parameters	Sonowal Kachari
Total number of mother	159
Total number of conception	367*
Total number of live birth	353
Total number of miscarriage	11
Rate	3.00
Average number of miscarriage per mother	0.07
Total number of stillbirth	5
Rate	1.36
Average number of stillbirth per mother	0.03
Total number of infant mortality	7
Rate	1.98
Average number of infant mortality per mother	0.04
Total number of child mortality	1
Rate	0.28
Average number of child mortality per mother	0.01
Total number of juvenile mortality	0
Rate	0
Average number of juvenile mortality per mother	0
Total number of embryonic wastage	16
Rate	4.36
Average number of embryonic wastages per mother	0.10
Total number of postnatal mortality	8
Rate	2.27
Average number of postnatal mortality per mother	0.05

***include 2 twins in total**

Table 5 shows that the proportion of the women adopting the family planning method was quite high (67.92%). Preference for the sterilization method (37.74%) was relatively common among different modern devices. Sterilization was also the commonly used measure among the Bodo Kachari and Dibongiya Deori (rural) women in Assam as reported by Sarmah (45.90%, 2014)[28] and Borah (17.78%, 2017)[6] respectively.

The level of higher education in the studied population was comparatively low while the frequency of literacy among both male and female population was comparatively high. In this study, 8.81% women were illiterate, 2.52% completed primary education while 88.68% completed secondary and above educational qualification. However, 8.18% husband's were illiterate, 6.29% completed primary education and 85.53% completed secondary and above educational qualification. The level of literacy could be considered as the meandering reason behind their low level of conception compared to many other population groups of Assam. The incidence of juvenile mortality was completely absent and the frequency of still birth was comparatively lower among them which represent a positive indication towards the good health condition of the Sonowal Kachari mother.

Table 5 Family planning adoption among the ever married women

Category	No	%
Nonadopter	51	32.08
Adopter (traditional)	5	3.14
Adopter (modern device)		
Sterilization	60	37.74
Intra-Uterine Device	22	13.84
Condom	21	13.21

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TRIBALS OF CHHINDWARA FOREST REGION- CHANGING ECONOMIC SCENARIO AND CHALLENGES

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Abstract: Chhindwara district has high ratio of tribal population namely Bhariya, Gond, Mawasi and Korku as major tribes residing in hilly areas of Satpura plateau. Physiographic disparity has affected the distribution of population among these tribes. They are highly dependent on forests for their needs but irregular deforestation, lack of resources and unemployment are biggest problem affecting their livelihood. Nationalisation of forests had a major impact on their dependency for forest by restricting their access to cut wood, grazing cattles and collecting forest products. Tribals are not achieving any benefit of forest products. Traders cheat the tribal's because of their economic needs and innocence as a result their condition remains unchanged. This problem of livelihood and exploitation can be resolved through development of education and encouraging self-employment. They need to be encouraged and made confident to connect their traditional professions through self-employment schemes. An attempt has been made to point out these societal issues in this article.

INTRODUCTION

Globally, tribal people reside in different geographical conditions *i.e.*, hot and cold deserts, equatorial humid region, grass land, forest region etc. It is also common in India but in Satpura region, tribals mostly inhabit plateau and hilly areas. Geographically, Chhindwara district falls in midst of natural beauty and resources with the physiographic disparity. Rivers are spread all over the area according to slope of the region. Physiographic disparity is an important part of life and settlements in tribal community. Bhariya tribe resides in hilly area of Patalkot where as the Gond, Mawasi and Korku settlements are found in areas around the hilly region. Most needs of these communities are fulfilled by the forest and its produce. However, irregular deforestation, lack of resources and unemployment are the biggest socio-economic problem affecting their livelihood.

STUDY REGION

Chhindwara district is situated in south-east part of the state of Madhya Pradesh and extends from 21^0 28 to 22^0 49 north latitude to 78^0 10 to 79^0 24 east longitude. The district occupies 1st rank in the state for having an area of 11,815 square kilometres and has 12 tehsils and 11 blocks.

Total population of the district is 20, 90,306 (census 2011). Physiographic and socio-economic factors affect the distribution of population among the

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tribes. Tamia, Bichhua, Amarwara, Harrai and Junnardeo are densely tribal populated tehsils. Harrai tehsil has the highest population (78.32 %) followed by Bichhua (55.79 %). Number of female per 1000 male of tribal population is 995 compared to district ratio of 964. Although there is no problem of respect, security and gender discrimination among the tribals but the literacy rate is very poor (56.18%). Male and female literacy rates are 65.48 and 46.87% respectively. Government policies are attracting tribal communities towards education.

METHODOLOGY

In the present studies, participant method of observation was used. Focussed Group discussion and interview methods were also used to collect various information regarding tribals. Secondary data was used wherever necessary.

RESULT AND DISCUSSION

Tribes and forests live in harmonius relationship as forests fulfil majority of their needs and therefore they are called as 'son of nature'. Their settlements are found near rivers or water sources and made of wood, bamboo and/or mud. Despite their association with modern society, their living habits remain unchanged. The pattern of agriculture is more or less traditional even today where they take intensive subsistence agriculture in small forms. Maize and millet are major crops. For the domestic use, they grow pulses and vegetables like valhar, kanda, barbati, kakoda etc. Some changes are now seen in their agriculture pattern as they have started growing other crops.

Forest products play vital role in tribal life. Flower of Mahua is used for preparation of liquor and food products. Fruit of Mahua is used for oil extraction, selling of Mahua fruits and other forest products help them buy essential household items and other commodities. Char or Achar is central to Harrai and Amarwara's tribal life. Despite Government providing facilities of support price for Mahua and Char, they are exploited by middlemen and local traders mainly due to their ignorance and illiteracy. Similarly 'tendu patta' collected by them for the bidi industries are exploited through low pricing by traders. In general, tribals are dependent on forest products such as Harra, Bahera, Aonla and Bhilma for their daily economic needs.

Patalkot in Chhindwara is a main zone for procurement of medicinal plants due to suitable climatic and geographic conditions. Knowledge of local medicinal plants, their identification and use is traditionally transferred to next generation within the community. Occassionally, some of the tribals of Patalkot and Tamia region work as a health-healer and sell medicine.

A grass called 'Rusa' found in Tamia-Patalkot is used for preparation of brooms and oil. This region is also well known for 'Chheend or Khajur' plants used in making brooms and decorative items. These forest products aid in their financial requirement. Fruits of Chheend and

'Sitaphal' are important forest products that help in their sustenance. Unfortunately, traders procure these products at low price through exploitation and sell it in other states making a huge profit thus preventing any benefit of the forest produce to the tribals. To avoid this exploitation, a Sitaphal pulp processing industry can be established by government to benefit them. Apart from the above fruits, Kamrakh (Starfruit), Ramphal, Padora, Rethu, Bhedra are other forest food items which are also other sources of income to tribal population. Leaves of 'Mehul' found in large quantity in Satpura forest are used for preparation of 'dona-pattal' and used in social functions by general communities. Unfortunately, recent use of plastic disposals has affected their profession. Apart from these forest based food items, they have also taken up preparation of basket, hats and other daily-use material from bamboo. However, this craft activity has not been promoted/encouraged to fulfil their societal needs.

The problem of re-settlement as a result of increasing national population has led to deforestation for rail, road projects and development of industries. As a result, forest areas are drastically reducing thereby affecting the needs of tribals on forest, which is a major obstacle in their livelihood. Furthermore, nationalisation of forest resources has greatly affected their dependency on forest due to restrictions on access to collection of fire wood and forest produce and areas for cattle grazing.

Majority of tribal communities in the study region work as unskilled labour in coal mines (Parasia, Damua etc.) as they lack educational qualification, for higher posts. Some of the tribals were also employed as agricultural labourer and migrant workers.

The problem of livelihood of these tribal communities and exploitation can be resolved with education and self-employment. They need to be encouraged to improve their traditional practices and engage in professional self-employment schemes. Special licenses need to be provided to collect forest products to help them grow economically and financially. To enable acceptance of new technologies, trainings should be imparted in their own language/dialect for easy understanding.

In order, to improve the lifestyle, efforts are being made by the government for free vocational training such as stitching, knitting, handy-craft and industrial training etc. Although, training program for banking, government services and competitive exams are also being run, students of remote tribal areas are unable to reap its benefits. Hence, it is important to acquaint them with knowledge to achieve the benefits and facilities available.

In general, tribal life style is environment friendly as they make efforts to preserve the environment and nature. Their lifestyle practices include requisite solution for water pollution and global warming naturally. As exploitation of

nature is a global problem, it is important for modern and civilized societies to learn and accept tribal nature friendly practices.

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ECONOMIC CONSTRAINTS IN HEALTH CARE: A STUDY OF MONPA TRIBE OF ARUNACHAL PRADESH

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Abstract : The effect of economic liberalization policies on the marginalized societies and regarding the development trajectories of these marginalised populations have gathered varied heated academic discourses. Now a day's, welfare economist prefers social justice and pride in comparison to income. However in India, it is believed that social status is a major factor in health care accession rather than income, but the fact is that income is also important to acquire basic facility in health care. In the light of this background, present study focuses on the issues pertaining to role of income in the health seeking behavior of a homogeneous tribal population. For this study, data was taken from primary sources by a well structured questionnaire. Samples were drawn from a population of Monpa tribe of Tawang district in Arunachal Pradesh, India, which is a least studied region of the country.

Key words : *Monpa tribe, Income, Health expenditure*

INTRODUCTION

At present, equity growth has been the basic objective of the public policies with major focus on vertical inequality (inequalities across the societies) and not on the horizontal inequalities (*inequalities between certain identifiable groups in the economy*). Inequality in health status of poor is unacceptable by any means, but still it seems to be an elusive goal with widening disparity at every level. Moreover, there are a lot of heated academic debates on the effect of economic liberalistion policies on the marginalised societies and regarding the trajectory of development of these marginalised populations. Governments and other agencies have broadly recognized and accepted the need for improving the health of the marginalized people. In 1970, WHO initiated an effort to achieve a broad target of “Health for All” by 2000. In 1978, access to basic health services was affirmed by the declaration of Alma-Ata as a fundamental human right but the reality is that, in 2017, more than 39 years later, many people in resource-poor settings still do not have equitable access to basic services. In many places this gap is widening due to different reasons. To reduce the widening disparity in basic healthcare facilities and its access, we must have a serious look in this regard to formulate better planning next time.

There are more than 400 tribal groups in India, characterised by different socio-economic and biological setup and their exposure to different climatic and environmental setup. Therefore, they are

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targeted by different diseases and hence their health seeking behavior is also different. Infact, individuals from different income groups within a tribal society behave differently towards the concept of health and sickness and its treatment.

Relationship between economic status and health care of the people has been reported in a number of studies. The health care behaviour of the people is affected by several factors like education, culture, availability and accessibility to the public services and geographic as well as economic conditions. As tribal population is less educated, less aware, have poor economic background and live in isolation from time immemorial it has led to their poor health status. In this background, it becomes important for health planners and policy makers to not only establish a Primary Health Centre and sub-centre to improve the health status of tribal people, but also improve their economic status effectively. Hence within such socially deprived homogeneous group, income is of utmost importance.

SIGNIFICANCE OF THE STUDY

Monpa tribe of Arunachal Pradesh inhabiting western part of the state is highly influenced by the Tibetan culture, their way of life and henceforth the Tibetan Medicine System (TMC). Hence it is interesting to make note of their health seeking behaviour. Social and cultural norms vary significantly among the tribal societies. By modernization and acculturation with other societies, they are secluding from traditional method of health care. Subsequent increase in market economy plays a crucial role and therefore it is useful to understand the health seeking behaviour of tribals under economic constraints.

It has been widely noted that tribals belief of causes of disease is either due to physical or supernatural effect. Monpa also keep such beliefs and accordingly they decide the mode of treatment for physical reasons. They take traditional medicines consisting of minerals, herbals, food product or animal organs. For super natural reasons, they mainly perform 'pujas' to 'chedup' to propitiate the benevolent spirit.

The data used for this study has been collected from Monpa tribe of Tawang district of Arunachal Pradesh covering a population (sample size) of 765.

METHODOLOGY

This paper has met with limited objectives. The primary purpose was to set out how the problems look to an economist non-technically. Moreover, the paper is limited to the assigned topic and does not provide a general review of literature on tribal health. However, useful bibliography may be found from work of, Pandey (1988)[1], Sharma (1999)[2] and Basu (1993)[3]. The area under investigation for the present study covered four administrative circles of Tawang districts of Arunachal Pradesh, India. During discussions, it was observed that the level of awareness about the government health system and

the facilities available was extremely poor among the people of these areas. The information was collected through informal group discussions (IGDs) with groups of head of the household and community leaders in each village under study. In addition, indepth interviews were held with the local health providers like *Man Tse Khang*. The number of participants varied from five to ten and we tried to get actual picture of the community's views on the issues short-listed for discussion. Total population covered in the study was 765 of which more than three fourth of the populations was illiterate. Dependency ratio observed was very high (88.8%) and index of ageing was very low (longevity of the population), though there was a general impression that longevity is very high among the Tawang Monpas. As far as marital status is concerned, about 50% of the surveyed population was married (Table-1). Surveyed households were divided into three income groups. The number of households covered in these categories was 80, 64 and 5 respectively (Table-2).

Table 1 : Demographic Characteristics

POPULATION CHARACTERISTICS				
Population				
	Male	417		
	Female	348		
	Total	765		
Sex Ratio	835			
Age & Sex Structure	**Sex**	**0-14**	**15-59**	**60+**
	Male	39.6	52.5	7.9
	Female	40.3	53.2	6.5
	Total	39.9	52.8	7.2
Dependency Ratio	88.8%			
Index of Ageing	18.03%			
Education				
Sex	**Illiterate**	**Literate**		
		Primary	**Middle**	**H.S. & above**
Male	62.5	13.90	11.5	11.9
Female	91.95	2.9	3.4	1.7
Total	75.95	6.8	8.8	7.3
Marital Status				
	Sex	**Unmarried**	**Married**	**Others**
	Male	50.3	45.1	4.6
	Female	47.2	45.8	7.0
	Total	48.8	45.4	5.8

Source: Field Survey

Table 2 : Household Characteristics

Total No. of Household		149
Type of Household in Percentage	Nuclear	89.8
	Joint	10.2
Household Occupation in Percentage		
	Cultivation	73.8
	Labour	22.1
	Others	4.1
Economic Status of Households		
Annual H.H. Income		**% Of H.H. Studied**
0-5000		53.7
5,000-10,000		42.9
10,000 & above		3.4
Total		100.0

Source: Field Survey

RESULT AND DISCUSSION

It is evident from Table-3, that sickness is negatively associated with the income of household. It may be pointed out that probability of a person falling sick and receiving the treatment or not depends upon the economic status of the household. It is evident from Table-3 that about 58% of lowest income groups receives treatment where as it is 58.2 and 74.1% for the other higher groups (annual income >5000). It means that with the increase in income level of the household, the percentage of treated cases also increases.

The percentage expenditure of household income spent in curative health care was negatively associated with the income of household as analyzed from Table-4. The percentage expenditure is about 3% for highest income slab and 6.5% for the lowest income slab of the households. The middle-income group spends relatively higher percentage of income as health expenditure; this may be due to their relatively higher awareness in comparison to lower income group.

Table 3: Percentage of Sick Cases Treated According to Household Income

Annual Household Income (Rs.)	Number of Sickness	Number of Treated Cases	Percentage of sick Patient Treated
0 - 5000	597	327	54.7
5,000 - 10,000	330	192	58.2
10,000 & above	429	318	74.1
Total	1356	837	61.7

Table 4: Average Income and Expenditure on Health According to Household Income

Annual Household Income (Rs.)	Average Household Income (Rs.)	Average Household Expenditure on Health (Rs.)	Percentage of Expenditure on Health per H.H. in a Year
0-5000	3820.6	248.3	6.5
5,000-10,000	6440.3	515.2	8.0
10,000 & above	10816.2	346.1	3.2
Total	5180.6	366.2	7.03

Source: Field Survey

Table 5: Breakup of Health Expenditure Per Sick Person According to Household Income (%)

Annual Household Income (Rs.)	No. of Sick Person	Breakup of Health Expenditure Per Sick Person According to Household Income						
		Medicine	Consultation	Transportation	Medical Checkup	Others	Wage Loss	Total Expenditure (Rs.)
0-5000	239	26.51	8.3	7.9	0.25	50.94	6.1	100
5,000-10,000	92	28.52	8.8	7.6	0.4	48.88	5.8	100
10,000 & above	282	30.94	9.3	6.8	0.4	47.06	5.5	100
Total	613	28.85	8.83	7.35	0.34	48.84	5.77	100

Source: Field Survey

The average expenditure incurred per sick person on different heads of treatment was Rs. 50. The breakup on different heads is shown in Table-5. Though it is believed that tribals preferred to go to traditional healers for the disease treatment, but in case of availability of modern health care facilities they preferred to avail the same. All the results were found to be statistically highly significant.

Concluding Remarks:

Though health and treatment among the tribals are highly dependent on environment and ecology prevalent in the region, income level of a family largely affects the health seeking behaviour of the tribals in general and the Monpa in particular. It may be concluded that, their economic status must be improved in order to improve the health situation of tribals. Moreover, well being in terms of income is only not sufficient as social justice is also important for well being (Sen, 1980, 1999)[5,6], but access and availability of health care among these socially marginalized groups is also important. Hence, income plays a major role in health seeking behaviour and accessibility of health services along

with trajectory for social justice in health care of this marginalized group in Tawang area. This can be done by patenting the traditional knowledge of medicine and seeking help from horticulture, sericulture and agriculture departments along with banks to develop their land, so that they can have perennial source of income.

Note:

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Back Cover : Kondh Tribe, Kachapaju, Odisha

