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# Prevalence and Associated Factors of Alcohol Consumption Among College Students in Gondar Town, Northwest Ethiopia

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**Abstract:** Background: Excessive alcohol drinking is an important risk factor for many socioeconomic and health problems. The use of alcohol during the teenage and young adulthood years is a common phenomenon in many societies. Thus the study was conducted with the objective of assessing the prevalence and associated factors of alcohol consumption among college students. Methods: A cross-sectional study was conducted from January to May, 2014 among college students in Gondar town. In this study, 454 questionnaires were distributed to Gondar College of teacher's education and Gotoneal college of health sciences students and questionnaires were recollected to assess prevalence of alcohol consumption and associated factors. Result: A total of 454 students participated in the study and all the study participants gave response to the questions. From the survey, it was found that 48.23 % and 26.4 % of the respondents have the experience of alcohol use as ever based and during last thirty days of interview period, respectively. Alcohol consumption experience under differing categories were assessed and a statistically significant difference in alcohol consumption existed only between males (67.6 %, 34.1 %) and females (35.3 %, 21.32 %); Muslims (12.8 %, 10.3 %) and Christians (51.6 %, 27.9 %) with both having P-values less than 0.05 at ever use and last 30 day basis. Based on current findings alcohol drinking was not risk factor for cigarette smoking (OR = 2.93; P>0.1) and Khat chewing (OR=1.18; P>0.1). However, presence of friends with drinking experience was significantly associated for alcohol consumption (OR=13.12; P<0.001). Conclusion: The proportion of students who have engaged in abusive alcohol use was significantly high. Therefore, we recommend regulatory monitoring on alcohol use and intervention activities to bring behavioral change among college students.

**Keywords:** Alcohol Use, Risk Factors, College Students

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## 1. Introduction

There is global concern about drinking trends among young people [1]. Alcohol consumption is an important risk factor for morbidity, mortality and social harm worldwide [2-4] leading to 2.5 million deaths each year [5]. It is responsible for approximately 4 % of the global burden of disease. This burden is higher in high income countries and among men, accounting for 11 % of all male deaths in the World Health Organization (WHO) of European region in 2004 [3]. Even though the problem is said to be increasing in the developing world, there are no sufficient data on alcohol use and its consequences in many developing countries [5,6].

The use of alcohol during the teenage and young adulthood years is a common phenomenon in many societies.

Epidemiological studies indicate for substantial proportion of alcohol users progressing to problematic drinking or become alcohol dependent. Alcohol consumption at a young age increases the risk of developing alcohol related problems later in life [7-12]. Among youth, drinking often coexists with other problematic behaviors such as poor academic performance and absenteeism which may impair healthy development and successful transition from adolescence to adulthood [13,14].

A study conducted among high school adolescents in Ethiopia from 2001 to 2002 reported that about 8.9 % drunk alcohol at least on a weekly bases [15], where as other reports among students in southern Ethiopia and a private school in Addis Ababa found a prevalence of 57.7 % and 19.2 % respectively [6]. In other sub-Saharan African

countries like Kenya ever drinking prevalence of up to 15 % were found among secondary school students [16], where some private universities had rates as high as 84 % [17]. A study from South Africa also reported an alcohol use prevalence of 39.1 % among high school adolescents [18].

As in any other developing countries, the distribution and consumption of substances including alcohol are not sufficiently studied in Ethiopia. Alcohol consumption unless complained is not legally prohibited in Ethiopia and there are no age limits practiced on the ground pertaining to alcohol drinking. Culturally, it is consumed in social gatherings and among friends as a leisure time activity and relaxation experience [6]. Description of the interaction between alcohol consumption and other important variables would have an important value to mitigate alcohol related physiological and social health hazards via regulating on alcohol consumption patterns. College students, as very important age of transition with regard to partial freedom from parent care and pre-occupation age before livelihood stabilization, are prone to related substance use and abusive drinking. It also encompasses the stage at greater risk for HIV/AIDS. Although there are published reports in some other localities of Ethiopia, alcohol use and related variables in Gondar town college students were not encountered. In this regard going through alcohol use and related variables among college students in Gondar town seem to be necessary. Therefore; the main objective of this study was to assess the prospects of alcohol consumption among college adolescents in Gondar town.

## 2. Materials and Methods

### 2.1. Study Area

The study was conducted in colleges found in Gondar town, North Gondar administrative zone, Amhara National Regional State, Ethiopia. It is located in Northwest part of Ethiopia, at about 735 km away from Addis Ababa. Gondar town consist of three public tertiary education institutions namely: Gondar University, Gondar College of teacher's education and Gondar vocational college and private institutions such as Gotoneal, Abyssinia, Blue Nile and Redfox colleges. Students in these colleges come from mainly different districts of north Gondar. Due to complexity in terms of population size, diversity and origin of students, Gondar University was excluded from sampling frame.

### 2.2. Source Population

Source population consists of adolescents enrolled and actively learning in five public and private colleges, namely Gondar vocational college, Gondar regional College of teachers Education, Abyssinia health Science College, Gotoneal health Science College, Blue Nile college and Redfox animal health college.

### 2.3. Study Design

A Cross-sectional study design using pre-structured and

pre-tested questionnaire survey was used to assess the existing patterns in alcohol consumption and associated factors among college students. It was focused on gender distribution, partner alcohol consumption behavior, family alcohol use history, type of alcoholic drink experienced and reason for preferences as well as collateral habits like khat chewing and cigarette smoking.

### 2.4. Sample Size and Sampling

For questionnaire survey on students, [19] derivation was followed to estimate for number of individuals to be included for the survey.

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

Where n = Sample size required;

$Z_{\alpha}$  = is the abscissa of normalized curve at confidence level  $\alpha$

e = the desired level of precision;

p = the estimated proportion of an attribute.

Based on this, the following assumptions were made to calculate the number of individuals to be included in the survey. Since no published reports related to college student alcohol use in Gondar town, 50 % prevalence was used to maximize the representativeness of sample. Non-response rate was expected to be 15 %. The 95 % level of confidence and 5 % desired level of precision were considered. Substituting for  $Z_{\alpha} = 1.96$  at 95 % CI;  $P=0.5$  (50 % prevalence) ;  $e=5$  % (0.05); Non response rate = 15 %, result in  $n = [1.96*1.96*(0.5*0.5)/(0.05)^2]/0.85 = 454$  individuals were included for questionnaire survey. For inclusion of participants, Gondar College of teacher education and Gotoneal health Science College were selected from two public and three private colleges using simple random sampling method. From college of teacher education seven classes on duty during day of survey were randomly selected. Objective and procedures for questionnaire briefed for students and 305-questionnaire format were distributed and recollected. Similarly, from Gotoneal health science college three classes on duty were randomly selected and 149 questionnaire formats were distributed and recollected.

### 2.5. Data Collection and Processing

All data obtained during each step of the data collection procedure was entered to Microsoft excel and exported into statistical software for social sciences (SPSS V. 20) for summarizing the data. Chi square ( $X^2$ ) values were also used together with P-value, odds ratio and confidence intervals. Descriptive statistical methods, such as tables with frequency and proportion were used to present prevalence of alcohol consumption experience by different factors considered. P-value < 0.05 was considered statistically significant.

### 2.6. Ethical Considerations

Ethical clearance was obtained from Gondar University,

College of Medicine and Health Sciences, Institutional Research Ethics Review Committee. The purpose and the importance of the study was explained and written consent was obtained from each participant. They were briefed about the confidentiality of their response and the importance of providing correct and accurate information, and voluntary participation. Permission was also obtained from both surveyed colleges.

### 3. Results

#### *Questionnaire Survey Findings*

##### *Alcohol Use Prevalence*

A total of 454 students participated in the study. All the study participants gave response to the distributed questionnaires. The total prevalence of alcohol use among college students at ever use and experience during last 30 days was found to be 48.23 % and 26.4 %, respectively (Table 1 and Table 2). The prevalence of alcohol consumption experience under different participant categories namely gender, year of study, living style and religious background was summarized and a statistically significant difference in alcohol consumption prevalence existed between males (67.6 %, 34.1 %) and females (35.3 %, 21.32 %); Muslims (12.8 %, 10.3 %) and Christians (51.6 %, 27.9 %) with both having P-values less than 0.05 at ever use and last 30 day basis (Table 1 and 2). No statistically significant difference in alcohol consumption proportion among groups categorized by their housing accommodation styles,  $P > 0.05$  (Table 1).

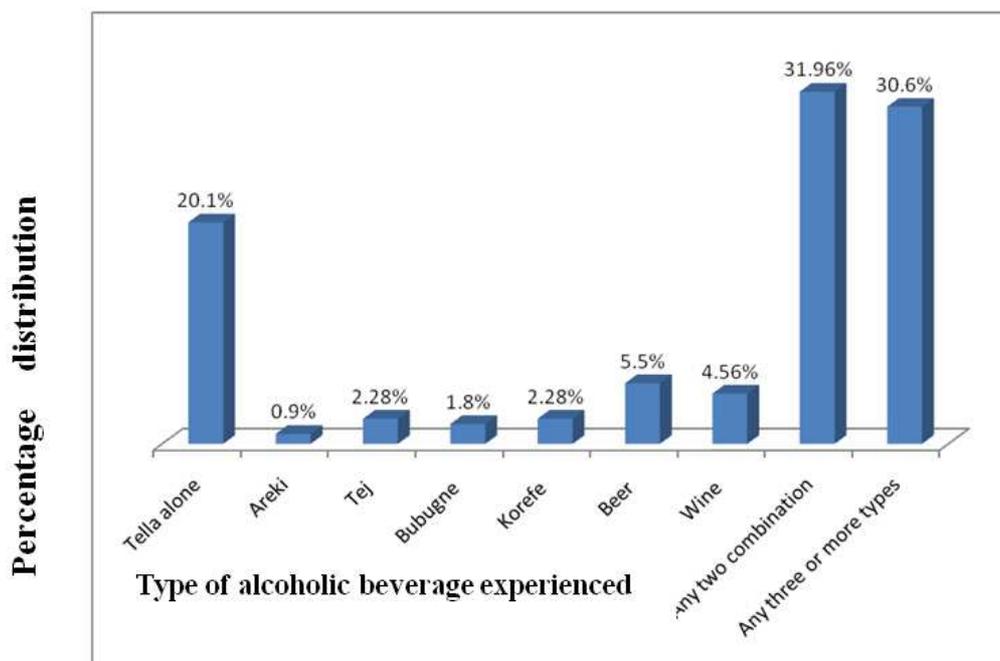
#### *Reasons for alcohol consumption*

From reasons indicated by respondents, 39.7 % of them depend on their previous experiences to select type of alcoholic beverage to consume, while only 7.3 % of them rely on cost affordability (figure 2). Similarly, the motive behind alcohol drinking was also summarized and vast majority (48 %) has no reason as to why they consume alcohol, while 29.7 % of them consume alcohol to get happiness and luxury (Figure 3). From analysis, respondents with alcohol consuming friend and family has greater likelihood for alcohol consumption behaviour compared to respondents having friends and families without experience of consumption of alcohol ( $P < 0.001$ ,  $OR > 1$ ) (Table 3).

#### *Alcohol consumption and related behaviors*

The association of alcohol consumption and related behaviors were assessed from responses collected from questionnaire. Only 12 (5.5 %) of respondents with experience of alcohol consumption have experience of Khat chewing while 207 (94.5 %) of respondents with alcohol use experience have no history of Khat chewing. However, no statistically significance association was perceived and no significance in odds of Khat users with reference to their alcohol consumption status ( $P > 0.05$ ) (Table 4).

Furthermore, association and risk of alcohol consumption and cigarette use was also assessed. Only 8 (3.7 %) of respondents with alcohol consumption were found to experience cigarette smoking while the remaining of 211 (96.3 %) respondents having no experience of cigarette smoking. Similarly to Khat chewing, cigarette smoking was not associated with alcohol use experience ( $P > 0.1$ ) (Table 4).



**Figure 1.** Percentage distribution of alcoholic beverages among those who consume alcohol (n=219).

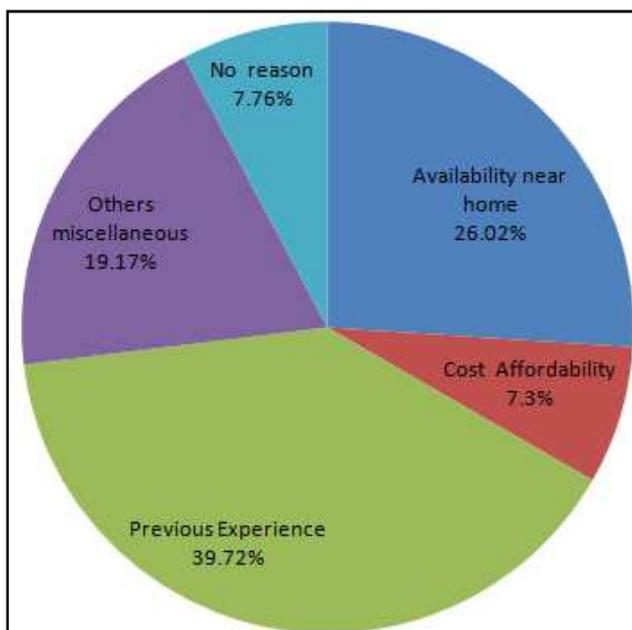


Figure 2. Percentage distribution of reasons for alcohol consumption preference (n=219).

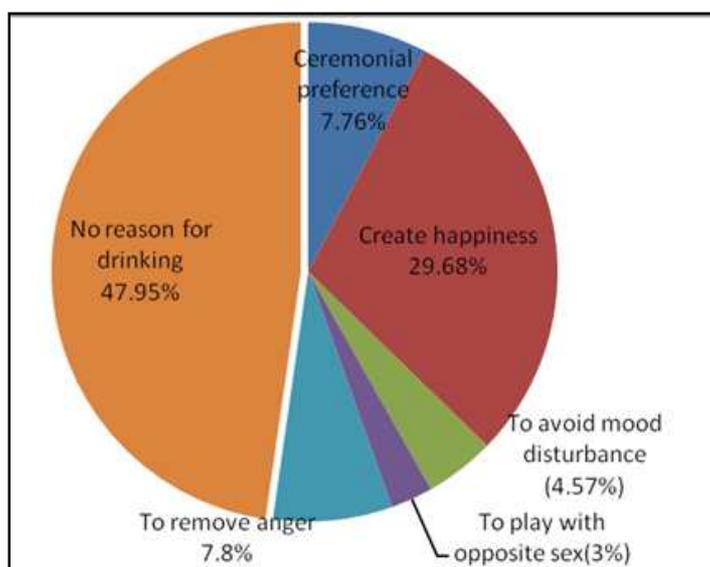


Figure 3. Percentage distribution reasons for alcohol consumption (n =219).

Table 1. Prevalence of Alcohol use by categories of respondents as ever use basis (n=454).

Category	Alcohol consumption Experience			Significance
	Respondents	Number with alcohol experience	Proportion (%)	
Sex	Female	272	35.3	$X^2 = 45.56$ $P < 0.001$
	Male	182	67.6	
Year of study	Freshman	224	41.2	$X^2 = 4.357$ $P > 0.05$
	Sophomere	172	53.5	
	Seniors	58	46.6	
Religion	Christians	415	51.6	$X^2 = 26.2$ $P < 0.001$
	Muslims	39	12.8	
House accommodation Styles	Parents	200	43.5	$X^2 = 9.726$ $P > 0.05$
	Relative	29	37.9	
	Friends	118	56.7	
	Alone	1.7	50.5	
Total	454	219	48.23	

**Table 2.** Prevalence of alcohol use during the last thirty days of interview by respondents categories (n=454).

Category	Alcohol consumption Experience			Significance
	Respondents	Number with alcohol experience	Proportion (%)	
Sex	Female	272	58	X <sup>2</sup> = 9.15 P < 0.005
	Male	182	62	
Year of study	Freshman	224	46	X <sup>2</sup> = 8.77 P < 0.05 (P=0.03)
	Sophomore	172	53	
	Seniors	58	21	
Religion	Christians	415	116	X <sup>2</sup> = 11.5 P < 0.005
	Muslims	39	4	
Total		454	120	26.4

**Table 3.** Prevalence of alcohol consumption relative to friends' alcohol consumption (n= 454).

Personal Alcohol consumption	Friends experience of Drinking		Total	Significance
	With alcohol consuming friend	Without alcohol consuming friend		
Pre sent	144	75	219	OR = 13.12 [10.6,15.7] X <sup>2</sup> =28.2; P<0.001
Absent	30	205	235	
Total	105	349	454	

**Table 4.** Prevalence of alcohol consumption and concomitant Khat and cigarette Consumption (n=454).

Alcohol consumption experience	Khat use experience		Total	Significance	Cigarette smoking experience		Total	Significance
	With	Without			With	Without		
	Alcohol Consumption	12			207	219		
No alcohol Consumption	11	224	235	3	232	235		
Total	23	431	454	X <sup>2</sup> =0.30; P>0.1	11	443	454	X <sup>2</sup> =2.71; P>0.1

## 4. Discussion

From current study, alcohol consumption prevalence at ever use and last 30 day basis among college students of Gondar town was found to be 48.23 % and 26.4 % respectively. Similar result finding of lifetime prevalence rate of alcohol use, 51.9 % was reported in college students from Eldoret, western Kenya [21]. Additionally in private Kenyan university with rates as high as 84% of alcohol use was also reported [16]. A study conducted in Debre Markos University shows greater prevalence rate of alcohol use at ever based (59%) [22]. On the contrary, the global alcohol consumption report encountered was 29.8 % for the entire population above 15 years of age [23]. A lower rate of alcohol use at ever use basis of 22.2 % was reported in high school students from eastern Ethiopia [24]. This difference might have occurred due to cultural and regulation difference, the time the research was undertaken and variations in level of transparency.

Alcohol consumption experience under participant categories of gender has revealed significant difference in alcohol consumption between male (67.6 %, 34.1 %) and females (35.3 %, 21.32 %) at ever use and last 30 day experience basis, respectively. In line with the present study, many studies indicated that in both ever-use and use near to the survey periods, prevalence of alcohol use and exposure for alcohol drinking related problems are higher among

males. Ethiopian national data record document, with female alcohol consumption at ever use basis was 17 % which is less than males [23]. In Debre Markos University, three fold level of ever based alcohol use was reported in males than females [22]. Therefore, all research reports are in agreement with the level of alcohol use at ever use basis that females are more abstained.

Alcohol consumption prevalence by religious categories also show variations being Muslim participants with higher degree of both life time abstinence (87.2 %) and past time 30 day abstinence (89.3 %) unlike that of their Christian fellows life time abstinence (48.4 %) and alcohol use abstinence during last 30 day basis (72.1 %). In line with the present observation, the contribution of religion for societal level of alcohol use has been reported in many published articles. Lower proportion of Muslim high school students (27 %) relative to other faith categories of Orthodox (74 %) and Catholics (43 %) but greater than protestant groups (20 %) was reported [24]. The degree of commitment to religion (the same category) promoting abstinence from alcohol use was also reported [25]. Furthermore, differences in alcohol use or abstinence was reported among different categories with in Christian and Jewish religious categories [26]. The lower prevalence rate of alcohol drinking was reported in United States with greater number of Muslim population [27]. Religions of Islam and Buddhism prohibit followers of their religion from alcohol drinking while Christianity and Judaism have largely approached alcohol with mixed

messages conceiving alcohol as both blessing and curse [28].

Alcohol consumption experience was not seen to show variation among respondents in different years of study and housing accommodation styles at both ever-use and for last 30 days experience basis. Similar findings on residency accommodation was encountered in studies from Kenyan private college student [21] and Haromaya university students [29]. Similarly, no association between year of study and substance use including alcohol, was reported in studies at Haromaya University. From questionnaire response analysis, Tella (20.1 %) was the most dominant local drink experienced by respondents. This might be attributable to its local preparation and cheaper cost compared to manufactured beverages. It was also known from cultural and historic value even before civilization. However, some of the respondents have experience of using both local and manufactured beverages.

From the current study findings, family and friends history of alcohol use experience, were associated with greater tendency for alcohol consumption. Behaviors of Cigarette use and Khat chewing were not statistically associated with alcohol consuming respondents. From studies in high school students in Ethiopia friend's history of alcohol was reported for risk of alcohol consumption [24].

Reasons of previous experiences and cost affordability were mentioned as prominent criteria for preference among alcoholic beverages which indicates possible target to manage alcohol use through taxation. From the current study findings, the motives behind alcohol drinking, like to get happiness and luxury, to entertain their partners and avoidance of distorted mood were indicated. Similar study reports were encountered on incentives to begin drinking such as reasons of meeting new people, making memories, enjoyment, escaping problems and get happy feeling in USA [30].

## 5. Conclusions

The proportion of students who have engaged in abusive alcohol use was significantly high. Therefore, we recommend that teaching learning environments should be regulated to minimize the risk of abusive alcohol use and related problems. Alcohol policies should be reviewed and prevention programmes should be initiated in light of research based evidence for this high-risk population group. Moreover, intervention activities to bring about behavioral change among the students are recommended.

## Authors' Contributions

HK designed and compiled data collection materials, wrote the proposal and analyzed the data. SH was revised the proposal, collect the data, analyzed the data and finalized the write up of the manuscript. HK was responsible for critically revising the manuscript, and participated in its design and interpretation of the results from software analysis. Both authors reviewed and approved the final manuscript.

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