Prevalence and Factors of Alcohol use among Secondary School Students in Ghana: A cross-sectional study

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Abstract

BACKGROUND

Globally, the harmful use of alcohol is the cause of 3 million (5.3%) deaths. The prevalence of alcohol use among students has been increasing and there is, therefore, the need to explore the situation and solutions to tackle it. The study sought to determine the prevalence and predictors of alcohol use among public secondary school students.

METHODOLOGY

A cross-sectional study was carried out among 848 students from two districts in Ghana who completed a set of questionnaires on alcohol use. Chi-square tests were carried out to determine associations between demographic characteristics and alcohol usage; and gender and age of onset of alcohol use. Binary logistic regression was performed to determine predictors of alcohol use.

RESULTS

Of the 848 study participants, 437 (51.5%) were females. The prevalence of alcohol use was 22.2%. The mean (SD) age of first alcohol use was 13 (2.1) years. Predictors of alcohol use were male gender 3.561 (p=0.003), friends 4.435 (p<0.001) and parents' 5.302 (p<0.001) use of alcohol.

CONCLUSION

The prevalence of alcohol use among students in this study was high, with many students consuming alcohol at an early age. There is a need for effective health education interventions targeted at secondary school students to reduce alcohol use.

Keywords: *Alcohol consumption, prevalence, predictors, secondary school students, adolescents*

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Introduction

Alcohol consumption has increased among adolescents and school-aged children (1). Harmful use of alcohol during adolescence could lead to alcohol-related conditions in adulthood (2,3). Alcohol use is a risk factor for negative behaviours such as absenteeism (4), poor academic performance (5,6), alcohol dependence (7), and shortening of lives by an average of 30 years (8). Alcohol use is also a significant risk factor for illness, disability and death (9). Studies have shown a strong relationship between alcohol consumption and hypertension, liver diseases, cancers, dementia, and depression (10–14). Alcohol consumption is the cause of 3 million deaths worldwide (5.3%), accounting for 5.1% of the global disease burden. More than half of these deaths resulted in non-communicable diseases, of which cardiovascular diseases and diabetes accounted for 33% of these deaths (15). Typically alcohol use usually begins during the adolescent age. For instance, in 2019, adolescents between the ages of 14-15 reported ever having at least one alcoholic drink (16). In the same year, seven million young people (12-

20 years) reported taking alcohol more than once in the past month (17).

Researchers in Ghana have reported that alcohol use is becoming a significant problem among adolescents, and around 40% may be abusing alcohol and other substances already (18,19). In Ghana, total alcohol consumption per capita is 4.8 litres per person ≥15 years of age, with males consuming 7.8 litres and 1.9 litres for females (20).

Some Sub-Saharan African countries have reported a 42.1% prevalence of alcohol use among secondary school students in Botswana (21), 39.1% in South Africa (22), 15% in Kenya (23), and 30.8% in Nigeria (24). In Ghana, a study conducted among 227 young Ghanaians reported that 12% of the children took alcohol daily (25). Another survey conducted in Ghana among 7173 secondary school students revealed a prevalence of alcohol use at 15.3% (26). Another research among 894 secondary school students in Ghana found that the prevalence of alcohol use among students was 25.1% (27)A cross-sectional study in Ghana among teachers' views on substance use reported that alcohol was the most typical substance used by school-aged children (28).

Despite efforts by the Ghana Education Service, school authorities and the Ministry of Health, the problem persists and is well-rooted in secondary schools (18,26). However, most of the cross-sectional surveys on alcohol use in Ghana have been conducted in urban areas (27,29,30). Also, most of the studies have been concentrated in other parts of the country other than the Bono-East region. Conducting studies in this area among secondary school students will inform the Ministry of Education, Ministry of Health, health educators, and public health specialists to develop appropriate intervention programs to reduce the burden.

This study aimed to determine the prevalence and the factors that are associated with the use of alcohol among secondary school students in the Brong East region of Ghana.

Materials and Methods

Study area, design and population

This study was conducted in 4 public secondary schools, drawn from 2 districts of the Bono East Region of Ghana, with 848 students, which included 411 males and 437 females. The Bono East region is one of the newly created, carved out of the former Brong Ahafo region. The region has a population of 1,203,306, with a growth rate of 2.3% and an average density of 38.2 people per square kilometre. The main economic activity in the region is agriculture. The study design was an observational, descriptive, cross-sectional, self-administered questionnaire among public secondary school students registered in the 2018/2019 academic year.

Sampling procedures

The sample size was estimated based on an approximate prevalence of alcohol use in Ghana of 4.8% (31,32); a confidence interval of 95%; an error of 5%, and a non-response rate of 20%. These estimations gave a total sample size of 781 students as the minimum sample size required for this study. The sampling frame was the list of the public secondary schools selected for the study and was obtained from the school authorities. The school lists were handed over to the research team. In all, 1000 students were randomly selected, approached and informed of the study and its objectives, and asked if they wanted to participate, 848 gave informed consent, and their parents or guardian assented.

Data collection instrument

Data was collected using an English self-administered structured questionnaire. The standardised questionnaire was developed by the World Health Organization and the Centre for Disease Control and Prevention (33). The sections in the questionnaire included demographic factors; age, gender, grade, monthly pocket money; alcohol use, age of first alcohol, friends and parents who take alcohol. Students were classified as never, ever, and current users of alcohol. A participant was considered as never alcohol user if the student

had never tried alcohol. Ever drinker, if the student had tried alcohol and stopped. Current alcohol use is defined as the use of alcohol at least once during the past 30 days before the study. The questionnaire took about 30 minutes to complete.

The study instrument was assessed by experts in the area of public health, epidemiology, community health, health research and non-communicable diseases, who structured and agreed that the questionnaire could answer the study's objectives. A pilot study was then conducted for 100 public secondary school students who were not part of the study. The students revealed that the order of the questionnaire, language clarity, and appropriateness of its measures was good. The questionnaires were then handed to the 848 students in a classroom setting to complete, and all the questionnaires representing a 100% response rate were handed over to the researchers.

Data analysis

Data were analysed using Statistical Package for Social Sciences (SPSS) software version 25. Data analysis was divided into descriptive and inferential statistics. Descriptive statistics were determined using frequencies and percentages, mean and standard deviation, to determine students' characteristics and alcohol use. Chi-square tests were carried out to determine the associations between demographic characteristics and alcohol use; and gender and age of onset of alcohol use. Binary logistic regression was performed to determine predictors of alcohol use. A simple logistic regression was first performed with a significance level set at 0.25, after which the significant variables were entered into the analysis using the ''ENTER '' method with a significance level of 0.05.

Ethical considerations

The Kintampo Health Research Centre and the University Putra Malaysia Ethics Review Committees approved the study. Informed consent was given by each student and was assented by their parent or guardian to participate in the study. Students were informed that all information given would be kept confidential and would be used only for this research.

Results

A total of 848 questionnaires were given to public secondary school students, and all completed the self-administered questionnaire.

Table 1:
Comparison of Students' Demographic Characteristics According to Alcohol Status

Characteristics	Alcohol use	Non-alcohol use	Total	*p*-value (Chi-square test)
Gender				0.001
Male	120 (29.2%)	291 (70.8%)	411	
Female	68 (15.6%)	369 (84.4%)	437	
Year of Study				0.908
1	67 (19.5%)	277 (80.5%)	344	
2	71 (23.7%)	228 (76.3%)	299	
3	50 (24.4%)	155 (75.6%)	205	
Monthly pocket money (GHC)				0.954
<50	113 (22.0%)	401 (78.0%)	514	
50-99	33 (19.5%)	136 (80.5%)	169	
100-149	13 (27.1%)	35 (72.9%)	48	
150-199	4 (19.1%)	17 (80.9%)	21	
200-249	10 (16.4%)	51 (83.6%)	61	
>250	15 (42.9%)	20 (57.1%)	35	

GHC – Ghana cedis

As presented in Table 1, most students were females, 437 (51.5%), while 411 (48.5%) were males. The results also indicated that 120 (29.2%) alcohol consumers were males, with 68 (15.6%) females. From the Table, the highest rate of alcohol usage was those in the first and second years, 138 (73.4%) of their study. The majority of all students, 514 (60.6%), were given less than GHC 50 monthly pocket money; of this, 113 (22.0%) were alcohol consumers, with the lowest being students who were given monthly pocket money of GHC 150-199; 4 (19.1%).

As presented in Table 2, 423 (49.9%) had never taken alcohol, 237 (27.9%) had ever tried alcohol, and 188 (22.2%) were current consumers of alcohol. A total of 161 (85.6%) current alcohol users indicated they were not motivated to quit alcohol use.

The onset of alcohol use ranged from 10-17 years, with a mean age (SD) of 13 (2.1) years. Again, of these ages at 13 years, most were males, 25 (59.5%) and 17 (40.5%) were females. The lowest onset of alcohol use was aged 17 years, with males and females at 6 (50.0%) each, as presented in Table 3.

As shown in Table 4, 100 (53.2%) students reported they had friends who take alcohol, while 88 (46.8%) reported no friends who consume alcohol. On the other hand, 121 (64.4%) students indicated a parent who uses alcohol, with 67 (35.6%) reporting no parent who consumes alcohol.

Of the four variables that were entered into the analysis, three were found to be significant. These variables were gender, parental, and friends' alcohol usage. The model fit for the sample was 8.751 and 0.364 Chi-square and *p* values, respectively (Hosmer and Lemeshow test).

Table 2:
Prevalence of Alcohol Use and Motivation to Quit Alcohol

Alcohol consumption	**Frequency**	**(%)**
Alcohol use		
Never	423	(49.9)
Ever	237	(27.9)
Current	188	(22.2)
Motivation to quit alcohol use		
Yes	27	(14.4)
No	161	(85.6)

Table 3:
Age of Onset of Alcohol Use among Alcohol Consumers by Gender

Age of onset of smoking	**Male (n=120)**	**Female (n=68)**	**Total (n=188)**	***p*-value (Chi-square test)**
				0.280
10	23 (69.7%)	10 (30.3%)	33	
11	13 (68.4%)	6 (31.6%)	19	
12	11 (84.6%)	2 (15.4%)	13	
13	25 (59.5%)	17 (40.5%)	42	
14	11 (44.0%)	14 (56.0%)	25	
15	21 (70.0%)	9 (30.0%)	30	
16	10 (71.4%)	4 (28.6%)	14	
17	6 (50.0%)	6 (50.0%)	12	

Negelkerke's R squared indicated that the logistic regression explained only 58.3% of the variation in alcohol use. As presented in Table 5, males were 3.561 times more likely to consume alcohol than their female counterparts. Students with parents and friends who used alcohol were 5.302 and 4.435 times more likely to use alcohol, respectively.

Discussions

The study was conducted to determine the prevalence and predictors of alcohol use among secondary school students in the Brong East region of Ghana. In our study, it was found that the prevalence of alcohol consumption among students was 22.2%, and predictors of alcohol use were male gender, friends, and parents who consume alcohol. According to the findings of this study, the prevalence of alcohol use among students was high. First, alcohol use at an early age is worrying; secondly, this learned behaviour may persist into adulthood. Furthermore, alcohol use is associated with social, psychological, and medical conditions and could lead to assaults, absenteeism in school, depression, anxiety, hypertension, stroke, heart conditions, and liver diseases. It also appears that the health education that is going on in the schools is not making much impact. This prevalence is consistent with a study carried out in Ghana among secondary school students (27) but higher than 15.3% across the country among secondary school students (34). The prevalence rate was lower compared to a systematic review of alcohol use in Sub-Saharan Africa among adolescents that reported a prevalence of 32.8% (35). The study revealed that alcohol use was associated with the male gender.

Table 4:
Alcohol Users Who had Friends and Parents who Consume Alcohol

Alcohol consumption	**Frequency**	**(%)**
Friends' alcohol use		
Yes	100	(53.2)
No	88	(46.8)
Parents alcohol use		
Yes	121	(64.4)
No	67	(35.6)

Table 5:
Predictors of Alcohol use among Students

Variable	**B**	**SE**	**Wald**	***df***	***p*-value**	**Exp (B)**	**95% CI**	
							Lower	Upper
Age								
14-16	0.437	0.068	0.737	1	0.550	0.548	0.326	1.739
17-19						1.000		
Gender				1				
Male	-1.018	0.307	6.984	1	0.003	3.561	2.646	5.198
Female						1.000		
Parental alcohol use								
Yes	6.229	0.853	13.347	1	<0.001	5.302	4.062	8.350
No						1.000		
Friends' alcohol use								
Yes	4.749	0.624	9.240	1	<0.001	4.435	3.974	7.011
No						1.000		
Constant	-37.901	8.310	33.060	1	0.004	0.001		

The results of this study, males were more likely to consume alcohol than their female colleagues. Furthermore, reporting of alcohol use among females may be underreported due to specific cultural and social norms attached to women related to alcohol use. Some studies have suggested that the gap in alcohol use and subsequent health-related harms between males and females seem to be closing (36). Therefore intervention and prevention programs should be targeted at both sexes and, more significantly, among adolescents. This is consistent with other studies conducted in Ghana among students (26,37).

In our study, the results showed that having parents and friends who are consumers of alcohol had a strong relationship with alcohol use. Consumption of alcohol among friends could be due to peer influence and acceptance. Having friends who take alcohol is a significant risk factor for consuming alcohol, which is carried into adulthood. Growing up in the home, young children may learn specific behaviours from their parents and siblings. Some of these negative behaviours are seen as the norm, and as children grow up, these influences lead them to consume alcohol. In certain homes, every occasion calls for the consumption of alcohol, making children feel that happiness is alcohol and vice versa. Furthermore, on many occasions within our societies, alcoholic beverages are the leading drinks served, typically taken by adults, giving children the impression that when they grow up, alcohol should be the ideal drink for every occasion. This assertion is similar to studies conducted among students (21,38–40).

Results from the study also showed that the age of onset of alcohol use was 13 years, ranging from 10 to 17 years. This is similar to a study that indicated that students were more likely to use alcohol by age 13 (28). Furthermore, alcohol usage was high among form 1 and 2 students (73.4%). This may buttress the assertion of the early use of alcohol among school adolescents. Most students were given monthly pocket money of less than fifty Ghana cedis. Most parents within the communities are peasant farmers and, therefore, may be unable to give substantial amounts of money to their wards. It was also realised from the study that most students might not have been motivated enough to stop the use or initiation of alcohol. Therefore more education and motivation are needed in the schools to curb the situation.

The limitations of this study include; the data collected was self-reported, and a lot depended on the truthfulness of responses given by the respondents. Secondly, the study should have been conducted in all regional schools and cannot be used to generalise the entire student population.

Conclusions and recommendations

This study improved our understanding of alcohol use among the students in the Bono East region of Ghana. Male gender, friends and parental alcohol use were students' main drivers of alcohol consumption. In addition, the onset of alcohol use among students was at an early age and education and motivational factors to stop or reduce alcohol use were inadequate. The Ministry of Education, Ghana Health Service, health educators, and public health specialists should collaborate in designing effective health education intervention programs to reduce the prevalence of alcohol use among students in schools. Hospitals should create walk-in alcohol counselling units for students and adolescents alike. There should also be pragmatic health education for the general public on the health implications of excessive intake of alcohol.

Competing interests

The authors declare that there was no competing interest in this study.

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