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Prevalence of alcohol consumption among secondary school students in Port Harcourt, Southern Nigeria

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Abstract: *Background:* Consumption of alcohol by secondary school students is a major public health concern globally, but its prevalence is not known in secondary schools in Port Harcourt.
Objective: To determine the prevalence and factors associated with alcohol use among secondary school students in Port Harcourt.
Methods: This was a cross sectional school based study conducted in Port Harcourt in March 2014. A 20 itemed structured, self -administered questionnaire was distributed to 1080 senior secondary 1 to 3 students from 10 public secondary schools selected through Multistage Sampling technique. Questions asked covered drinking of alcohol, frequency of drinking and being drunk in the past 30 days before the survey. Other behaviours sought were smoking of cigarette, use of cocaine and going out in the evening for fun. Sociodemographic was also sought. Data was analyzed using SPSS version 20.
Results: 1080 students participated in the study, mean age 16.09±6SD and male to female ratio of 0.9: 1. Prevalence of current drinking of alcohol was 30.6% and 38.1% of current drinkers were also drunk in the past 30 days, with 17.2 % being very frequently drunk. The behaviour which showed a strong association with drinking of alcohol, being drunk and the frequency of being drunk was going out in the evening for fun and recreation. Gender showed a positive association with drinking of alcohol, as more males drank alcohol with in the past 30 days compared to the females (p=0.000). Smoking of cigarette in the past 30 days and truancy were positively associated with being drunk, while academic grades showed an inverse relationship with consumption of alcohol. Majority of those who drank alcohol (42.6%) were experimenting with alcohol, though 5.4% drank due to addiction. Majority (39.3%) bought their drinks from stores and supermarkets. The most Common problems experienced by the drinkers were fatigue, alcohol made them behave in ways they later regretted and it hurt their relationships.
Conclusion: Alcoholism is a serious problem with secondary school students in Port Harcourt. It is linked with truancy, poor academic achievement and other substances use. The most serious health and social problem experienced by the drinkers is addiction.

Key words: Prevalence, Alcohol, Secondary school, Consumption,

Introduction

Consumption of alcohol by underage adolescents is a major public health problem confronting many high, middle and low income countries globally[1]. In 2010, the World Health Organization's Regional Report on alcohol showed that the proportion of adolescents 15 to 19 years currently drinking alcohol was 34.1% globally; 69.5%, 52.7%, 37.3% and 29.3% in Europe, America, Western Pacific Region and Africa respectively[1]. The same report showed that the prevalence of monthly Heavy Drinking Episodes (HED) among adolescence 15 to 19 years was 11.7% globally; 31.2%, 18.4%, 12.5% and 6.3% in Europe, America, Western Pacific Region and Africa respectively[1]. In California, nearly 1.3 million youths between the ages of 12 to 25 years were involved in binge drinking[2]. Binge drinking for males is consuming five or more and for females consuming four or more drinks of alcohol within two hours[3].

In Brazil, Malta et al reported that 71.4% of nine graders had experimented with alcohol, 27.3% consumed alcohol regularly within the past 30 days preceding the survey and 22.1% had already been drunk.[4] In Kenya, Waweru et al reported that the age at first alcohol consumption among 14 to 18 year old students was 12 to 14 years for majority (29%) and below 12 years for 23.2% of the current users of alcohol.[5]In Nigeria, in-depth study on alcohol consumption by secondary school students is scarce. Majority of the studies done concentrated on substances use generally[6.7].

Consumption of alcohol by adolescents and young adults has a mirage of problems which has negative impact on the health of the population. It is a major risk factor for cardiovascular diseases, car accidents and homicides, which have been recognized as the leading causes of deaths among adolescents and young adults in the United States of America (USA).[4,8,9] Globally, alcohol is responsible for 3.2% of all deaths annually and 5% of deaths in people between the ages of 5 and 29 years. [10,11]Many of these deaths resulted from injuries caused by heavy drinking.[10]Starting to drink at an early age has also been associated with alcohol dependence during adult life, unintentional injuries such as falls, burns and drowning and with increased tendencies towards involvement in unprotected sex[3,5,12].
There is paucity of data on alcohol use among secondary school students in Port Harcourt and this may have a serious implication on the success of any intervention programme aimed at addressing this problem. The main aim of this study was to determine the prevalence and factors associated with alcohol use among secondary school students in Port Harcourt.

Methodology

This is a cross sectional school based study conducted in Port Harcourt Metropolis in March 2014. Port Harcourt Metropolis is the capital of Rivers State, situated in Southern Part of Nigeria. There are 30 public senior secondary schools in Port Harcourt Metropolis. These schools were stratified into Co-educational, all-boys and all-girls senior secondary schools. Altogether, there were 18 co-educational, 6 all-boys and 6 all-girls schools, in a ratio of 3:1:1. Based on this ratio, 6 coeducational, 2 all-boys and 2 all-girls schools were randomly selected for this study. This gave a total of ten selected senior secondary schools. From the 10 selected schools, an arm was randomly selected from the senior secondary 1 to 3 classes and the first 36 students from the class register in the selected arms were included in the study. This gave a total of 108 students per school. The minimum sample size N calculated for this study using the Fisher's Formula[13] $N=Z^2PQ/d^2$ is 384, where Z=a constant which is 1.96 at 95% Confidence Interval, P=Prevalence=48.9% reported in a previous study[5], Q=100-P, D=absolute precision or sampling error tolerated=5%. Eventually 1080 students were recruited in the study because the secondary school population is large and many students were eager to be included in the study.

A 20 itemed, self-administered, structured questionnaire was distributed to the selected students. Questions were adapted from the alcohol section of the Monitoring The Future (MTF) study.[14] Respondents were asked to state if they had drunk alcohol – more than just a sip in the past 30 days and if they had been drunk in the past 30 days. Frequency of drinking and being drunk was sought. Other behavioural problems sought included smoking of cigarette, using cocaine, going out in the evenings for fun and truancy. Socio-demographic information was also sought. Questions were pretested with 70 SS 1 to SS3 students from a secondary school not included in the study and the results were also not included in the study. To ensure that the students' responses were as truthful as possible, they were told not to write their names or any other means of identification. They were also informed that their information would be treated as strictly confidential. Additionally the teachers were not involved in the data collection.
For the purpose of the study, these definitions were used; Being drunk a few times means 2 times or less, frequently means 3 to 4 times and very frequently is regarded as 5 or more times, current drinkers were those who drank alcohol in the past 30 days before the survey. Going out in the evenings for fun is regarded as having a social gathering with peers in the evenings anywhere outside the school premises. To experiment with alcohol means to take alcohol just to know how it tastes and how one feels after drinking it. Data was analyzed using SPSS version 20. Results are presented using descriptive statistics. Chi Square Test was used for test of significance. Only p values less than 0.05 were considered statistically significant.

Ethical approval: Ethics Committee of University of Port Harcourt Teaching Hospital and the Administrative heads of each school gave approval for the study.
Consent: Written informed consent was obtained from the parents of the respondents.

Results

One thousand and eighty students participated in the study, ages between 12 to 24 years and mean age 16.09±1.6SD.There were 525 (48.6%) males and 555 (51.4%) females, with male: female ratio of 0.9:1.Majority (75.8%) of the mothers and fathers (81.8%) had secondary education and above. Majority (59.4 %,) of the students lived with both parents and all were day students.
Three hundred and thirty-one (30.6%) students had more than just a sip of alcohol in the last 30 days preceding the survey, out of which 236 (71.3%) had it just a few times, 38 (11.5%) had it frequently and 57(17.2%) had it very frequently.

Out of 331 students who took alcohol, one hundred and

twenty-six (38.1%) students had been drunk with alcohol in the last 30 days preceding the survey, out of which 105 (83.3%, 105/126) had been drunk just a few times, 7 (5.6%, 7/126) had been drunk frequently and 14 (11.1%, 14/126) had been drunk very frequently.

Table 1`shows the relationship between drinking of alcohol in the past 30 days and some variables. A higher proportion (50%, 3/6) of students within the age group 21 to 25 years consumed alcohol in the past 30 days preceding the survey, compared to 30.7% (207/674) and 30.3% (121/400) of the age groups 16 to 20 years and 11 to 15 years respectively. This is however not statistically significant. There is statistically significant association between consumption of alcohol and gender, more males (36.6%, 192/525) than females (25%, 139/555) consumed alcohol. Smoking of cigarette in the past 30 days and use of marijuana in the past 2 months before the survey have no statistically significant association with alcohol consumption. There is a statistically significant association between going out in the evening for fun and alcohol consumption. A higher proportion (57.1%, 60/150) of students who went out in the evening for fun for 4 days or more within a week consumed alcohol, compared to 28.8% (172/597) who went out for 1 day and 31.5% (56/178) who went out for 2 to 3 days in a week.

Table 1: Relationship between drinking alcohol- more than just a few sips in the past 30 days and some variables.

Variable	Drank Alcohol		Total (%)	χ^2	Pvalue
Age (YRS)	No (%)	Yes (%)			
11-15	279 (69.8)	121(30.3)	400 (100)		
16-20	467 (69.3)	207 (30.7)	674 (100)	1.088	0.580
21-25	3 (50.0)	3 (50.0)	6 (100)		
Total	749 (69.4)	331 (30.6)	1080 (100)		
Gender					
Male	333 (63.4)	192 (36.6)	525 (100)		
Female	416 (75.0)	139 (25.0)	555 (100)	16.864	0.000
Total	749 (69.4)	331 (30.6)	1080 (100)		
Smoked Cigarette in the past 30 days					
Yes	20 (57.1)	15 (42.9)	35 (100)	2.537	0.111
No	729 (69.8)	316 (30.2)	1045 (100)		
Used Marijuana in the past 2 months					
Yes	28 (66.7)	14(33.3)	42 (100)	0.148	0.700
No	721 (69.5)	317 (30.5)	1038 (100)		
Sniffed Cocaine					
Yes	35 (62.5)	21 (37.5)	56 (100)	1.305	0.253
No	714 (69.7)	310 (30.3)	1024 (100)		
Frequency of Going out in the evening for fun in a week					
Never went out	157 (78.5)	43 (21.5)	200 (100)		
1 day	425 (71.2)	172 (28.8)	597 (100		
2 to 3 days	122 (68.5)	56 (31.5)	178 (100)	43.556	0.000
4 days or more	45 (42.9)	60 (57.1)	150 (100)		
Total	749 (69.4)	331 (30.6)	1080 (100)		

Parental level of education had no relationship with alcohol consumption (χ^2=8.696, p=0.069). Living with both or single parents or other relatives also had no relationship with consumption of alcohol (χ^2=2.966, p=0.888). Alcohol consumption among students whose grades were less than 50%, 50 to 60%, 70 to 80% and above 80% was 36.5% (135/370), 33.3% (60/180) , 27.2% (102/375) and 26.7%(28/105) respectively. This is statistically significant (χ^2=8.885, p=0.031). Attending religious services had no relationship with alcohol consumption (χ^2=6.407, p=0.171).

There is no statistically significant association between age group and the frequency of alcohol consumption. However, a higher proportion of the 16 to 20 years age group consumed alcohol very frequently (20.3%, 42/207), compared to the 11 to 15 years (12.4%, 15/121) and the 21 to 25 years (0.0%, 0/3) age groups (χ^2=3.876, p=0.367).Gender also had no statistically significant association with frequency of alcohol consumption, though more males (19.8%, 38/192) consumed alcohol more frequently compared to the females (13.7%, 19/139), (χ^2=2.996, p=0.224)

Table 2 shows the relationship between being drunk and some variables. A higher proportion (33.3%, 1/3) of students between the ages of 21 to 25 years were drunk in the past 30 days preceding the survey, compared to the other age groups. This is however not statistically significant. More males (25.1%, 75/299) than females (21.6%, 51/236) were drunk in the past 30 days before the survey. This is also not statistically significant. Out of the 15 students who smoked cigarette and consumed alcohol in the 30 days preceding the survey, 13 (86.7%) were also drunk. This is statistically significant. Going out in the evening for fun has a positive relationship with being drunk. A higher proportion (39.5%, 32/81) of students who went out for 4 or more evenings within the week for fun was drunk. Being drunk in the past 30 days preceding the survey was also positively associated with truancy. Four (80%) out of the 5 students who missed school for 2 weeks or more within the past 4 weeks preceding the survey, were also drunk in the past 30 days before the survey .

Table 3 shows the relationship between the frequency of being drunk and some variables. A higher proportion (13.8%, 12/87) of students within the 16 to 20 years age group were very frequently drunk in the past 30 days preceding the survey, compared to the other age groups. This is not significant statistically. There is no significant association between gender and the frequency of being drunk, though more males (14.7%, 11/75) than females (5.9%, 3/51) were very frequently drunk. Going out in the evening for fun and recreation is significantly associated with being very frequently drunk, 21.9% (7/32) of students who went out for 4 or more days in the evenings in a week for fun were very frequently drunk.

Out of the 331 (30.6) students who were currently drinking alcohol, 130 (39.3%) bought the alcoholic drinks from the shops, supermarkets and vendors, 112 (33.8%) were given by friends, 50 (15.1%) drank from their parents collections at home and 39 (11.9%) drank at parties and other social gatherings.

Table 2: Relationship between being drunk and some variables

Variable	Drunk with alcohol		Total	χ^2	P value
Age	No	Yes			
11-15	155 (80.3)	38 (19.7)	193 (100)		
16-20	252 (74.3)	87 (25.7)	339 (100)	2.599	0.288
21-25	2 (66.7)	1 (33.3)	3 (100)		
Total	409 (76.4)	126 (23.6)	535 (100)		
Sex					
Male	224 (74.9)	75 (25.1)	299 (100)		
Female	185 (78.4)	51 (21.6)	236 (100)	0.884	0.347
Total	409 (76.4)	126 (23.6)	535 (100)		
Smoked cigarette in the past 30 days					
Yes	2 (13.3)	13 (86.7)	15(100)	15.741	0.000
No	203 (64.2)	113 (35.8)	316 (100)		
Frequency of Going out in the evening for fun in a week					
Never went out	56 (75.7)	18 (24.3)	74 (100)		
1 day	235 (79.9)	59 (201)	294 (100)		
2 to 3 days	69 (80.2)	17 (19.8)	86 (100)	14.142	0.003
4 days or more	49 (60.5)	32 (39.5)	81 (100)		
Total	409 (76.4)	126 (23.6)	535 (100)		
Skipping school in the past 4 weeks					
Never skipped school	87 (79.8)	22 (20.2)	109 (100)		
1 day	256 (78.0)	72 (22.0)	328 (100)		
2 to 4 days	50 (71.4)	20 (28.6)	70 (100)		
5 to 7 days	9 (64.3)	5 (35.7)	14 (100)	12.610	0.027
More than 1 week	6 (66.7)	3 (33.3)	9 (100)		
2 weeks and more	1 (20.0)	4 (80.0)	5 (100)		

Table 3: Relationship between frequency of being drunk and some variables

Variable	Frequency of being drunk			Total	χ^2	P value
	Few times	Frequently	Very frequently			
Age						
11-15	34(89.5)	2(5.3)	2(5.3)	38 (100)		
16-20	70(80.5)	5(5.7)	12(13.8)	87 (100)	3.866	0.499
21-25	1(100)	0(0.0)	0(0.0)	1 (100)		
Total	105(83.3)	7(5.6)	14(11.1)	126 (100)		
Sex						
Male	59(78.7)	5(6.7)	11(14.7	75 (100)		
Female	46(90.2)	2(3.9)	3(5.9)	51 (100)	3.004	0.223
Total	105(83.3)	7(5.6)	14(11.1)	126 (100)		
Going out in the evening for fun in a week						
Never went out	17(94.4)	0(0.0)	1(5.6)	18 (100)		
1 day	53(89.8)	1(1.7)	5(8.5)	59 (100)		
2 to 3 days	14(82.4)	2(11.8)	1(5.9)	17 (100)	11.280	0.042
4 days or more	21(65.6)	4(12.5)	7(21.9)	32 (100)		
Total	105(83.3)	7(5.6)	14(11.1)	126 (100)		

Table 4 shows the students' reasons for drinking alcohol. Majority of the students who drank alcohol, did it to experiment, to see what it is like (42.6%, 141/331), just to have good time with friends (38.7%, 128/331) and to be able to sleep (23.6%, 78/331). Eighteen (5.4%) reported drinking because they were already addicted to alcohol. Out of the 18 (5.4%) students who are addicted to alcohol, 17 (94.4%) belonged to the 16 to 20 age groups.

Table 4: Students' reasons for drinking alcohol

Students' reasons for drinking alcohol	No of students	% of 331
To experiment, see what it's like	141	42.6
To have a good time with friends	128	38.7
To get sleep	78	23.6
To feel good and get high	61	18.4
Because it tastes good	50	15.1
Because of anger or frustration	50	15.1
To get away from my problems or troubles	26	7.9
Because of boredom, nothing else to do	25	7.6
To relax or relieve tension	23	6.9
Because I am hooked	18	5.4

Table 5 shows the problems experienced by the students who drank alcohol. Majority reported that drinking alcohol caused them to have less energy (51.7%, 171/331), to behave in ways they later regretted (48%, 159/331) and hurt their relationships with their parents, teachers and friends (36.3%, 120/331).

Table 5: Problems experienced by students who drank alcohol

Problems experienced by students	No of students	% of 331
Caused you to have less energy	171	51.7
Caused you to behave in ways you later regretted	159	48.0
Hurt your relationship with your parents, teachers and friends	120	36.3
Hurt your performance in school	76	23.0
Interfered with your ability to think clearly	71	21.5
Caused you to be less stable emotionally	61	18.4
Caused your physical health to be bad	49	14.8
Involved you with people you think are bad influence	46	13.9
Caused you to drive unsafely	24	7.3
Got you in trouble with the police	23	6.9

Note: There were multiple responses

Discussion

Most secondary school students in Nigeria are in the adolescence period, characterized by experimentation and acquisition of behaviours which carry high risk of morbidity and mortality. So it is not surprising that 30.6% of the students in this study were currently drinking alcohol, though the legal drinking age in Nigeria is 18 years[15]. This differs from the 9.2% and 65% reported in Lagos[6] and Rivers States[7] in Nigeria respectively, but is similar to the 31.6% prevalence rate reported in EnuguStates[16] also in Nigeria, though the rates in these previous studies reflected the proportion of those who used alcohol, out of a total population of those who abuse substances in general. This prevalence is higher than the 27.3%, 15.3%, 15.1% , 10.4% and 5.7% prevalence rates reported in Brazil,[4] Ghana,[17]Iran[18], Ethiopia[19]andIndia[20]respectively. These differences may be

related to differences in implementations of laws regulating drinking age. For though the drinking age of alcohol in Nigeria is 18 years[15], results from previous studies[6,7] showed that this law is not being implemented. The prevalence of current use of alcohol is however lower than the prevalence rate of current use of alcohol of 37.7% reported among Georgian high school students[21]and 38.7% reported in a national survey in USA[22]. These previous studies were states and national surveys with large sample sizes, this may account for the differences in observations, but it shows that alcohol consumption among adolescents is a problem in Port Harcourt as in other parts of the world.

The fact that more than a third of those who drank alcohol 30 days before the survey were also drunk within that period (with 11.1% of them drunk very frequently) shows the enormity of the problem. Such heavy drinking by adolescents could result into alcohol-related harm[1]. Additionally, early initiation of alcohol use is a risk factor for alcohol dependence and abuse later in life[1,3].

The study did not show any statistically significant association between age and consumption of alcohol, though the older age groups were more involved with alcohol than the younger age group. Similar observations have been reported by Waweru et al[5] O'Malley et al[14] and Windle[23]. This study agrees with other studies [5,17,18,14,24] which reported higher rates of drinking among males compared to females. This may be due to the fact that drinking of alcohol is regarded as a masculine behaviour, and alcohol consumption in an all-male group affirms the privilege of being a man[24].

In this study, the behavior which showed the strongest and most consistent positive association with alcohol consumption was the number of evenings respondents reported going out with peers for fun and recreation in a week. The highest proportion of those who drank alcohol, who got drunk and who got drunk very frequently in the past 30 days preceding the survey were among those who went out for four or more evenings within a week with peers for fun and recreation. A similar observation had also been reported from previous studies[14, 25]. This may be explained by the findings of Jernigan[26] that young drinkers, particularly in Sub-Saharan Africa, believe that drinking of alcohol is essential to having a good time and that the purpose of drinking is to get drunk. This finding also supports the report of Munyua et al that peer influence contributes to alcoholism in school[27].

The study further revealed an inverse relationship between grades and alcohol consumption. The highest proportion of drinkers was among those whose grades were below average, showing that alcohol has a negative impact on educational achievements. O'Malley et al[14], Merline et al[25] and Hingson et al[28] also made similar observations and this finding confirms the statement of Windle[23] that drinking at an early age results into poor school performance. This inverse relationship between alcohol consumption and academic performance may also be a two way relationship. Frustration from repeated poor academic performance may also lead a student into alcoholism.

Our study is consistent with other studies[18,14,23,25,29] which found a strong association between cigarette smoking and heavy drinking. Majority (86.7%) of those who smoked and drank alcohol in the past 30 days before the survey also got drunk within that same period. This is not surprising because there is evidence that alcohol use precedes the use of cigarettes and other illicit drugs[14]. Alcohol is thus regarded by researches as a "gate way" drug[14]. Additionally, the results of a previous study showed that adolescents who are binge drinkers are also likely to be smokers and verse vasa and those who abstain from the use of one of these substances also abstain from the other[29].

The study revealed a positive association between truancy and being drunk. More than three quarter of those who were absent from school for 2 weeks or more within the past 4 weeks prior to the survey, were also drunk within that same period. Other researchers reported similar observations[5,13,25], supporting World Health Organization's recognition of Alcoholism among students as one of the causes of truancy in schools[8].
Implementation of alcohol-related public policies in USA helped reduce alcohol consumption and alcohol-related traffic fatalities among young Americans[23,30]. In Nigeria, although the minimum legal drinking and purchasing age for alcohol is 18 years, this is not being implemented (especially in Southern Nigeria)[15] as is reflected in the findings in this study. Majority of those who drank alcohol within 30 days either purchased it directly from stores, supermarkets and other vendors (39.3%) or were given by their peers (33.8%). Studies in other African countries had similar observations[5,17].

The adolescent period is a time of adventure, sensation seeking, taking on new challenges and risks[31]. It is therefore not surprising that the commonest reasons for drinking alcohol in this study are for experimentation and to have a good time, whilst 5.4% highlighted that they were addicted. All these reasons and more have been previously reported[5,23]. In this study, those who reported being alcohol addicts belong to the older age groups (16-20 and 21-25 years), meaning that these students may have started drinking at very young ages, unfortunately the onset age at drinking of alcohol was not explored in this study.

The most common alcohol-related problems reported by the respondents were causing them to have less energy to carry out day to day activities, hurting their relationship with their parents, teachers and friends and making them behave in ways they later regretted. These regretted actions were however not explored. Surprisingly, no student reported a serious medical and social condition like addiction as a problem, though eighteen (5.4%) students reported drinking because of it. This shows that the students did not regard addiction as a problem.
Several studies[3,4,5,8,9, 14,17] have also highlighted these

alcohol-related social, psychological and even medical problems among adolescents.

Conclusion

In conclusion, alcoholism is a serious problem in secondary schools in Port Harcourt. This behavior is worse with the boys compared to the girls. Going out in the evening for fun and recreation, truancy and smoking of cigarette show positive relationships with students' alcohol behaviours, while academic grades showed an inverse relationship with alcohol behaviours. Majority of those who drank were experimenting with alcohol and majority bought their drinks from the stores and supermarkets. The most serious problem experienced by the drinkers was addiction.

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Recommendations

Alcohol prevention programs should be implemented by Rivers State Government in all the secondary schools in Port Harcourt. The Federal Government of Nigeria should enforce the legal drinking and purchasing age of 18 years. Healthy extra-curricular activities should be organized by all the secondary schools in Port Harcourt to minimize the frequency of going out for fun and recreations in the evenings.

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