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ORIGINAL ARTICLE | ALCOHOL CONSUMPTION

Factors Associated with Alcohol Consumption Among Students in High-Cost Schools in Lusaka, Zambia

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ABSTRACT

Introduction: The prevalence of alcohol consumption among adolescents is very high in Zambia, in spite of the knowledge on the negative effects of alcohol consumption on adolescents. The objective of this study was to determine factors associated with alcohol consumption among secondary school students in high-cost public schools.

Methods: A cross-sectional study of 357 students in Grades 8 and 11 was conducted. Data were collected using structured questionnaires. The associations and correlations between explanatory variables and the outcome of interest was established using Chi-square or the Fisher's exact test. Magnitudes of association were estimated using Odds ratio.

Results: The prevalence of alcohol consumption among the students was 43.7%. Factors predictive of students' alcohol use were attitude towards alcohol consumption (Adjusted Odds Ratio (AOR) =3.15, 95% Confidence Interval (CI) [1.04,9.56]), parental monitoring (AOR=0.69, 95% C.I. [0.69, 0.94]), parental alcohol use (AOR= 1.76, 95% C.I. [1.39,2.23]) and pocket money availability (AOR= 1.52, 95% C.I. [1.03,2.26]). The prevalence of alcohol consumption was high. Students with positive attitudes towards alcohol consumption were found to be 3.15 times more likely to drink alcohol compared to students with negative attitudes. Students who are highly monitored by their parents were found to be 31% less likely to drink alcohol compared to those rarely monitored by their parents. Students whose parents drink alcohol were found to be 76% more likely to drink alcohol compared to those whose parents do not drink alcohol. Students with a high amount of pocket money were found to be 52% more likely to drink alcohol compared to those without pocket money.

Conclusion and Implication for Translation: Results indicate a high prevalence of alcohol consumption among secondary school students of high-cost schools. Potential interventions should focus on inclining the students' attitudes against alcohol consumption, encouraging increased parental monitoring, and teaching students how to use their pocket money more appropriately.

Keywords: •Adolescent Alcohol Consumption •Attitude Towards Alcohol •Parental Monitoring •Parental Alcohol Use •Pocket Money

1. Introduction

Alcohol is a depressant drug that slows down the vital functioning of the body resulting in disturbed perception.[1] In 2012, there were 3.3 million deaths out of all the global deaths attributed to drinking.[2] Alcohol contributes to the onset of diseases and injury-related health conditions. Alcohol marketing is associated with drunkenness and problem drinking among youths.[3] This highlights the arguments for the importance of restricting alcohol marketing practices as an important policy strategy for reducing alcohol use and its dire consequences among vulnerable youths. Early initiation in alcohol use is associated with drinking problem among youths in Zambia.[4]

Factors associated with alcohol consumption among secondary school students can be narrowed down to "consumption" and "effect factors." Consumption factors are generally socio-demographic factors such as age, residence, grade point average (GPA) and education level.[5] Other consumption factors include attitude towards alcohol consumption, parental monitoring, parental consumption of alcohol, and amount of pocket money received by students.

The attitude of a student towards alcohol consumption relates to the stance of the individual student pertaining to alcohol consumption. Positive attitudes towards alcohol consumption refer to viewing alcohol in a favorable light, while negative attitudes towards alcohol consumption refer to viewing alcohol in an adverse, more harmful light.[1,6] Parental influence, refers to the parental monitoring and to parental alcohol consumption. Parental monitoring is defined as parental behaviors that provide the parents' with awareness of their children's lives, and that consists of the regulation of their children's activities, friends, conduct and whereabouts.[7] Parental alcohol consumption refers to the intake of alcoholic beverages by the students' parents. Pocket money is any money given to a student in-advance for use for anything other than school fees and transportation costs.

Attitude towards alcohol consumption can be formed directly by personal experience and reinforcement, or indirectly by social learning, observation, and classical conditioning.[8] A positive attitude towards alcohol consumption is developed directly when adolescents deem that drinking leads to positive effects, when their risk perception is lower, when they have low levels of conscientiousness, and an increased interest in risk-taking.[9,10] A positive attitude towards alcohol consumption is also developed indirectly through social learning and observing their parents drink alcohol, exposure to alcohol advertisement, having high levels of western cultural influence, associating with alcohol through peers and by being in an alcohol-permissive environment.[9,10] On the other hand, a negative attitude towards alcohol consumption is also developed directly when adolescents are involved in conventional activities such as sports and religious activities, and when they show high levels of conscientiousness as part of their personality.[10] A negative attitude towards alcohol consumption can be developed indirectly via learning through association and observation when the parents of the adolescents communicate their disapproval of drinking alcohol to them, by listening to alcohol prevention messages and by having peers that display with negative attitude towards drinking alcohol.[10,11] The adolescents' attitude towards drinking alcohol, along with its evaluation, will allow the prediction of their intent to drink, as will the knowledge of the specific beliefs towards alcohol consumption that others in their surroundings may have. These factors influence the adolescents' intent to consume alcohol in relation to their motivation to please those in their environment.[9,12,13]

Low levels of parental monitoring is associated with an increased likelihood of alcohol use by adolescents.[6,14] Greater parental monitoring is protective against drinking and initiation of drinking.[14,15] A significant number of studies have shown that increased parental monitoring lowers the prevalence, frequency, levels of consumption and misuse of alcohol.[6,14,16,17]

Parental alcohol use is associated with greater likelihood of initiation and continued adolescent alcohol use.[15,16,18,19] The magnitude of alcohol use by adolescents is directly related to the alcohol consumption of other household members.[20]

Despite prior studies on alcohol consumption, there is still a high prevalence of alcohol use among

secondary school students in Zambia.[4] However, to our knowledge, no study in Zambia, has assessed the attitude towards drinking among secondary school students. Therefore, the objective of the study was to determine the prevalence of drinking and the effect of attitude towards drinking among secondary school students in high-cost schools; as well as the impact of parental influence and pocket money on their alcohol intake. High-cost schools, refer to schools that are located in high-cost areas. Kabulonga and Woodlands are examples of high-cost areas of Lusaka, Zambia, with low population density and rental housing costs of US$300 or more.

2. Methods

A cross-sectional study was performed to assess factors associated with alcohol consumption among secondary school students.

2.1. Study Site

The study was conducted in Lusaka, the capital city of Zambia. It is a 418 square kilometers area, with a population of about 3,002,530 people. The study population was both male and female day scholars in Grades 8 and 11 from seven high-cost public schools namely David Kaunda, Kabulonga Boys, Kabulonga Girls, Munali Boys, Munali Girls, Arakaan Boys, and Arakaan Girls Secondary Schools. The study population included both morning pupils (those students who attend class from 7: 20 am to 1:10 pm) and afternoon pupils (those students that attend class from 1:20 pm to 5:50 pm).

2.2. Sample Size and Sampling

The sample size of 357 students was calculated using the statistical program in Epi Info version 7.1 with a population size of 5,055, confidence level at 95%, expected frequency of 50% and estimated within 5%. A Stratified Sampling technique was used.[21]

The formula below was used to calculate the sample size using Epi Info Version 7.1:

$$\text{Sample size} = \frac{n}{1+\frac{n}{population\ size}}$$

$$\text{Where n} = Z^2 \frac{p(1-p)}{e^2}$$

Table 1: Statistical data obtained from respective school administrations

Name of Secondary School	Number of Grades (G) 8 and 11 Students
Kabulonga Boys (KBSS)	877 (G8-110, G11-767)
Kabulonga Girls (KGSS)	637 (G8-77, G11-560)
Munali Boys (MBSS)	898 (G8-142, G11-756)
Munali Girls (MGSS)	791 (G8-149, G11-642)
Arakaan Boys (ABSS)	928 (G8-207, G11-721)
Arakaan Girls (AGSS)	651 (G8-110, G11-541)
David Kaunda (DK)	273 (G11-273)
Total	5,055

Statistical data that were used to obtain the sample size were collected from the school administrations of the respective secondary schools that were involved in this study. At David Kaunda, only the total number of Grade 11 students was collected, as there were no Grade 8 day scholars (Table 1)

Stratified Sampling was done with allocations according to the number of students at the respective schools and grade proportionally. This ensured regular spacing of sample units, thereby, yielding an efficient estimate of the study population. To calculate the sample size of a particular school, the total number of Grades 8 and 11 students of that particular school was divided by the total number of Grades 8 and 11 students from all the participating schools, and then multiplied by the study sample size, 357. To calculate the sample size of Grade 8 students of a particular school, the total number of Grade 8 students of that particular school was divided by the total number of Grades 8 and 11 students of the respective school and then multiplied by the sample size of that respective school. To calculate the sample size of Grade 11 students of a particular school, the total number of Grade 11 students was divided by the total number of Grades 8 and 11 students of that particular school and then multiplied by the sample size of that respective school. Table 1 shows the numbers of students in Grades 8 and 11 at each respective secondary school.

This is illustrated below, where KBSS stands for Kabulonga Boys Secondary School, KGSS stands for Kabulonga Girls Secondary School, MBSS stands for Munali Boys Secondary School, MGSS stands for Munali Girls Secondary School, ABSS stands for Arakaan Boys Secondary School, AGSS stands for Arakaan Girls Secondary School, and DK for David

Kaunda Secondary School. G8 stands for the sample size of Grade 8 students at the respective schools, while G11 stands for the sample size of Grade 11 students at the respective schools.

$$\text{Sample size at KBSS}: \frac{877}{5055} \times 357 = 62,$$
$$G8: \frac{110}{877} \times 62 = 8, G11: \frac{767}{877} \times 62 = 54$$

$$\text{Sample size at KGSS}: \frac{637}{5055} \times 357 = 45,$$
$$G8: \frac{77}{637} \times 45 = 5, G11: \frac{560}{637} \times 45 = 40$$

$$\text{Sample size at MBSS}: \frac{898}{5055} \times 357 = 63,$$
$$G8: \frac{142}{898} \times 63 = 10, G11: \frac{756}{898} \times 63 = 53.$$

$$\text{Sample size at MGSS}: \frac{791}{5055} \times 357 = 56,$$
$$G8: \frac{149}{791} \times 56 = 10, G11 \frac{642}{791} \times 56 = 46.$$

$$\text{Sample size at ABSS}: \frac{928}{5055} \times 357 = 66,$$
$$G8: \frac{207}{928} \times 66 = 15, G11: \frac{721}{938} \times 66 = 51.$$

$$\text{Sample size at AGSS}: \frac{651}{5055} \times 357 = 46,$$
$$G8 \frac{110}{651} \times 46 = 8, G11: \frac{541}{651} \times 46 = 38.$$

$$\text{Sample size at DK}: \frac{273}{5055} \times 357 = 19.$$

2.3. Ethical Consideration

This study was approved in July 2016 by Tropical Disease Research Center in Ndola, Zambia. Permission was obtained from all participating schools. Consent was given by students who were 18 years of age and above, while assent for students below the age of 18 was given by the principals of the respective schools.

2.4. Data Collection and Analysis

Data collection was done using structured questionnaires, between September and October, 2016. To determine the prevalence of drinking, students were asked whether they currently consumed alcohol. A "Yes" response denoted consumers and a "No" response denoted non consumers. Opinion on alcohol consumption was used to measure attitude towards alcohol consumption. The frequency of parents' awareness of the students' whereabouts was used to measure parental monitoring. An "every time" response denoted close parental monitoring, a "during weekends" response indicated moderate parental monitoring, and a "rarely know" response denoted low parental monitoring. To determine parental drinking, students where asked if their parents consumed alcohol. A "Yes" response denoted parental drinking, while a "No" response denoted no parental drinking. To determine how much pocket money students received, they were asked how much they were given. A response of "US$0" denoted none, "US$1-US$4.9" denoted moderate amounts, while "US$5-US$100" denoted high amounts of pocket money. The collected data were entered in Excel and checked for completeness. It was then entered into Statistical Package for the Social Sciences (SPSS) Version 20.0 software for analysis.[22]

2.5. Conceptual / Theoretical Frame Work

The Theory of Planned Behavior (TPB) states that a person's intent to carry out a certain behavior is the most important determinant of that action. When an opportune and adequate moment arises, the intent is translated into an action.[9,12,13,23,24]

The Theory of Social Control stipulates that youths commit delinquent acts because they lack a strong affective attachment to their parents and that the strength of a relationship is the most important factor in deterring delinquent behavior. Delinquent behavior predisposes adolescents to drinking. According to the Theory of Social Control, children adhere to prosocial norms when they experience a strong bond with their parents.[17,25] This theory helps us understand the importance of parental monitoring as it is a medium of connection between parents and their children.

Bandura's Social Learning Theory states that people learn from one another, via observation, imitation and modeling. It also states that the

impact of the environment on behavior is mediated through cognition.[26] This is an important theory in understanding that the actions of parents through consumption of alcohol has an effect on adolescents' alcohol consumption.

Adolescents' attitudes about alcohol intake are influenced by their beliefs and their positive and negative evaluation of these beliefs. This evaluation is the emotional component of attitude and is determined by the motivation and strength of the intention to use alcohol. The attitude towards alcohol consumption is influenced by subjective norms such as parental monitoring and parental alcohol consumption, as well as perceived behavioral control. Parents that closely monitor their children and do not consume alcohol, influence their children to have a negative attitude towards alcohol consumption. However, parents that consume alcohol and rarely monitor their children, influence their children to have a positive attitude towards alcohol consumption. When an individual has a negative attitude towards alcohol consumption they are less likely to have intention to consume alcohol, however, when an individual has a positive attitude towards alcohol consumption they are more likely to have intention of consuming alcohol. According to the Theory of Planned Behavior (TPB), a person's intent to carry out a certain behavior is the most important determinant of that action. Therefore, when an opportune and adequate moment arises, which may occur when an individual has a high amount of pocket money spend on items such as alcohol, the intent to consume alcohol is translated into the consumption of alcohol.[9,12,13,23,24] This is illustrated in Figure 1.

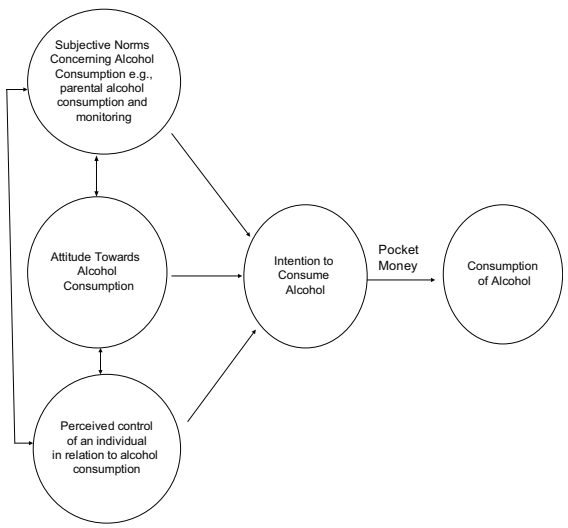

Figure 1.A Conceptual Frame Work of how Attitude, Parental monitoring, Parental Alcohol Consumption, and Pocket money is Related to Alcohol Consumption of Adolescents

3. Results

A total of 357 students participated in the study, of which all participants were responsive which gave a response rate of 100%. Of the 357 participant students, 202 (56.58%) were males. Females tended to be younger than males (P=0.010). Overall most participants were Grade 11 afternoon students (47.90%). The majority of the participants lived with both their parents (57.42%). There was no significant difference in the proportion of participants who consumed alcohol between males (43.1%) and females (44.5%), giving an overall alcohol consumption prevalence rate of 43.7%. These results are shown in Table 2.

Table 3 shows demographic and social factors associated with alcohol consumption. Age (P=0.001), Grade (P=0.007), Opinion on alcohol consumption (P=0.012), and Smoking (P=0.001) was significantly associated with alcohol consumption.

Table 4 shows independent factors associated with alcohol consumption. Students who had a positive opinion about alcohol consumption were 3.15 (95% C.I. [1.04, 9.56]) times more likely to consume alcohol, compared to students who had a negative opinion about alcohol consumption. Students whose parents had knowledge of their whereabouts "every time" where 31% (AOR=0.69, 95% C.I. [0.69, 0.94]) less likely to consume alcohol compared to students whose parents rarely knew the whereabouts of the students. Students whose parents consumed alcohol were 76% (AOR=1.76, 95% C.I. [1.39, 2.23]) more likely to consume alcohol as compared to those whose parents did not consume alcohol. Students who were given pocket money between US$5-100 where 52% (AOR=1.52, 95% C.I. [1.03, 2.26]) more likely to consume alcohol as compared to those that were not given any pocket money.

Table 2: Selected sociodemographic characteristics of the study population

Variables	Sex			P value
	Total n (%)	Female n (%)	Male n (%)	
Age (years)				
12-15	71 (19.9)	33 (21.3)	38 (18.8)	0.010
16-18	230 (64.4)	108 (69.7)	122 (60.4)	
19-26	56 (15.7)	14 (9.0)	42 (20.8)	
Total	357 (100.0)	155 (100.0)	202 (100.0)	
Grade				
Grade 11 Afternoon Pupils	171 (47.9)	74 (47.7)	97 (48.0)	0.927
Grade 11 Morning Pupils	130 (36.4)	58 (37.4)	72 (35.6)	
Grade 8 Afternoon Pupils	9 (2.5)	3 (1.9)	6 (3.0)	
Grade 8 Morning Pupils	47 (13.2)	20 (12.9)	27 (13.4)	
Total	357 (100.0)	155 (100.0)	202 (100.0)	
Type of Family				
Mother and Father	205 (57.4)	93 (61.6)	112 (56.0)	0.614
Single Mother	55 (15.4)	20 (13.2)	35 (17.5)	
Aunt/Uncle	58 (16.2)	23 (15.2)	35 (17.5)	
Single Father, Foster Parents, Grandparents, Brother, Sister	39 (10.9)	15 (9.9)	18 (9.0)	
Total	357 (100.0)	155 (100.0)	202 (100.0)	
Average Age of Parents/Guardians (years)				
Below 40	83 (23.2)	41 (26.5)	42 (20.8)	0.298
40-50	198 (55.5)	79 (51.0)	119 (58.9)	
50 and Above	76 (21.3)	35 (22.6)	41 (20.3)	
Total	357 (100.0)	155 (100.0)	202 (100.0)	
Current Alcohol Consumption Status				
Yes	156 (43.7)	69 (44.5)	87 (43.1)	0.785
No	201 (56.3)	86 (55.5)	155 (56.9)	
Total	357 (100.0)	155 (100.0)	202 (100.0)	

4. Discussion

This study was done among secondary school students, of which the majority of students were from 12 to 19 years of age. This age group is referred to as adolescents. The prevalence of non-consumption of alcohol was found to be 56.3%, whereas a total of 43.7% of students were found to be alcohol consumers. Students who had a negative attitude towards alcohol consumption were less likely to consume alcohol compared to students who had a positive attitude towards alcohol consumption. Students who were highly monitored by their parents were 31% less likely to drink alcohol compared to those who were not monitored. Students whose parents/guardians consume alcohol were 76% more likely to drink alcohol compared to those whose parents/guardians do not consume alcohol. Students who had pocket money between $5-$100 were 52% more likely to drink alcohol compared to those that received less pocket money.

The prevalence of alcohol consumption indicated in this study is higher than that in Ethiopia at 22.2%.[25] In other studies done in Taiwan and South Africa, the alcohol consumption prevalence was 19.5% and 35.5% respectively.[20,26] Compared to these findings the prevalence of alcohol consumption among adolescents in Zambia is high and needs prompt intervention.

Table 3: Demographic and social factors associated with alcohol consumption

Variables	Alcohol Consumption			P value
	Total n (%)	Yes n (%)	No n (%)	
Sex				
Female	155 (43.4)	69 (44.2)	86 (42.8)	0.785
Male	202 (56.6)	87 (55.8)	115 (57.2)	
Total	357 (100.0)	156 (100.0)	201 (100.0)	
Age (years)				
12-15	71 (19.9)	19 (12.2)	52(25.9)	0.001
16-18	230 (64.4)	104 (100)	126 (100)	
19-26	56 (15.7)	33 (21.2)	23 (11.4)	
Total	357 (100.0)	156 (100.0)	201 (100.0)	
Grade				
Grade 11 Afternoon Pupils	171 (47.9)	89 (57.1)	82 (40.8)	0.007
Grade 11 Morning Pupils	130 (36.4)	49 (31.4)	81 (40.3)	
Grade 8 Afternoon Pupils	9 (2.5)	5 (3.2)	4 (2.0)	
Grade 8 Morning Pupils	47 (13.2)	13 (8.3)	34 (16.9)	
Total	357 (100.0)	156 (100.0)	201 (100.0)	
Opinion on Alcohol Consumption				
Good (Positive)	8 (2.2)	7 (4.5)	1 (0.5)	0.012
Bad (Negative)	349 (97.8)	149 (95.5)	200 (99.5)	
Total	357 (100.0)	156 (100.0)	201 (100.0)	
Smoking				
Yes	34 (9.5)	34 (21.8)	0 (0.0)	<0.001
No	323 (90.5)	122 (78.2)	201 (100.0)	
Total	357 (100.0)	156 (100.0)	201 (100.0)	

Adolescents that have a positive attitude towards alcohol consumption, perceiving it as a desirable and pleasant behavior, are more likely to have the intention of consuming alcohol, hence are more likely to drink alcohol.[9,16,23,24] In contrast, those with a negative attitude towards alcohol consumption are less likely to have intentions of consuming, and are thus, less likely to consume alcohol when an opportunity and adequate moment arises.[11,12] This is consistent with the Theory of Planned Behavior (TPB). Using the TPB, it can be said that adolescents' intent to consume alcohol, which can be determined by their attitude, is a determinant of whether they will or will not consume alcohol when an opportunity and adequate moment arises.

In reality, it is not always as clear cut that an adolescent will either have a positive or a negative attitude towards alcohol consumption. In some cases, they may have both negative and positive attitudes towards alcohol consumption. This is because the two attitudes measure different qualities and are not merely assessing opposite ends of one spectrum.[10] In these cases adolescents tend to act upon an attitude that outweighs the other.[13,27] There is a stronger correlation between positive attitude towards drinking heavily, as compared to negative attitude towards drinking.[8,28] This means that when the factors leading to both attitudes toward drinking have a similar weight, adolescents with the two conflicting attitudes are more likely to drink.

Parental monitoring is one of the ways in which children experience a strong bond with their parents. In consistency with the Theory of Social Control, this will in turn prevent them from drinking when

Table 4: Independent factors associated with alcohol consumption

Variables	(A0R) 95% C.I
Opinion on Alcohol	
Good (Positive)	3.15 (1.04, 9.56)
Bad (Negative)	1.00
Parents' Knowledge of Student's Whereabouts	
Every time	0.69 (0.69, 0.94)
During week ends	0.76 (0.51, 1.14)
Rarely know	1.00
Parents Consume Alcohol	
Yes	1.76 (1.39, 2.23)
No	1.00
Pocket Money($)	
1-4.9	1.03 (0.75, 1.41)
5-100	1.52 (1.03, 2.26)
0	1.00

their parents prohibit them to do so. Adolescents with low levels of monitoring are predisposed to delinquent behavior and are thus, predisposed to drinking; this is also in line with the Theory of Social Control.[17,28] Parental monitoring is also linked to a decrease in delinquency due to adolescents curtailing their behavior in response to parental actions. This is because adolescents with parents that are aware of their children's whereabouts have fewer opportunities to engage in drinking. Greater parental awareness is an indicator of high-quality parent-child relationship or high levels of positive-child interaction and involvement, which are protective against vices like drinking during adolescence.[28] Monitoring may also reduce the likelihood of drinking by reducing negative influence from peers by limiting contact with peers who drink alcohol. Parental monitoring is a form of asserting control by parents over outside influences such as risk peer groups who indulge in consumption of alcohol.[29] Laird et al.[28] found that parents can improve their parenting skills and monitoring, which can lead to improvements in adolescents' behavior.

The effect of parents' drinking on their children's drinking can be direct or indirect.[18,30,31] By using Bandura's Social Learning Theory it can be said that adolescents can learn how to drink directly by observing the attitude and consumption of alcohol by their parents and proceeding to imitate them. By observing their parents drink, adolescents form an idea of how they can drink, and overtime it becomes ingrained as coded information that will serve them as a guide for drinking.[26] This is because parents are important role models to their children. The indirect effect of parental drinking on their adolescent children can be explained by using Bandura's Social Learning Theory, which also states that the impact of the environment on behavior is mediated through cognition. Adolescents receive environmental stimuli when they see their parents drinking alcohol and internalize associated cognitions, which leads to promotion of alcohol consumption.[31] It is important for parents to be aware of the influence their drinking behavior has on their children's drinking.

The more pocket money adolescents receive, the more likely they are to use a portion to buy alcohol.[11,32] Adolescents who receive a high amount of pocket money are also at a high risk of abusing alcohol. The strong relationship between the amount of pocket money and drinking among adolescents suggests that drinking is affected by their ability to purchase alcohol from commercial sources. Adolescents with greater access to money to spend may be able to buy alcohol more easily.[33] Adolescents who drink more often will in turn need more money to buy alcohol, and therefore, they will be more likely to ask for more pocket money.[33]

5. Conclusion and Implications for Translation

In this study, the attitude of adolescents towards alcohol, parental monitoring, parental alcohol consumption and the amount of pocket money adolescents received were predictive of the likelihood of adolescents' drinking. Therefore, interventions to combat the high levels of alcohol consumption among adolescents should include programs to help adolescents understand the dangers of alcohol use, encourage parents to monitor their children and help adolescents learn how to use their pocket money appropriately. Factors affecting alcohol

consumption among adolescents interact with each other to form a complex relationship. A holistic approach should be used to address this as these factors are interrelated.

Limitations

The study limitations include the fact that drinking by secondary school students is prohibited; thus this might have instilled fear in some students, which led them to underreport their drinking. Data collection was self-reported, therefore, some students might have overreported the amount of pocket money received for fear of being looked down upon.

Compliance with Ethical Standards

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Key Messages

- Prevalence of alcohol consumption among students attending private high schools is high.
- Interventions to address high rates of alcohol use among high school students should consider students' attitudes towards alcohol consumption.
- An understanding of parental monitoring of students' appropriate use of pocket money is important in the design of alcohol-reduction interventions.

References

1. The truth about alcohol: what is alcohol? Foundation for a Drug-Free World. https//www.drugfreeworld.org/drugfacts/alcohol.html. Published 2006. Accessed March 25, 2017.
2. World Health Organization. *Global Status Report on Alcohol and Health*. World Health Organization; 2014.
3. Swahn HM, Ali B, Palmier BJ, Sikazwe G, Mayeya J. Alcohol marketing, drunkenness, and problem drinking among Zambian youth: Findings from the 2004 Global School-Based Student Health Survey. *J Environ Public Health*. 2011;2011:497827. doi: 10.1155/2011/497827
4. Swahn HM, Ali B, Palmier J, et al. Early alcohol use and problem drinking among students in Zambia and Uganda. *J Public Health Afr*. 2011;2(2):e20. doi: 10.4081/jphia.2011.e20
5. Chaveepojnkamjorn W, Pichainarong N. Factors associated with alcohol consumption among male high school students in central Thailand. *Southeast Asian J Trop Med Public Health.* 2010; 41(3): 735-742.
6. Muchiri WB, Dos santos LMM. Family management risk and protection factors for adolescents substance use in South Africa. *Subst Abuse Treat Prev Policy.* 2018;13(1):24. doi: 10.1186/s13011-018-0163-4
7. Koura M, Méda BI, Ouattara DZ, et al. Prevalence and factors associated with alcohol consumption in urban schools in Burkina Faso. *Open J Gastroenterol.* 2017;7(6):187-196. doi: 10.4236/ojgas.2017.76020
8. Fossey E. *Growing Up with Alcohol*. Routledge; 2005: 11.
9. Lopez-Cineros AIM, Luis VAM, Castilo AMM, Castillo AJTM, Aguilari RL. Attitudes towards consumption and non-consumption of alcohol among high school students in Mexico. *Revi Esc Enferm USP*. 2013: 815-821.
10. Gaines L. *Student attitudes towards drinking behaviours*. Durham, New Hampshire: University of New Hampshire; 2014: 200.
11. Bowden JA, Delfabbro P, Room R, Miller CL, Wilson C. Prevalence, perceptions and predictors of alcohol consumption and abstinence among south Australian school students. *BMC Public Health*. 2017; 17(1):549. doi: 10.1186/s12889-017-4475-5
12. Ajzen I, Fishbein M. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs: Prentice- Hall;1980.
13. Smith GM. *Correlates of Personality and Drug Use-I*. National Institute on Drug Abuse; 1977.
14. Pettigrew S, Donovan R. *A Literature Review of the Factors that Influence Alcohol Consumption and the Effectiveness of Past Interventions*. Perth: Centre of Behavioural Research in Cancer Control, Curtin University of Technology; 2003.
15. Haase T, Pratschke J. *Risk and Protection Factors for*

Substance Use Among Young People. National Advisory Committee on Drugs; 2010.

16. Hawkins JD, Catalano FR, Miller YJ. Risk and protective factors for alcohol and other substance problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychol Bull*. 1992;112(1): 64-105. doi: 10.1037/0033-2909.112.1.64
17. Steketee M, Jonkman H, Berten H, Vettenburg N. *Alcohol Use Among Adolescents in Europe*. Verwey -Jonker Instituut; 2013.
18. Cleveland MJ, Turrisi R, Gibbons FX, Gerrard M, Marzell M. The effects of mothers' protective parenting and alcohol use on emerging adults' alcohol use: testing indirect effects through prototype favorability among African American Youth. *Alcohol Clin Exp Res*. 2018;42(7):1291-1303. doi: 10.1111/acer.13775
19. Chassin L, Curran PJ, Hussong AM, Colder CR. The relation of parent alcoholism to adolescent substance use: A longitudinal study. *J Abnorm Psychol.* 1996;105: 70-80. doi: 10.1037//0021-843x.105.1.70
20. Chauke TM, Van der Heever H, Hoque ME. Alcohol use amongst learners in rural high school in South Africa. *Afr J Prim Health Care Fam Med*. 2015;7(1): e1-e6. doi: 10.4102/phcfm.v7i1.755
21. Dean G. Epi Info and Epi Map: Current status and plans for Epi Info 2000. *J Public Health Manag Pract*. 1999;5(4): 54-57. doi: 10.1097/00124784-199907000-00011
22. Field A. *Discovering Statistics Using IBM SPSS statistics*. Washington DC: SAGE Publications Ltd; 2001.
23. Marcoux CB, Shope TJ. Application of the Theory of Planned Behaviour to adolescent use and misuse of alcohol. *Health Educ Res*. 1997;12(3): 323-331.
24. Fishbein M, Ajzen I. *Predicting and Changing Behaviour: The Reasoned Action Approach.* New York Psychology Press; 2010.
25. Reda AA, Moges A, Wondmagegn BY, Biadgilign S. Alcohol drinking patterns among high school students in Ethiopia: a cross-sectional study. *BMC Public Health*. 2012;12:213. doi: 10.1186/1471-2458-12-213
26. Hung CC, Chiang CY, Hang YH, Yen LL. Path of sociaization and cognitive factors' effects on adolescents' alcohol use in Taiwan. *Addict Behav*. 2011;36(8):807-813.doi:10.1016/j.addbeh.2011.03.004
27. Kilibarda B, Mladenovic I, Rakic GJ. Attitude on alcohol and drinking pattern among youth in Serbia. *Srp Arh Celok Lek*. 2013; 141(1-2):66-71. doi: 10.2298/sarh1302066k
28. Laird DR, Pettit SG, Bates EJ, Dodge AK. Parents' monitoring-relevant knowledge and adolescent's delinquent behaviour; Evidence of correlated developmental changes and reciprocal influences. *Child Dev.* 2003; 74(3): 752-768. doi: 10.1111/1467-8624.00566
29. Hoskins DH. Consequences of parenting on adolescent outcomes. *Societies*. 2014;4(3):506-531.
30. Bandura A. *Social Learning Theory*. Englewood Cliffs: Prentice-Hall; 1977.
31. Valentine G, Jayne M, Gould M, Keenan J. *Family Life and Alcohol Consumption: A Study of the Transmission of Drinking Practices*. Joseph Rowntree Foundation; 2010.
32. King'ori WI, Kithuka M, Maina J. Influence of excess pocket money on drug abuse among secondary schools in Laikipia, Nakuru and Kericho counties, Kenya. *Int J Innovative Res Dev.* 2014;3(5): 774-782.
33. Bosque-Prous M, Kuipers G.A.M, Espelt A, et al. Adolescent alcohol use and parental and adolescent socioeconomic position in six European cities. *BMC Public Health*. 2017; 17(1):646. doi: 10.1186/s12889-017-4635-7