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Problematic alcohol consumption among management undergraduates of Bhaktapur District, Nepal

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Abstract

Background Alcohol consumption is a significant public health concern among young people worldwide. While alcohol use is culturally embedded in many Nepalese communities, evidence regarding the prevalence of problematic drinking and its associated factors remains scarce among youths. This study aims to assess the prevalence of alcohol consumption and problematic drinking and their associated factors among management undergraduate students of Bhaktapur, Nepal.

Method A cross-sectional study was conducted among 304 undergraduate students in Bhaktapur, Nepal. The Alcohol Use Disorders Identification Test (AUDIT) was used to assess problematic drinking. Pearson's chi-square test and multivariable logistic regression analysis were performed to determine factors associated with alcohol consumption and problematic drinking, at the 5% level of significance.

Results The prevalence of alcohol consumption was 58.2% (95% CI:52.0-63.6%), with 26.6% (95% CI: 19.2–33.1%) exhibiting problematic drinking. Being male (aOR: 2.05, 95% CI:1.11–3.76), dissatisfaction with academic performance (aOR: 2.43, 95% CI:1.35–4.38), and alcohol preparation at home (aOR: 2.54, 95% CI: 1.20–5.40) were associated with alcohol consumption. Problematic drinking was linked to male gender (aOR: 4.03, 95% CI: 1.71–9.46), living in a joint family (aOR: 2.40, 95% CI: 1.09–5.29), poor perceived emotional support from family (aOR: 4.94, 95% CI: 1.50-16.26), and traumatic experience (aOR: 2.68, 95% CI: 1.19–6.02).

Conclusion This study revealed the concerning prevalence of alcohol consumption and dependency among Nepali undergraduate students. These findings highlight the need for comprehensive interventions targeting gender, the family environment, and academic factors to address alcohol misuse among Nepali youth.

Keywords Alcoholism, Alcohol abuse, Alcohol dependency, AUDIT, Alcohol use disorder, Hazardous drinking

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Introduction

Problematic alcohol consumption is characterized by excessive and/or harmful drinking patterns, leading to various health and social issues. It is a significant public health concern globally, representing one of the major forms of substance use worldwide [1, 2]. The World Health Organization (WHO) estimates that harmful alcohol use contributes to approximately 2.6 million deaths annually, accounting for 4.7% of all global deaths [1]. Furthermore, WHO data indicates that highest proportion of alcohol-attributable deaths in 2019 were among young people aged 20–39 years at 13% [1]. A systematic review based on university students in China suggest that young adults, particularly college students, typically aged 18 to 25 years are vulnerable to alcohol abuse due to various factors, including the transition from adolescence to adulthood [3]. The transition from adolescence to adulthood coupled with their newly found freedom, peer pressure, academic stressors, and social expectations often contributes to heightened susceptibility to alcohol abuse [4–6].

The prevalence of problematic alcohol consumption among university students varies across regions. For instance, in Africa, significant levels of alcohol use have been observed, as the prevalence of alcohol use ranges from 26.5 to 61.5% in Ethiopia [7–9], 37.1% in South Africa [10], and 78.4% in Southeast Nigeria [11]. Problematic drinking prevalence in South Africa has been reported at 54.8% [10]. A similar pattern is observed in other parts of the world; for instance, hazardous drinking among students in Ireland has been reported at 66.4% [12]. In the United States, problematic drinking rates among college students range from 30 to 40% [13–15]. Alcohol dependence was notably more prevalent among college students as compared to general youth [13]. A systematic review and meta-analysis of university students in China, conducted from 2006 to 2015, revealed an increasing trend in alcohol consumption, with an increased rate of up to 66.8% in males and 31.7% in females among undergraduates [3]. A study conducted in eight medical colleges in India revealed that the prevalence of alcohol consumption among students was 16.6% [16].

Problematic alcohol use has a detrimental effect on the physical, social, and mental well-being as well as the economic status of the individuals and their families. It can further lead to consequences such as liver cirrhosis, cancer, alcohol-induced road traffic accidents, and injuries [17]. Alcohol consumption is a contributing factor to academic challenges among college students, leading to issues such as missed classes and lack of concentration [18]. In South Asia, alcohol use is influenced by social norms, cultural expectations, peer pressure, and the need for stress relief [19]. A systematic review on factors influencing alcohol use in the region suggests that adolescent drinking is associated with various aspects including gender, age, experiencing mental distress, and peer influence, among others [20]. Nepal, is a multi-ethnic country with diverse cultures, where alcohol is considered as a significant part of various ethnic and social ceremonies [21, 22]. Studies have indicated that alcohol consumption in Nepal is influenced by factors such as education level, ethnicity, and geographical residence [21, 23, 24]. The STEPS survey of Nepal reported that almost 2% (95% CI, 1.4–2.9) of participants reported harmful alcohol consumption [25]. Cirrhosis of the liver and other liver diseases related to alcohol use are the leading risk factors for disability-adjusted life years (DALYs) in Nepal [25, 26]. Several studies from different parts of Nepal have reported concerning prevalence rates of alcohol use among Nepalese youth, ranging from 23.9 to 59% [27–30].

Despite these concerning consumption rates, limited studies have explored problematic or harmful drinking patterns among youth, where episodic or problematic drinking and alcohol dependency has been reported to range between 28.4% and 56.3% [23, 28, 31]. These studies have assessed the existence of problematic alcohol consumption among Nepalese communities, however, not much is known about problematic alcohol consumption among Nepalese youths and its contributing factors. Therefore, this study aimed to identify various factors associated with alcohol use and problematic alcohol consumption among management undergraduate students.

Method

Study design and setting

This cross-sectional study was performed among undergraduate students enrolled in management courses in the Bhaktapur District of Bagmati Province, Nepal from, August to November 2023. The Bhaktapur District is one of the densely populated urban districts of Nepal, bordering Kathmandu, the capital of Nepal. Four municipalities inside the districts accommodate 6,666,937 households and 29,164,578 residences, of which 17.95% (5,242,409) are aged between 20 and 29 years [32]. Bhaktapur district was strategically selected for this study due to its proximity to the national capital and its ability to attract a diverse student demographic in terms of economy, ethnicity, and culture from various parts of Nepal. There are a total of thirteen Management Colleges inside Bhaktapur District affiliated to Tribhuvan University, Pokhara University, and Purbanchal University, all of which were selected as the study settings.

Sample size and sampling procedure

The sample size was determined using Cochran's formula for the estimation of a proportion ($n = z^2 pq / d2$) at

a 95% confidence interval and 5% margin of error. The STEPS survey of 2019 revealed that 23.9% of adults consumed alcohol within the past 12 months prior to the day of data collection [28]. Considering this proportion of alcohol use, the initial sample size was estimated to be 273, which was optimized to 304, adjusting the 10% non-response rate. Stratified random sampling was used to enhance the representativeness of the sample, with two strata based on the type of course i.e. Bachelor of Business Studies (BBS), and Bachelor of Business Administration (BBA). A total of 1,658 students were enrolled across the 13 selected colleges (1,344 in BBS and 314 in BBA) To ensure equal representation, the required number of students from each stratum was calculated proportionally. Semester-wise and shift-wise student groups were assigned unique codes, resulting in 54 unique strata codes. From these, 12 codes were randomly selected using the Decision Analyst Stat 2.0 software. All students present during the data collection session from the selected codes were included. This sampling approach ensured that each subgroup of students (by course and semester) had an equal probability of selection, thus minimizing selection bias.

Data collection

The data collection was initiated in a classroom using a self-administered questionnaire, after acquiring permission from each selected college and informed consent for all the participants. The faculty members at each of the selected colleges arranged a data collection session of about an hour where the questionnaire was distributed among the students, and they were provided with an orientation on each question. The participants completed the questionnaire in the classroom where they were provided with enough space to maintain their privacy.

The self-administered questionnaire consisted of four sections, where the first section consisted of the general sociodemographic profile of the students. The second section consisted of questions related to participants' academic performance and college environment, while the third section consisted of questions related to psychological factors such as perceived social support, experience of traumatic events in the past six months, and tobacco consumption. The third section consisted of questions regarding alcohol consumption, household accessibility of alcohol, and cultural pressure for alcohol use along with the Alcohol Use Disorders Identification Test (AUDIT) [33], which aimed to assess problematic alcohol consumption/ drinking.

Outcome variables

The alcohol use and problematic drinking were the outcome variables. Alcohol consumption was assessed by asking participants whether they had consumed alcohol in the past 12 months. Participants who reported any alcohol use within this period were considered to have engaged in alcohol consumption. For participants who reported alcohol consumption within the past 12 months, the AUDIT was administered to assess the risk of problematic drinking. The AUDIT questionnaire consists of 10 questions related to alcohol use during the past 12 months and aims to measure various aspects of alcohol consumption on a five-point Likert scale. The total score ranges between 0 and 40, where a score of 0–7 suggests low-risk drinkers, a score of 8–15 suggests hazardous drinkers, a score of 16–19 suggests Alcohol Disorder and a score of 20–40 suggests Alcohol Dependence [34]. AUDIT is validated in the Nepali language where a score ≥ 11 suggests alcohol dependence, a score of 9 to 10 suggests alcohol use disorders for both genders and a cutoff score of 5 to 8 for males and 4 to 8 for females suggests hazardous drinking [31]. In this study, the participants were first assessed for their alcohol consumption habits, and the AUDIT scale was applied among those who reported consuming alcohol in the past 12 months. The cutoff suggested for the Nepali version was used to categorize non-risk drinkers, hazardous drinkers, and those with alcohol use disorder and alcohol dependency [31]. The participants other than non-risk drinkers were taken as problematic drinkers or consumers considering their higher risk from drinking.

Statistical analysis

The collected data were entered into EpiData 3.1 and exported to Statistical Package for the Social Sciences (SPSS) 26 for statistical analysis. Descriptive statistics, including mean, standard deviation, frequencies, and percentages, were calculated for all variables. To assess associations between independent variables (e.g., sociodemographic characteristics, psychosocial factors, and alcohol-related behaviors) and dependent variable (alcohol consumption and problematic drinking), the Pearson chi-square test was applied at 95% confidence interval and 5% level of significance. The variables found to be statistically significant in the bivariate analysis with alcohol consumption and problematic drinking were included in the final model for multivariable analysis to calculate the adjusted odds ratio (aOR). The Hosmer-Lemeshow test for goodness-of-fit was also performed. The variance inflation factor (VIF) test was performed among selected independent variables to be subjective to the regression model to manage the issue of multicollinearity. The VIF greater than five was taken as an indication of multicollinearity.

Ethical considerations

Ethical approval was obtained from the Institutional Review Committee (IRC) of CiST College (Ref no.

25/080/081). Informed consent was obtained from the participants before data collection ensuring their right to withdrawal and volunteer participation. Confidentiality of participants' data was ensured throughout the study. Permission from the respective colleges for conducting research was obtained before data collection.

Results

A total of 304 undergraduate students enrolled in management colleges at Bhaktapur District were approached for data collection, and a complete response was achieved from all students achieving a response rate of 100%. Thus, the analysis is based on 304 samples. The age of the participants in this study ranged from 18 to 25 years, with a mean age of 19.43 ± 1.27 years. The sample consisted of 116 (38.20%) males and 188 (61.8%) female participants. Two-thirds (67.1%) of the participants lived in a nuclear family. With regard to access to alcohol, one-third of the participants (33.2%) had practiced preparing alcohol at home (Table 1).

The prevalence of alcohol consumption within 12 months prior to the day of data collection was found to be 58.2% (95% CI:52.0-63.6%). Among those who consumed alcohol, 26.6% (95% CI: 19.2–33.1%) were identified as problematic drinkers through the AUDIT. The prevalence of hazardous drinking, alcohol disorder, and dependency were 15.8%, 6.8%, and 4.0%, respectively (Table 2).

Bivariate analysis revealed that gender was significantly associated with alcohol consumption ($p<0.001$), with males (72.4%) more likely to consume alcohol than females (49.5%). Males were also more likely to engage in problematic drinking (39.3%) compared to females (15.1%), with this association remaining significant ($p<0.001$). Family type was another significant factor for problematic drinking as the students from joint or extended families (39.6%) were more likely to be problematic drinkers compared to those from nuclear families (21.0%), indicating a potential familial influence on drinking behaviors ($p=0.001$). (Table 3)

Academic factors such as satisfaction with self-academic performance, satisfaction with the college environment, perceived emotional distress from one's family, and traumatic experiences were found to be statistically related to alcohol use. Family member alcohol consumption status, preparation of alcohol and its storage at home, and cultural pressure to consume alcohol were found to be significantly related to alcohol use. Similarly, perceived emotional support from family, and traumatic experiences were found to be significantly related to problematic drinking. (Table 4)

The multivariable analysis identified several significant factors associated with alcohol use among the study population. Gender was a strong determinant, with males having more than twice the odds of consuming alcohol compared to females (aOR: 2.05, 95% CI: 1.12–3.76). Dissatisfaction with academic performance also significantly increased the likelihood of alcohol consumption, as students who were dissatisfied had over twice the odds of consuming alcohol compared to those who were satisfied (aOR: 2.43, 95% CI: 1.35–4.38). Additionally, the practice of preparing alcohol at home was an important factor, with those from households that prepared alcohol showing a two-fold increase in the odds of alcohol consumption (aOR: 2.54, 95% CI: 1.20–5.40). (Table 5)

The adjusted analysis for problematic drinking revealed gender as a key factor, with males being nearly four times more likely to engage in problematic drinking compared to females (aOR: 4.03, 95% CI: 1.72–9.46). Family type also played a significant role, as students from joint or extended families had more than twice the odds of being problematic drinkers compared to those from nuclear families (aOR: 2.40, 95% CI: 1.09–5.29). Perceived lower emotional support from family significantly increased the likelihood of problematic drinking (aOR: 4.94, 95% CI: 1.50-16.26), reinforcing the importance of family dynamics in moderating alcohol-related behaviors. Traumatic experiences, such as personal loss or stress, also emerged as a significant predictor, with individuals who experienced such trauma showing higher odds of problematic drinking (aOR: 2.68, 95% CI: 1.19–6.02). (Table 6)

Discussion

The present study revealed that alcohol consumption is prevalent among Nepali undergraduate students, with more than half of the participants reporting alcohol use (58.2%), and nearly a quarter (26.6%) exhibiting problematic drinking habits. This observed prevalence is higher than that reported in the Nepal STEP survey 2019, where alcohol consumption and alcohol dependency were reported to be 23.9% and 9.1%, respectively, among Nepali youths [35]. Similarly, a consistent pattern of alcohol consumption was shared by previous studies conducted in the Bhaktapur district where the prevalence of alcohol use was reported between 45.8% and 56% [29, 30].

Moreover, past studies from other parts of Nepal have reported higher rates of problematic drinking among Nepali youths, ranging between 56.3% and 64.7% [23, 24]. These trends are consistent with global patterns of problematic alcohol consumption among youth, particularly in low- and middle-income countries (LMICs). For instance, research from South Africa has indicated problematic drinking rates between 51.3% and 54.8% [10, 36]. These findings suggest alcohol consumption and dependency are significant public health concerns among this population.

Table 1 Sociodemographic, academic, and interpersonal factors of the participants

Variables	n (%)
Age	
< 20 years	179(58.9%)
≥ 20 years	125(41.1%)
Gender	
Male	116(38.2%)
Female	188(61.8)
Family Types	
Nuclear	204(67.1%)
Joint/Extended	100(32.9%)
Father's Educational	
Illiterate	28(9.2%)
Up to Secondary	181(59.5%)
More than Secondary	95(31.3%)
Mother's Educational	
Illiterate	62(20.4%)
Up to Secondary	197(64.8%)
More than Secondary	45(14.8%)
Economic Status	
Extremely poor	60(19.7%)
Poor	64(21.1%)
Middle Class	60(19.7%)
Upper Middle Class	60(19.7%)
Rich	60(19.7%)
Satisfaction with Academic Performance	
Satisfied	173(56.9%)
Unsatisfied	131(43.1%)
Satisfaction with the college environment	
Satisfied	62(20.4%)
Unsatisfied	242(79.6%)
Perceived emotional support by the family	
Supportive	280(92.1%)
Not Supportive	24(7.9%)
Perceived emotional support by the friends	
Supportive	259(85.2%)
Not Supportive	45(14.8%)
Traumatizing experiences (e.g. physical,mental)	
Yes	130(42.8%)
No	174(57.2%)
Practice of preparation of alcohol at home	
Yes	101(33.2%)
No	203(66.8%)
Alcohol consumption by family member	
Yes	174(57.2%)
No	130(42.8%)
Practice of storing alcohol at home	
Yes	65(21.4%)
No	239(78.6%)
Cultural pressure to consume alcohol	
Yes	55(18.1%)
No	249(81.9%)
Liquor store near the neighborhood	
Yes	234(77.0%)
No	70(23.0%)

Table 2 Prevalence of alcohol use and problematic drinkers (n = 304)

Alcohol use-related attributes	n (%; 95% CI)
Alcohol Consumption	
Yes	177(58.2%; 95% CI: 52.0-63.6%)
No	127(41.8%; 95% CI: 36.4–48.0%)
AUDIT level (n = 177)	
Low-risk drinkers	130(73.4%; 95% CI: 67.2–80.3%)
Hazardous drinkers	28(15.8%; 95% CI: 11.3–21.8%)
Alcohol disorder	12(6.8%; 95% CI: 3.4–10.7%)
Alcohol dependency	7(4.0%; 95% CI: 1.1–7.3%)
Problematic consumers (n = 177)	
Non-problematic drinkers	130(73.4%; 95% CI: 66.9–80.3%)
Problematic drinkers	47(26.6%; 95% CI: 19.2–33.1%)

This alarming rate of problematic alcohol consumption among Nepali youths suggests the need to reevaluate the effectiveness of current interventions adopted by the country to limit alcohol consumption. Nepal endorsed the National Policy on Regulation and Control of Alcohol 2017 [37], which mandates the display of pictorial warnings about the negative effects of alcohol, covering 75% of the beverage packaging to limit consumption. The policy also restricts the sale of alcohol to specially licensed shops with defined opening and closing hours, further limiting accessibility. Additionally, the Public Health Service Act (2018) prohibits the advertisement of alcoholic products in any form of media [38]. While these existing policies demonstrate Nepal's commitment to reducing alcohol misuse, the high prevalence of problematic drinking indicates the necessity for additional measures. Alcohol is perceived as an important part of culture among different indigenous communities in Nepal, where traditional beliefs, cultural practices, and socioeconomic factors have been seen to have contributed to its use [21]. Therefore, exploring culturally sensitive interventions alongside existing policies is crucial to understanding, respecting, and preserving cultural practices while simultaneously limiting problematic drinking and providing effective and sustainable solutions for Nepali communities.

In this study, compared with females, males had a twofold increase in their odds of consuming alcohol and a four-fold increase in experiencing problematic drinking. This finding is consistent with a previous study from Syangja district, Nepal, where males were found to have an almost seven-fold increase in their odds of problematic drinking compared to females [23]. Gender differences in alcohol consumption and problematic drinking have been reported by different studies throughout the world, suggesting that males are more vulnerable to problematic drinking those females [23, 29, 39, 40]. These findings suggest that considering the current cultural and social context, males are more vulnerable to problematic

Table 3 Association of Sociodemographic characteristics with alcohol consumption and problematic drinking

Variables	Alcohol use		χ^2 (*p*-value)	Problematic drinking		χ^2 (*p*-value)
	Yes *n* (%)	No *n* (%)		Yes *n* (%)	No *n* (%)	
Age						
< 20 years	101(56.4%)	78(43.6%)	0.579	28(27.7%)	73(72.3%)	0.165
≥ 20 years	76(60.8%)	49(39.2%)	(0.447)	19(25.0%)	57(75.0%)	(0.685)
Gender						
Male	84(72.4%)	32(27.6%)	15.528	33(39.3%)	51(60.7%)	13.288
Female	93(49.5%)	95(50.5%)	(< 0.001*)	14(15.1%)	79(84.9%)	(< 0.001*)
Family Types						
Nuclear	124(60.8%)	80(39.2%)	1.672	26(21.0%)	98(79.0%)	6.625
Joint/Extended	53(53.0%)	47(47.0%)	(0.196)	21(39.6%)	32(60.4%)	(0.001*)
Father's Educational						
Illiterate	17(60.7%)	11(39.3%)	0.155	6(35.3%)	11(64.7%)	1.221
Up to Secondary	106(58.6%)	75(41.4%)	(0.926)	29(27.4%)	77(72.6%)	(0.543)
More than Secondary	54(56.8%)	41(43.2%)		12(22.2%)	42(77.8%)	
Mother's Educational						
Illiterate	35(56.5%)	27(43.5%)	0.386	11(31.4%)	24(68.6%)	1.536
Up to Secondary	114(57.9%)	83(42.1%)	(0.824)	31(27.2%)	83(72.8%)	(0.464)
More than Secondary	28(62.2%)	17(37.8%)		5(17.9%)	23(82.1%)	
Economic Status						
Extremely poor	36(60.0%)	24(40.0%)	0.999	10(27.8%)	26(72.2%)	2.616
Poor	39(60.9%)	25(39.1%)	(0.910)	9(23.1%)	30(76.9%)	(0.624)
Middle Class	32(53.3%)	28(46.7%)		8(25.0%)	24(75.0%)	
Upper Middle Class	34(56.7%)	26(43.3%)		7(20.6%)	27(79.4%)	
Rich	36(60.0%)	24(40.0%)		13(36.1%)	23(63.9%)	

*statistically significant at *p* < 0.05

drinking than females. These findings emphasize that public health interventions should be gender-specific, taking into account cultural contexts to create more targeted prevention strategies.

The analysis identified several factors associated with alcohol consumption and problematic drinking among undergraduate students. Alcohol acceptance and accessibility within the family were found to be an important predictor of alcohol use. Those undergraduates whose households practiced alcohol preparation at home were twice more likely to consume it. Home preparation of alcohol has been linked to higher consumption rates in past studies as well [21, 41]. In the present study, the unadjusted analysis revealed a statistically significant relationship between alcohol consumption and factors such as family members' alcohol consumption, alcohol storage at home, and cultural pressure to consume alcohol. However, this association weekend became insignificant in the adjusted model when other factors were controlled. In the context of Nepal, a qualitative study suggested that in some indigenous communities, families themselves initiate alcohol consumption among young individuals as a cultural practice [21]. Conversely, a prior study from Nepal reported no association between family type and alcohol consumption [23]. However, several studies from indigenous communities in Latin America

and Southeast Asia have revealed that alcohol plays a vital role in familial and cultural gatherings [21, 42, 43]. Additionally, a school-based survey from Sweden indicated that familial alcohol use is linked with adolescent alcohol consumption [44]. Similar findings were shared by studies from Jimma University, where a family history of alcohol consumption was found to be associated with increased alcohol use disorders among students [40]. Furthermore, storing alcohol at home by parents was suggested to be associated with alcohol consumption among adolescents in Thailand [45]. These patterns indicate that alcohol-related interventions need to address family practices and cultural norms to reduce alcohol consumption among youth effectively.

It was also observed that perceived poor social support from family could lead to a four-fold increase in the odds of problematic drinking among undergraduates. This finding aligns with past studies indicating higher alcohol consumption among those with severe family dysfunction [46, 47]. It has also been suggested that socio-cultural influences such as peer pressure could play an important role in alcohol consumption among this vulnerable group [40, 48]. These findings emphasize the importance of understanding the familial influence on alcohol consumption patterns among adolescents and youths, highlighting the need for targeted interventions

Table 4 Association of academic and interpersonal factors with alcohol consumption and problematic drinking

Variables	Alcohol use		χ^2	Problematic drinking		χ^2
	Yes	No	(*p*-value)	Yes	No	(*p*-value)
	n (%)	*n* (%)		*n* (%)	*n* (%)	
Satisfaction with Academic Performance						
Satisfied	84(48.6%)	89(51.4%)	8.495	6(23.1%)	20(76.9%)	0.189
Unsatisfied	93(71.0%)	38(29.0%)	(0.004*)	41(27.2%)	110(72.8%)	(0.664)
Satisfaction with the college environment						
Satisfied	26(41.9%)	36(58.1%)	9.453	6(23.1%)	20(76.9%)	0.189
Unsatisfied	151(62.4%)	91(37.6%)	(0.009*)	41(27.2%)	110 (72.8%)	(0.664)
Perceived emotional support from family						
Supportive	158(56.4%)	122(43.6%)	4.699	38(24.1%)	120(75.9%)	4.728
Not Supportive	19(79.2%)	5(20.8%)	(0.030*)	9(47.4%)	10(52.6%)	(0.030*)
Perceived emotional support from friends						
Supportive	146(56.4%)	113(43.6%)	2.470	38(26.0%)	108(74.0%)	0.118
Not Supportive	31(68.9%)	14(31.1%)	(0.116)	9(29.0%)	22(71.0%)	(0.731)
Traumatizing experiences						
Yes	90(69.2%)	40(30.8%)	11.313	34(37.8)	56(62.2%)	11.828
No	87(50.0%)	87(50.0%)	(0.001*)	13(14.9%)	74(85.1%)	(0.001*)
Preparation of alcohol at home						
Yes	75(74.3%)	26(25.7%)	15.986	21(28.0%)	54(72.0%)	0.140
No	102(50.2%)	101(49.8%)	(< 0.001*)	26(25.5%)	76(74.5%)	(0.709)
Alcohol consumption by family member						
Yes	123(70.7%)	51(29.3%)	25.996	34(27.6%)	89(72.4%)	0.245
No	54(41.5%)	76(58.5%	(< 0.001*)	13(24.1%)	41(75.9%)	(0.621)
Practice of storing alcohol at home						
Yes	49(75.4%)	16(24.6%)	10.010	16(32.7%)	33(67.3%)	1.293
No	128(53.6%)	111(46.4%)	(0.002*)	31(24.2%)	97(75.8%)	(0.256)
Cultural pressure to consume alcohol						
Yes	46(83.6%)	9(16.4%)	17.828	15(32.6%)	31(67.4%)	1.168
No	131(52.6%)	118(47.4%)	(< 0.001*)	32(24.4%)	99(75.6%)	(0.280)
Liquor store near the neighborhood						
Yes	141(60.3%)	93(39.7%)	1.726	40(28.4%)	101(71.6%)	1.171
No	36(51.4%)	34(48.6%)	(0.189)	7(19.4%)	29(80.6%)	(0.279)

*statistically significant at $p < 0.05$

that incorporate family involvement in alcohol management strategies.

Dissatisfaction with academic performance was identified as an important factor for alcohol use, as individuals dissatisfied with their academic performance had twice the odds of alcohol consumption. This finding is consistent with a study from England, where college students who perceived the importance of achieving good grades were more likely to consume alcohol and experience dependency [49]. These findings are also in line with the study from Ghana, where students facing difficulty in academic adjustment were more prone to consume alcohol [50]. This suggests that academic pressure and stress could be crucial factors contributing to alcohol consumption patterns among this population, which needs to be further explored for better understanding.

Experiencing traumatic events was found to double the odds of experiencing problematic drinking among students. This association has been widely documented

across different populations, including military personnel, refugees, and individuals in post-conflict settings. It has been suggested that individuals who have experienced post-traumatic stress disorder (PTSD) are more likely to develop alcohol use disorder [51, 52]. These findings suggest that trauma-informed approaches should be an integral part of alcohol intervention programs to address the mental health needs of students and other vulnerable populations. Thus, identifying and providing proper counseling services to students experiencing traumatic events could be an important intervention for limiting alcohol dependency and promoting mental well-being among this vulnerable group.

While this study is one of the few assessing problematic drinking and its associated factors among Nepali youth, it is crucial to acknowledge the inherent limitations of this study and the findings should be interpreted accordingly. Despite the efforts that were made to ensure confidentiality and anonymity, encouraging participants to

Table 5 Multivariable analysis for factors associated with the Alcohol Use (*n* = 304)

Variables	Alcohol Use COR (95%CI)	*p*-value	Alcohol Use AOR (95%CI)	*p*-value
Gender				
Male	2.681(1.630–4.410)	< 0.001*	2.051(1.118–3.761)	0.020*
Female	Ref		Ref	
Satisfaction with Academic Performance				
Satisfied	Ref		Ref	
Unsatisfied	2.593(1.603–4.914)	< 0.001*	2.434(1.352–4.383)	0.003*
Satisfaction with the college environment				
Satisfied	Ref		Ref	
Unsatisfied	2.298(1.303–4.053)	0.004*	1.457(0.715–2.971)	0.300
Perceived emotional support from family				
Supportive	Ref		Ref	
Not Supportive	2.934(1.065–8.081)	0.037*	2.330(0.716–7.584)	0.160
Traumatizing experiences				
Yes	2.250(1.397–3.623)	0.001*	1.462(0.822–2.598)	0.196
No	Ref		Ref	
Practice of preparation of alcohol at home				
Yes	2.856(1.691–4.824)	< 0.001*	2.548(1.202–5.402)	0.015*
No	Ref		Ref	
Alcohol consumption by family member				
Yes	3.394(2.105–15.78)	< 0.001*	6.364(0.741–14.682)	0.092
No	Ref		Ref	
Practice of storing alcohol at home				
Yes	2.656(1.430–4.932)	0.002*	0.982(0.423–2.282)	0.967
No	Ref		Ref	
Cultural pressure to consume alcohol				
Yes	4.604(2.161–9.810)	< 0.001*	1.534(0.622–3.783)	0.353
No	Ref		Ref	

*statistically significant at *p* < 0.05

Table 6 Multivariable analysis for factors associated with the problematic drinking (*n* = 177)

Variables	Problematic drinking COR (95%CI)	*p*-value	Problematic drinking AOR (95%CI)	*p*-value
Gender				
Male	3.651(1.782–7.482)	< 0.001*	4.032(1.718–9.466)	0.001*
Female	Ref		Ref	
Family Types				
Nuclear	Ref		Ref	
Joint/Extended	2.474(1.228–4.981)	0.001*	2.401(1.090–5.292)	0.030*
Perceived emotional support from family				
Supportive	Ref		Ref	
Not Supportive	2.842(1.076–7.510)	0.035*	4.944(1.503–16.268)	0.009*
Traumatizing experiences				
Yes	3.456(1.670–7.152)	0.001*	2.675(1.188–6.021)	0.017*
No	Ref		Ref	

*statistically significant at *p* < 0.05

provide honest responses, the reliance on self-reported measures may have introduced recall or social desirability bias. Although we have attempted to explore factors related to household and college environments, covering alcohol acceptability in family, cultural practices, satisfaction with the college environment, and academic performance, the study did not delve into psychological factors due to the constraints imposed by the length of the questionnaire. Psychological factors and personality traits could play a significant role in alcohol consumption behaviors and can be considered in future research. Furthermore, although the Bhaktapur district was

strategically selected due to its ability to attract a diverse demographic characteristics of the students in terms of economy, ethnicity, and culture from various parts of Nepal, still the findings may not fully reflect the cultural, racial, and ethnic diversity of the entire country. Nepal's cultural diversity suggests that alcohol use patterns may differ significantly across regions. Additionally, the study focused exclusively on management students, which limits the applicability of the findings to students in other faculties. The results might vary slightly if the study had included students from these other disciplines; however, as the study was conducted among undergraduates, the variation might not be vast because undergraduate students across different faculties share similar social, developmental, and environmental influences, such as exposure to campus culture, peer dynamics, and the transitional nature of their academic journey. Nevertheless, further research is needed to explore these differences across disciplines. Therefore, a larger, community-based study with a more geographically and culturally diverse sample is recommended to offer additional insights and enhance the generalizability of the findings.

Conclusion

The findings of this study highlight a significant prevalence of alcohol consumption and problematic drinking among Nepali undergraduate students. Gender, academic performance, and home alcohol availability emerged as key predictors of alcohol consumption, while gender, family structure, emotional support, and traumatic experiences were associated with problematic drinking. These results underscore the importance of developing tailored interventions to control problematic alcohol use that addresses gender disparities, and family and cultural dynamics while providing academic support and mental health services. Implementing culturally sensitive programs that consider the unique social and cultural context of Nepali youth is essential for effectively mitigating the harmful consequences of alcohol misuse in this vulnerable population.

Abbreviations

aOR	Adjusted Odds Ratio
AUDIT	Alcohol Use Disorders Identification Test
CI	Confidence Intervals
DALYs	Disability-Adjusted Life Years
IRC	Institutional Review Committee
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor
WHO	World Health Organization

Data availability
The data generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
Ethical considerations were adhered in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Committee (IRC) of CiST College (Ref no. 25/080/081). Informed consent was obtained from the participants before data collection ensuring their right to withdrawal and volunteer participation.

Consent for publication
During the collection of informed consent for data collection, all the participants were informed about the potential publication of the manuscript.

Competing interests
The authors declare no competing interests.

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