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Original article:

A cross-sectional study of alcohol consumption patterns and risk factors amongst urban and rural male residents

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Abstract:

Introduction: Alcohol means ethyl alcohol, it is an intoxicating ingredient found in various alcoholic beverages. Alcoholism is major public-health problems in developed and developing countries. In 2016, the harmful use of alcohol resulted in some 3 million deaths worldwide. Certain factors pertaining with living in an urban or rural area are responsible for increased risk and determining a person's level of risk for alcohol-related problems.

Method : Present cross-sectional study conducted at urban and rural field practice areas under the Department of Community Medicine of a tertiary care hospital. Study subjects consisted of all male residents who are aged 18 years and above, consumed alcohol at least once or more in life. The protocol of this study was approved by the Institutional Ethical committee of the medical college. Socio-demographic variables like Age, social group, age of starting / initiation of drinking, duration of drinking etc. The data was collected, entered, tabulated and analysed using Microsoft Excel 2019 and Open Epi Version 3.01 software. P value <0.05 was considered significant.

Result: Indian made country liquor and locally brewed arrack was preferred by almost two third of rural alcohol drinkers and followed by beer were the preferred alcoholic beverages by urban users. Almost 46% of the urban alcoholics had initiated drinking before the age of 20 years while in rural area 33% initiated in the age group of 21 – 25 years. Only three fourth of alcohol users from urban area were drinking for more than 5 years and rural area percentage of drinkers drinking for >5 years was 43.7%.

Conclusion: Indian made foreign liquor, beer, mean age of initiation of drinking and >5 year drinking was significantly more in urban area than rural area.

Key words: Alcohol use

Introduction:

Alcohol means ethyl alcohol, or ethanol, it is an intoxicating ingredient found in various alcoholic beverages like beer, wine, and liquor. It is produced by the fermentation of yeast, sugars, and starches. [1] Both Developed and developing countries are facing Alcohol-abuse and alcoholism as one of the major public-health problems [2]. They are also one of the leading causes of the death and disability globally. [3] Around 70% of the deaths due to alcohol are reported in developing countries. [4] In 2016, the harmful use of alcohol resulted in some 3 million deaths worldwide and 132.6 million DALYs - i.e. 5.1 % of all DALYs in that year. Mortality resulting from alcohol consumption is higher than that caused by diseases such as TB, HIV/AIDS and diabetes. Among men, in 2016, an estimated 2.3 million deaths and 106.5 million DALYs were attributable to the consumption of alcohol. [5][6]

Commercial and non-commercial (illicit) use of alcohol in India, and its impact on health and society has been discussed in previous literatures. [7][8] Loss of productivity and absenteeism at work, financial problems and poverty, road traffic injuries, mental disorders, domestic violence, unsafe sexual behaviour, and nutritional and health problems are also associated with it. Hazardous drinking pattern of alcohol consumption increases risk of harmful consequences for the user or others. [9]

In India, though only 21% of men consume alcohol (for women it has been estimated at < 5%); evidences are suggestive that more than half of alcohol consumes are heavy drinkers. [10] In addition to this drinking is disproportionately higher among poorer and socially marginalized groups, like scheduled castes and tribes, India's indigenous populations. [11] Despite being such a huge public health crisis, alcohol misuse has not received adequate attention in India. Although there is high prevalence of alcohol use and detrimental pattern of alcohol consumption, public health policies against alcohol use are lacking in India. With contribution of 20% of total state revenues, alcohol turns the policy-makers intentionally blind towards this public health crisis. [12] So, this makes mandatory to strengthen the secondary level of prevention to avert ill effects of alcohol on the health of individuals. Early identification of individuals with harmful alcohol use and dependence treating will of great help in this situation. [13][14]

Light to moderate alcohol consumption for recreational purposes on social occasions may be considered normal and acceptable in many communities in the country. Added to this are the scientific evidences stating that alcohol consumption in small quantities is good for the heart. But people are unaware that even occasional use can lead to alcohol intoxication leading to road traffic accidents and domestic accidents within household [15]

Many studies suggesting findings that that low to moderate levels of alcohol use may play a role in reducing mortality for certain disorders, such as cardiovascular disease also complicates the drinking and drinking pattern. [16]

Research in the past few years has conclusively demonstrated that nearly one in 3 male adults consume alcohol, and 5% of Indian women are already regular users. [17] Geographic location is likely to be an important factor in determining a person's level of risk for alcohol-related problems. Certain factors pertaining with living in an urban or rural area are responsible for increased risk, while others may happen to be protective for these problems. For example, the easy availability of alcohol in vicinity, social norms for acceptable drinking behaviours, demographic characteristics, and economic factors all these vary with respect to geographic area and are likely to play a major role or influence drinking behaviours. [18] Due to lack of scientific research in India on the alcohol effects, the harmful and hazardous effects are still not documented clearly. This type of study on alcohol consumption patterns or a risk factor assessment in the region or district of our tertiary medical college has not yet been reported in literature

Aims and objective:

To describe the consumption patterns of alcohol in urban and rural male residents and their socio-demographic factors.

Materials and Method

Present cross-sectional study conducted at urban and rural field practice areas under the administrative control of Department of Community Medicine of a tertiary care hospital. In the 2011census, there was a population of 37,111 with 8,030 households in the rural field practice area, while in urban field practice area there was a population of 35587 people with 6440 households. Almost 40% of population of urban field practice area lives in slum area.

Considering the prevalence of Hazardous use of alcohol 14.2% rural area and 31.4% in urban area with confidence level 95%, absolute precision is 8%, attrition rate 10% then sample size is 215 cases in each group. Total sample size 430. Purposive sampling technique was used for selection of cases.

Study subjects consisted of all male residents who are aged 18 years and above, consumed alcohol at least once or more in life. Who are conscious and willing to participate in the study will be included in the study. Alcoholics who are in altered consciousness, with cognitive impairment and critically ill will be excluded from the study. The protocol of this study was approved by the Institutional Ethical committee of the medical college. Written informed consent was taken from all study subjects before collection of data, and they were informed about complete right to withdraw from the study at any time without disadvantage. In case any participant who was not literate verbal consent was obtained after reading out the consent form to him and his verbal agreement was recorded by the interviewer in front of a witness.

Study variables:

A predesigned, pretested, semi-structured questionnaire containing following items,

This study uses following range of variables representing socioeconomic and demographic characteristics of the sampled population. The selected variables are: Age, religion, social group, marital status, type of family, education, Socio economic class, occupation, type of alcohol beverages, age of starting / initiation of drinking, duration of drinking.

Statistical analysis:

The data was collected, entered, tabulated and analysed using Microsoft Excel 2019 and Open Epi **Version 3.01** software. The qualitative data were expressed in number and percentages. The quantitative data were expressed in terms of mean and standard deviation. Pearson Chi square test was use to find the significance differences of socio demographic variables and alcohol use between rural and urban. P value <0.05 was considered significant

RESULTS

Table 1: Demographic variables and consumption pattern in urban and rural

		Urban (%)	Rural (%)	Chi-square	P Value
Age (Yrs)	18-25	27(12.5)	20(9.3)	7.47	0.28
	26-33	43(20)	45(20.9)		
	34-41	49(22.8)	62(28.8)		
	42-49	37(17.2)	45(21)		
	50-57	24(11.1)	21(9.8)		
	58-65	21(9.7)	16(7.4)		
	>66	14(6.5)	6(2.8)		
Religion	Hindu	140(65.1)	165(76.7)	7.64	0.054
	Muslim	25(11.6)	15(7)		
	Buddhist	40(18.6)	30(13.9)		
	Others	10(4.6)	5(2.3)		
Social group	Scheduled castes	78 (36.3)	112 (52.1)	46.69	<0.0001
	Scheduled tribes	26 (12.1)	74 (22.3)		
	Others (OBC)	111 (51.6)	55 (25.6)		
Marital status	Married	105 (48.8)	142 (66)	13.05	0.0014
	Unmarried	78 (36.3)	51 (23.7)		
	Separated/ widowed	32 (14.9)	22 (10.2)		
Type of family	Nuclear	110 (51.2)	58 (26.9)	28.04	<0.0001
	Joint	66 (30.7)	86 (40)		
	Three generation	39 (18.1)	71 (33)		
Education	Illiterate	19 (8.8)	41 (19)	62.15	<0.0001
	Primary	23 (10.7)	68 (31.6)		
	Secondary	37 (17.2)	41 (19)		
	Higher secondary	58 (27)	29 (13.5)		

	Graduate	49 (22.8)	24 (11.1)		
	Post graduate	29 (13.5)	7 (3.2)		
Socio economic class	I	49 (22.8)	14 (6.5)	59.23	<0.0001
	II	78 (36.3)	37 (17.2)		
	III	48 (22.3)	73 (33.9)		
	IV	24 (11.1)	51 (23.7)		
	V	16 (7.4)	40 (18.6)		
Occupation	Unemployed	30 (13.9)	26 (12)		
	Agricultural labour	0	98 (45.6)		
	Non-Agricultural labour	103 (47.9)	45 (20.9)		
	Government service	17 (7.9)	9 (4.2)		
	No fixed employment	30 (13.9)	26 (12)		
	Retired	24 (11.1)	11(5.1)		
Types of alcohol beverages	naturally occurring toddy/ neera	19 (8.8)	27 (12.5)	82.05	<0.0001
	locally brewed arrack	14 6.5)	66 (30.7)		
	Beer	57 (26.5)	19 (8.8)		
	IMFL	80 (37.2)	31 (14.4)		
	IMCL	45 (20.9)	72 (33.5)		
Age of starting / initiation of drinking	<15	31 (14.4)	19 (8.8)	16.97	0.002
	16-20	68 (31.6)	44 (20.46)		
	21-25	56 (26)	71 (33)		
	26-30	39 (18.1)	65 (30.2)		
	>30 35	21 (9.7)	16 (7.4)		
Duration of drinking	< 5years	160 (74.4)	121 (56.2)	15.62	<0.0001
	>5 years	55 (25.5)	94 (43.7)		

Mean age of urban alcohol drinkers was 41.34 with standard deviation of 13.86 while in rural alcohol drinkers mean age was 40.05 with standard deviation of 11.75 In both the areas majority were in the age group of 26 – 49 years old. Age was same in both groups. In urban area majority of drinkers were from other OBC social group while in rural area majority of drinkers were from scheduled castes. Almost two third alcohol drinkers from rural area were married while around 10% were unmarried. In urban area around half of the alcohol drinkers were married while around one third was unmarried. Separated or widowed participants were some what in equal proportion in both urban and rural areas. Around half of the alcoholics in urban area were from nuclear family While around three fourth of alcohol drinkers from rural area were from joint or three generation family. Around 50% alcohol drinkers from rural area were studied up to primary education

While almost 50% of the alcohol drinkers from urban area were studied higher secondary onwards. Around 49% of the urban alcohol drinkers were belonging to upper and upper middle class. Around one third of alcohol drinkers from rural area were in middle class, and 42% were belonging to lower & lower middle class. Most of the rural alcohol drinkers were employed in agricultural labour (45.6%) while urban were employed in non-agricultural labour. Unemployment and no fixed employment pattern was somewhat

similar in both areas. Indian made country liquor (IMCL) and locally brewed arrack was preferred by almost two third of rural alcohol drinkers. While Indian made foreign liquor (IMFL) followed by beer were the preferred alcoholic beverages by urban users. Almost 46% of the urban alcoholics had initiated drinking before the age of 20 years. While age of initiation of alcohol was higher in rural area 33% initiated in the age group of 21 – 25 years and 30% in the age group of 26 – 30 years. Mean age of initiation of drinking in urban area was 21.36 years with standard deviation of 2.37 years while in rural area mean age of initiation was 22.85 years with standard deviation of 2.13 years. Only three fourth of alcohol users from urban area were drinking for more than 5 years While in rural area percentage of drinkers drinking for more than 5 years was 43.7%.

Discussion

A cross sectional descriptive study was undertaken to assess alcohol consumption practices among adult male members from urban and rural field practice area of a tertiary medical college. Primary Objective was to compare the consumption patterns of alcohol in urban and rural residence. Mean age of urban alcohol drinkers was 41.34 with standard deviation of 13.86 while in rural alcohol drinkers mean age was 40.05 with standard deviation of 11.75 In both the areas majority were in the age group of 26 – 49 years old. Age was same in urban and rural areas. Similar findings for age distribution were found in study done by Pati et al (29)2017 in rural odisha the mean age of the alcoholics was 39.9 (±15.1) years. Kim et al in urban(27) Vellore study found mean age was 39.8 (12.5) years, similar to our study. In our study findings more than half of the drinkers were from other backward OBC and other class while 36.3% were belonging to scheduled castes (SC), 12.1% were from scheduled tribes (ST) while in rural area almost 52% were from the scheduled castes, around one fourth from OBC and other class and around 22% were from scheduled tribes. This difference in distribution by social group was also statistically significant.

Unmarried, widowed or separated was significantly more in urban area than rural area. singh et al Amritsar (21) in urban and rural Amritsar study found Percentage of married regular users more in urban area (93.75%) than in rural area (79.17%). Also Unmarried regular users were more in rural area (17.39%) than in urban area (20.8%). Nuclear family was significantly more in urban than rural area. Eshwar et al (26) in urban Kancheepuram district had almost similar findings 53.8% were from nuclear family, 46.3% were from joint or three generation family. Sachdeva, et al in rural Haryana (25) 2011 study had also higher percentage of alcoholics among joint family system 54.2%.

Around 50.6% alcohol drinkers from rural area were studied up to matriculate as compare to 27.9% in urban area. 19% were illiterates in rural area as compared to 8.8% in urban area. The difference was statistically significant. singh et al (21) Amritsar in urban and rural Amritsar study findings were like in rural area, 72.46% were just literate to matriculate users as compared to 68.76% in urban area. 21.74% were illiterates in rural as compared to 4.16% in urban area. Around 49% of the urban alcohol drinkers were belonging to upper and upper middle class while one third of alcohol drinkers from rural area were in middle class, and 42% were belonging to lower & lower middle class. Higher income in urban areas had significantly more alcohol drinker as compared to rural areas. Eashwar et al (26) in urban Kancheepuram found that48.7% in upper and upper middle class and51.3 in middle, lower middle, lower class according to BG prasad classification. It is somewhat similar to our study. Sujiv et al in rural(28) Puduchchery study had similar findings that45% alcoholics were from lower socioeconomic status while 55 % were from upper. SAu et al in rural west Bengal(31) study had also similar findings like 60.3% belongs to “lower” and “lower middle” socio economic class as Modified BG Prasad’s social classification.

Most of the rural alcohol drinkers were employed in agricultural labour (45.6%) while urban were employed in non-agricultural labour. Unemployment and no fixed employment patterns were somewhat similar in both areas. Barik et al in rural west Bengal (19) had similar finding that those involved with agriculture-related activities had relatively higher consumption of alcohol. Sachdeva, et al Rural Haryana (25)2011 study had similar finding of 46.4% alcohol drinkers having occupation of farmer. Eashwar et al urban (26) Kancheepuram employment status of alcohol drinkers were like 28% were unemployed or unskilled workers 72% were

employed or skilled workers. Girish alcohol Patterns of Use in Four Communities (20) study majority of the rural alcohol drinkers were either unskilled laborers or farmers and large number of urban drinkers were either skilled workers or professionals. So, these rural findings are similar to our study while urban area findings are contrary to our finding.

Indian made foreign liquor (IMFL) and beer was significantly more in urban area than rural area. Ramanan et al rural Puducherry (22) study IMFL was preferred by 37% users, beer by 27% and locally brewed arrack by 22% users. These are contrary to our study findings. John et al rural southern India study (23) contrary to our study findings the commonest preferred type of alcohol used was Indian made foreign liquor (77.9%), followed by Beer11.4% and country liquor 10.8%. Meena et al urban Rohtak (24) contrary to our study findings country liquor 69.07% followed by English and country liquor (both by 10.99%). Girish et al(20) alcohol Patterns of Use in Four Communities- rural areas, the most consumed alcoholic beverage was arrack (52%), while whisky was more frequent in urban (63%),beer consumers were more in the urban areas (23%) compared to rural area. These findings are somewhat like ours. Reasons for preference of country liquor and locally brewed arrack in rural area may be easy availability and cheaper cost. While urban consumers somewhat in higher economic status may afford costly Indian made foreign liquor and beer.

Almost 46% of the urban alcoholics had initiated drinking before the age of 20 years while age of initiation of alcohol in rural area was higher in the age group of 21–25 years (33%) and 30% initiated drinking in the age group of 26–30 years.

Initiation of drinking was much earlier in urban area compared with rural area. Mean age of initiation of drinking in urban area was 21.36 years with standard deviation of 2.37 years; while in rural area mean age of initiation was 22.85 years with standard deviation of 2.13 years. This difference in initiation of the drinking as per age was also statistically significant. Meena et al (24) urban Rohtak found94.83% had their first drink between the ages of 15-25 years. Singh et al (21) Amritsarurban and rural study - rural area more persons (17.6%) had drink in younger age (less than 20years) in comparison to urban area 11%, this finding is contrary to our study finding. Lower age of initiation of drinking in urban area may be due easy availability and advertisement of alcoholic beverages. In our study only three fourth of alcohol users from urban area were drinking for more than 5 years While in rural area percentage of drinkers drinking for more than 5 years was 43.7%.

Conclusion:

We have concluded that Unmarried, widowed or separated was significantly more in urban area than rural area. Nuclear family was significantly more in urban than rural area. Around 50.6% alcohol drinkers from rural area were studied up to matriculate as compare to 27.9% in urban area. 19% were illiterates in rural area as compared to 8.8% in urban area. The difference was statistically significant. Higher income in urban areas had significantly more alcohol drinker as compared to rural areas. Indian made foreign liquor (IMFL) and beer was significantly more in urban area than rural area. Mean age of initiation of drinking in urban area was less than rural area. Duration of drinking more than 5 years was more in urban are than rural area.

Limitation

Alcohol consumption is many times associated with social stigma, so systematic under- reporting could lead to a social desirability bias. Possibility of conscious falsification on the sensitive issues like alcohol drinking could not be ruled out, despite the sincere assurance regarding confidentiality by the researchers.

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