A STUDY ON ALCOHOL USE AND ITS RELATED HEALTH AND SOCIAL PROBLEMS IN RURAL PUDUCHERRY, INDIA

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ABSTRACT

Harmful use of alcohol was the cause for 5.9% of all deaths and 5.1% of the global burden of disease and injury. India is the third largest market for alcoholic beverages in the world with estimated 62.5 million alcohol user in 2005. The objective of this study was to know the prevalence of alcohol consumption, pattern of drinking, and its effect on people's health and social consequences. **Methods:** This cross‑ sectional study was conducted in 850 households selected from 19 villages of two Primary Health Centers. A total of 30 clusters were selected, and from each cluster, 28 houses were surveyed by random walk method. Information was collected on predesigned and pretested questionnaire forms and analyzed using Epi Info 3.4.3. Chi‑ square test was used for statistical significance. **Results:** The overall prevalence of alcohol use among ≥18 years of age was 9.7% and exclusively among males was 17.1%. The highest prevalence (17.1%) was among 46–55 years age groups and the residents of joint families (37.0%). One‑ third of the users began drinking before 20 years of age and half of them consumed for getting relief from pain/strain/tiredness. About half of the users had strained relations with their family members and neighbors both. The majority had alcohol dependence problems and about one‑ fifth had chronic health problems, diabetes mellitus, and hypertension. **Conclusion:** The prevalence of alcohol use in Puducherry was low and restricted to males only. The prevalence was high among low uneducated farmers and labors. About one‑ third of users had alcohol dependence problems and one‑ fifth had chronic health problems.

Keywords: Alcohol use, Drinking Pattern, Health Problems, Social Problems

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Introduction

Alcoholic beverages, known since Vedic period, are used for worship purposes, medicinal preparations, and widely consumed as a relaxant.[1,2] Alcohol consumption, at present, is ubiquitous and has been consistently increasing throughout the world. Globally, harmful use of alcohol causes approximately 3.3 million deaths every year (5.9% of all deaths), and 5.1% of the global burden of disease is attributable to alcohol consumption.[3,4] It causes more than 60 different disorders and is the third most important risk factor for the global burden of disease.

Although developed countries have succeeded in marginally reducing alcohol consumption, yet their average consumption is still higher than those of developing countries. Southeast Asia and the Western Pacific Regions are still showing increasing alcohol consumption trend. In Southeast Asia Region, per capita pure alcohol consumption has increased by over 50% between 1980 and 2000. Similarly, in India also, per capita alcohol consumption has increased alarmingly by 106.7% between 1970–1972 and 1994–1996.[1,3]

Estimated number of alcohol users in India, in 2005, was 62.5 million, 17% of them being dependent users accounting for 20%–30% of hospital admissions due to alcohol‑ related problems.[5] The National Household Survey 2004 had reported alcohol use in 21% of adult males and <5% among females. State‑ wise prevalence rate is highly variable being the lowest (7%) in the western part of Gujarat and the highest (75.0%) in Arunachal Pradesh.[6] In Southern India, the prevalence of current alcohol use has varied between 33% and 50%.[7]

In view of easy availability of alcohol at a subsidized rate in Puducherry, this study was conducted in rural areas to estimate the prevalence of alcohol consumption, pattern of drinking, and its impact on the health of the people and social consequences.

Methodology

Study Area and Design

This cross‑ sectional study was conducted in two Primary Health Centers (PHCs), Thirubuvanai and Nettapakkam, catering 46,365 population from 19 villages.

Sampling Unit

The primary sampling unit was an individual household.

Sample Size

The exact prevalence of alcohol users and also alcohol user households in Puducherry was not known. Considering the rough estimate of the prevalence of alcohol user household as 50% at 95% of confidence interval and 10% of relative error in estimated prevalence with design effect 2, the minimum sample size required was calculated to be 769 using Open Epi version 2.3, developed by Centers for Disease Control and Prevention (CDC) Atlanta, Georgia, USA. Assuming non response rate of 10% despite the second visit, 77 was added to the calculated sample size. Thus, total sample size became 846 which were rounded off to 850.

Sampling Method

Cluster sampling method was used to select 30 clusters from 19 villages under these two PHCs. Probability proportion to sample size method was used to select the clusters from the villages. In each cluster, 28 households were surveyed.

Sampling Technique

A list of all villages with their population, covered under Thirubuvanai and Nettapakkam PHCs, was obtained. The total population of all the villages (46,365) was divided by 30 to get the sampling interval (SI) 1545. A random number was chosen between 1 and SI using random number generator. The random number obtained was 1043. This was the random start (RS) number. Thus, the village having a cumulative population, in which RS fell became the first cluster. The subsequent series were selected by ‑ RS + SI (second cluster), RS + 2SI (third cluster), RS + 3SI (fourth cluster), and so on to obtain rest of the clusters.

Study Period

The study was conducted from May 2012 to March 2013.

Data Collection Tools

Three types of pre validated, structured questionnaire forms were used for collecting the information:

• Household Form- for general household information

- WHO's Alcohol Use Disorder Identification Test (AUDIT)[8] Form- for those who had consumed alcohol in the past twelve months (to assess the level of risk due to alcoholism)

- Health Detail Form- for alcohol user's health and social problem related information.

Data Collection

Data were collected by a 2nd year postgraduate student in the Department of Community. After reaching the selected village, a center point like school or temple was identified, and door‑ to‑ door survey was conducted in a particular direction from the center point by random walk method until the required 28 houses were interviewed. If the villages contained more than one cluster, the houses were surveyed by moving in a different direction from the center point, depending on the number of clusters, until required 28 houses in each direction were obtained.

The purpose of the study was first explained to the responsible adult of the household, their consent was taken in writing, and general information such as family details, education, occupation, income, environmental condition, and psychosocial environment was enquired from them. All the individuals in the family above 18 years were met individually, purpose of the study was explained to them, and their written consent of voluntary participation was taken. They were asked whether they had consumed alcohol in the past 12 months. The persons who answered yes were interrogated in detail.

Data Analysis

Collected data were entered into the Epi Info version 3.4.3 software, developed by CDC Atlanta, Georgia, USA, analyzed, and interpreted. Chi‑ square test was used to test the significance.

Ethical Issues

The study was conducted after getting clearance from the Institutional Review Board.

Results

The total study participants from 850 households were 2551, of which 1352 were male and 1199 were female. The overall prevalence of alcohol use was 7.7%, and among ≥18 years of age, it was 9.7%. Since all the females were abstainers, the prevalence of alcohol use among males was 17.9%. The highest prevalence (17.1%) of alcohol use was observed among people above 45 years than any other age group, among married people (12.5%) and those belonging to joint families (12.3%). Illiterates and educated up to

primary had high prevalence of 15.7%. Farmers, daily wage laborers, and self‑ employed (business) group had high prevalence of 17.8%, 14.7%, and 13.2%, respectively [Table 1].

Table-1
Prevalence of Alcohol use in different Socio-demographic Groups

Variables	Number (2551)	Alcohol users (243)	Prevalence (%)		$\chi2, P$
Age groups (years)					
18-25	622	3	0.5		$\chi^2_{(5)}$=115.2,
26-45	1140	109	9.6		<0.001
46-65	672	115	17.1		
66 and above	117	16	13.7		
Religion					
Hindu	2407	232	9.6		$\chi^2_{(3)}$=4.149,
Muslim	60	6	10.0		>0.2
Christians	46	5	10.9		
Others	38				
Marital status					
Unmarried	611	3	0.5		$\chi^2_{(2)}$=76.06,
Married	1845	230	12.5		<0.001
Widow	95	10	10.5		
Type of family					
Nuclear	1837	166	9.0	$\chi2$	$_{(2)}$=5.487,
Joint	462	57	12.3		>0.05
Extended	252	20	7.9		
Education					
Illiterate	357	56	15.7	$\chi2$	$_{(6)}$=65.56,
Primary	305	48	15.7		<0.0001
Middle	440	55	12.5		
Secondary	616	46	7.5		
Higher secondary	347	25	7.2		
Degree	404	11	2.7		
Postgraduate	82	2	2.4		
Occupation					
Household works	568	12	2.1	$\chi2$	$_{(4)}$=111.2,
Farmer	107	19	17.7		<0.0001
Business	204	27	13.2		
Labors	1163	171	14.7		
Professional/job	509	14	2.7		

The majority of the alcohol users (92.2%) were in between 26 and 65 years of age and almost same proportion had started consuming alcohol between 16 and 35 years (mean age of first drinking 23.63 ± 6.01 years). Most of them were drinking to get relief from pain or tiredness and were drinking out of their homes such as bars and restaurants but alone (53.9%). Indian‑ made foreign liquor (IMFL)[9] such as brandy, rum, and whisky was the favorite drink for 73.1% of the users, however, most preferred IMFL was brandy. 91.0% of the users were drinking moderately (3−6 pegs in a single sitting), while as per AUDIT score, 41.2% had a medium level of risk due to alcohol drinking [Table 2].

More than half of the alcohol users had a strained relationship with their other family members as well as with their neighbors and had frequent quarrels with them. The most common health problem for 27.7% of the users was difficulty in sleeping without drinking alcohol, whereas the least common (6.7%) was epileptic fits and mental problem [Table 3].

About one‑ third of the alcohol users were suffering from chronic illnesses, for which alcohol is one of the risk factors such as

Table-2
Reasons and pattern of alcohol consumption

Variables	n=243 (%)	
Age of starting drinking (years)		
<15	9	(3.5)
16-20	71	(29.6)
21-25	65	(26.7)
26-30	63	(25.9)
>30	35	(14.3)
Reasons for intake		
Fun/desire to taste	108 (44.4)	
Pain/tiredness	124 (51.2)	
Tragedy in family	11 (4.4)	
Accompanying persons		
None	131 (53.9)	
Friends/relatives	78	(32.1)
Both	34	(14.0)
Place of drinking		
Home	45	(18.5)
Bars/hotels	198 (81.5)	
Favorite drink		
Naturally occurring‑ toddy	11 (4.5)	
Brewed locally‑ arak	54	(22.4)
Beer	67	(27.1)
IMFL‑ whisky	22 (9.1)	
IMFL‑ others (brandy, rum)	89	(36.9)
Frequency of drinking		
Daily	60	(24.7)
Weekly	64	(26.3)
Monthly	68	(28.0)
Occasionally	51	(21.0)
Number of pegs drunk/sitting (pegs)		
1-2	9	(3.6)
3-6	221 (91.0)	
>6	13 (5.2)	
Smoking tobacco		
Yes	110 (45.1)	
Risk level (based on AUDIT score)		
Low risk (≤8)	74 (30.45)	
Medium risk (8-16)	98	(41.2)
High risk (≥16)	71	(29.3)

IMFL: Indian‐ made foreign liquor; AUDIT: Alcohol Use Disorder Identification Test diabetes mellitus, hypertension, and acid dyspepsia, collectively accounting for 86.0%. Of the total alcohol users, 10% were suffering from pulmonary tuberculosis too [Figure 1].

Discussion

The World Health Organization's Report on the Global Status of Alcohol and Health 2014 has revealed increased alcohol consumption in India between 2008 and 2012. According to the report, around 30.0% of the total population consumed alcohol in the year 2010.[4] Similarly, some studies from Nepal, Sri Lanka, Thailand, and India have also reported 1‐ year prevalence of alcohol consumption between 21.2% and 34.8%.[10‐ 15] Although the overall prevalence in our study appears comparatively low (7.7% in all age groups and 9.7% among ≥18 years), among male, it was 17.1%, comparable to other studies. The Ramanan and Singh: Prevalence and pattern of alcohol use in Pondicherry.

Table-3
Social and Health Problems among Alcohol Users

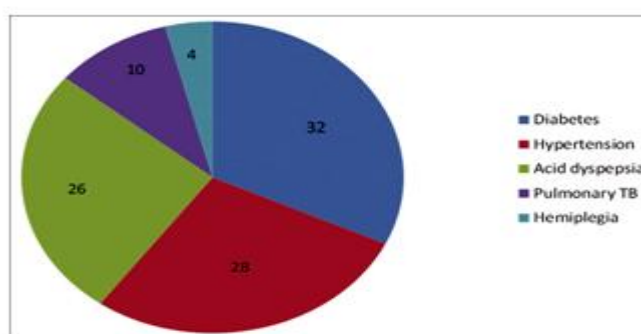|			Frequency		
	Almost daily (%)		Often (%)	Occasional (%)	
Social problems (*n*=144)					
Quarrel with family members/neighbors	25	(10.3)	47 (19.4)	72	(29.6)
Acute health problems (*n*=300), (multiple response)					
Slurred speech	1	(0.3)	29 (9.6)	23 (6.7)	
Forget daily activities	6	(2.0)	45 (15.0)	6	(2.0)
Tremor/ataxic gait	6	(2.0)	31 (10.4)	20 (6.7)	
Numbness/tingling in limbs	6	(2.0)	20 (6.7)	4	(1.3)
Anxiety/depression		-	14 (4.7)	6	(2.0)
Epileptic fits		-	15 (5.0)	5	(1.7)
Inability to sleep without alcohol	16	(12.0)	36 (12.0)	11 (3.7)	

Figure-1 Chronic illnesses among alcohol users

Chronic illnesses among alcohol users complete abstinence by the women may be because of cultural unacceptability or due to underreporting by them. A quadratic type of relationship was observed between alcohol use and age of the alcoholics. It consistently increased up to the age 65 years and declined thereafter. Similar reducing prevalence with

increasing age after 60 years was reported from Mumbai also.[16] Studies from Mumbai and Goa have reported the highest prevalence of alcohol consumption among Christians and lowest among Muslims.[16,17] However, in our study, the prevalence among Hindus, Muslims, and Christians was almost the same.

Education, by increasing awareness about harms of alcohol drinking, plays an important role in abstaining from alcohol which is evident in our study, being highest prevalence among educated up to primary and lowest among postgraduates. Similarly, a study from Mumbai has also reported high prevalence among illiterates and primary‑ educated and low among college‑ educated. [16] However, other studies have reported very low prevalence among illiterates compared to other literate groups.[17,18] Education also determines the occupation of an individual which is clearly revealed in our study. The number of graduates and postgraduates was almost equal to those in service or some professional jobs having very low prevalence (2.7%) among them. A similar low prevalence of 0.60% was reported in another study among semi‑ professionals from Meerut.[18]

The average age of initiating drinking in our study was 23.63 ± 6.01 years which is slightly higher than the findings from Kolkata 20.8 ± 5.9 years [19] but lower than the reports from Vellore 27.9 ± 9.0 years.[10] Similar to the findings from Bengaluru where 52.0% of the users were consuming alcohol to lighten pain and induce sleep, in our study also 48.7% had initiated and were drinking to relieve pain/tiredness. IMFL, preferably brandy, was the most favorite drink to 46.0% of the alcohol users in our study and many other Indian studies also ranging between 49% and 61%.[3,5,10,19]

In contrast to other study reports where 42.5% were moderate drinkers consuming 3–6 drinks in a single sitting [20] and subjectively 8% were harmful drinkers and 14% alcohol‑ dependents, [19] in our study, 91.0% of users were moderate drinkers and 44.2% of them were drinking regularly. As per AUDIT score, 41.2% were at medium risk (AUDIT score 8–15) and 29.3% had high risk due to drinking (AUDIT score ≥ 16). A high percentage of moderate drinkers in our study area might have been due to less price and easy availability of alcohol in Puducherry.

Alcohol use in heavy amount leads to acute intoxication, social problems such as strained relationship with family members and neighbors, and accidents leading to injuries; however, prolonged use in moderate quantity leads to a number of health problems such as epilepsy, numbness in the limbs, and anxiety and depression, dependence, chronic conditions such as diabetes, hypertension, peptic ulcers, and communicable diseases such

as pulmonary tuberculosis.[2,4,7,9] Slightly less than two‑ third of the users in our study also had a strained relationship either with their family members or with their neighbors or both and 10% had communicable disease pulmonary tuberculosis too.

Conclusion

The overall prevalence of alcohol use in Puducherry among ≥18 years of age was 9.7%, and exclusively among males, it was 17.1%. The highest prevalence (17.1%) was among 46–55 years age group. Illiterates and educated up to primary level had the highest prevalence and it decreased with increasing level of education. One‑ third of the users started drinking before 20 years of age, and most common reason for alcohol consumption was to get relief from pain or tiredness occurring from their occupational works.

IMFL was the preferred choice of 46.0% of the users; 81.5% used to drink out of their homes, 53.9% preferred to drink alone, and 29.3% were alcohol‑ dependent (AUDIT score ≥16). Apart from social problems, about one‑ fifth had health problems related to alcohol dependence. Common chronic problems were diabetes mellitus and hypertension.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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