

COMPETING INTERESTS

SAP is a graduate of the class of GMC1982.

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Hazardous alcohol use in rural southern India: Nature, prevalence and risk factors

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ABSTRACT

Background. There is a dearth of data on the hazardous use of alcohol in rural India.

Methods. We examined the nature, prevalence and factors associated with hazardous use of alcohol among men in a rural community in southern India. We used stratified sampling to select subjects from the Kaniyambadi block and employed 'AUDIT', a standard instrument, to assess the use of alcohol.

Results. The prevalence of life-time use, use in the past year and hazardous use of alcohol was 46.7%, 34.8% and 14.2%, respectively. Using Indian made foreign liquor (OR 20.51; 95% CI 8.81–47.75) and living in a village which brewed illicit alcohol (OR 2.82; 95% CI 1.39–5.72) were risk factors for hazardous use while education (OR 0.39; 95% CI 0.21–0.72) was protective. These factors remained significantly associated with hazardous use after adjusting for age and education using logistic regression.

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Conclusion. The relationship between the availability of illicit and commercial alcohol and its hazardous use suggests the need for an alcohol policy which takes into account health and economic issues and also implements the law to prevent the negative impact of problem drinking.

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INTRODUCTION

While alcohol is consumed in many societies, recent years have seen changes in drinking patterns worldwide with high rates of consumption, drinking to excess among the general population and heavy episodic drinking among young people.¹ The use of alcohol in India, both commercial and non-commercial (illicit), and its impact on health and society have been discussed in the literature.^{2,3} Hazardous drinking is associated with increased morbidity and mortality in addition to having a major impact on the family, marriage and children.¹ It also leads to financial problems and poverty, loss of productivity and absenteeism at work, domestic violence, road traffic injuries, mental disorders, unsafe sexual behaviour, and nutritional and health problems.¹

Hazardous drinking is a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others.⁴ Such problem drinking with its negative impact on the person and on society is of public health importance despite the absence of a full dependence syndrome which has a much higher threshold and occurs later in the course of the illness. Harmful use, on the other hand, refers to alcohol consumption which results in harm to physical and mental health. The social consequences are often included among the harms caused by alcohol.^{4,5} Alcohol dependence is a cluster of behavioural, cognitive and physiological symptoms that may develop after repeated alcohol use.⁵ Typically, these include a strong desire to consume alcohol, impaired control over its use, persistent drinking despite harmful consequences, a higher priority given to drinking than to other activities and obligations, increased alcohol tolerance, and a physical withdrawal reaction when alcohol use is discontinued.

We aimed to determine the nature, prevalence and factors

associated with alcohol use among adult men in Kaniyambadi block, Vellore district, Tamil Nadu using a cross-sectional and case-control study design.

METHODS

The setting

The Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India, has been working in Kaniyambadi block for the past 50 years. This region is a geographically defined area of 184 km² with a population of about 106 000. The community health programme operates in all villages in the area. A major proportion of the population is from the lower socioeconomic strata. Agriculture and animal husbandry are the main occupations. The work of the department and the surveillance system has been described elsewhere in detail.⁶

Selection of villages and recruitment of subjects

Information from the Community Health and Development (CHAD) database was used and all the villages ($n=82$) in the Kaniyambadi block were stratified into 'brewing' ($n=14$) and 'non-brewing' ($n=68$) villages based on the presence or absence of a local brewery in these villages. Three villages which brew local illicit alcohol and 3 without such a facility were selected using a random sampling technique. Three teams of researchers went to the centre of each village (e.g. the village school or temple) and set out in 3 different directions, door-knocking at every house to interview every man >18 years of age. The door-knocking technique was preferred as the population list was updated a few years earlier.

Assessment

The following instruments were used:

1. *The AUDIT (Alcohol use disorders identification test)*⁷ was used to identify problem drinking and was administered by the interviewers. The test has the following domains: (i) Harmful use of alcohol (items: frequency of drinking, quantity, frequency of heavy drinking), (ii) Dependence symptoms (items: impaired control over drinking, increased salience of drinking, morning drinking), (iii) Harmful alcohol use (items: guilt after drinking, blackouts, alcohol-related injuries, others concerned about drinking). It is a simple method for screening and classifying consumers of alcohol. AUDIT scores >8 suggest harmful and hazardous drinking and require advice on reduction; scores >16 suggest severe alcohol problems and demand brief counselling while those >20 mandate detailed assessment and treatment for alcohol dependence. The questionnaire is brief and flexible.
2. *A questionnaire to assess sociodemographic and clinical characteristics, and common factors associated with the use of alcohol.* Age, income, schooling, marital status and type of family were recorded. This proforma also collected details related to alcohol use such as family history, life-time use of alcohol, age at first drink, age of 'regular' drinking, use of alcohol in the past year and preferred type of alcohol.

Training for assessment

The researchers ($n=10$) were a group of third year medical students and were trained to use these tools. The training included role-play and piloting the protocol among patients attending the CHAD base hospital. The details of the time spent for the project include planning the study (18 hours), pilot study (3.5 hours each by 3 teams), data collection (15 hours each by 3 teams), data entry and analysis (30 hours).

Analysis of data

Cases were defined as those with an AUDIT score of ≥ 8 while subjects who did not drink and those with scores of ≤ 7 were considered as controls. Frequency distributions for categorical data and descriptive statistics to describe continuous variables were obtained. The Student *t* and chi-square tests were used to ascertain the significance of the association for continuous and categorical variables, respectively. Logistic regression was used to adjust for age and education, and odds ratios and 95% confidence intervals were calculated.

The sample size was calculated using the Epi Info computer program. The value for the estimate of prevalence was taken as 33% from a similar study,⁸ the precision as 5% and the confidence level as 95%. The required sample size was 340.

RESULTS

Three hundred and forty-five men were interviewed; 2 men refused consent and did not participate in the study. Their mean (SD) age was 42.2 (15.5) years and the reported mean income was Rs 2007.90 (2559.90) per month. The mean duration of schooling was 7.6 (4.4) years. The majority of men interviewed were married ($n=248$; 71.9%) and had nuclear families ($n=187$; 54.2%).

One hundred and sixty-one (46.7%; 95% CI 41.4%–51.9%) men reported life-time alcohol use, 120 (34.8%; 95% CI 29.8%–39.8%) mentioned use of alcohol in the past year while 74 (21.5%; 95% CI 17.1%–25.8%) claimed that they drank regularly. Forty-nine (14.2%; 95% CI 10.5%–17.9%) satisfied criteria for hazardous use of alcohol (using the recommended score of ≥ 8 on AUDIT). The median age at the first drink (mean 27.9 [9.0]) and 'regular' drinking (mean 26.5 [8.4]) was 25 years among those who had consumed alcohol; 52 men (15.1%) reported a family history of alcohol use.

The commonest (77.9%) preferred type of alcohol used was Indian made foreign liquor (IMFL is a category created for revenue purposes and consists of western style distilled beverages such as whiskey, brandy, rum, gin and vodka which are sold in bottles ranging in volume up to 750 ml with a maximum permissible alcohol content of 42.8%). Beer and country liquor was preferred by 11.4% and 10.8%, respectively.

Drinking IMFL and living in a village where illicit alcohol was brewed were significant risk factors for hazardous alcohol use (Table I). Education, with ≥ 6 years of schooling, was protective. These factors remained significant after adjusting for age and education using logistic regression.

DISCUSSION

We examined the use of alcohol among men in a rural community in Vellore, Tamil Nadu. The strengths of our study include the stratified sampling strategy and the use of an objective, reliable and standard measure of alcohol use. The sample size calculation used estimates from a different state as local estimates were not available. However, a similar proportion of subjects in that study used alcohol in the past year. We investigated alcohol use employing a standard definition of hazardous use, and examined its nature, prevalence and risk factors in the community using a one-point assessment and a cross-sectional and case-control design. Longitudinal cohort studies will be required to assess and confirm the nature, prevalence and risk factors for life-time alcohol use as case-control designs have limitations.

One-third of our population sample had used alcohol over the past year, one-fifth reported that they drink alcohol regularly while one-sixth were hazardous alcohol users according to the

TABLE I. Risk factors for hazardous use of alcohol (AUDIT score ≥ 8) in the community

Characteristic	Cases ($n=49$)	Controls ($n=296$)	Univariate statistics		Multivariate statistics*	
	(AUDIT score ≥ 8) n (%)	(AUDIT score ≤ 7) n (%)	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Age >40 years [†]	35 (71.4)	145 (49.0)	2.60 (1.35–5.03)	0.004	1.99 (0.97–4.08)	0.061
Marital status: Married	43 (87.8)	210 (70.9)	2.93 (1.20–7.15)	0.014	1.76 (0.65–4.78)	0.265
Years of schooling: ≥ 6 years	24 (49.0)	211 (71.3)	0.39 (0.21–0.72)	0.002	0.51 (0.26–0.99)	0.047
Occupation: Unemployed	3 (6.1)	35 (11.8)	0.49 (0.14–1.65)	0.238	0.35 (0.10–1.23)	0.102
Income >Rs 1500/month [†]	27 (55.1)	158 (53.4)	1.07 (0.58–1.97)	0.823	1.49 (0.78–2.85)	0.233
Family type: Nuclear	32 (65.3)	155 (52.4)	1.71 (0.91–3.22)	0.092	1.53 (0.80–2.91)	0.195
Family history of alcohol use: Present	13 (26.5)	39 (23.5)	1.18 (0.57–2.44)	0.663	1.57 (0.72–3.44)	0.258
Residence: Village with local breweries	38 (77.6)	163 (55.1)	2.82 (1.39–5.72)	0.003	2.54 (1.24–5.21)	0.011
Preferred type of alcohol: IMFL	42 (85.7)	67 (22.6)	20.51 (8.81–47.75)	0.000	19.15 (8.19–44.77)	0.000

* adjusted for age and education using logistic regression

[†] median value used to divide group

IMFL Indian made foreign liquor (refer text for definition)

threshold used by AUDIT. These results are consistent with other epidemiological studies from India.⁹ A recent report from primary care in Goa documented that 59% of men had ever consumed alcohol, 8.2% were hazardous drinkers and 15% were dependent on the substance.¹⁰ Residing in a village which brewed local (illicit) alcohol and preferring to drink IMFL were risk factors for hazardous use while education was protective. The fact that IMFL was the preferred type of alcohol among the study participants is consistent with its availability in the area. Brewing illicit alcohol is an illegal cottage industry in many villages in the region. However, its use locally, as documented in this study, is limited. On the other hand, drinking IMFL, the manufacture and sale of which is tightly controlled by the state government, seems to have a much greater impact on hazardous alcohol use. It is possible that living in a village which brews alcohol may encourage positive attitudes towards the consumption of alcohol while simultaneously flagging the risks of illicit liquor. On the other hand, the preference for IMFL, whose availability is widespread in the region, may be a greater risk for hazardous use.

The politics of alcohol in India is complex. Prohibition, a popular option for many women's groups, is often used as a strategy by many political parties to campaign for elections. However, the associated loss of revenue and jobs, the increase in production and sale of illegal alcohol, and the crime and deaths due to methanol poisoning often lead to less stringent and more permissive sale of alcohol without enforcement of existing laws (related to the sale of alcohol, drunk driving and domestic violence). While governments are dependent on the alcohol industry for revenue and permit the manufacture and sale of alcohol, the problems secondary to hazardous alcohol use are often considered as the individual's responsibility. While counselling and therapy for individuals with alcohol-related problems are helpful in reducing individual morbidity and mortality, population-based interventions including legislation, taxation, and policies related to the manufacture and sale of alcohol, road safety, occupational health and domestic violence, etc., implemented across populations will be necessary to change rates of alcohol-related problems in the community. There is a need for an alcohol policy which is broad-based, uses a participatory public health model to reduce the negative impact

of problem drinking, and preventing deaths and crime which result from the illegal bootlegging industry.¹¹

Teaching epidemiology and research methods

This study was a part of the Department of Community Health's initiative to provide hands-on training in epidemiology and research methods to medical students and also a part of its community education component since it provides primary care for the area. The study was participatory and interactive in its approach and was student-led with the faculty and health education team members providing resources and direction. Issues related to identification of community health problems, the generation of hypothesis, design, data collection, analysis, interpretation, presentation and writing up were part of the exercise. Such training aims to provide knowledge, and enhance the skills and confidence related to research methodology.

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