

Prevalence of Alcohol use Among Tribal Population Based on Self-Reported Data: A Hospital-based Pilot Study from West Bengal

Jayanti Ray*, Kunal Som**, Rudrajit Paul***, Dipanjan Bandyopadhyay****

Introduction

Alcohol use is a major public health issue in India. However, in a complex nation like India, the pattern of alcohol consumption is not homogeneous¹. There are states like Gujarat and Bihar with complete prohibition on alcohol use; then again there are other regions where alcohol consumption in adults is to the tune of 75%¹. Hence, a single survey or study on alcohol use in India will never reflect the diversity in alcohol use in different regions and communities.

The first representative survey on alcohol use in India was done in 2004 jointly by the United Nations office of Drugs and Crime and the India Government, Ministry of Social Justice and Empowerment. In this, it was shown that 21% of adult males were current alcohol users, while < 5% of adult females used alcohol¹. However, data from local studies in different regions of India have been conflicting. A study from Rajasthan in a rural community found that 36% of males and 13% of females consumed alcohol². Another study revealed that out of street children (5 - 15 years) in Jaipur, Rajasthan 34% consumed alcohol³. Thus, for public health planning, the pattern of alcohol use in different sections of the society, stratified according to age, gender, religion, socio-economic level and culture must be documented separately.

Significantly higher use of alcohol has been reported from rural, tribal and disadvantaged communities of India¹. A study from Madhya Pradesh found that alcohol consumption among tribal subjects was 29.3%, which was more than double of the comparator non-tribal group⁴. A rural survey by the National Nutrition Monitoring Bureau found that 28.4% of rural men and 3.5% of rural women consumed alcohol⁵. A recent (2017) study among tribal population in Arunachal Pradesh found that 49% of males and 28% of adult females of some tribes consumed alcohol regularly⁶. Alcohol use varied with age and ethnicity.

Thus, alcohol use is a significant health issue in some tribal communities of India. Tribals and ethnic minorities are often disadvantaged in terms of health access and knowledge.

Alcohol use further reinforces this inequality and leads to poverty. Thus, addressing the problem of alcohol abuse should be a public health priority in India, more so for the tribal population.

The United Nations has set out sustainable development goals, of which the 3rd one is good health and well-being. Among the specific targets of this goal, there is the prevention of harmful substances like alcohol and reducing the death and injuries from road traffic accidents (often caused by alcohol)⁷. A 2014 WHO report on alcohol use in India has shown that the per capita alcohol consumption among adults increased by 37% between 2005 and 2010⁸. Also, among road traffic accidents in males, the alcohol attributable fraction was 33%⁸. The recent (2018) WHO report has painted an even grimmer picture, with the prevalence of alcohol use disorders in men almost double that of the 2014 report⁹. Also, the per capita alcohol consumption among adult females has increased by 30%⁹. Thus, from the trend of data, it can be said that alcohol use is fast becoming a great public health problem and policies for sustainable solutions are long overdue.

To attain such sustainable health goals, especially for marginalised communities like tribals, control of alcohol use is an essential component. However, for tackling the alcohol problem, first local data on the alcohol use patterns of the communities is needed. While there are some local studies from other parts of India, there is a significant literature gap from West Bengal.

In this survey, we aimed to find the prevalence of alcohol use in tribal subjects in a sample population of West Bengal. The level of alcohol dependence was also assessed by AUDIT scoring.

Patients and methods

This cross-sectional observational study was done in a remote rural hospital of West Bengal for two months between June-August 2018. The hospital is situated in a district (West Midnapore) with a sizeable tribal population according to the 2011 census. Adult persons belonging to

*Assistant Professor, Department of Medicine, Medical College, Kolkata, **Specialist Medical Officer, Salboni Rural Hospital, ***Associate Professor, Department of Medicine, Midnapore Medical College, Paschim Medinipur - 721 101, West Bengal, ****Professor and HOD, Department of Medicine, North Bengal Medical College.

Corresponding Author: Dr Rudrajit Paul, Associate Professor, Department of Medicine, Midnapore Medical College, Paschim Medinipur - 721 101. Tel: 9433824341, E-mail: r.paul.medicalcollege@gmail.com.

the tribal and ethnic minority community, who attended the Medicine OPD of the hospital, were the pool from which study subjects were selected. The selection process is shown in Fig. 1. All adult persons (≥ 18 years) of tribal ethnicity were potential study participants. Subjects were enquired about government issued "scheduled tribe" certificates. Only those who possessed the valid certificates were included in the study. Anyone with communication difficulty and anyone associated with the alcohol industry in any way (shop owner/worker/brewer, etc.) were excluded from the study.

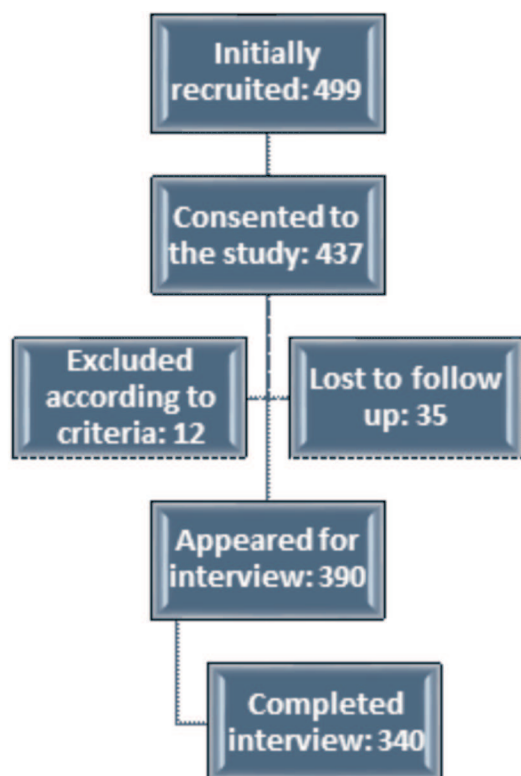


Fig. 1: The selection process of study participants.

The questionnaire used for the survey was prepared and validated in Bengali language. The first part of the questionnaire recorded the age and gender; it also assessed whether the subject was an alcohol consumer and if yes, the age of initiation. Alcohol use at least once in the past one month was considered a "yes" response. Lifetime use of alcohol was not assessed. The second part of the questionnaire was adapted from the AUDIT score, as developed by the WHO¹⁰. The "interview version" of the AUDIT test was used¹⁰. The questionnaire was translated into Bengali language by one person and retranslated back into English by a different researcher to ascertain its validity. The final score has been used to classify subjects into four zones (see Table below) based on the risk level. Higher the score, higher the risk level zone.

Table showing the four zones according to AUDIT score (as per WHO AUDIT manual¹⁰).

Zone	Score
I	0 - 7
II	8 - 15
III	16 - 19
IV	≥ 20

Sample size calculation

In a recent survey from Madhya Pradesh, India by Kumar *et al* (2017), the prevalence of alcohol consumption among a tribal community was found to be 29.3%⁴. Taking this study as reference, for 95% confidence interval, the sample size is calculated to be 319. Considering a 5% margin of error, the final target sample size was 335.

Full ethics permission was taken from the academic institute of the lead investigator. However, before commencement of the survey, permission was also taken from the local health administrator, the block medical officer of health (BMOH). Each potential study participant was explained about the process in a language which he/she was familiar with. Those who gave written informed consent were included.

The interview was conducted by the same person for all participants. Subjects were interviewed in a confidential setting. The questionnaire was read out to each participant and responses were marked. In the end, a recap of the responses were read out to the participant for verification. Most participants were conversant with Bengali language and majority of interviews were conducted in that language only. For those who had language barrier, an interpreter (an unrelated volunteer speaking the same language) was used.

The data from patient response sheets was entered into Microsoft Excel worksheet. Data entry was done by one author and cross-checked by another. The data was checked for normalcy and then, suitable descriptive and inferential statistical tests were done. $P < 0.05$ was considered significant.

Results

We had a total of 340 subjects in our study with male:female ratio of 233: 107. Average age of the subjects was 41.4 ± 9 years with age range of 19 - 62 years. Among the study participants, 153 (45%) were of Mahato tribe. The rest belonged to different clans of Santal tribe. Alcohol use was reported by 246 (72.4%; 95% CI: 67.3 - 77%) subjects. Among males ($n = 233$), alcohol use was reported by 196 (84.1%; 95% CI: 78.8 - 88.6%) subjects, while among

females, this number was 46.7% ($p < 0.001$). Average age of initiation of alcohol was 23.4 ± 4.1 years for male and 25.2 ± 5.1 year for female subjects ($p = 0.01$ by student's-T test). Thus, females started alcohol consumption at a later age than males. Altogether, out of 246 alcohol users, 61 (24.8%; 95% CI: 19.5 - 30.7%) had initiation of alcohol use at or below 20 years of age (85.2% of them male).

AUDIT scores were also calculated for the subjects who consumed alcohol. As seen in Fig. 2, out of 246 subjects who consumed alcohol, 90 (36.6%) had AUDIT scores in zone I and 111 (45.1%) had scores in zone II.

Table I shows the pattern of alcohol consumption in different age-bands. It is seen that alcohol consumption was the highest (77.5%) in the below-30 year age band and lowest in the 31 - 40 year age group. Also, 17 subjects (21.8%) in the 41 - 50 year age band were in zones III or IV according to AUDIT score, which is higher than the study average (18.3%). Fig. 3 shows the AUDIT scoring according to gender. It is seen that out of male subjects who consumed alcohol ($n = 196$), 59 (30.1%) were in zone I and 96 (49%) were in zone II. In the female subjects, out of the alcohol consumers ($n = 50$), 62% were in zone I and 30% were in zone II. Thus, more male subjects (20.9%) were in zones III or IV compared to females (8%) ($p = 0.03$ by Chi square test).

Table I: Table showing the frequency of alcohol consumption and AUDIT scores in different age groups.

Age group (years)	Number of subjects	Percentage consuming alcohol	AUDIT scores			
			Zone I	Zone II	Zone III	Zone IV
≤30	49	77.5	18	14	5	1
31-40	121	68.6	21	48	12	2
41-50	104	75	30	31	7	10
>50	66	71.2	21	18	4	4

By logistic regression analysis, it was seen that male gender had higher risk of alcohol use (OR = 6.33; 95% CI: 3.73 - 10.73 compared to females).

Discussion

In this study involving tribal subjects, it was seen that more than 70% of the participants had consumed alcohol in the last month. Alcohol use was significantly more common among males compared to females. One in four alcohol users had started drinking before the age of 20 years. Below-30 years age group had the highest rate of alcohol use. One in five male subjects were in zones III or IV of AUDIT score,

which indicates high alcohol dependence.

Thus, alcohol use was quite significant in the sample population of tribal persons in the present study. In the study from Madhya Pradesh, which has been mentioned in the introduction section, alcohol consumption in tribal subjects was found to be higher than non-tribal controls⁴. Also, trend of AUDIT scores in tribal sub-group was higher than non-tribal group. Around 5% of the tribal alcohol users scored in zones III or IV (high alcohol dependence)⁴. In the present study, a much higher number, 18.3% of the subjects were in zones III or IV (Fig. 2). This may be related to the alcohol drinking culture of that particular community or since this is a hospital-based study, more people with severe alcohol drinking problems may be coming to the hospital. A community perspective study (qualitative) was done from Vellore, Tamil Nadu on alcohol use behaviour of a particular tribe¹¹. High prevalence of alcohol use was linked to acceptability of alcohol in the tribal culture, its link with important religious and social rituals and its link with a "manly" personal image¹¹. Also some forms of alcohol are brewed at home and considered part of the tribal family culture¹¹. However, in other tribes, this culture may vary.

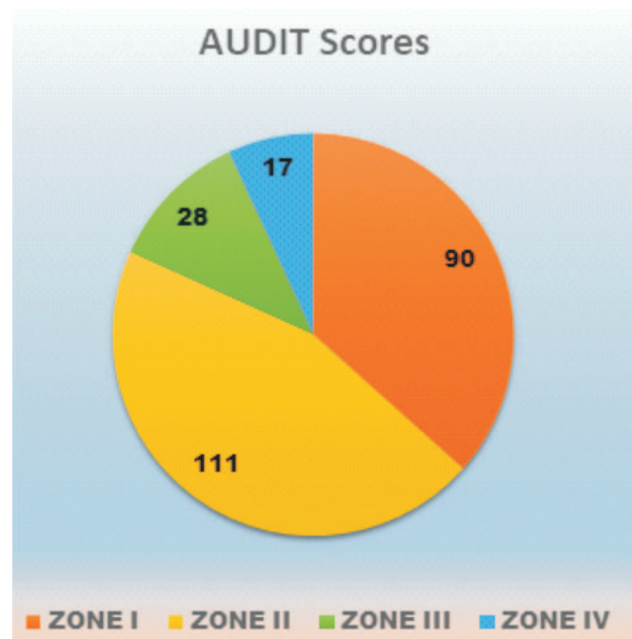


Fig. 2: Pie diagram showing the AUDIT score zones of the subjects ($n = 246$).

In the abovementioned study from Vellore, in that particular tribe (Malayali), women were not allowed to drink alcohol socially. But by no means is this a universal attitude among Indian tribes. By contrast, a study from Arunachal Pradesh showed high level of alcohol consumption by females belonging to some tribal groups⁶. In our study too, the consumption of alcohol by women

was quite high. A similar recent (2015) study done in Jhargram among the Lodha tribes found that 83% of men and 48% of women consumed alcohol¹². Our study was done with Mahato and Santal subjects. But the level of alcohol use (overall and by gender) was similar. In the Jhargram study, it was seen that women started drinking alcohol at a later age than men, which is similar to our conclusion. The Lodha tribe mainly consumed locally brewed alcohol like Handia and Mahul¹².

The fourth round of district level household survey in North-east India (2012 - 13) showed that alcohol use was quite high among tribal people: between 50 - 60% for males and between 10 - 20% for females (of young adult age)¹³. In the present study also, highest level of alcohol use was found in the below-30 years age group. This high level of alcohol use among young adults is not only restricted to the tribal communities. This is a pan-India trend¹⁴. As already mentioned the number of people with alcohol use disorders has doubled over the last four years in India⁹. Younger age of onset of alcohol use is one of the reasons for this devastating problem. Also, younger age of alcohol consumption means disruption of work and learning and thus, lost economic opportunity for the society as a whole. For tribals, who are already in an economically disadvantaged position, alcohol aggravates poverty¹⁴. Thus, alcohol use is not only a health issue but also a socio-economic concern.

In the present study, it was seen that more than 18% of the subjects were in zones III or IV or AUDIT scoring, which means high level of alcohol dependence. This percentage was even more for males. A similar study from rural Tamil Nadu by Ganesh Kumar *et al* found that 14.6% of the subjects were in zones III and IV¹⁵. Another study from North India depicted that 48.5% of the study participants had AUDIT score of 8, which is considered a cut-off for detecting alcohol dependence¹⁶. Thus, different studies, including the present one have shown that a large number of alcohol users in India have significant levels of dependence and this is an

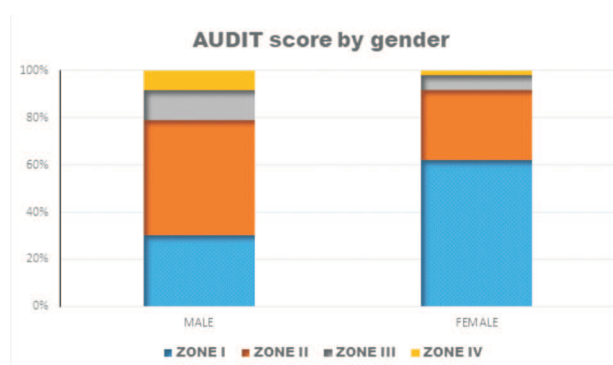


Fig. 3: Stacked bar diagram showing AUDIT scores according to gender.

important medical issue¹⁴. The health system of the country, especially the health facilities catering to tribal and ethnic minority population, needs to be ready to respond to these challenges¹⁴.

The AUDIT scoring system is a well-validated tool for detecting alcohol use disorder, both in the daily clinical setting and research setting¹⁵. This has been used in many Indian studies and the results have been corroborative. Thus, clinicians should be aware of this easy-to-use tool.

This study has many strengths like documentation of the prevalence of alcohol use and pattern of alcohol dependence in both genders in a tribal population. This fills a much neglected literature void to some extent. However, there are a few limitations too.

Limitations

This is a hospital based study and thus, the data may not be representative of the community. Other factors related to alcohol use like socio-economic status and educational level have not been studied in this survey. Also, the types of alcohol consumed by the subjects was not recorded. Studies from other parts of India have shown that tribal people mainly consume home-made alcohol. In such cases, alcohol control measures like putting restrictions on industrial production and marketing will not work and community participation will be essential for alcohol control. However, as mentioned in the title, this is a pilot study and further larger studies are planned.

Conclusion

Alcohol use is quite high among the Mahato and Santal tribes of West Bengal, especially among the males. A significant number also showed high levels of alcohol dependence. The health system, both government and private, needs to respond to this emerging problem with suitable preventive and curative measures. Also, the alcohol use problem should be seen as a part of the wider socio-economic marginalisation of these communities.

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