

Hazardous use of alcohol among men in the tribal population of Jawadhi Hills, Tamil Nadu: Nature, prevalence, and risk factors

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ABSTRACT

Background: Worldwide, hazardous use of alcohol is common among many cultures and societies and adversely impacts families and communities, with significant morbidity and mortality. Scheduled Tribes (STs) who are socially deprived and marginalised have higher rates of alcohol use. **Aim:** We attempted to determine the nature, prevalence, and risk factors associated with hazardous consumption of alcohol in the tribal community. **Methodology:** A cross-sectional study was conducted among adult male and permanent residents of Jawadhi hills. A total of 1200 men were interviewed. Study participants were chosen by Probability Proportionate to Size (PPS) sampling method. The questionnaire that documented socio-demographic characteristics and patterns of alcohol use was used. AUDIT tool was used to assess the hazardous use of Alcohol. Data were analysed using SPSS. **Results:** Majority of the men were middle-aged, married, and were from lower socio-economic strata. A large proportion of men (65%) had a history of alcohol consumption in the last one year using one-year, of whom a quarter showed hazardous use (29%) and another quarter exhibited alcohol dependency (24%). Tobacco use, higher income and local alcohol production were found to be significant risk factors for Hazardous alcohol use. **Conclusion:** Alcohol consumption needs to be treated as a social problem and has to be tackled at the policy level. Population-based interventions, legislation, taxation, policies regarding the manufacture and sale of alcohol, are some of the ways to address this problem.

Keywords: Alcohol, AUDIT, hazardous, tribal

Introduction

Worldwide, hazardous use of alcohol is common amid many cultures and societies and adversely impacts families and communities, with significant morbidity and mortality.^[1] About a third of the Indian population consumes alcohol regularly,

with a tenth being classified as moderate to heavy drinkers, this being associated with a significant negative impact on marital life, education, employment and income.^[2] Socially deprived and marginalized groups such as the Scheduled Tribes (STs) have higher rates of alcohol use.^[3,4]

There is a lack of systematic studies that have assessed the impact of hazardous alcohol use among tribal populations in India. We attempted to determine the nature, prevalence, and risk factors associated with hazardous consumption of alcohol in the tribal community living in Jawadhi Hills, Tamil Nadu.

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Methods

Setting

Jawadhi Hills, located in Vellore and Thiruvannamalai Districts of northern Tamil Nadu, are an extension of the Eastern Ghats. They are about 80 km wide and 20 km long and 1100–1150 meters above sea level. It covers approximately 2405 sq.km. between 12 and 13-degree latitude and 78.6 to 79-degree longitude in Northern Tamil Nadu. The hills are sparsely populated with a population density of 21 persons per kilometre square, with the majority being inhabited by tribes called '*Malayalis*'. Traditionally, people live on forest produce and subsistence farming on small land holdings. A major section of the population migrate seasonally to the plains for work due to lack of regular employment at the hills. The Department of Community Health (CHAD), at Christian Medical College, Vellore, has been working closely with the tribal communities in 7 of the 11 panchayats of the hills for the past 15 years; the villages in these panchayats formed the base population for our study.

Sampling and participants

Sixty hamlets with each hamlet serving as a cluster, were chosen by Probability Proportionate to Size (PPS) sampling, and 20 men from each hamlet were selected by simple random sampling. Adult, male, permanent residents of Jawadhi hills, classified as *Malayali* tribe were eligible to participate in the study. A total of 1200 men were interviewed. The details of the study were explained to the village headman to obtain verbal consent as per the tradition and a written informed consent obtained from each participant.

Data collection

A questionnaire that documented socio-demographic characteristics and elicited details and patterns of alcohol use; associated medical complications and other substance abuse was used. This was a pilot-tested, semi-structured, and back-translated questionnaire. The questionnaire was used in conjunction with the standard 10-item Alcohol Disorder Identification Test (AUDIT).^[9] Data were collected by field workers who were trained to use the questionnaire as well as the AUDIT tool.

Statistical analysis

Mean and standard deviation (SD) were used to describe continuous variables, while frequency and percentages were calculated for categorical data. The Chi-square test was used to assess the statistical significance of categorical variables. Significant variables from bivariate analysis were incorporated into the binary logistic regression model. A *P* value <0.05 was considered significant. Data were analyzed using Statistical Package for the Social Sciences (SPSS Inc., Version 17.0).

Ethical clearance

This study was approved by the Institutional Review Board (IRB) of the Christian Medical College. (IRB Min No: 9862, dated

Table 1: Socio-demographic characteristic of the sample

Characteristic	Mean (SD)	No (%)
Participant characteristics		
Age (years)	37.56 (10.92)	
Married		1107 (97.3)
Education		
Nil		778 (65.1)
Primary, secondary		262 (30.2)
Degree		1 (0.1)
Housing		
Puccac House		485 (40.7)
Hut		313 (26.2)
Income (Rs/annum)		
Mean	26950 (15156)	
Median (min- max)	25000 (1000-2,88,000)	
Smoking		536 (45.1)
Alcohol use		
Ever consumed alcohol		792 (66.0)
Consumed alcohol in the last year		783 (65.3)
No alcohol use		406 (33.8)
Less than harmful use (AUDIT <8)		133 (11)
Hazardous use (AUDIT 8-14)		343 (29)
Alcohol dependence (AUDIT >15)		288 (24)
Age at initiation mean (sd)		
15 to 24 years	18.6 (2.1)	
25 to 44 years	22.5 (3.9)	
45 to 59 years	24.9 (6.1)	
60 years and above	29.9 (8.2)	
Use of other substances		119 (10.1)

20.1.2016). The results of the study were shared with the community following the completion of the study.

Results

Majority of the men were middle-aged, married, did not have any formal education and were from lower socio-economic strata. A large proportion of men (65%) had a history of alcohol consumption in the last one year using one-year recall period, consumed alcohol during the last year, of whom a quarter showed hazardous use (29%) and another quarter exhibited alcohol dependency (24%) [Table 1].

Table 2 documents the bivariate and multivariate statistical associations of various risk factors with the hazardous use of alcohol. Education, family history of alcohol use, financial debts, tobacco use, alcohol brewed and being available locally, a relatively higher income and seasonal migration for work were significantly related to hazardous use of alcohol in bivariate analysis. Tobacco use, higher income and local alcohol production remained significant even after adjusting using logistic regression.

Discussion

Hazardous use of alcohol is a most important public health problem in the tribal population of Jawadhi hills, with our study showing that more than half of the adult male population are

Table 2: Risk factors for Hazardous use of alcohol (AUDIT score ≥ 8)

Characteristic		Case AUDIT 8 and above n (%)	Control AUDIT score <7 n (%)	OR (95% CI)		Significance level on adjusted analysis
				Unadjusted	Adjusted ¹	
Education	Up to primary school	538 (85.3)	458 (80.5)	1.40 (1.04-1.90)	1.07 (0.75-1.53)	0.71
	Secondary or higher	93 (14.7)	111 (19.5)			
Family members using alcohol	Yes	89 (14.2)	45 (8.2)	1.86 (1.27-2.72)	1.54 (1.00-2.37)	0.052
	No	539 (85.8)	507 (91.8)			
Annual income (INR)	>25,000	446 (70.7)	350 (61.5)	1.51 (1.19-1.92)	1.72 (1.29-2.30)	<0.0001
	Upto 25,000	185 (29.37)	219 (38.5)			
Debt in the last one year	Present	347 (55)	260 (45.7)	1.45 (1.16-1.82)	1.26 (0.96-1.65)	0.091
	Absent	284 (45)	309 (54.3)			
Tobacco use	Present	427 (67.9)	113 (20.1)	8.4 (6.44-10.95)	8.20 (6.15-10.92)	<0.0001
	Absent	202 (32.1)	449 (79.9)			
Seasonal migration to plains for work	Present	425 (67.6)	274 (48.8)	2.19 (1.73-2.77)	1.15 (0.87-1.52)	0.33
	Absent	204 (32.4)	288 (51.2)			
Alcohol brewed in village	Yes	176 (27.9)	126 (22.2)	1.36 (1.04-1.77)	1.43 (1.05-1.94)	0.024
	No	454 (72.1)	442 (77.8)			

Adjusted¹ for the following variables using logistic regression: education, family history of alcohol use, income, indebtedness, migration, and residing in a village with alcohol brewing

hazardous drinkers or dependent on alcohol. Risk factors such as a family history of drinking and local brewing in the hills put youth and children at risk of becoming dependent users in their adult years.

Drinking alcohol is part of the culture of the tribal people in this area. Studies have shown that almost all tribes in India consume alcohol suggesting that drinking seems to be more socially acceptable among the tribes than among the general population.^[6] Cultural factors like traditional acceptance and social enhancement rather than individual factors are causal factors for the high intake of alcohol among tribal people.^[4] Consuming alcohol to have good time with friends, social pressure, and to recognize oneself as part of a group were quoted as important reasons for alcohol use among young men in this population.

The prevalence of hazardous drinking and dependence documented in this study is much higher than the prevalence in other parts of the state.^[7-9] During the study, field notes recorded the fact that while there were three government-operated Indian Made Foreign Liquor (IMFL) outlets in the hills, many other shops in the villages sell local alcohol. The presence of brewing in the village was a significant risk factor for hazardous drinking, though the presence of a shop selling IMFL through retail outlets operated by the government, was not. This could be due to the fact that local brew is still preferred by the people as it is cheaper and was consumed culturally for generations. Local alcohol is brewed by certain families in the village and used for festivals and specific events, a practice that has been documented across many tribal populations.^[4]

The locally brewed alcohol like beer is relatively consumed in large volumes. Over time, people learned to distil alcohol, making stronger spirits available. Though this caused more frequent intoxication and associated social problems, the culture of drinking for special events was preserved. Such traditional

brewing was banned when the Tamil Nadu Government changed its policy and became the sole retail distributor of alcohol across the state in 1983. Following this, people could buy alcohol if they had money in hand, and social sanctions for its use were diluted.^[10] Previous studies in the area show that ready availability of alcohol in the area and the availability of Indian Made Foreign Liquor (IMFL) in the shops led to increased drinking and changes in patterns of drinking.^[10]

Higher education protected against hazardous use of alcohol. The study findings from other parts of India documented that illiterate men and those with lower education were more likely to be hazardous drinkers.^[8,11] Similar finding was observed in our study but was not significant after adjusting for confounders. However, in this study, higher incomes were found to be associated with hazardous drinking. This is contrary to other studies where income was not associated with hazardous use,^[12] or lower income was associated with hazardous use.^[13] This could be due to the fact that compared to the urban and rural areas, the pattern of earning is different in the tribes. Migration to plains for labour yields relatively large amounts of cash in hand on return back to the hills. This ready cash is recklessly spent to drink as long as it lasts. However, the mean income is low, which is less than Rs. 2250/- per month in this area.

A qualitative study done by the authors in the same population reported that the biggest change in the pattern of drinking is due to the fact that alcohol is now available for sale in the hills. Since 1983, Tamil Nadu has a unique situation where the government is the sole distributor of alcohol in the state with a wide network of sales outlets and administered pricing. This is a major causal factor for increased alcohol consumption as is proved by the increase in the revenue of the state in the past few years.^[8,14] The conflicting roles of the government in protecting the health of the people and promoting sales of liquor to generate revenue pose a big challenge in the area of policymaking. The

government's policies on the restrictions to the sale of alcohol such as limits for sales, policies on the location of shops, etc., are not observed in the tribal region. The other significant factor was the use of tobacco. It is a well-known documented fact that tobacco, such as cigarettes users consumes more alcohol compared to their non-tobacco using peers.^[15]

A countrywide review of the current policies needs to be initiated, with special regard for persons at higher risk of hazardous drinking such as tribals. Alcohol consumption needs to be treated as a social problem and has to be tackled at the policy level. Population-based interventions, regulation, tax policy, guidelines regarding the production and sale of alcohol, policies on domestic violence, road safety, and occupational safety are some of the ways to address this problem.^[8]

The strength of the study included systematic sampling, large sample size, and standardized assessments.

Conclusions

Changes in the culture of drinking have resulted in the age of initiation into alcohol use decreasing, resulting in adverse social impacts. Risk factors such as brewing in the village show that current government policies do not protect these people from access to stronger spirits. New and specific strategies with ways to monitor them are needed to protect youth and children from exposure to drinking. Screening all adults in a primary care setting and consistent health education regarding adverse effects are highly recommended as a preventive intervention in the community.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. WHO | alcohol. WHO. Available from: <http://www.who.int/mediacentre/factsheets/fs349/en/>. [Last accessed on 2019 Oct 06].
2. WHO | Global status report on alcohol and health, 2014. WHO. Available from: http://www.who.int/substance_abuse/publications/global_alcohol_report/en/. [Last accessed on 2019 Oct 16].
3. Mohindra KS, Narayana D, Anushreedha SS, Haddad S. Alcohol use and its consequences in South India: Views from a marginalized tribal population. *Drug Alcohol Depend* 2011;117:70-3.
4. Sreeraj VS, Prasad S, Khess CRJ, Uvais NA. Reasons for substance use: A comparative study of alcohol use in tribals and non-tribals. *Indian J Psychol Med* 2012;34:242-6.
5. Alcohol Use Disorders Identification Test. World Health Organisation. Available from: http://www.who.int/substance_abuse/activities/sbi/en/.
6. Das SK, Balakrishnan V, Vasudevan DM. Alcohol: Its health and social impact in India. *Natl Med J India* 2006;19:94-9.
7. National Family Health Survey (NFHS -3) 2005-06: India: Volume I. International Institute for Population Sciences (IIPS) and Macro International. Mumbai: IIPS; 2007. p. 429-32.
8. John A, Barman A, Bal D, Chandy C, Samuel J, Thokchom M, *et al.* Hazardous alcohol use in rural southern India: Nature, prevalence and risk factors. *Natl Med J India* 2009;22:123-5.
9. Kim S, Rifkin S, John SM, Jacob KS. Nature, prevalence and risk factors of alcohol use in an urban slum of southern India. *Natl Med J India* 2013;26:203-9.
10. Rose A, Minz S, Manohari GP, Thavamani, George K, Arun R, *et al.* Community perspectives on alcohol use among a tribal population in rural southern India. *Natl Med J India* 2015;28:117-21.
11. Gupta PC, Saxena S, Pednekar MS, Maulik PK. Alcohol consumption among middle-aged and elderly men: A community study from western India. *Alcohol Alcohol* 2003;38:327-31.
12. Kumar SG, Premarajan KC, Subitha L, Suguna E, Vinayagamoorthy, Kumar V. Prevalence and pattern of alcohol consumption using alcohol use disorders identification test (AUDIT) in rural Tamil Nadu, India. *J Clin Diagn Res* 2013;7:1637-9.
13. Dutta R, Gnanasekaran S, Suchithra S, Srilalitha V, Sujitha R, Sivaranjani SS, *et al.* A population based study on alcoholism among adult males in a rural area, Tamil Nadu, India. *J Clin Diagn Res* 2014;8:JC01-3.
14. Kaur P, Rao SR, Radhakrishnan E, Ramachandran R, Venkatachalam R, Gupte MD. High prevalence of tobacco use, alcohol use and overweight in a rural population in Tamil Nadu, India. *J Postgrad Med* 2011;57:9-15.
15. Roberts W, Verplaetse T, Peltier MKR, Moore KE, Gueorguieva R, McKee SA. Prospective association of e-cigarette and cigarette use with alcohol use in two waves of the Population Assessment of Tobacco and Health. *Addiction* 2020;115:1571-9.