

Prevalence and pattern of alcohol use in Kerala – A district based survey

K Vidhukumar^{1*}, E Nazeer², P Anil³

¹Additional Professor, ²Social Scientist, ³Professor, Department of Psychiatry, Government Medical College, Thiruvananthapuram-695011, Kerala, INDIA.

Email: kumarv68@gmail.com

Abstract

Context: Data on the prevalence of heavy or hazardous use as well as alcohol use disorders is important for planning secondary as well as tertiary prevention measures. Policy imperatives also demand the extent of pathological use of alcohol in the state. Moreover, there needs to be updated data on the use of alcohol. **Aims:** To find out the 12-month prevalence of alcohol use, hazardous use of alcohol and alcohol use disorders in Thiruvananthapuram District of Kerala. **Settings and Design:** An epidemiological survey was done in Thiruvananthapuram, the capital district of Kerala. Two stage cluster sampling of households was done. By random method 38 clusters consisting of 100 houses were identified. One adult person from the household was identified as the sampling unit. **Methods and Material:** Field workers trained in the administration of the study questionnaire made house visit and collected the data. AUDIT-C was used to collect information on quantity and frequency of alcohol consumption. Harmful use of alcohol was defined based on these parameters. MINI-5 was used to diagnose alcohol dependence and abuse. **Statistical analysis used:** Proportions and their confidence intervals to summarise data. **Results:** Use of alcohol during the last one month was seen in 28.78% of male adults (95% CI; 26.6-30.9). Prevalence of alcohol dependence and abuse in males were 2.6% (95% CI; 1.9-3.5) and 1.2% (95% CI; 0.7-1) respectively. More importantly prevalence of hazardous use of alcohol was 14% (95% CI; 12.4-15.8) Prevalence of alcohol consumption among females was negligible. **Conclusions:** The estimate of prevalence of alcohol use found in the study is in agreement with the existing literature. The prevalence of hazardous drinking and alcohol use disorders is similar to previous studies done in India. The implication of the findings indicating the possible extent of alcohol related harm and need for interventions are discussed.

Keywords: alcohol use, alcohol use disorder, hazardous use, prevalence.

*Address for Correspondence:

Dr. Karunakaran Vidhukumar, Department of Psychiatry, Government Medical College, Thiruvananthapuram-695011, Kerala, INDIA.

Email: kumarv68@gmail.com

Received Date: 10/01/2016 Revised Date: 20/02/2016 Accepted Date: 16/03/2016

Access this article online	
Quick Response Code:	Website: www.statperson.com
	DOI: 18 March 2016

INTRODUCTION

In most cultures alcohol is the most frequently used brain depressant and its use has been a cause of considerable morbidity and mortality. According to WHO, globally 38.3 % of people consumed alcohol at least once during the last 12 months, when both genders were considered together. ¹Prevalence of alcohol use in our country, defined as consumption during the last one month, was

21.4 % in males according to the National Household Survey (NHS) of drug and alcohol use.² Similarly, global health status report, 2014 estimated that 12 month prevalence of alcohol use among males in India is 24.8%.³ Kerala statistics, however, differ from the national scenario. A large national survey, National Family Health Survey (NFHS-3) had found that 45.2 % of males drink alcohol in Kerala.⁴ A more recent study by Indian Council for Medical Research (ICMR) had found that 35.9% and 23.6% of males consumed alcohol at least once during the last 12 months and one month respectively in our state.⁵ Female drinking had been negligible in the above studies, i.e., less than 1%. A substantial number of alcohol users have heavier consumption of alcohol in terms of frequency, average quantity and more drinks per occasion with alcohol related adverse effects and medical complications, categorised as hazardous drinking.⁶ 15% of males could be categorised as hazardous drinkers in a study done in

Goa.⁷ In Kerala, 8.8 % of drinking males consumed alcohol almost daily, while 26.5% drank alcohol 1-4 days/week. Moreover, 10.5% had at least a day of binge drinking during last 7 days.⁵ A small but sizable proportion of population have pathological use of alcohol, namely alcohol abuse and dependence. The constructs of alcohol abuse and dependence, in contrast to the frequency and quantity indices mentioned above, are behavioural syndromes with definite course and neurobiological basis.⁸ The syndrome of dependence was initially characterised based on the empirical work of Edward and Ross.⁹ Alcohol dependence is diagnosed categorically based on a threshold cut off out of seven criteria.⁸ On the other hand, alcohol abuse is characterized by a maladaptive pattern of alcohol use leading to social and physical consequences.⁸ Both the categories of alcohol dependence and abuse are subsumed under the unitary construct of alcohol use disorder in DSM 5.¹⁰ In contrast to studies on alcohol use, there are only very few recent studies looking at the prevalence of alcohol dependence and abuse in India. According to a recent review of Indian studies, prevalence of Alcohol dependence conceptualised, variously as drug addiction, alcoholism or chronic alcoholism, ranged from 0.2 to 3.5%.¹¹ In the National House Hold Survey of India, done more than a decade ago, 12-month prevalence of alcohol dependence was estimated to be 3.6 to 5.6 %.¹² A study among rural and slum dwellers in Chandigarh had found the prevalence of alcohol and drug dependence to be 6.9%.¹³ Global Health Status Report 2014 has given an estimate of 12 –month prevalence of alcohol use disorder in India in general as 2.6% and dependence specifically as only 2.1 %.³ These estimates are considerably lower than the global estimate of 4.1 and 2.3 respectively.¹ Thus it is seen that prevalence of alcohol use in India is 30-40% lower than global average. National level per capita consumption is 4.3 litres of pure alcohol per year in above 15 years males in India against a global per capita consumption of 6.13.^{3,1} Prevalence of dependence and hazardous use of alcohol is also less than the global average. Episodic heavy drinking is seen 11% of drinking males compared to 21.5% worldwide.^{1,3} Episodic heavy drinking, defined as more than 60 grams of pure alcohol per occasion at least once in seven days, is an indicator of hazardous drinking. Kerala is a state where the alcohol consumption is reportedly more than the national average. As reviewed already, prevalence of drinking is higher than the national scenario. And interestingly there are concerns over rising consumption of alcohol in the state. There are no systematic studies of prevalence of alcohol use disorders namely, dependence and abuse in the state. All levels of prevention and care need a systematic assessment of burden of alcohol use in Kerala. Turbulent

policy changes, targeting reduced availability of alcohol and an eventual ban occurred after the study. So the study estimates could be a framework for background estimates against which the outcome of policy changes could be assessed. The study sought to estimate the 12 - month prevalence of alcohol use, hazardous use and alcohol use disorders in the population of Thiruvananthapuram, the capital district of Kerala, using validated instruments.

MATERIALS AND METHODS

A cross sectional survey was done in the population of Thiruvananthapuram district in the age group of 18 to 65 years. Only respondents giving valid informed consent were included in the study. Data were collected within a period of 6 months, July 2013 to January 2014. Primary sampling units were individuals. Probability proportion to size two stage cluster sampling of households was used for the study. 38 clusters of 100 households were identified by a random method. From the households primary sampling units were selected based on lottery method. With the estimated prevalence of 5% alcohol use disorder and 5% alpha error and 20% beta error the sample size was estimated to be 1900 and allowing for the cluster effect, sample size was finally calculated as 3800. Although data could be collected in 3800 individuals, only 3788 individuals were taken for analysis, excluding 12 individuals with poor quality data. Alcohol dependence and Alcohol abuse are distinct clinical syndromes forming the broader rubric of alcohol use disorders. There are standard diagnostic criteria to diagnose them based on a polythetic approach. In the study they were defined based on Diagnostic and Statistical Manual of Mental Disorders-fourth edition–text revision (DSMIV^{TR})⁸ elicited by Mini International Neuropsychiatric Interview (MINI 5.0.0) schedule,¹⁴ which was translated into vernacular language by translation-retranslation method. MINI was designed as a brief structured interview for the major axis- I disorders in DSM-IV and ICD-10. It has acceptably high validity and reliability with reference to other structured questionnaires like Structured Clinical Interview Schedule (SCID- P) and Composite International Diagnostic Inventory (CIDI). It can be administered in 15 minutes. It can be used even by lay interviewers after training. MINI has a screening module which decides the schedules to be assessed in detail.¹⁴ AUDIT-C is a screening questionnaire for the screening of problematic alcohol use. Scores of the questionnaire range from 0-12. Hazardous drinking was defined as an AUDIT-C score of 4 or more consistent with previous literature which has sensitivity of 0.91 and specificity 0.70 with area under curve (AUC) of 0.89. The questions from AUDIT- C assessed the frequency of drinking days, quantity of

average consumption and frequency of heavy drinking (defined as more than 6 units/day).¹⁵ Questionnaire for the study thus comprised of background data to tap the general variables, quantity and frequency of alcohol consumption by the translated AUDIT consumption questionnaire (AUDIT-C) and MINI screen followed by MINI – 5.0.0 to assess current diagnosis of Alcohol abuse and alcohol dependence. Graduates trained in the administration of the instrument in the De addiction Centre, Department of Psychiatry Medical College, Thiruvananthapuram in a single day workshop were recruited to collect the data. They made house to house visit in the sampled population and administered the instrument to the person randomly selected after informed consent from the household. The information provided was verified with collateral sources. Informed consent was obtained. Confidentiality of information collected was maintained. Based on the extent of alcohol use found in individual subjects, a brief counselling was given based on WHO guidelines.¹⁶ The study was conducted after approval from Institutional Ethics Committee of

Government Medical College, Thiruvananthapuram. Means and proportions with their confidence intervals were used to summarise the data.

OBSERVATIONS AND RESULTS

The study was conducted to find the prevalence of alcohol use and alcohol use disorders in Thiruvananthapuram. Data was collected from 3788 subjects, one subject each from one household. Nearly 20 % of the sample was below age 30 years and 65 % of subjects belonged to the age group 30-60 years. Other background characteristics of the sample are shown in Table. 1. 85 % of the sample was married and more than 40 % had education up to SSLC level. 65 % of males were employed and 57 % females were housewives. Individuals belonging to the Hindu religion predominated in the sample (72.7 %). Above 34 % of the males were current smokers. 4.5% of males were using smokeless tobacco.

Table 1: Background Characteristics of the sample

	All N=3788	Male N=1685 (44.5%)	Female N=2103 (55.5%)
Mean age (SD)	44.85(14.44)	46.9 (14.36)	43.21(14.24)
Marital status			
Not married	309 (8.2)	158 (9.4)	151(7.2)
Married	3212(84.8)	1488 (88.3)	1724 (82)
Divorced/separated	39 (1)	11 (0.7)	28 (1.3)
Widow/Widower	224 (5.9)	26 (1.5)	198 (9.4)
Educational Status			
Illiterate	147 (3.9)	61 (3.6%)	86 (4.1)
Literate (can read and write)	135 (3.6)	54 (3.2%)	81 (3.8)
Primary and middle	1105 (40)	519 (30.9)	586(27.8)
Upto10 or 12	1655 (43.7)	732 (43.4%)	923 (43.9)
Graduation	740 (19.6)	312 (18.7%)	424 (20.2)
Employment Status			
Un-employed	745 (19.7%)	395 (23.4%)	350(16.6%)
Employed	1487 (37.2%)	688 (64.6%)	399 (19%)
Student	133 (3.5%)	55 (3.3%)	78 (3.7)
House wife/girl	1218 (32.2%)	NIL	1186 (56.4)
Any other	82 (2.2%)	46 (2.7%)	36 (1.7)
Religion			
Hindu	2763 (72.9%)	1234 (73.2%)	1529 (72.7)
Muslim	604 (15.9%)	271 (16.1%)	333 (15.8)
Christian	413 (10.9%)	176 (10.4%)	237 (11.3)
Other substance Use			
Smokeless Tobacco	90 (2.4) 95% CI;1.9-2.8	75 (4.5) 95% CI;3.5-5.5	15 (0.7)
Smoking Ever	605 (15.97) 95% CI;14.8-17.2	589 (35) 95% CI; 32.7 -37.3	16 (0.8)
Current Smoking	574 (15.2) 95 % CI;14.1-16.4	562 (33.4) 95 % CI;31.1-35.7	12 (0.6)

Table 2 summarises different categories of alcohol use. Prevalence of current use of alcohol (use during the last one month) is 28.78% in males with a very small

percentage in females. Hazardous drinking and dependence in males are 14% and 2.6% respectively. Alcohol abuse was found in a small percentage of males.

Table 2: Alcohol Use Characteristics of the sample

Alcohol use variable	Overall (N= 3788)	Males (N=1685)	Females
Ever use of alcohol	533 (14.07) 95% CI;13-15.2	526 (31.22, 95 % CI ;29-33.5)	7 (0.3)
Current use of alcohol	488 (12.88) 95% CI; 11.9-14	484 (28.78, 95% CI; 26.6-30.9)	4 (0.2)
Hazardous drinking	239 (6.31) 95% CI; 5.6-7.1	236 (14, 95 % CI;12.4-15.8)	3 (0.1)
Alcohol abuse	20 (0.5) 95% CI; 0.3-0.8	20 (1.2, 95 % CI; 0.7-1)	0
Alcohol dependence	44 (1.12) 95% CI; 0.8-1.6	44 (2.6, 95% CI;1.9-3.5)	0

Table 3 summarises alcohol use patterns in terms of frequency, quantity, and frequency of heavy drinking. About 20% of males used alcohol more than two days a

month. 20% of males use more than 2 units of alcohol use on an average. 10 % males indulge in heavy drinking at least once a month.

Table 3: Alcohol use Parameters of the sample

	All (N=3788)	Males (N=1685)
Frequency of Consumption		
Never	3215(86.9%)	1196 (71.1%)
Not every month	118 (3.1%)	117 (6.9%)
2-4 days/ month	219 (5.8)	216 (12.8%)
2-3 times/week	78 (2.1)	77 (4.6%)
More than 4 days/week	71 (1.9)	71 (4.2%)
Quantity of Consumption		
1-2 units	212 (5.6)	206 (12.3%)
3-4 units	204 (5.4)	202 (12%)
5-6 units	41 (1.1)	40 (2.4%)
7-9 units	20 (0.5)	20 (1.2%)
10 or more units	22 (0.6)	22 (1.2%)
No use	3291 (86.8)	1193 (71%)
Heavy drinking Frequency		
Never	293(7.7)	286 (17%)
Less than once a month	37(1)	36 (2.1%)
At least once in a month	67(1.8)	64 (3.8%)
At least once in a week	45(1.2)	45 (2.7%)
More than 4 days/week	57(1.5)	57 (3.4%)
No Use	3291 (86.8)	1193 (71)

DISCUSSION

Background characteristics of the sample mainly religion, percentage of subjects above age 65 (8%) are similar to the NFHS-3. Higher percentage of Hindu religion is because the study was limited to Thiruvananthapuram District. The distribution of educational status was also similar to NFHS findings that “Less than half of women and men (about 48-49%) have completed 10 or more years of education”. Consumption of Tobacco was 44% in males and 2% in females in the NFHS-3. But the current study found around 35 % and less than 1% respectively. Is this due to underreporting or reduction in the use of tobacco over last 8 years is worth examining. (4) Age distribution of the sample also tally with the NFHS-3 distribution. From the above discussion it seems that our sample is representative of the population of Kerala except for distribution of religion, gender and tobacco use. One of the main findings of the study is that the prevalence of current alcohol use (within the last 12 months) is 28.87%. This translates into 30 lakh adult males (adult males are approximately 104 lakhs in Kerala,

according to census 2011).(17) This estimate is more than the National Household Survey (21.4% in the past one month in India) and Global status report 2014 (24.8% in the past 12 months in India). But the estimate is less than NFHS- 3 (45.2% in Kerala, no duration specified), and ICMR study (35.9% use of alcohol among males during the last one month). Prevalence of alcohol use ever in the study was 31.22% which is only slightly more than current use of alcohol, which is much lower than the ICMR study (46.4%). Underreporting of ever use might had contributed to the lower estimate. Female drinking was having a very low percentage like ICMR study. Regarding hazardous drinking estimate from the study is 14 % similar to other studies. It seems that a total of 15 lakh population of males consume alcohol heavily. Prevalence of alcohol dependence in the study of 2.6 and abuse of 1.2 is similar to the statistics in India according to global status report. Thus 4 lakh males are having serious addiction to alcohol.

CONCLUSIONS

Main findings of the study are that about 29 % of male adults in Kerala are current consumers of alcohol. Nearly half of them, 14% of adult males are having hazardous drinking, a drinking level associated with medical and social consequences. End stage addictions or alcohol dependence and alcohol abuse are found in 2.6% and 1.2 % respectively, constituting 4% of adult male population. Thus, 14% of adult men in Kerala, half of the current consumers, are having hazardous consumption of alcohol with its potential consequences of road traffic accidents, suicides, domestic violence, and short – term and long term medical consequences including malignancies. They form a potential population for secondary prevention like policy and legal measures aimed at decreasing the individual drinking level by reducing availability and providing low alcohol containing beverages. Health care interventions like brief intervention could also geared in this direction. Brief intervention consists of eliciting the information regarding the amount and frequency of alcohol consumption along with alcohol related consequences in an individual, usually by health care professionals. Then they give feedback and explicit advice to stop or reduce alcohol consumption.¹⁶ Based on the above study the number of end stage addicts in Kerala are approximately 4 lakhs (4000 /1lakh population of males) who need specialised care including de-addiction facilities and long term follow up. They also form a potential share of population for advanced medical interventions like treatment for varices and liver transplantation.

Source of Support: Funded by State Board of Medical Research(SBMR), Directorate of Medical Education, Government of Kerala

REFERENCES

1. World Health Organisation. Global status report on alcohol and health 2014. 2014;1–392. Available from: http://www.who.int/substance_abuse/publications/global_alcohol_report/msbgruprofiles.pdf
2. Ray R, editor. The extent, pattern and trends of drug abuse in India-National survey. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime. [Internet]. UNODC. 2004. p. 85–111. Available from: www.unodc.org/India/Indianationalsurvey2004.html
3. World Health Organisation.WHO Regions Country Profiles.Global status report on alcohol and health 2014. 2014:166.
4. International Institute for Population Sciences (IIPS) and Macro International. 2008. National Family Health Survey (NFHS-3), India 2005-06: Kerala. Mumbai: IIPS.
5. National Institute of Medical Statistics, Indian Council of Medical Research (ICMR), 2009, IDSP Non-Communicable Disease Risk Factors Survey, Phase-I States of India, 2007-08. National Institute of Medical Statistics and Division of Non-Communicable Diseases, Indian Council of Medical Research, New Delhi, India.
6. David A. Fiellin PGOMCR. Hazardous and Harmful Alcohol Consumption in Primary Care. M. Carrington Reid, David A. Fiellin, Patrick G. O'Connor. Arch Intern Med. 1999;159(15):1681-1689.
7. D'Costa G, Nazareth I, Naik D, Vaidya R, Levy G, Patel V, et al. Harmful alcohol use in Goa, India, and its associations with violence: A study in primary care. Alcohol Alcohol. 2007;42(2):131–7.
8. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) 2000. 943 p.
9. Edwards G, Gross MM. Alcohol dependence: provisional description of a clinical syndrome. Br Med J. 1976;1(May):1058–61.
10. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). 2013. 280 p.
11. Murthy P, Manjunatha N, Subodh BN, Chand PK, Benegal V. Substance use and addiction research in India. Indian J Psychiatry. 2010;52:S189–99.2
12. Ray R, editor. The extent, pattern and trends of drug abuse in India-National survey. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime. 2004. Executive Summary v-x. 2012. 3-6 p.
13. Chavan BS, Arun P, Bhargava R, Singh GP. Prevalence of alcohol and drug dependence in rural and slum population of Chandigarh: A community A community survey. Indian J Psychiatry 2007;49:44-8. 2015;49:1–5.
14. Sheehan D V., Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. Journal of Clinical Psychiatry. 1998. p. 22–33.
15. Bush, Kivlahan, McDonell, Fihn, Bradley. The AUDIT Alcohol Consumption Questions (AUDIT-C). Arch Intern Med [Internet]. 1998;158:1789–95. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9738608>
16. Babor TF, Higgins-biddle JC. Brief Intervention for hazardous and harmful drinking: A manual for use in primary care. World Health Organization, Department of Mental Health and Substance Dependence. 2001;53.
17. Census of India. Population composition. 2011;11–28. Available from: http://www.censusindia.gov.in/vital_statistics/SRS_Report/9Chap 2 - 2011.pdf

Source of Support: Declared
Conflict of Interest: None Declared