

Original Research Article

Sociodemographic status and health profile of scheduled tribes in West Tripura and Sepahijala district of Tripura, India: an observational study

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ABSTRACT

Background: The scheduled tribe (ST) population of Tripura constitutes 31.76% of the total population of the state and is one of the most vulnerable groups in India. Despite various kinds of policies and programmes, they remain the most excluded and live in miserable conditions due to various factors such as geographical isolation, poor healthcare delivery systems, beliefs, and customs. The main aim of this study was to determine the socioeconomic status, living conditions, educational status, dietetic habits, lifestyles, prevalence of non-communicable diseases and other information of the scheduled tribe (ST) population.

Methods: The study was conducted in the four ST populated villages of west Tripura and Sepahijala district of Tripura from April 2020 to March 2021. Essential information was collected through door-to-door visits using a structured close-ended questionnaire format.

Results: A total of 1,299 households were surveyed, covering 7,014 individuals, including 2,639 males, 2,584 females, and 1,791 children. The survey revealed that 73.52% of the houses were Kutcha (temporary or semi-permanent structures). A significant proportion, 77.37% of households, relied on hand pumps as their primary source of drinking water. Open drainage systems were present in most households, while toilet facilities were available in the majority. Additionally, 38.74% of the population reported alcohol consumption.

Conclusions: Survey data indicates the need for improvements in basic infrastructure, sanitation, and access to safe drinking water, along with focused public health interventions to address the high rate of alcohol consumption within the surveyed population.

Keywords: Demographic profile, Health problems, Scheduled tribe population, Survey, Tripura

INTRODUCTION

India, one of the biggest low-middle income country has 8.6% of the tribal population.^{1,2} Indigenous people have always been marginalized and oppressed by society, which has a direct and indirect impact on their health and life expectancy.³ They typically self-identify as indigenous or tribal, reside in territories, and uphold unique social, economic, and political structures inside their borders.⁴ Out of 427 tribal communities in India,

more than 130 major tribal communities live in north east India.⁵

Tripura, the third smallest state in Northeast India, is inhabited by about 36,73,917 people with a population density of 350/km², of whom 11,66,813 belong to the tribal community as reported in the 2011 census. Among these, the largest tribal group is the Kokborok-speaking tribe of the Tripuri, representing 54.7% of the scheduled tribe population of the state followed by the Reang

(16.6% of the tribal population) and the rest being Jamatia, Chakma, Halam, Mog, Munda, Kuki, Gar, Naotia, Uchoi, etc.⁶ The word tribe is described as a distinct social group based on social and developmental conditions. According to the anthropology dictionary, “a tribe is a social group, usually with a definite area, dialect, cultural homogeneity and unifying social organization”.⁷ Most of the tribal population is in a condition of absolute poverty with inadequate access to basic and minimal services, particularly health services. It is revealed that the general health condition and indicators of health among the tribal population are very low compared to the non-tribal population. Therefore, the status of the health among the tribal populations is in need of great concern and care.⁸ The poor health status is furthermore complicated by the low level of awareness, religious and cultural beliefs, inaccessible areas of dwelling, and financial constraints. The health status of a community depends on open access to adequate food, nutrition, portages worth, and good sanitation facilities.⁹ Published studies on the health-related demography of the scheduled tribe (ST) population in selected areas of west Tripura and the Sepahijala district of Tripura are currently insufficient. While some aspects of these populations are covered in census data and district health survey reports, these sources lack comprehensive details. Considering these gaps, the Central Council for Research in Ayurvedic Sciences (CCRAS) has designed a cross-sectional study. The objective of this study was to collect detailed data on health status, living conditions, dietary habits, socioeconomic conditions, prevalence of non-communicable diseases, and other relevant information about the tribal population.

METHODS

Study design

This was an observational, cross-sectional survey study.

Study settings

For the purpose of this survey study, two villages in the West Tripura district, namely Barjala Binapani and Champabari, and two villages in the Sepahijala district, Rangmala and Sutarmura, were selected (Figure 1). These villages predominantly comprised scheduled tribe (ST) populations. They were specifically chosen due to their proximity and ease of access from the Regional Ayurveda Research Centre in Agartala. The study was conducted between April 2020 to March 2021.

Participants

In the study, a total of 7,014 individuals from scheduled tribe (ST) members were surveyed. The areas covered included Barjala Binapani and Kaiyachandbari in the West Tripura district, as well as Rangmala and Sutarmura in the Sepahijala district. The inclusion criteria for participants required that they be members of the

scheduled tribe population residing in the specified villages or areas and be willing to participate in the health survey. Conversely, individuals who did not belong to the ST community were excluded from the study.

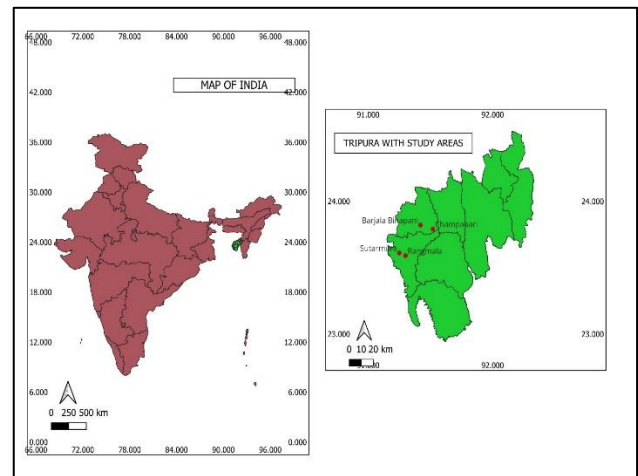


Figure 1: Map of India, Tripura and west Tripura and Sepahijala district showing the surveyed areas.

Study procedure

Before the survey began, the block development officer (BDO), Sarpanch/Gram Panchayat members, and other local authorities in the selected areas were briefed on the project's objectives, benefits, and implementation methods. The survey was conducted with the approval of the village authorities.

A dedicated team visited the selected areas according to a pre-arranged schedule, which was based on the population size of each area. The survey methodology involved door-to-door visits to every household, using a systematic approach. A closed-ended questionnaire was employed to collect demographic data from each household member.

Oral informed consent was obtained from all participants before their inclusion in the study. Hemoglobin levels, blood sugar levels, and blood pressure measurements were conducted only for those who agreed to them. Blood pressure was measured using a sphygmomanometer, while an automatic glucometer was used for capillary random blood sugar levels. Capillary hemoglobin levels were recorded with an automatic hemoglobinometer. Project staff received training and were monitored to ensure the accuracy and quality of all measurements.

Study tools

A structured questionnaire was employed to collect detailed information from participants. This tool featured a consistent set of both closed-ended and open-ended questions, which ensured uniformity in responses and simplified the process of data analysis.

Variables

The study involved collecting various key variables. Village/area information involved collecting specific details about each surveyed village or area. Household information included characteristics such as the type of houses, ventilation, source of drinking water, water purification methods, toilet facilities, practices for preventing vector-borne diseases, drainage systems, and the type of fuel used for cooking. General and health-related information gathered individual details such as name, age, sex, marital status, education level, dietary habits, addictions, and preferences for using Ayurveda for health issues. Additionally, health-related data included information on non-communicable diseases, school attendance, and any recurring common childhood infections, such as respiratory, gastrointestinal, and dermatological conditions in children under 12 years of age.

Bias

To address the potential risk of nonresponse bias, which can occur when certain individuals do not participate and skew the results, rapport-building techniques were used to build trust and positive relationships with participants. This approach encouraged their engagement and helped ensure accurate data collection. Selection bias was avoided by verifying participants' caste through ration cards issued by the State Government of Tripura.

Sampling method

Convenience sampling was employed for the data collection method.

Sample size

The CCRAS-led research-oriented public health programme, carried out in areas with a dominating population of scheduled tribes (ST), is dedicated to providing direct healthcare services to the community and enhancing awareness about health, nutrition, and hygiene. As part of this initiative, a survey was conducted involving 7,014 individuals to evaluate sociodemographic factors related to health.

Statistical method

Descriptive statistical methods were used in a cross-sectional observational study.

Data analysis

As it was an observational study, the data were analyzed using basic statistical tools, such as averages and percentages.

RESULTS

The study gathered socio-demographic information from a total of 7,014 individuals belonging to the scheduled tribe (ST) population, consisting of 2639 males, 2584 females, and 1791 children (Figure 2).

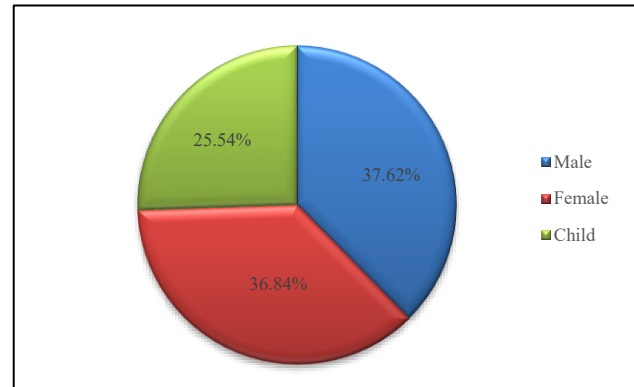


Figure 2: Distribution of population surveyed (n=7014).

Descriptive data

A door-to-door survey of 1,299 houses was conducted to assess basic household facilities. The results showed that 73.52% of the houses were of the Kuccha type, constructed with mud and straw, followed by 22.25% of houses of the Pucca type, and all of these had adequate ventilation. All houses had open drainage systems. In terms of water supply, 77.37% of households relied on hand pumps for drinking water, with 92.68% using simple filters for water purification. Nearly all surveyed houses had toilet facilities located outside. 99.69% of the population employed normal nets as a preventive measure against vector-borne diseases. For cooking, 56.12% of the households used LPG, followed by 43.88% used wood coal or cow dung cake (Table 1).

Demographic status of ST adult population

Among the total surveyed adult population of 5,223 individuals, 37.97% of the males and 37.62% of females were married (Figure 3). Among the total adult population surveyed, the illiteracy rate was 2.70% for males and 3.08% for females. In terms of education, 15.28% of men and 14.19% of women completed high school (Figure 4). Within the surveyed population, moderate physical activity was found in 43.04% of males and 41.58% of females (Figure 5). More than 97% of the surveyed population followed a non-vegetarian diet (Figure 6). Alcohol consumption was prevalent, reported by 38.34% of individuals, followed by gutakha/pan masala use was observed in 20.33% (Figure 7).

Table 1: Status of basic house facilities in the village (n=1299).

Variable	N	%
Type of house		
RCC	55	4.23
Kuccha	955	73.52
Pukka	289	22.25
Ventilation		
Adequate	1293	99.53
Non-adequate	6	0.46
Drinking water source		
Tap	148	11.39
Well/pond	96	7.39
Hand pump	1005	77.37
River /streams/spring etc.	50	3.85
Drinking water purification		
Not purified	86	6.62
Boiled	9	0.69
Simple filter	1204	92.69
Toilet facilities		
Inside house	26	2
Outside house	1271	97.84
Open field	2	0.15
Vector born disease prevention		
Normal Net	1295	99.69
None	4	0.31
Drainage facility		
Open/surface drainage	1299	100
Fuel for cooking		
LPG	729	56.12
Wood coal/ cow dung cake	570	43.88

Table 2: Prevalence of non-communicable diseases.

Non-communicable diseases	Male		Female		Total	
	N	%	N	%	N	%
HTN/CVD	30	0.57	20	0.38	50	0.96
Diabetes	30	0.57	24	0.46	54	1.03
Cancer	4	0.08	1	0.02	5	0.1
Stroke	0	0	1	0.02	1	0.02
COPD/asthma	0	0	4	0.08	4	0.08
Osteo-arthritis	11	0.21	19	0.36	30	0.57
None	2558	48.98	2521	48.27	5079	97.24

Table 3: School-going status and recurrent infection status of surveyed children below 12 years (n=1791).

Variables	0-10 years	11-17 years	Total	
School-going status			N	%
Yes	613	757	1370	76.49
No	408	13	421	23.51
Recurrent infection (for RTI and GI more than three episodes in the last six months), For skin infection-any infective lesion in the last six months				
Respiratory tract infections	07	16	23	1.28
Gastrointestinal tract infections	16	13	19	1.62
Skin infections	02	09	11	0.61

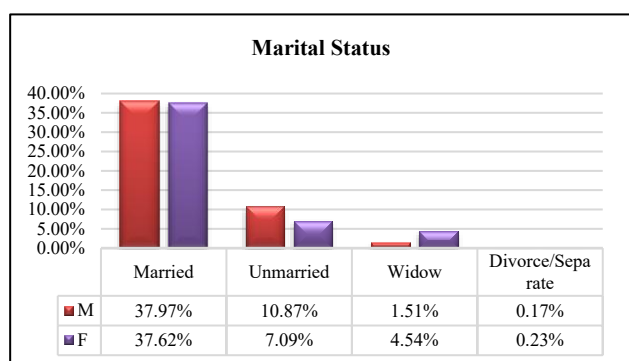


Figure 3: Marital status of ST adult population.

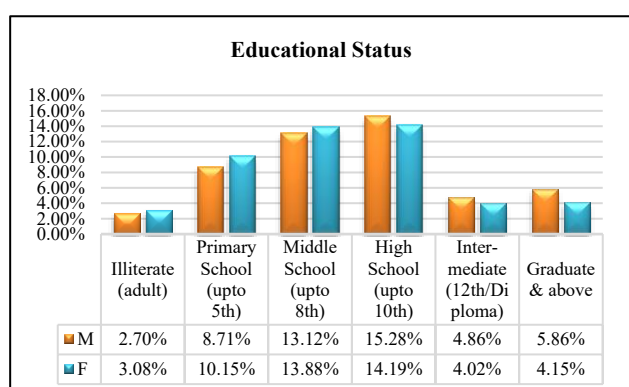


Figure 4: Educational status of ST adult population.

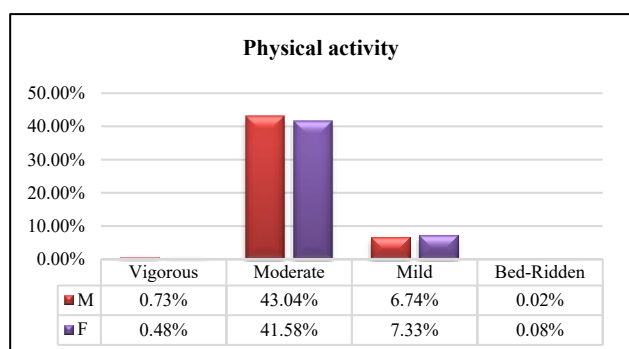


Figure 5: Physical activity status of ST adult population.

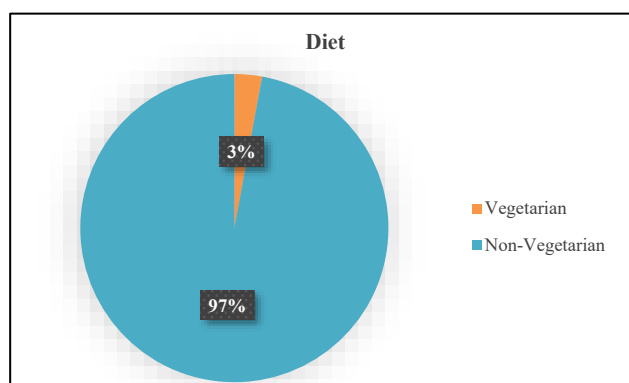


Figure 6: Diet pattern of ST adult population.

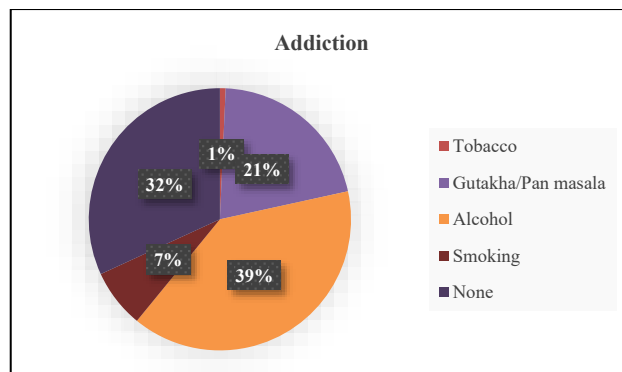


Figure 7: Addiction status of ST adult population.

Health status data indicated that 48.98% of males and 48.27% of females reported no non-communicable diseases (Table 2). Among children under 12 years of age, 76.5% were enrolled in formal education, while 23.5% were not attending school. Regarding health indicators, 1.62% of children suffered from gastrointestinal tract infections, 1.28% had respiratory tract infections, and 0.61% suffered from skin infections (Table 3).

DISCUSSION

Health is not just about the body; it is a social concern impacting society and nations. It is recognized globally as a fundamental human right for everyone, irrespective of race, religion, political, economic, or social condition. A healthy society contributes more to national growth as compared to a society that is not in a good state of health. Various factors are responsible for describing a society as good health.¹⁰ Environmental factors and demographic profiles play a crucial role in the overall health of individuals within a country. Survey studies can bring information on the health influencing demography-related factors and thus have their unique way of contributing to adopting preventive strategies. The majority of surveyed households had Kutcha houses, made up of as made up of as unburnt bricks, bamboo, mud, grass, reeds, thatch, loosely packed stones, etc.

The majority 77.37% of the population, relies on hand pumps for their drinking water needs. Good quality drinking water is necessary for the sustainability of human health and the whole ecosystem.¹¹ In many countries, like India, about 80-90% of diseases have been directly associated with the use of unsafe drinking water.^{12,13} The health and socioeconomic development of a community, to a major extent, depends on the availability, quality and management of its water resources.¹⁴ In India, the predominant source of drinking water is now groundwater, often naturally purified as it passes through soils and sediments. However, industrialization and urbanization, driven by a growing population, contribute to the degradation of natural groundwater quality. Both natural and human-induced factors pose serious threats. This reliance on hand pumps

underscores the need for improved water management and infrastructure to ensure safe and reliable access to drinking water. Addressing these issues is crucial for enhancing public health and supporting community development. In terms of vector-borne disease prevention, an overwhelming 99.69% of respondents use normal nets, reflecting a prevalent reliance on this traditional method. Malaria is a major public health problem in Tripura and focal disease outbreaks are of frequent occurrence.¹⁵

In this study, among the total surveyed adult population of 5,223 individuals, it was found that 37.97% of males and 37.62% of females were married. The similarity in the proportion of married individuals between males and females suggests a balanced marital status distribution in the population. This balance could reflect social norms where marriage is an equally common milestone for both genders within the community. The percentage of married individuals may also provide insights into the cultural and socio-economic conditions prevalent in the region. The literacy rate in Tripura has seen an upward trend, 87.22% as per the 2011 census. Of that, male literacy stands at 91.53%, while female literacy is at 82.73%.¹⁶ The surveyed data on the educational status of both adults and children indicates a satisfactory level of education compared to Tripura's overall literacy rate. The prevalence of alcohol consumption and smoking are high among scheduled tribes (STs) of India, a socio-economically backward population group with distinct social, cultural, historical, and geographical backgrounds.¹⁷

A high level of substance use in north-east India may be linked to the consumption of rice-based alcoholic drinks during religious and social functions and a consequent lack of social inhibitions towards substance use.¹⁸ The high prevalence of alcohol consumption, reported by 38.34% of individuals, underscores the widespread nature of this behavior within the studied population. Excessive alcohol intake can have far-reaching consequences, ranging from individual health risks, such as liver diseases and mental health issues, to societal challenges, including accidents, violence, and family disruption. A total of 5079 individuals were interviewed, and the prevalence of non-communicable diseases was very low. This low prevalence can likely be attributed to two key factors. Firstly, there may be a general lack of awareness about non-communicable diseases within the tribal population. Limited access to healthcare services, health education, and regular screenings can contribute to underreporting or undiagnosed cases of conditions like hypertension and diabetes in these communities. Secondly, the traditional lifestyle of tribal populations, including diets rich in natural and minimally processed foods, may help maintain strong immunity and lower the incidence of lifestyle-related diseases. However, it is important to note that these figures may not fully represent the actual burden of non-communicable diseases in this population. The low prevalence might

reflect undiagnosed cases due to inadequate healthcare access or health-seeking behavior.

The survey was conducted in a limited geographical area, which may not fully represent the broader population's health status or living conditions. Additionally, the lack of detailed environmental and water quality assessments limits the ability to directly link health outcomes to specific infrastructure deficiencies. Finally, the study did not account for seasonal variations that might affect water availability, disease prevalence, or socioeconomic conditions.

CONCLUSION

In conclusion, the surveyed population reflects significant challenges in housing, sanitation, water access, and public health infrastructure. The reliance on hand pumps for drinking water, the low availability of drainage facilities, and high rates of alcohol consumption and substance use, particularly among tribal groups, highlight areas needing urgent attention. While the low prevalence of NCDs in this tribal population may reflect limited awareness and healthcare access, highlighting the need for comprehensive screenings and awareness programs to better assess the true burden of these diseases. Addressing these issues is essential to improving health outcomes and fostering sustainable community development.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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