

Prevalence and correlates of Post-war alcohol use disorders among hospital outpatients in Tigray, 2026

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Abstract

Background

Alcohol use disorder (AUD) often rises in post-war settings, as individuals turn to alcohol as a coping mechanism. However, the prevalence and correlates of AUDs among hospital outpatients in Tigray, Ethiopia, remains underexplored. This study assessed the prevalence and correlates of AUDs among patients attending the outpatient department of Suhul General Hospital.

Methods

An Institution-based cross-sectional study design was employed. About 1,260 randomly selected outpatients were invited, of whom 922 consented to participate (response rate: 73.2%). Eligible participants were both female and male gender, aged 18 years or older, and those who were able to provide an interview. The Alcohol Use Disorders Identification Test was used, applying cut-off score 8. Data were analyzed using Stata v15, descriptive statistics and binary logistic regression applied to identify correlates of AUD.

Results

Among the total participants, 65.94% (95% CI: 62.88–69.00) were classified as low-risk drinkers, while 8.25% met the criteria for AUDs. Of these, 7.59% (95% CI: 5.88–9.30) were engaged in hazardous or harmful drinking, and 0.65% were likely dependent. Multiple logistic regression has revealed that AUD was significantly associated with male gender (Odds Ratio = 3.64; 95% CI: 2.01–7.23) and employment status (Odds Ratio = 1.75; 95% CI: 1.07–2.88).

Conclusions

The prevalence of AUDs among Suhul General Hospital outpatients was considerable. Male gender and employment status were significantly associated with AUDs.

Introduction

Post-war environments are often marked by increased rates of mental conditions such as post-traumatic stress disorder (PTSD), depression, anxiety, and substance use disorders (1). Alcohol, in particular, is frequently consumed as a coping mechanism in response to trauma and stress (2).

Globally, alcohol consumption is widespread and socially accepted, yet it remains a major public health concern. In 2018, 2.3 billion people were current drinkers, with alcohol being responsible for 2.6 million deaths in 2019 and 139 million disability-adjusted life years (3–5). Surveys conducted on a general

population and university also reported that the prevalence of alcohol consumption is high (6). AUD is a leading risk factor for communicable and non-communicable diseases (7–10). For instance, chronic alcohol consumption may increase the risk of acquiring mycobacterium tuberculosis infection, and may place drinkers at increased risk for hypertension, arrhythmia, metabolic syndrome, and alcohol-related liver disease (9, 11). Similarly, AUD has been reported to have an association with common mental disorders such as depression, anxiety, and phobia (12, 13).

The prevalence of alcohol use disorder (AUD) varies considerably across regions: for example, rates of AUD have been reported to be 34.7% among Australian hospital outpatients (14), 30.8% in Nepal (15), and 43.8% in India (7). In Africa, similarly high rates are observed, with 41.2% of South African men and 18.3% of women classified as hazardous drinkers (16). In Ethiopia, studies from referral hospitals indicate AUD prevalence ranging from 34.5% to 38.9% among outpatients (17). Lower rates, however, have been documented in specific population, such as pregnant women (15%) and rural residents (12.4%) (18, 19). On the other hand, Ursua et. al., (20) in his study argued that there were no significant differences between men and women on the rate of binge drinking, while others say more studies on alcohol consumption are needed for explicit conclusions (21).

Overall, existing evidences remain inconsistent regarding both the prevalence and risk factors of alcohol consumption. Studies focusing on conflict-affected population, such as those in Tigray, Ethiopia, are particularly limited fragmented. These inconsistencies hinder the development and implementation of effective alcohol policies and interventions, which remain absent in many African countries, including Ethiopia (22). Consequently, further study is required to replicate findings and fill critical knowledge gaps in this area. Current literatures strongly recommend more rigorous investigations into the prevalence and determinants of alcohol consumption in conflict-affected populations (23). Such studies are essential to inform the design of appropriate and effective intervention strategies aimed at reducing harmful alcohol use and its associated consequences.

Methods and Materials

Design and Setting

This study used an institution-based cross-sectional study design to determine the prevalence and associated factors of AUD among outpatients at Suhul General Hospital. Suhul General Hospital is located in Shire Endassilasie, Tigray. The hospital serves approximately 18,000 outpatients monthly.

Study Population

The target population comprised all adult outpatients aged 18 years and above who attended the outpatient department (OPD) of Suhul General Hospital during the study period. Given that hospital outpatients often present with diverse medical conditions, this group may exhibit a higher prevalence of alcohol use disorders due to the presence of comorbidities. The inclusion of this population provides

valuable insight into the burden of AUD in a clinical setting, complementing findings from community-based studies.

Sample Size Determination

The sample size was determined using Epi Info StatCalc for population survey (descriptive study), assuming a statistical power of 80%, a two-sided 95% confidence interval, an expected frequency of 50%, and a design effect of 2.98. StatCalc yielded a minimum sample size of 1,145. To account for a potential 10% non-response rate, the final sample size was increased to 1,260.

Sampling Method

Participants were recruited between February 11 to May 19, 2025. A simple random sampling technique was employed to select participants from adult outpatient departments (OPDs) of Suhul General Hospital. Outpatient records were used to generate the initial sampling frame. Each eligible participant was assigned a unique identification number, and a lottery method was applied to randomly select 1,260 participants. Of these, 922 provided written informed consent and were enrolled in the study.

Eligibility Criteria

Participants were eligible for inclusion if they were aged 18 years or older, of either sex, and able to provide an interview. Eligibility were assessed using medical records and directly by asking patients about their ability provide an interview prior to enrollment. Participants were excluded if they were younger than 18 years or unable to provide an interview. This ensured that only adult outpatients capable of giving reliable responses were included in the study.

Ethical Considerations

Ethical clearance was obtained from Aksum University, and a formal permission letter was secured from Suhul General Hospital. Written informed consent was obtained from all participants prior to data collection. Confidentiality was ensured by assigning anonymized codes to each participant, and no identifying information disclosed. Participants were informed of their right to withdraw from the interview at any stage without any consequence to their clinical care.

Materials

The Alcohol Use Disorders Identification Test (AUDIT) was used as the screening instrument. AUDIT is a reliable and validated 10-item tool developed by the World Health Organization (24, 25) to identify alcohol use disorder (AUD), including hazardous use, harmful use, and probable dependency (26). AUDIT is a valid and reliable tool to detect AUD among Ethiopian outpatients with an internal consistency of

Cronbach's $\alpha = 0.9$, and with 94% and 84% sensitivity and specificity, respectively (25). A Cut-Off score of 8 was applied to classify participants as having AUD. Based on the AUDIT scoring system, participants were categorized as follows: low-risk drinkers (scores below the cut-Offs), hazardous alcohol use (scores of 8–15), harmful alcohol use (scores of 16–19), and probable alcohol dependence (scores ≥ 20). This categorization allowed for a standardized assessment of alcohol use patterns among the study population.

Data Analysis

Collected data were first checked for completeness, and variables were coded and compiled in a Microsoft excel. The dataset was then imported into Stata version 15 for statistical analysis. Missing values were addressed using mean imputation, and the data were examined for outliers. Categorical predictors with less than 5% of observations were consolidated into a single category labeled 'Others'. Multicollinearity was assessed using the variance inflation factor (VIF), with all significant independent variables showing a VIF of 1.00, indicating no evidence of multicollinearity.

Descriptive statistics including frequencies, proportions, medians, and interquartile ranges were used to summarize the data. Associations between the dependent and independent variables were examined using binary logistic regression. Model fit was evaluated using the Hosmer-Lemeshow goodness of fit test with 10 groups ($C = 8.19$, $df = 9$, $p = 0.32$), which indicated adequate fit. To avoid excluding potentially important predictors, variables with a p-value less than 0.25 in the bivariate analysis were included in the multivariate model. The strength of associations was expressed as adjusted odds ratio (AOR), with 95% confidence intervals, and statistical significance set at $p \leq 0.05$.

Results

Sample characteristics

Sample characteristics are summarized in Table-1. Data from 922 participants were included in the final analysis, yielding a response rate of 73.2%. The median age was 42 years (Interquartile Range: 30–58). Females represented 38.5% of the sample, and 91.7% of the participants were identified as Orthodox Christian.

Alcohol-related problem

Of the total participants, 68.1% reported drinking frequently, while 24.1% consumed three or more drinks per occasion and 16.4% reported consuming six or more drinks in single sitting. In addition, 3.04% of participants indicated needing morning drinks as an eye-opener following heavy drinking sessions. Furthermore, 12.9% reported feelings of guilt related to their alcohol use, 5.2% experienced blackout, 4.88% confirmed alcohol-related injuries, and 39.16% acknowledged that others had expressed concern about their drinking behaviour. Detailed distributions of these findings are presented in Figure-1.

Table 1
Sociodemographic characteristics of study participants at Suhul General
Hospital (N = 922).

Variables		Frequency	Percent (%)
Age	<i>Female</i>	<i>Median = 38; IQR: 28, 52 Years</i> <i>Median = 44; IQR: 32, 60 Year</i>	
	<i>Male</i>		
Gender	<i>Female</i>	355	38.5
	<i>Male</i>	567	61.5
Religion	<i>Orthodox</i>	845	91.65
	<i>Muslim</i>	76	8.24
	<i>Protestant</i>	1	0.11
Marital status	<i>Married</i>	696	75.49
	<i>Unmarried</i>	156	16.92
	<i>Separated</i>	58	6.29
	<i>Divorced</i>	6	0.65
	<i>Widowed</i>	6	0.65
Education	<i>Illiterate (can't read & write)</i>	335	36.33
	<i>Elementary (Grade 1–8)</i>	316	34.27
	<i>High-school (Grade 9–12)</i>	178	19.31
	<i>College and above</i>	93	10.09
Occupation	<i>Employed</i>	363	39.37
	<i>Unemployed</i>	559	60.63

Prevalence of Alcohol Use Disorders (AUD)

Among the total participants, 25.81% (95%CI: 22.99–28.64) reported being abstainers. In contrary, 65.9% (95%CI: 62.88–69.00) were classified as low-risk drinkers, while 8.25% (95% CI: 6.47, 10.02) met criteria for alcohol use disorders (AUD) (Figure-2). The prevalence of AUD varied across demographic groups. As shown in Table-2, 11.29% of males were categorized as having AUD compared to 3.34% of females. Similarly, participants with formal education also demonstrated higher prevalence rates of AUD, with 9.49%, 8.43%, and 11.83% among those who attained elementary, high-school, and college or above education, respectively. Employment status also influenced the distribution of AUD, with 10.74% of employed participants reporting AUD compared to 6.62% of unemployed participants. Detailed information is presented in Table-2.

Figure – 2

Overall Distribution of AUDs among participants at Suhul General Hospital (N = 922)

Correlates of Alcohol Use Disorders (AUD)

Correlates of alcohol use disorders (AUD) among participants are presented in Table-3. In the univariate logistic regression (LR), variables including age, gender, marital status, education, and occupation that demonstrated a p-value less than 0.25 were retained for entry into the multiple logistic regression (LR) model. Multiple LR (Table-3) revealed that younger adults (aged 18–42 years) were more likely to develop AUD compared to older adults (aged 43–89 years), although this association was not statistically significant (Adjusted Odds Ratio = 1.284, 95% CI: 0.734–2.244). Similarly, being unmarried and having attained formal education were associated with an increased likelihood of AUD, but these findings did not reach statistical significance (Adjusted Odds Ratio = 1.761, 95% CI: 0.927–3.343; Adjusted Odds Ratio = 1.244, 95% CI: 0.671–2.306; Adjusted Odds Ratio = 1.115, 95% CI: 0.512–2.431; and Adjusted Odds Ratio = 1.359, 95% CI: 0.603–3.062 for unmarried, elementary, high-school, and college & above, respectively). In contrast, male gender was significantly associated with AUD (Adjusted Odds Ratio = 3.557, 95% CI: 1.871–6.762), suggesting that men were more likely to engage in hazardous drinking, harmful drinking, or probable alcohol dependence. Employment status also showed a significant association with AUD (Adjusted Odds Ratio = 1.67, 95% CI: 1.03–2.70). Detailed information is presented in Table-3.

Table-2

Distribution of alcohol use disorders by demographic characteristics among participants at Suhul General Hospital (N = 922)

Variables		Drinkers Type					
		Abstainers (0)		Low Risk Drinkers (1–7)		AUDs	
		Freq	%	Freq	%	Freq	%
Age	18–42	125	26.1	307	64.1	47	10.85
	43–89	113	25.5	301	68.0	29	7.00
Sex	Female	132	37.2	212	59.4	12	3.34
	Male	106	18.7	397	70.0	64	11.29
Religion	Orthodox	167	19.8	602	71.2	76	8.99
	Muslim/Protestant	71	92.2	6	7.8	0	0
Marital status	Married	161	23.1	480	68.97	55	7.90
	Unmarried	52	33.33	84	53.85	20	12.82
	*Others	25	35.71	44	62.86	1	1.43
Education status	Illiterate (can't read & write)	110	32.8	205	61.19	20	5.97
	Elementary (1–8 Grade)	65	20.6	221	69.9	30	9.49
	High-school (9–12 grade)	41	23.0	122	68.5	15	8.43
	College & above	22	23.7	60	64.52	11	11.83
Occupation	Employed	101	27.8	223	61.43	39	10.74
	Unemployed	137	24.5	385	68.87	37	6.62
*Others= Separated, Divorced, Widowed							

Table-3: Multiple Logistic Regression of Correlates of AUD among participants at Suhul general hospital (N = 922)

Variables		AUDs				AOR	P-Value	95% CI
		No		Yes				
		Freq	%	Freq	%			
Age	18–42 Years	433	90.4	47	9.81	1.284	0.381	0.734–2.244
	43–89 Years	414	93.45	29	6.55	1	1	1
Gender	Female	344	96.9	12	3.38	1	1	1
	Male	503	88.71	64	11.29	3.557	0.000	1.871–6.762
Marital Status	Married	641	92.1	55	7.90	1	1	1
	Unmarried	136	87.18	20	12.82	1.761	0.084	0.927–3.343
	*Others	69	98.57	1	1.43	0.292	0.233	0.039–2.203
Education	Illiterate	315	94.03	20	5.97	1	1	1
	Elementary	286	90.51	30	9.49	1.244	0.489	0.671–2.306
	High-school	163	91.57	15	8.43	1.115	0.784	0.512–2.431
	College & above	82	88.17	11	11.83	1.359	0.459	0.603–3.062
Occupation	Employed	324	89.26	39	10.74	1.729	0.035	1.038–2.878
	Unemployed	522	93.38	37	6.62	1	1	1
*Others= Separated, Divorced, Widowed								

Discussion

The present study assessed the prevalence of post-war alcohol use disorders (AUDs) among outpatients at Suhul General Hospital. Findings indicated that 8.25% of participants met criteria for AUDs, with 7.59% classified as hazardous or harmful drinkers and 0.65% as alcohol dependent. This prevalence is considerably lower than rates reported in community-based studies, such as the 33.23% prevalence of harmful drinking and 12.73% prevalence of alcohol dependence documented in Nigeria (27), the 33.2% prevalence reported in India (28), and the 12.4% prevalence of AUDs reported in southwest Ethiopia (19).

Likewise, the prevalence observed in the present study was lower than that reported in institution-based studies, including 23.45% prevalence of AUDs reported from a diabetic clinic in Uganda (29), 34.7% in public hospitals in Australia (14), 30.8% in primary care facilities in Nepal (15), and 34.5% in a specialized hospital in Ethiopia (17). A plausible explanation for the comparatively lower prevalence in this study may be the method of data collection. Because data were obtained through face-to-face interview, participants may have under-reported their drinking behaviors due to stigma and social desirability bias (30). The war in Tigray shaped both the prevalence and the reporting patterns of alcohol use disorders. While the measured prevalence (8.25%) appears lower than in other settings, this likely reflects under-reporting due to a stigma in post-war society, rather than a true reduction in alcohol problems. Male gender and employment status emerged as significant correlates, underscoring how war-related stress and shifting social dynamics influence drinking behaviors. The findings call for trauma-informed interventions, stigma reduction, and longitudinal monitoring to capture evolving trends in AUDs during post-war recovery. The present study also examined variables significantly associated with alcohol use disorders (AUDs). Findings indicated that male gender was significantly associated with AUDs. This result is consistent with previous studies conducted in Ethiopia (17–19), Nigeria (27), Tanzania (31), and with the findings of Lo et al. (23). Similarly, the present study found that employment status was significantly correlated with AUDs. This finding aligns with results from a study conducted in Iran (32), but contrasts with the findings reported by Walia et al. (33).

This study possesses notable strengths, as it was conducted in a general hospital setting where information on AUD is particularly relevant due to the presence of comorbidities. Furthermore, the use of a cross-nationally standardized instrument (AUDIT), the application of a simple random sampling technique, and the adoption of a face-to-face interviews collectively enhance the credibility and representativeness of the findings. A 73.2% response rate strengthens the credibility of the findings compared to studies with lower participation, but it does not eliminate the possibility of bias. The 26.8% who did not participate may have different drinking behavior from respondents. Despite its strengths, this study subject to certain limitations related to its design and data collection methods, which may affect validity of the findings. Owing to the cross-sectional nature of the study, causal relationships cannot be established, as both exposure and outcome were measured concurrently. The study focus on adult outpatients (aged 18 years and above) excluded children and adolescents, an important population receiving care at Suhul General Hospital, thereby limiting insights into alcohol use disorders among younger age groups. Information bias may also arisen from interviewer influence and from the stigma surrounding alcohol use, potentially leading to underreporting and affecting prevalence estimates. Furthermore, the findings cannot be generalized to outpatients in other hospitals, as the study was confined to Suhul General Hospital.

Conclusion

According to the present study, the prevalence of alcohol use disorders (AUDs) among outpatients at Suhul General Hospital was estimated to be 8.25%. The prevalence was significantly influenced by demographic and social factors, particularly gender and employment status. These findings highlight the

burden of AUDs among hospital outpatient populations and underscore their importance as a public health concern requiring a comprehensive response. Replication of these findings and longitudinal studies are warranted to better understand trends in AUDs over time. Furthermore, integrating routine alcohol screening and implementing awareness-creation programs are recommended to reduce the prevalence of AUDs and mitigate associated health consequences among outpatients.

Declarations

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Author contribution

AGW was responsible for study concept, study design, data interpretation, data analysis, statistical analysis, and manuscript preparation. TDB and WAG were responsible for data interpretation, statistical analysis, manuscript preparation, and manuscript editing. MGH and HMG were responsible for data acquisition and data analysis. All authors reviewed the manuscript.

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Data Availability

Data and used materials in the present study are available from the corresponding author on a reasonable request.

This study was reviewed and approved by the ethical committee of Aksum University, and all procedures complied with the “Declaration of Helsinki”. Written informed consent of all study subjects was obtained prior to data collection. Participants were informed of their right to withdraw from the interview at any stage without any consequence to their clinical care.

Consent for publication

Not applicable

Competing Interests

The authors declared that they do not have any conflict of interests in the publication of this paper.

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Figures

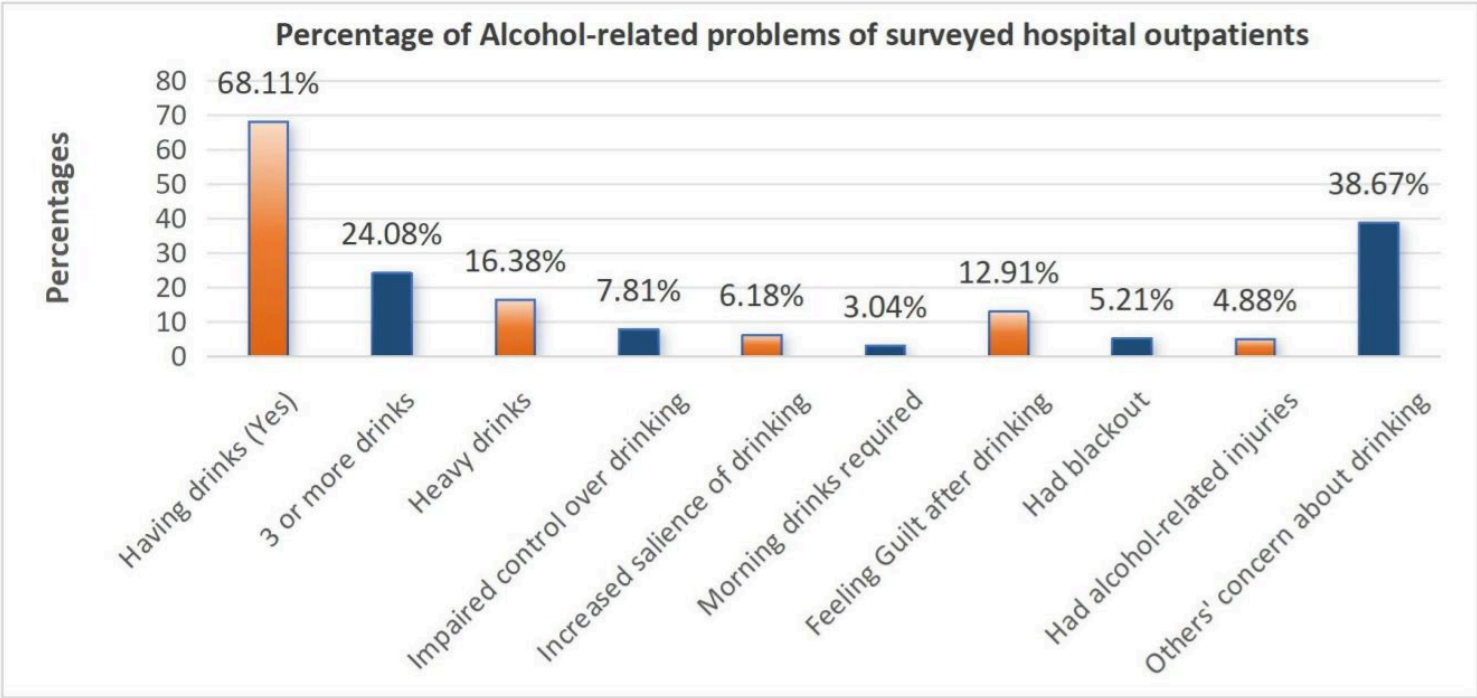


Figure 1

Proportion of Alcohol-related problems among participants at Suhul General

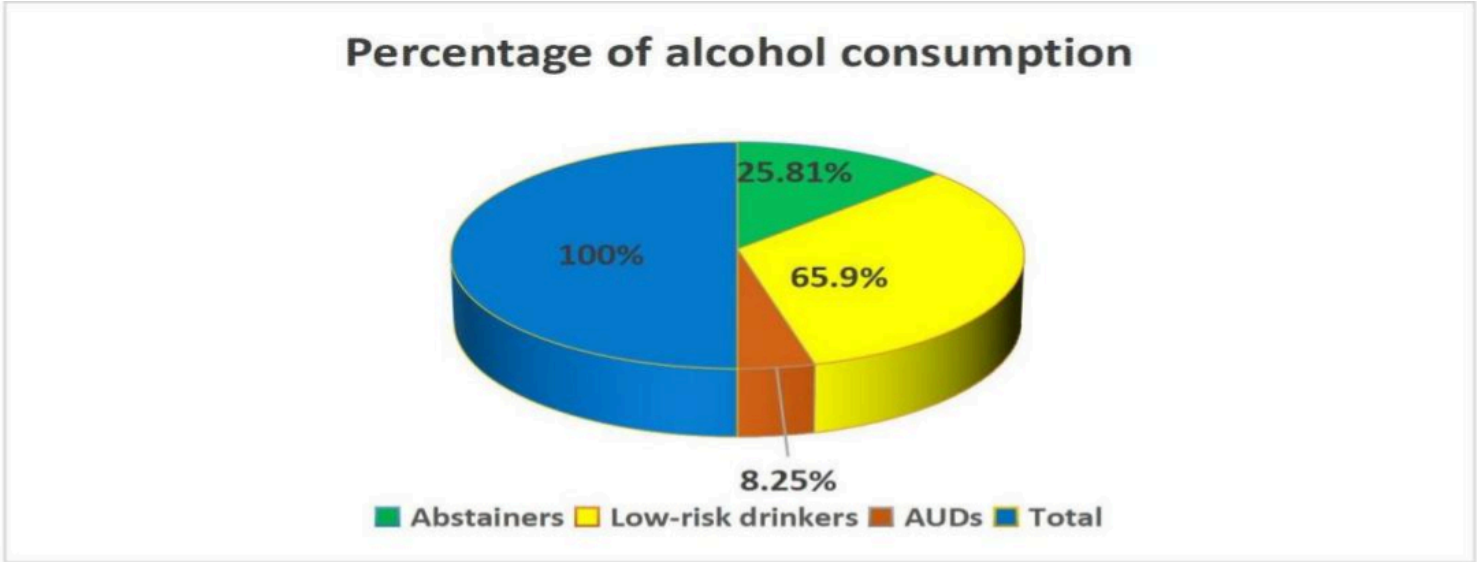


Figure 2

Overall Distribution of AUDs among participants at Suhul General Hospital (N=922)