

Original Research Article

Prevalence and pattern of alcohol consumption among women of reproductive age group in urban settings of Sikkim: a cross sectional study

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ABSTRACT

Background: Alcohol consumption by women of reproductive age group not only affects their health but can also cause multiple adverse birth outcomes. The objectives of the study were to assess the prevalence and pattern of alcohol consumption among women of reproductive age group in urban field practice areas of Sikkim Manipal Institute of Medical Sciences (SMIMS) by using a structured questionnaire and WHO tool, AUDIT (Alcohol Use Disorder Identification Test).

Methods: The study was a cross sectional study. A total of 284 women of reproductive age group (15-49 years) were interviewed using a structured questionnaire and AUDIT.

Results: The overall prevalence of alcohol consumption was 36.6%. Proportion of alcohol users was more among women of 25-34 years. Almost 95% of the women are current users (alcohol use in past 12 months). Beer was mostly preferred over other types of alcoholic beverages. Social customs (36.5%) and stress (25%) were the main reasons for consumption of alcohol. Based on AUDIT score, low risk drinking 68.6% was the predominant drinking pattern reported. However, one fourth of the women fall into hazardous pattern of drinking and 3 out of every 100 women had harmful and dependent pattern of drinking respectively.

Conclusions: The present study highlights the prevalence of alcohol consumption among women of reproductive age group in urban field practice areas of SMIMS. Socio-cultural factors and stressful life plays an influential role in consumption of alcohol. Although low risk drinking is the predominant pattern of alcohol use, an alarming 31% of women consuming alcohol are at risk of developing alcohol related harm.

Keywords: Alcohol, Reproductive age group women, Prevalence, Pattern, AUDIT, Public health

INTRODUCTION

Alcohol is as ancient as the history of mankind. The World Health Organization [WHO] estimates that around the world about 3 million deaths happens each year as a result of hazardous use of alcohol, which constitutes about 5.3% of all deaths. This pattern of alcohol use is an etiological factor for over 200 diseases and injury related

states.¹ Various literatures suggested that females have also consumed alcohol since many years. However, in recent years, women have shown a trend of consuming alcoholic beverages more regularly and in also larger quantities. With this current trend of alcohol consumption seen among women, the age old gender gap that used to be observed in alcohol consumption pattern is minimizing.² Use of alcohol by women is associated with

a significant number of medical, psychiatric, and social consequences. The short term and long term effects of alcohol are seen more rapidly and adversely among women as compared to men, even when same amount of alcohol is consumed. This observed phenomenon which makes women progress more rapidly than men into alcohol related harm is due to the gender based physiological and biochemical vulnerability factors.³ In addition alcohol consumption by women of reproductive age groups during pregnancy is a significant social problem that can be associated with adverse perinatal and birth outcomes such as low birth weight, preterm births and Foetal Alcohol Syndrome (FAS) in new born.⁴ FAS are associated with irreversible birth defects such as abnormal facial features, mental and physical defects, growth deficits, problems with the central nervous system and deficits in intellect and learning.⁴ The World Health Organization (2007) observed that alcohol consumption amongst young and reproductive age group women severely impairs their various roles in the society. It also disrupts stability in their families, leading to long term unfavourable effects in the society. All these have become relevant public health issues.⁵

About 30% of the Indian population consumes alcohol on regular basis.⁶ Alcohol consumption pattern among women have marked variations in different parts of India. Remarkably, alcohol consumption among women in Sikkim is reported to be 23% by the National Family Health Survey 4 (2015-16).⁷ This figure points to a definite increase in alcohol consumption among women in Sikkim from the NFHS-3 (2005-06) data which was 19.2%.⁸ Knowledge on extent of alcohol consumption and pattern of use among women of reproductive age group can serve as potential route in protecting women's and children's health of our society. Hence, the present study was undertaken to estimate the prevalence and pattern of alcohol consumption in selected urban geographic settings of Sikkim.

METHODS

Study setting and population

A population-based cross-sectional study was conducted among women of reproductive age group (15-49 years) residing in the four urban field practice areas of SMIMS namely Bhutiagoan, Gairigoan, Tadong Bazar and School Dara in Sikkim. Those women who consented to be part of the study were included in the study. However, those who did not give consent and who were not present in their house even after three visits were excluded from the study. The Institutional Ethics Committee (IEC) of SMIMS approved the study.

Study period

The study was carried out for a period of 6 months from March 2018 to September 2018.

Sampling procedure

Considering the prevalence of alcohol consumption among women in Sikkim to be 23% as reported by the National Family Health Survey 4 (2015-2016), a sample size was calculated by using the formula, $N = \frac{4pq}{l^2}$ [where, n=sample size, p=prevalence, q=(100-p), l=absolute error]. Taking 5% as absolute error, a sample size of 284 was obtained. The urban field practice area of SMIMS consists of 4 hamlets namely- Bhutiagoan, Gairigoan Tadong Bazar and School Dara. The population of women of reproductive age group in the four urban field practice areas of SMIMS was ascertained from the Urban Health Centre, Tadong. Number of women belonging to reproductive age group to be enrolled from each hamlet was calculated using PPS (Probability proportional to size) method. The households were then selected by systemic random sampling from the respective hamlets using sampling interval. If more than one women belonging to reproductive age group are found in the same house, then the women of younger age were chosen for study.

Study tool

A structured and pre-tested questionnaire was used to collect information on socio-demographic variables and characteristics of alcohol consumption of the study participants. To assess the pattern of drinking, Alcohol Use Disorders Identification Test (AUDIT), a validated 10 item questionnaire by WHO was administered to all those who reported drinking at least once during the past 12 months. The drinking pattern of the study participants were further classified as per AUDIT score. A score of 0-6 is indicative of low risk drinking, 7-10 as hazardous drinking, 16-19 as harmful drinking and 20-40 relate to alcohol dependence.

Operational definitions used

Alcohol users

Those women who have used alcohol at any point of time in their lifetime.

Current users

Those women who have ever used alcohol in the last 12 months from the date of interview.

Lifetime abstainers

Those women who have never consumed alcohol in their life.

Binge drinking

Those women who drinks four or more alcoholic beverages at one time in a single sitting.

Data collection and analysis

The consent form was translated into Nepali and explained to the study participants. After obtaining consent, face-to face interviews were carried out by administering a structured questionnaire and AUDIT. Information pertaining to socio-demographic characteristics, type, duration, frequency and reason for alcohol use was gathered based on data collected by direct interviews. Alcohol Use Disorders Identification Test (AUDIT) was administered to all those who reported drinking at least once during the past 12 months. Data thus collected was entered in excel sheet and then analysed by using SPSS version 22.0. Chi square test was used to evaluate association between various socio-demographic factors and alcohol consumption.

Probability value (p) of <0.05 was considered to be statistically significant association.

RESULTS

Prevalence of alcohol consumption

Out of the total 284 women of reproductive age group enumerated, 104 women were found to consume alcohol. Hence, the prevalence of alcohol consumption was found to be 36.6%. Out of the four urban areas surveyed, the highest alcohol consumption was seen amongst women residing in Bhutiagoan area (48%) followed by those living in Tadong bazar (36%), School dara (33%) and Gairigoan area (25%) (Table 1).

Table 1: Prevalence of alcohol consumption.

Place	Number of women enrolled for study	Number of women consuming alcohol	Percentage of women consuming alcohol (%)
Bhutiagoan	87	42	48
Gairigoan	71	18	25
Tadong bazar	69	25	36
School Dara	57	19	33
Total	284	104	36.6

Table 2: Distribution of socio demographic characteristics of the study participants and prevalence of alcohol consumption among them.

Variables	Urban area (n=284)	Alcohol consumption (Yes) (n=104) (%)	Alcohol consumption (No) (n=180) (%)	P value
Age (years)				
15-24	159 (56.0)	48 (30.2)	111 (69.8)	0.005*
25-34	75 (26.4)	38 (50.7)	37 (49.3)	
35-44	40 (14.1)	17 (42.5)	23 (57.5)	
>45	10 (3.5)	1 (10)	9 (90)	
Marital status				
Unmarried/single	154 (54.2)	54 (35.1)	100 (64.9)	0.55
Married/divorced/separated	130 (45.8)	50 (38.5)	80 (61.5)	
Type of family				
Nuclear family	234 (82.0)	96 (41.0)	138 (59.0)	0.003*
Joint family	47 (17.0)	7 (14.9)	40 (85.1)	
Three generation	3 (1.0)	1 (33.3)	2 (66.7)	
Educational status				
Illiterate	9 (3.2)	6 (66.6)	3 (33.3)	0.01*
Primary	16 (5.6)	12 (75)	4 (25)	
Secondary	47 (16.5)	17 (36.1)	30 (63.8)	
High secondary	117 (41.1)	39 (33.3)	79 (67.5)	
Graduation	87 (30.6)	28 (32.1)	59 (67.8)	
Post-graduation	8 (3.0)	2 (25)	5 (62.5)	
Occupation				
Home maker	57 (20.0)	22 (38.6)	35 (61.4)	0.04*
Salaried employee (Govt. and private employee)	54 (19.0)	27 (50)	27 (50)	
Self employed	60 (21.2)	21 (35)	39 (65)	
Manual labourer	13 (4.6)	7 (53.8)	6 (46.2)	
Student	71 (25.0)	16 (22.5)	55 (77.5)	

Continued.

Variables	Urban area (n=284)	Alcohol consumption (Yes) (n=104) (%)	Alcohol consumption (No) (n=180) (%)	P value
Unemployed	29 (10.2)	11 (37.9)	18 (62.1)	
Socioeconomic status				
Upper class	141 (49.6)	63 (44.6)	78 (55.3)	0.007*
Upper middle	72 (25.4)	16 (22.2)	56 (77.7)	
Middle class	32 (11.3)	13 (40.6)	19 (59.3)	
Lower middle	34 (13.7)	11 (28.2)	23 (67.6)	
Lower class	5 (1.76)	1 (20)	4 (80)	
Religion				
Hindu	184 (64.8)	78 (42.3)	106 (57.6)	0.03*
Buddhist	72 (25.4)	21 (27.7)	51 (70.8)	
Muslim	7 (2.5)	0 (0)	7 (100)	
Christian	19 (6.7)	5 (26.3)	14 (73.6)	
Others	2 (0.6)	0 (0)	2 (100)	
Caste				
Schedule tribe	112 (39.4)	52 (46.4)	60 (53.5)	0.03*
Schedule caste	75 (26.4)	25 (33.3)	50 (66.6)	
OBC	61 (21.4)	16 (26.2)	45 (68.6)	
General	36 (12.6)	11 (30.6)	25 (69.4)	
Family history of alcohol use				
Yes	161 (56.7)	88 (54.7)	73 (45.3)	0.0001*
No	123 (43.3)	16 (13.0)	107 (87.0)	

*p value <0.05.

Socio demographic data

The mean age of the study participants was 27.1±7.4 years. More than half (56.6%) of the study participants are in the age group of 15-24 years and married (54.2%). Majority (82%) of the study participants belong to nuclear family. Only 3.2% of the study participants are illiterate. While majority of the study participants have some sort of earnings, nearly 10.2% of them are unemployed and 25% are students. Nearly half (49.6%) of the study participants belong to upper class of socioeconomic status followed by upper middle class (25.4%) based on the Modified BG Prasad Scale (2018). Hindus (64.8%) are the predominant religion of the study participants found in the study followed by Buddhist (25.4%). Nearly two-fifth of the study participants are schedule tribe by caste and 26.4% of them belonged to scheduled caste. More than half (56.7%) of the study participants have family history of alcohol use in the past (Table 2).

Alcohol consumption was found to be more amongst women of the age group 25-34 years (50.7%) followed by the age group of 35-44 years (30.2%), 15-24 years (30.2%) and least above 45 years (10%). Two-third (66.6%) of the women who consumed alcohol was illiterate. Alcohol consumption was lesser reported by women with higher educational status. In the urban areas, women belonging to nuclear family (41%) consume alcohol more followed by those who belong to three generations (33.3%) and joint family (14.9%). More than half (53.8%) of the women consuming alcohol do manual labour work by occupation Women belonging to upper

class (44.6%) of socioeconomic status were more likely to consume alcohol followed by the middle class (40.6%). Alcohol consumption among the study participants was less seen among those belonging to lower class (20%). Hindus (42.3%) consume alcohol more followed by Buddhist (27.7%) and Christians (26.3%). None of the Muslim women found in the study consume alcohol.

Interestingly it was also seen that among those who consume alcohol more than half (54.7%) of the women have a family history of alcohol consumption in the past (Table 2).

Pattern of alcohol use

Upon assessing the pattern of drinking by alcohol use disorder identification test (AUDIT), it was seen that majority (68.6%) of the women who use alcohol belonged to the low risk drinking pattern with AUDIT score ranging from 0-6 followed by hazardous drinking (25.2%) with AUDIT score (7-15). Women with harmful drinking (AUDIT score 16-19) and dependence pattern (AUDIT score -20-40) of drinking constitutes 3.1% each (Table 3).

Characteristics of alcohol use

Around 12 out of 100 women are reported to binge drink or use alcohol excessively usually more than 4 drinks over a short period of time. Almost 95.5% of the women who drink are current users i.e., alcohol use during the past one year. Majority of the women (71%) who drinks stated that they started using alcohol after the legal age of

drinking for the state Sikkim i.e. 18 years and nearly 30% of the women initiated drinking at an early age of before 18 years (Table 4).

Table 3: Pattern of alcohol use by AUDIT score.

AUDIT score	N (n=99)	Percentage (%)
Low risk (0-6)	68	68.6
Hazardous (7-15)	25	25.2
Harmful (16-19)	3	3.1
Dependence (20-40)	3	3.1

Table 4: Characteristics of alcohol use among the study participants.

	No (%) (n=104)
Binge drinking	
Yes	13(12.5)
No	91 (87.5)
Age of initiation of drinking (years)	
<18	30(29)
>18	74(71)
Preferred type of alcoholic beverage	
Beer	42 (40.4)
Wine	25 (24.0)
Whisky	17 (16.3)
Vodka	7 (6.7)
Home brewed	8 (7.7)
Rum	5 (4.8)
Current alcohol use	
Yes	99 (95.2)
No	5 (4.8)
Reason for alcohol consumption	
Stress	26 (25.0)
Social customs	38(36.5)
Peer pressure	15 (14.4)
Easy availability	14 (13.5)
Others	11 (10.6)

Out of the total 104 women consuming alcohol, beer was reported to be the most common type of alcoholic beverage preferred (40.4%). While among the hard liquors the most preferred type was wine (24.0%) followed by whisky (16.3%), vodka (6.7%) and rum (4.8%). Local home brewed alcoholic beverages like chaang, jaand (tongba), raksi are also preferably consumed by around 7.7% of the women and are mostly preferred by women of >40 years. While assessing the reasons for use of alcohol, 36.5% remarked it was extremely common and an accepted practice to consume alcohol in most of the social occasions like festivals, parties or functions in Sikkim. While 25% of them said stressful life (financial, family and work related problems) to be the reason for their influence to alcohol. Other common reasons cited for use of alcohol was influence by peer groups (14.4%), easy availability and sell of alcohol at local areas (13.5%). Only around 10.6% of the women said other reasons like habituation and pleasure seeking activities for consumption of alcohol (Table 4).

DISCUSSION

The results of alcohol consumption are vigorous in nature which are not only alcohol-related death and disability but also its greater socioeconomic impact. In recent years, there is a new pattern of alcohol use seen among women such as decreasing age at initiation, greater allowance of social drinking, drinking at larger quantities, binge drinking, etc. This new pattern is increasingly associated along with the processes of globalization, urbanization and migration.⁹ Understanding the extent of alcohol use by women of reproductive age group is significant not only in terms of alcohol use reduction intervention, but also with the future implication of NCD prevention, maternal and new-born health promotion.¹⁰ This study highlights the prevalence and pattern of alcohol use among women of reproductive age group in four urban geographic settings of Sikkim. Overall the prevalence of alcohol consumption in the study population was found to be 36.6% which is found to be more than the NFHS-4 (2015-16) report of alcohol

consumption among women of urban areas (23%) in Sikkim.^{7,8} These studies definitely indicate to the alarming growth of alcohol use among women in Sikkim. The findings of our study are comparable to the studies done by Thapa et al (24.7%) in Nepal and Subady et al (30%) in Bhutan due to similar regional and socio-cultural practices.^{11,12} Other studies done within the country by Khoslav et al (5.2%) and Manimunda et al (6.0%) reported lesser prevalence.^{13,14}

Age factor and alcohol use is well documented in this study as it was more amongst women of the age group 25-34 years (50.7%) followed by the age group of 35-44 years (42.5%), 15-24 years (30.2%) and least above 45 years (10%). This finding is almost similar to the observations of Subhady et al and Deswal et al.^{12,15} In contrast to the above findings, studies done by Thapa et al and Nirula et al have reported consumption of alcohol to be more among the older age groups above 40 years which could be due to common practice of local home brewing at home and consumption of alcohol by older women in these regions.^{11,16}

It was found in the study that 53.8% of women consuming alcohol do manual labour work (namely: housemaids, construction workers, cook, farming, etc). This could be to relieve and relax from the stress of heavy day's work. Similar finding was also observed by Barik et al among those who do agricultural manual work.¹⁷ Almost half of the women (50%) who are salaried employees in either a government or private sectors are also found to consume. This could also be due to the ease of spending money on pleasure seeking activities which includes use of alcohol.

Alcohol consumption is more among those who are illiterate (54.5%) as compared to those who are educated up to primary level and above (45.5%). This could be comparable to studies done by Deswal et al, Niruala et al, Barik et al and Wangdi et al.¹⁵⁻¹⁸ This reflects the view that education plays an important protective role and gives a direction for designing possible intervention programs. Married women (38.5%) have higher prevalence of alcohol use as compared to those who are unmarried (35.1%) in conformity with other published literature by Barik et al in West Bengal, Wangdi et al in Bhutan and Pandey et al in Sikkim, which reported that alcohol use was more among those who are married (66.7%) than those who are single (33.3%).¹⁷⁻¹⁹ This probably may be due to stress and strains of married life. Another probable reason for alcohol use among married women could be due to their practice of brewing of alcohol using organic products at home which is also commonly seen in Sikkim.

The influential effect of family members consuming alcohol is clearly reflected in this study. More than half (54.7%) of the women who have family member(s) having history of alcohol use in the past are more likely to get involved in alcohol use. Similar observations were

made in another study done by Niruala et al in Eastern Nepal where they found the prevalence of alcohol consumption was nearly eight times more likely among those women whose family included at least an alcohol user than non-alcohol user's family (OR=7.84, 95% CI 5.60-10.98).¹⁶ There was a significant association with the family history of alcohol use and consumption of alcohol in this study. Similarly, observation was made in studies done by Subhady et al, Pandey et al and Eashwar et al.^{12,19,20}

It was seen that most of the alcohol users in this study preferred beer more than hard liquor such as wine, whisky, vodka and rum. Similar observations were made by Kumar et al.²¹ Local home brewed beverages like chaang, jaand (tongba), raksi made of organic products is also consumed by around 7.7% of the study participants. Other studies reported the preference of hard liquor such as spirits, wine etc over beer.^{11,22} However it is also important to notice that the alcohol content of the present day beer available in the market could range from lowest of 5% to as high as 25% alcohol. Research has found that females are much more susceptible than males to alcohol related harm as a result of physiological differences in absorption and enzymatic metabolism of alcohol. Therefore, women who initiate use of alcoholic beverages tend to evolve quicker towards the problem of alcohol abuse and have greater chances of having issues in medical, physical and psychological domains much earlier than men due to the unique phenomena of "telescoping".^{23,24}

Social customs (36.5%) was reported to be the most common reason for alcohol use by the women. This could be due to the customary practice of serving alcohol in festivals, occasions, marriages, parties, etc. which is one of the widely accepted social practices seen in Sikkim. Similar observation was made by Pandey et al in Sikkim.¹⁹ Stressful lives, easy availability of alcohol at local markets all contributed to the rising trend of alcohol use in the state. Other studies conducted elsewhere reported curiosity to explore alcoholic drinks, belief of medical use like decreasing pain to be common reasons for use of alcohol.^{11,22} The pattern of alcohol use was assessed using AUDIT score, which is a 10 item questionnaire validated by WHO commonly used as one of the best screening epidemiological tool for alcohol consumption.^{21,25}

Majority (68.6%) of the study participants belonged to score range of 0-6 and belong to low risk drinking category. However, it is of concern that 25.2% of women in this study are consuming alcohol in such quantity and pattern that will place themselves at risk of adverse health events in the near future (Hazardous drinking). While 3.1% of the women are already into the harmful drinking and alcohol dependence respectively. Alcohol being a psychoactive substance has dependence producing properties therefore early intervention measures will play key role in prevention of initiation of drinking to

worsening of the drinking pattern in due course. Barik et al in their study also found that majority (69.4%) belong to low risk drinking, followed by hazardous drinking (25.2%), harmful drinking (2.9%) and very few dependence pattern of drinking (2.5 %).¹⁷

Wangdi et al in their study reported majority belong to low risk drinking (18.5%) followed by hazardous drinking (10.7%) and very few dependence pattern of drinking (0.7%) based on AUDIT score.¹⁸

In this study 36.6% of the participants consumed alcohol with majority (95.2%) of them being current users of alcohol in the past 12 months. Age, occupation, type of family, educational status, occupation socio-economic status, religion, caste and family history of alcohol use were significantly associated with alcohol use. Other factor such as social customs, stress, and easy availability of alcohol plays an important role in initiation of alcohol use. Although majority of the women in the study have low risk pattern of drinking, a significant proportion of them already are at risk of developing alcohol related harm according to AUDIT score. Early intervention, awareness and health education on harmful use of alcohol along with strict political and policy change in the region could be incorporated as a measure to deal with the menace. This could help in promoting effective and healthy life-style and protect women's and children's health for a better society.

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