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Prevalence of Alcohol Dependence among Males in Thiruvananthapuram District, Kerala

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Abstract

Contemporary Indian society is obsessed with the use of alcohol. Kerala, God's own country, is one of the highest consumers of alcohol in India. Alcohol drinking patterns in India evolved over centuries. In ancient period, India had an ambivalent drinking culture. Establishment of East India Company led to liberalization of liquor market in India, leading to an increase in alcohol use. Kerala was one of the states where alcohol consumption has been traditionally high. Subsequent period witnessed a reduction in age at initiation of alcohol use in India, especially Kerala. Most of the people who stated drinking at a young age drank heavily. This resulted in an increase in Alcohol Dependence. The present study was aimed at estimating the prevalence of Alcohol Dependence among males in Thiruvananthapuram district, Kerala. Also, it studied the association between socio-demographic factors and Alcohol Dependence. This study proves that Alcohol Dependence among males in Thiruvananthapuram is as high as 38.41%. Moreover, socio-demographic factors such as marital disharmony, poor income, poor education and unemployment are significantly associated with Alcohol Dependence. Religious factors influence alcohol use. There is no urban- rural difference in Alcohol Dependence. Alcohol Dependence can be curbed only by addressing the issue of social deprivation at a macro level.

Keywords: *Alcohol Dependence, prevalence, socio-demographic factors.*

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Introduction

Historical Background of Alcohol Use and Alcohol Dependence in India

Writings from the Vedic period note that alcoholic drinks were part of religious festivals, as well as being widely used among the nobility, Kshatriya warriors, and some other sectors of society (Acharya, 1991). Alcoholic drinks were particularly strongly forbidden to Brahmins (Sharma, 2010). In the Post–Vedic period, there were mechanisms for supervision of alcohol sales. (Boesche, 2003). Like Kshatriyas, Vaishyas and Shudras also seemed to have had relatively fewer restrictions on alcohol use.Both abstinence and drinking co-existed in different contexts and strata of the society (Sharma, 1996). Religions played a role in Alcohol use. Buddhism and Jainism strongly condemned use of alcohol (Francis, 1905). Health experts like Charaka presented a moderate view of Alcohol use, through his writings (Mahdihassan, 1991).

Period of Islamic rule witnessed a change in attitude towards alcohol use. The Muslims were of? cially opposed to alcohol use, as the Quran speci? cally prohibits all alcohol use. However, wine remained part of court life. However, Muslim rulers did not usually interfere with alcohol use, of the Hindu and Christian population (Manucci, 1996). With the advent of Colonial rule, under the influence of British rulers, the consumption of alcohol increased gradually, with loosening of liquor laws (Parkar, 2001). Production and sale of unlimited amounts of alcoholic beverages led to

increased alcohol consumption, drunkenness, Alcohol Dependence and crime (Saldanha, 1995). With the rise of National movement, many national leaders including BalGangadharTilak, Mahatma Gandhi and Kasturba Gandhi came forward to fight English imposition of alcohol, with limited success.

Since the 1970s there has been a strong increase in use of alcoholic beverages. New drinking patterns have emerged at regional and local levels, and new social costs and public health dimensions, including involvement of alcohol in increasing the risks of HIV/STI infections (Saxena, 1991). Lately, the most prominent growth in terms of percentage was for wine and beer. Hard liquor (Indian Made Foreign Liquor and Country liquor) was the most popular alcoholic drink in Indian society, among all classes. (Sharma, 2010). Alcohol consumption has reached to younger age groups, especially in urban areas. Moreover, many of the young people who drink, tend to drink heavily. Middle class has shown a dramatic rise in alcohol consumption. Fewer people now believe in religious condemnation of alcohol, in contrast to the earlier periods (Rai, 2002).

The National Family Health Survey-3 for 2005–2006 found that 32% of male respondents (N = 74369) reported that they consume alcohol, of whom almost two-thirds said they drink less than once a week and nine percent reported that they drink nearly every day (NFHS, 2005). The recent surveys, including the NFHS-3 and others, provide prevalence rates of 'any alcohol use' among Indian adult men that vary from 21 to 32%. Regular use of alcohol is seen in 10 –20% of the respondents. Cross-sectional studies conducted in various parts of the India have found that about 5–15% of alcohol users are Alcohol Dependents.

Historical Background of Alcohol Use and Alcohol Dependence in Kerala

Kerala has a long history of alcohol use. Coming to modern era, socio-political characteristics of Kerala has evolved its drinking behaviour. Boban's 1998 description of alcohol use among tribal people in Kerala exempli? es that pattern, as 'Tribals drink both country-made arrack (known as kottuvady) and also foreign liquors like brandy and Western-oriented lifestyles, including increased drinking of factory produced strong drinks, of which whiskey is generally the most widely used' (Sharma, 1996).

In recent times, Kerala has become highly materialistic, as far as the consumption of alcohol is considered. The state is ranked at the top in alcohol use in the country. The consumption pattern has steadily increased from 1980 to 2010. Per capita consumption of alcohol in Kerala is 8.3 L, according to Alcohol and Drug Information Centre (ADIC), India. Twenty percent of the general population of state uses alcohol. Intensity of drinking also is more in Kerala (14% of population consume alcohol daily), as compared to the other states of the country (where on an average, 11% drink on a daily basis). Particularly, a greater proportion of males aged 50-54 years, separated persons and widowers use alcohol every day, in comparison to other states of the country. The age of first drinking has also decreased steadily from 19 years (1986) to 13 years (2001). Data on sales reveal a sharp increase in sales since the mid-1990s. (Ramanathan, 2007).

Government has failed in addressing issues of Alcohol use, even though there are enough laws for the prohibition of Alcohol abuse, one of those being this directive principle of state policy. As time passed by, the state government was not sensitive enough in implementing prohibition. Consequently, liquor business turned out to be the second largest means of income for state government (Ramanathan, 2007).

Rationale of the study

The prevalence of Alcoholism in Kerala is 20-38% (Mohan et al, 2000). This suggests how serious the problem of alcoholism in Kerala is.

Considering the magnitude of the problem of Alcoholism in Kerala, not many studies have really focused on the issue of Alcohol Dependence, even though many studies have been conducted on the prevalence and problems of alcohol use.

Even with these prevalence studies, the researchers had not made attempts on comparing the prevalence within a particular society with respect to various socio demographic variables such as locality (urban area /rural area), religion, educational status, occupation, even though studies have been conducted outside the state (supported by literature). Thus, there exists a research gap in the state of Kerala, pertaining to this particular issue of Alcohol Dependence. The review of literature also points to the fact that research has failed to address the issue of prevalence of Alcohol Dependence in Kerala, although such studies have been carried out in other parts of the country and outside India. So, a study to assess the prevalence of Alcohol dependence in the state is highly relevant.

Alcohol Dependence

Alcohol Dependence is a chronic disorder. It is manifested by physiological and psychological symptoms. As far the amount of drinking is concerned, a person who takes more than 4 drinks per day or more than 14 drinks per week can be considered as Alcohol Dependent (Healthwise, 2014).

Age and Alcohol Dependence

Some studies reveal that prevalence of Alcohol Dependence is considerably high among the youth. Prevalence of alcohol use is 31.1% among college students of Ludhiana, Punjab (Khosla et al, 2008). Alcohol use and Dependence is high also in middle aged population and older adults. In Mumbai, 18.8% of the middle-aged and elderly men consumes alcoholic beverages (Gupta et al, 2000). Alcohol Dependence among elderly population is estimated around 4% (Connel et al, 2003).

Family and Alcohol Dependence

Family is one of the basic units of socialization. The alcohol consumption habit in the family may influence even the non-drinkers (especially children) in the family, encouraging them to use alcohol (Ramanathan, 2012). In Thrissur, Kerala, 10% of children of alcoholic parents uses alcohol, as opposed to 3.7% of children of non-alcoholic parents (Chopra et al., 2008).

Religion, Ethnicity and Alcohol Dependence

Religion and ethnicity also influence drinking patterns. Literature suggests that students belonging to Sikh religion were twice as likely as others to consume alcohol (Khosla et al., 2008). No protective relationship exists between early Buddhist religious life and alcohol use problems (Assanangkornchai et al, 2001). Christians tend to drink more, as compared to Muslims (Amundsen, 2012). Ethnic discrimination increases chances of having harmful alcohol use or Alcohol Dependence disorder (Chae et al, 2002).

Locality and Alcohol Dependence

Alcohol Dependence vary in urban, rural, town and slum populations. Even though the proportion of alcohol users is greater in towns, frequent heavy drinking is higher in slum and rural areas (Girish et al, 2009). In Chandigarh, Punjab, 6.88% of the total population satisfy the criteria for Alcohol Dependence. Prevalence of Alcohol dependence is around 10% in urban slums, while it is under 3% for rural areas (Chavan et al, 2007). Mortality related to alcohol is higher in urban areas as compared to rural areas (Erskine et al, 2010).

Educational Status, Occupation and Alcohol Dependence

Alcohol Dependence is one of the important social consequences of poor education. Among men, very excessive drinking is found to be higher in low educational groups, while 'Psychological Dependence' is higher in intermediate educational groups (Van et al, 1998). Harmful drinking and Alcohol Dependence is higher in physically strenuous occupations. The prevalence of hazardous drinking among industrial workers in Goa is 21% (Silva et al, 2003).

Income, Economic Policies and Alcohol Dependence

In India, the prevalence of harmful alcohol use and Alcohol Dependence is higher among the poor sections of the society (World Bank report, 2001). However a positive correlation exists between income and abuse of alcohol and a negative relationship between income and Alcohol Dependence (Keyes 2007). Financial policies such as prohibition of alcohol has varied effects on alcohol use (Rahmin, 2003).

International Differences in Alcohol Dependence

Drinking patterns vary from one country to the other. Cross-cultural comparison of alcohol consumption in India, Mexico and Nigeria reveals that drinking patterns vary substantially among these countries. The drinking patterns may also change within a particular country, with due course of time (Bennet et al, 1998).

Alcohol Dependence in Populations with Specific Health Conditions

Alcohol Dependence is high in special populations such as people with certain health conditions is usually higher than in general population. In Zambia, an African nation, prevalence of Alcohol Dependence is 27.2% among men with Tuberculosis and HIV (Rebecca et al, 2013).

Effects of Alcohol Dependence

Alcoholism is one of the main causes of road traffic accidents in India (Sivakumar, 2012). Stigma related to Alcohol use and Alcohol Dependence is a major concern. Stigma may worsen severe physiological, psychological and social consequences of Alcohol Dependence George et al, 2010). Violence resulting from excessive use of alcohol and Alcohol Dependence is a serious effect of Alcohol Dependence (D'Costa et al, 2006). Impoverishment is another serious consequence of excessive use of Alcohol. A large chunk of Alcohol Dependents are poor. Further impoverishment may occur as a result of borrowing owing to substantial spending for alcohol (Bonu et al, 2005).

Methodology

A cross-sectional, descriptive study design was used for this study, as the study was aimed as estimation of prevalence of Alcohol Dependence, and the aim was to describe the extent of the problem of Alcohol Dependence with respect to various socio-demographic variables such as Locality: Urban area /rural area, Religion, Education and Occupation. Data collection was planned and carried out from 1st April to 31st May, 2014. Total duration of data collection was two months.

Total sample size of the study was 302. Sample size was calculated on the basis of previous estimates of Alcohol Dependence, in Thiruvananthapuram. Since not many studies were conducted in Thiruvananthapuram to estimate the prevalence of Alcohol Dependence, data from the available literature were used.

Sample size was calculated using sample size formula for cross-sectional studies:

$$n = \frac{Z^2\ 1-\alpha/2\ P(1-P)}{e^2}$$

Where, n= number to sample
Z2= (1.96)2 for 95% confidence
P= "best guess" for prevalence (e.g. +/−0.25 is taken in this case)
e= maximum tolerable error for the prevalence estimate (e.g. +/−0.05)
Applying the formula,

$$n = \frac{Z^2\ 1-\alpha/2\ P(1-P)}{e^2} = \frac{1.962*0.25\ (1-0.25)}{0.05*0.05} = 288.$$

Thus, a total sample of 288 was to be obtained. Estimating an average refusal rate of 15% from the previous related studies, 331 people were approached in total (288+43). Three hundred and five people agreed to participate in the study. Therefore, response rate was 92.15% and refusal rate was 7.85%. Three people were excluded, as they were illiterates.

Samples were selected from the target population using multi−stage sampling process. Out of the four taluks of Thiruvananthapuram, two were randomly selected in the first phase of sampling process. From these two taluks, four areas were selected purposively (two wards from urban area and two villages from rural area) as the study aimed at comparing the prevalence of Alcohol Dependence in urban and rural areas. Voters list of these four areas were obtained. List of males were obtained from the voters list. Later, 75 males were selected from each area using random number tables (simple random sampling).

The study was conducted in Thiruvananthapuram district. Thiruvananthapuram is the capital of Kerala state.

Urban setting: There are 100 wards in the Corporation of Thiruvananthapuram. Out of these, two wards were selected for the study. Palayam ward and Kunnukuzhy ward were the two wards which formed a part of the study. Both these wards have 100% urban population.

Rural Setting: In Thiruvananthapuram district, there are 73 gram panchayats in total. For the present study, Kattakada and Ottasekharamangalam gram panchayats were selected.

Alcohol Dependence is the main variable included in the study. Other variables are:

- Age
- Marital status
- Religion
- Locality: Urban area/ rural area
- Educational Status
- Occupation
- Family income.

Data Analysis and Results

Socio- Demographic data

Age

Mean age of the respondents was 42.65 (Standard deviation−17.2) years, whereas median age was 39 years. Youngest respondent was 18 years old, while oldest respondent was 89 years of age.

Alcohol Dependence

Marital status

Out of 302 respondents, 189 were married. There were 65 unmarried respondents. Numbers of widowed and separated respondents were 41 and 7 respectively.

Locality

Of total 302 respondents, 152 resided in urban areas whereas 150 belonged to rural areas.

Educational Status

Only five people had no formal education. Still, they could read and write Malayalam.Around 12% respondents had primary education only. More than 70% of the total participants had high school education or more. About one percent of the total respondents were post−graduates.

Occupation

About two-thirds of the total participants (198 out of 302) of the study worked in informal sector (informal sector includes manual labour, head load work, carpentry, construction work). Less than 16% (48 out of 302). Number of students and retired persons were 6 and 14 respectively. Thirteen respondents were self-employed, while twenty three were unemployed. Rate of unemployment was 7.6%.

Income

Mean monthly family income was Rs.5927.81. Median income of 302 respondents who participated in the study was Rs.5000. Lowest monthly family income was Rs.1000 and highest monthly family income was Rs.40000.

Income was categorized according to Kuppuswamy's socioeconomic scale's (1976) income subscale (according to Consumer Price Index of 2014.

Prevalence of Alcohol Dependence

Total score of prevalence was calculated by totalling all the twenty five items of the Alcohol Dependence Scale (ADS).

Based on the total score, prevalence of Alcohol Dependence was later categorized into the following categories (as instructed in ADS interpretation guide):

- Low level prevalence
- Intermediate level prevalence
- Substantial level prevalence
- Severe level prevalence

Overall Prevalence of Alcohol Dependence

Out of 302 respondents who participated in the study, 116 respondents were found to be dependent on alcohol. Dependence levels ranged from low level to severe level (based on total score of Alcohol Dependence).

Thus, overall prevalence of Alcohol Dependence in the study population was 38.41%.

More than half of the total Alcohol Dependents had low level of Dependence (61 out of 116). Eighteen people had intermediate level of Alcohol Dependence. Twenty one participants were found to have substantial level of Dependence, while sixteen respondents were severely dependent to Alcohol.

Table 1: Overall Prevalence of Alcohol Dependence (N=302)

Dependence	Frequency	Percent
No Dependence	186	61.6
Low level of Dependence	61	20.2
Intermediate level of Dependence	18	6.0
Substantial level of Dependence	21	7.0
Severe level of Dependence	16	5.3
Total	302	100.0

Urban and Rural Prevalence of Alcohol Dependence

Urban and rural areas selected for the study had comparable prevalence rates (39.47% and 37.33% respectively). In both urban and rural areas, around half of the respondents who had Alcohol Dependence had low level of Alcohol Dependence. Substantial level of Alcohol in rural areas was twice that of urban areas.

Association between Socio-demographic Variables and Prevalence of Alcohol Dependence

Various statistical methods were used to find out the association (if any) between socio-demographic variables and Alcohol Dependence. Main statistical tests employed include:

- Pearson correlation
- ANOVA (Analysis of Variance)

Table No. 2

Pearson correlation	
Age and Total Score of Alcohol Dependence (N=302)	0.196**
Correlation between Income and Total Score of Alcohol Dependence (N=302)	-0.124*

** Correlation is significant at 0.01 level (2-tailed).

* Correlation is significant at 0.05 level (2-tailed).

ANOVA (Analysis of Variance)

To assess the difference in variance between and within groups, ANOVA test was conducted between categorical independent variables comprising of age categories, marital status, religion, locality, educational status, occupation, income and continuous dependent variable: total score of Alcohol Dependence. ANOVA test was significant for age categories, marital status, religion and educational status.

Age categories and total score of Alcohol Dependence

One-way ANOVA was performed to assess the variance. Results were statistically significant between groups (F=3.415, p=0.034). Tukey post-hoc was performed, which did not yield significant results.

Marital status and total score of Alcohol Dependence

In this case, one-way ANOVA revealed that there was statistically significant variance (F=2.797, P=.040). Post-hoc (Tukey) test denoted statistically significant variance between unmarried (mean=3.55, SD=7.042) and widowed (mean=9.44, SD=13.737) groups (p=0.021).

Religion and total score of Alcohol Dependence

Statistically significant variance existed, as expressed by one-way ANOVA test (F=8.558, p=0.000). From post-hoc (Tukey) test, it can be inferred that Muslims (mean=1.45, SD=5.182) were statistically different from Christians (mean=7.53, SD=11.258, p=0.000) and Hindus (mean=6.43, SD=10.983, p=0.003).

Educational status and total score of Alcohol Dependence

Groups had statistically significant variance (F=3.580, p=0.001), as depicted by one-way ANOVA statistic. Post-hoc test revealed statistically significant difference among group with no formal education (mean=18, SD=17.161) and group with higher secondary education (mean=3.46, SD=7.709,

P=0.041). Similarly, there was statistically significant difference between group with no formal education (mean=18, SD=17.161) and group with graduation (mean=3.16, SD=7.406), with a p value of 0.046.

ALCOHOL DEPENDENCE

Discussion and Conclusion

Prevalence of Alcohol Dependence was found to be significantly high (38.41%), in comparison with the previous studies discussed in the review of literature section (section 2.1.). This was true across urban and rural areas. Chavan et al, 2007 had found that prevalence of Alcohol Dependence in urban area of Chandigarh was 10% in urban areas and 3% in rural areas. Rebecca et al 2013 had concluded that prevalence of Alcohol Dependence was 27.2% in people with Tuberculosis and HIV.

Since similar studies to assess the prevalence of Alcohol Dependence have not been conducted in Kerala context, lack of baseline comparison data is an issue. Direct comparison with other similar studies discussed in the review of literature section is not fair, as these studies were conducted in different in different populations in totally different settings.

Lack of education and widower status were found to be significantly associated with Alcohol Dependence, as evidenced by ANOVA (Analysis of Variance) of educational status and marital status. These findings were in consistent with the previous studies mentioned in review of literature section. Erskine et al, 2010 had found that social deprivation is associated with Alcohol Dependence and related deaths.

Standard deviation values were higher than mean values in ANOVA results. This is possible, when most of the values fall in two extremes. Frequency tables were obtained for all socio-demographic variables along with scores of Alcohol Dependence. Scores were obtained for mean, standard deviation, skewness and standard error of skewness for each variable. Each variable was tested for statistical values of skewness. Most of the values were positively skewed.

Some possible explanations for this scenario are as follows:

1) Multi-stage sampling without stratification was used in this study. Ideally, stratified random sampling or quota sampling should have been used, so as to obtain better representation from each sub-group.

2) A sample size of 302 might not have been sufficient for a prevalence study. Small sample size might have yielded more outliers.

3) Since the issue of Alcohol use is a sensitive issue, many people may have given normatively plausible and socially acceptable replies.

4) Many respondents were under the influence of alcohol, when they participated in the study. This factor might have urged them to give 'exaggerated' answers. This couldn't have corrected, as these people were under the influence of alcohol during most part of the day.

As far as religion is concerned, Muslim religion was much less associated with Alcohol Dependence as compared to that of Hindu and Christians. This may be attributed to the religious and societal norms association with taboo related to alcohol use in Muslims. This finding was consistent with study of Norwegian immigrants (Ellen, 2012), which concluded that Muslim immigrants drank less frequently, in comparison to other groups which participated in the study.

Conclusion

This study was aimed at obtaining the prevalence of Alcohol Dependence among males in Thiruvananthapuram district. It also looked at associations between Alcohol Dependence and various socio- demographic variables. As far as meeting objectives are

concerned, this study is successful, as both the objectives were met. More studies are required, as there should be enough baseline data for comparison. Several factors are associated with Alcohol Dependence among males in Thiruvananthapuram. Social determinants of Alcohol Dependence also need to be looked at in greater depth. Recent efforts by Government of Kerala to curb alcohol use is positive. Still, there should be sustained efforts to close all liquor shops down. Political will is inevitable in this regard. More emphasis should be laid upon Behaviour Change Communication (BCC) activities, as behaviour change is the ultimate measure to get rid of the menace of excessive alcohol use.

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