

Prevalence and determinants of Alcohol use in a remote rural area in South India: A community-based cross-sectional study

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ABSTRACT

Introduction: Alcohol use is a major public health problem in India. We sought to study the use of alcohol and its risk factors in a rural area in South India. **Methods:** This study was conducted in 20 villages surrounding a Rural Health Training Centre, located in South India. The study was done from March 2018 to October 2018 with the help of Medical Interns and Medical Social Workers using a pretested questionnaire. **Results:** In a total population of 14,925, 11,995 individuals are in the age group of 15 years and above, among whom 1,005 were reported to be using alcohol. The prevalence of alcohol among 15 years and above is 8.4% (7.9–8.9) and the overall prevalence in the total population is 7% (6.3–7.1). Prevalence of alcohol use among males and females are 16% and 1%, respectively. The alcohol use is higher among those who prefer open defecation (adjusted Odds Ratio (aOR) 1.2 (1.0–1.4)), Kutcha house (aOR 1.7 (1.4–2.2)) or semi-pucca house (aOR 1.3 (1.1–1.6)), lower caste (Most Backward Castes (MBC) aOR 1.7 (1.2–2.2), Scheduled Castes (SC) aOR 2.1 (1.6–2.9)), male gender (aOR 41 (29–59)), Married 5.0 (3.7–6.8), or Separated 2.6 (1.5–4.4) and Diabetes 1.6 (1.1–2.3). **Conclusion:** Alcohol use in a remote rural area is high among socially deprived communities who live in kutcha and semi-pucca houses and belong to a lower caste. This needs serious public health interventions to improve their socioeconomic status.

Keywords: Alcohol addiction, alcohol use, India, rural

Introduction

Alcohol use is a major public health issue in India. It is the root cause for many non-communicable diseases and behavioral disorders.^[1,2] Alcohol misuse can lead to many major issues like broken family, crimes, accidents, economic instability in the family, and poverty.^[1,3] Different studies from India show different prevalence of alcohol.^[4-7] National Family Health Survey 4 (NFHS 4) shows that the prevalence of alcohol

use among females are 0.3% and among males are 47%. Unfortunately, alcohol use in India is not taken seriously by the government as it is considered to be a major source of income for the state. On the other hand, public health professionals and social activists are seriously recommending the ban of alcohol taking into consideration its wide spread of health hazards, particularly targeting the vulnerable population. Some state governments like Gujarat, Mizoram, Nagaland, and Bihar have already completely banned alcohol in their state and are setting an example for other states.^[8] In this context, with the help our study we intend to study the prevalence and risk factors for alcohol use in a remote rural area in south India, covering 20 villages.

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Methodology

Pondicherry Institute of Medical Sciences has its Rural Health and Training Centre (RHTC) in a remote rural area named Chunampet, located in Chengalpattu District of Tamil Nadu. This centre provides round the clock medical services and actively covers the adjoining 20 villages for community health services. As a routine practice, an annual survey was conducted from March 2018 to October 2018 among these 20 villages with the help of medical interns, Medical Social Workers under the supervision of a Medical Officers, and Faculty from Department of Community Medicine. Data collection was done with the help of a predesigned and pilot tested questionnaire. Data collection training was imparted to the interviewers before data collection and a data collection guide book was used to maintain the quality of data collection. Smoking and alcohol related data was collected among individuals in the age group of 15 and above and hypertension and diabetes data was collected among individuals in the age group of 20 and above. Alcohol use is defined as consumption of alcohol at least once in the past 1 year.

The data was entered in a customized EpiData software version 3.1.^[9] Quality of the data collection was ensured by checking a subset of data in the field. EpiData also has its own quality checks to prevent data entry errors. Data was analyzed using SPSS version 22 and STATA version 14.^[10,11] Ethical clearance for the survey and dissemination of data was obtained from the Institute's ethical committee (Ref No - RC 100/18) 18 September 2019.

Results

In a total population of 14,925, 11,995 individuals are in the age group of 15 years and above, among whom 1,005 were reported to be using alcohol. The prevalence of alcohol among 15 years and above is 8.4% (7.9–8.9) and the overall prevalence in the total population is 7%. Prevalence among males is 16% and among females is 1%. Alcohol and its associated risk factors are shown in Table 1.

Discussion

The main findings in our study were that firstly the prevalence of self-reported alcohol use is 8.4% and is 16% among males and 1% among females. Most of the other studies show a higher prevalence when compared to our study.^[4-7] The prevalence in our study is mainly based on self-reporting but the actual prevalence is usually higher than the self-reported prevalence, and this posed to be one of the limitations of our study.

Secondly, alcohol use is significantly associated with poor socioeconomic status and lower caste. It would be difficult to assess the socioeconomic status in a large sample size survey and more over individuals usually tend to hide their economic status to avail social scheme benefits. In this study if we consider toilet availability and type of house and caste as a surrogate for socioeconomic condition, and the odds for alcohol use is

higher among those who prefer open defecation (adjusted Odds Ratio (aOR) 1.2 (1.0–1.4)), Kutcha house (aOR 1.7 (1.4–2.2)), or semi-pucca house (aOR 1.3 (1.1–1.6)), and lower caste (Most Backward Castes (MBC) aOR 1.7 (1.2–2.2), Scheduled Castes (SC) aOR 2.1 (1.6–2.9)). Eventhough, Scheduled Tribes (ST) has large aOR of 3.3 (aOR 0.5–20), the significance could not be established due to poor sample size. This is a notable finding and unfortunately alcohol use is more prevalent among these socially deprived societies in our study. Similar findings observed in other studies also.^[12] Providing appropriate public health interventions as well as complete banning of alcohol may improve the socioeconomic and health status of this rural community.

Other factors like male gender (aOR 41 (29–59), Married 5.0 (3.7–6.8), or Separated 2.6 (1.5–4.4) and diabetes 1.6 (1.1–2.3) were associated with alcohol use is well established from previous studies.^[1,2,4,6,12,13] Age, number of family members, literacy, and diet didn't play any significant role in this study population. But the association of illiteracy with alcohol use was noticed in some other studies.^[7]

Alcohol is emerging as a major public health problem in India and need many multi-centric studies to understand this problem better.^[14] One of the recent studies has found that major number of Indians are suffering from alcohol related social and medical problems which needs immediate attention and advocated more epidemiological studies are needed in this aspect.^[15] One of the studies among HIV patients has found that alcohol use is negatively impacts viral load outcomes as the alcoholics have poor adherence to treatment.^[16] Tuberculosis patient who are using alcohol also found to have additional risk factors similar to our study, like lower caste.^[17] One of the recent study from Bengaluru has found that “a behavioral economics and cognitive behavioural therapy” as an effective intervention in reducing hazardous alcohol use.^[18] Another intervention study on screening and brief intervention among college students consuming alcohol is also found to have minimally effective.^[19]

The main strengths of our study are wide coverage, a large sample size, population-based study and that it was conducted in a remote rural area which made our results more meaningful. This paper will help the primary care physicians to understand the determinants of alcohol use, especially in rural setting and appropriate preventive, treatment and counselling measures could be initiated. The main key point in our study, problem of alcohol use highly associated socioeconomically poor and vulnerable communities in rural area. Improving their social and economic status will be the better solution to tackle this issue.

Conclusion

The use of alcohol in a remote rural area in South India was significantly associated with male gender, lower castes, married and widowers, diabetes, hypertension, and poor housing conditions.

Table 1: Alcohol consumption and its risk factor from a remote rural area of South India in 2018

Category	Total (n=11995)	Alcoholic n=1005 (%)	Chi square [§]	Crude OR (95% CI) [#]	Adjusted OR (95% CI) [#]
Gender			<0.01		
Male	5976	972 (16)		35 (24.9-49.9)	41 (29-59)
Female	6019	33 (01)		Ref	Ref
Caste			<0.01		
BC	1591	70 (04)		Ref	Ref
MBC	4991	408 (08)		1.9 (1.5-2.5)	1.7 (1.2-2.2)
SC	5377	524 (10)		2.3 (1.8-3.0)	2.1 (1.6-2.9)
ST	17	02 (12)		2.9 (0.6-12.9)	3.3 (0.5-20)
OC	19	01 (05)		1.2 (0.2-9.2)	1.2 (0.1-12)
Age mean (SD)	739	40 (17)	<0.01	1.0 (1.0-1.0)	1.0 (1.0-1.0)
Family members mean (SD)	739	4.4 (1.7)		1.0 (1.0-1.0)	1.0 (1.0-1.0)
Education			<0.01		
Literate	7985	601 (08)		Ref	Ref
Illiterate	4010	404 (10)		1.4 (1.2-1.6)	0.9 (0.8-1.1)
Marital Status			<0.01		
Married	7927	915 (12)		6.5 (5.0-8.4)	5.0 (3.7-6.8)
Unmarried	3129	62 (02)		Ref	Ref
Widow	939	28 (03)		1.5 (1.0-2.4)	2.6 (1.5-4.4)
Diabetes			<0.01		
No	10393	940 (09)		Ref	Ref
Yes	346	59 (17)		2.1 (1.5-2.8)	1.6 (1.1-2.3)
Not Applicable [@]	1256	06 (01)		-	-
Hypertension			<0.01		
No	10358	940 (09)		Ref	Ref
Yes	380	59 (16)		1.8 (1.4-2.5)	1.0 (0.8-1.3)
Not Applicable [@]	1257	06 (01)		-	-
Diet			<0.01		
Veg	1126	14 (01)		Ref	Ref
Non-Veg	10869	355 (03)		1.3 (1.0-1.7)	1.2 (0.8-1.3)
Type of toilet facilities			<0.01		
Toilet present	4289	284 (07)		Ref	Ref
No facility (Open defecation)	7706	721 (09)		1.5 (1.0-0.1)	1.2 (1.0-1.4)
Type of house			<0.01		
Pucca	4986	346 (07)		Ref	Ref
Katcha	3017	314 (10)		1.6 (1.3-1.8)	1.7 (1.4-2.2)
Semi-pucca	3992	345 (09)		1.3 (1.1-1.5)	1.3 (1.1-1.6)
Tobacco user			<0.01		
Yes	739	380 (51)		18 (15-21)	
No	11256	625 (06)		Ref	

§. Chi Square $p < 0.05$ is significance, #. Bold significance $p < 0.05$, @ <20 years, MBC – Most Backward Castes, SC- Scheduled Castes, ST – Scheduled Tribes, OC – Other Castes

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Conflicts of interest

There are no conflicts of interest.

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