

RESEARCH ARTICLE

Editorial Process: Submission:01/06/2018 Acceptance:04/05/2018

Does Risk Perception Affect Alcohol Consumption among Secondary School Students in Jamaica?

Sarah N Oshi^{1*}, Wendel D Abel², Tana Ricketts Roomes², Ijeoma A Meka³, Joy Harrison², Steve Weaver⁴, Chinwendu F Agu⁴, Patrice Whitehorne Smith², Joachim C Omeje⁵, Tania Rae⁴, Daniel C Oshi²

Abstract

Background: Alcohol consumption among young people is a major public health problem world-wide and in Jamaica. A number of factors have been reported to affect alcohol use among high school students. The aim of this study was to investigate the influence of perception of the harmfulness of alcohol on alcohol use among secondary school students in Jamaica. **Methods:** Data collected from a nationally representative sample of 3,365 students were analyzed. Descriptive and inferential statistics were performed using SPSS. **Results:** Students' perception of risk of drinking alcohol frequently and getting drunk respectively had positive and significant associations with past month alcohol use (AOR= 1.44, 95% CI= 1.09- 1.88 and AOR= 1.38, 95% CI= 1.02- 1.86, respectively) compared to students who felt that drinking alcohol frequently and getting drunk were very harmful. Males, 12 years or younger were significantly less likely to use alcohol in the past month (AOR= 0.77, 95% CI=0.60- 0.97; AOR= 0.68, 95% CI= 0.53-0.97 respectively). Students with good relationship with their mothers were less likely to use alcohol in the past year and past month (AOR= 0.55, 95% CI= 0.35-0.87; AOR= 0.50, 95% CI= 0.32- 0.78). **Conclusion:** Risk perception of the harmfulness of alcohol significantly affects alcohol use among secondary school students in Jamaica. Males, 12 years or younger, who had good relationship with mothers, were significantly less likely to use alcohol in past month

Keywords: Alcohol consumption- alcohol use- risk perception- secondary school students- Jamaica

Asian Pac J Cancer Prev, 19, Alcohol and Tobacco Use in the Caribbean Suppl, 13-18

Introduction

In the Americas, alcohol consumption recorded far higher levels compared to the global averages, (PAHO, 2007). In Jamaica, alcohol is the most commonly used and abused substance among adolescents (Organization of American States/Inter-American Drug Abuse Control commission [OAS/CICAD], 2010; Atkinson, 2012; Atkinson et al., 2015).

A number of factors are associated with alcohol use among young people, including age, gender, type of school, and relationship with parents. Individuals who start drinking alcohol at an early age also tend to carry it over to their youth (Windle, 2003). Females tend to be lifetime abstainers from alcohol compared to males (Pan American Health Organization [PAHO], 2007). Adolescents from public schools are more likely to use alcohol compared to those in private schools. Heavy alcohol use was found to be frequent among inner city public school students, who were from low social economic status, and who felt that they did not have support from parents

(Soldera et al., 2004). Supportive mother-adolescent relationship was associated with lower levels of concurrent substance use and lower levels of hard drug use over time (Branstetter et al., 2011).

Adolescents and young people tend to be more vulnerable to alcohol use and its associated risks (Mäkelä and Mustonen, 2000). Additionally, early initiation of alcohol use (before 14 years of age) is a predictor of health risks and challenges because it is associated with increased risk for alcohol dependence and abuse at later ages (Grant and Dawson, 1997; Grant, 1998; De Wit et al., 2000; Kraus et al., 2000; Sartor et al., 2007). Males, aged 15 to 59 years have been reported to be at a greater risk of alcohol and alcohol-related harm compared to their female counterparts. However, females are equally at risk from alcohol-related harm as their alcohol consumption has been on a steady increase due to changing social economic status and gender roles (Gruza et al., 2008; Wilsnack, 2013). Available evidence has linked risk perception to alcohol consumption although the researchers warned that people

¹Department of General Studies and Behavioural Sciences, University of the Commonwealth Caribbean, ²Department of Community Health and Psychiatry, Faculty of Medical Sciences, ⁴School of Nursing, Faculty of Medical Sciences, The University of the West Indies, Mona, Kingston, Jamaica, ³College of Medicine, University of Nigeria, Enugu Campus, Enugu, ⁵Department of Guidance; Counselling, Faculty of Education, University of Nigeria, Nsukka, Nigeria. *For Correspondence: sknaks26@yahoo.com

may overestimate the risks associated with alcohol abuse (Lundborg and Lindgren, 2002). Individuals with higher perceived risk are usually less likely to consume alcohol (Lundborg and Lindgren, 2002).

There is paucity of research on Jamaican adolescents' risk perception of alcohol consumption. Researchers have attempted to explore the problem of substance use among Jamaican adolescents and youth, but these studies did not focus on exploring risk perception as a predictor of alcohol use among this age group (Atkinson, 2012; Atkinson et al., 2015). This current study aimed at determining whether the perception of harmfulness of alcohol use affects its use among young people using data obtained from the National Schools Survey of 2013.

Materials and Methods

The authors carried out analysis of secondary data collected through school-based, cross sectional survey of students in 38 schools randomly drawn from all the public and private secondary schools in Jamaica. The survey (National Schools Survey [NSS], 2013) was sponsored by the Organization of American States/ Inter-American Drug Abuse Control Commission (OAS/ CICAD) as a component of the regional efforts towards drug abuse control. The sample size was 3,365 students in grades eight, 10, 11 and 12. Details of the study design have been published elsewhere (Atkinson et al., 2015).

The key independent variable was risk perception of the harmfulness of alcohol. This was assessed with the following question: In your opinion, how harmful are the following to your health? The question had two item statement: (a) Drinking alcoholic beverages frequently, and (b) Getting drunk. Each items had five response options, viz.: 1 = not harmful, 2 = slightly harmful, 3= moderately harmful, 4= very harmful, 5 = don't know. The number of students who chose the different options were rather small, and gave invalid results in the logistic regression analysis. Therefore, the authors aggregated and re-coded the response options into two, namely, slightly harmful (comprising of previous options 1, 2, 5) and very harmful (comprising options 3,4). The covariates were age, gender, type of school, grade at school, relationship with father, relationship with mother. The variable "age" was transformed from continuous variable into categorical (binary) variable: 12 years or younger versus older than 12 youngsters. The dependent variables were: (a) past year alcohol use, and (b) past month alcohol use.

Data analysis

Descriptive data analysis consisted of computation of frequencies and percentages for categorical variables, as well as determination of differences in proportions among different groups on dependent variables. Statistical significance level was $P=0.05$. Multivariate analysis was further carried out to determine if risk perception was an independent predictor of past year and past month alcohol use, and also to assess for other determinants of these alcohol use.

Ethical Approval

The survey received ethical approval from the Ethics Committee of the Faculty of Medical Sciences of the University of the West Indies, Mona Campus. Further details of ethical approval and processes used to ensure best practice ethics in the survey have been published elsewhere (Atkinson et al., 2015).

Results

Females constituted 56.9% (1,915) of the 3,365 students. A greater proportion of students were aged 12 years or younger, 1,129 (33.6%). Public school students were 3,295 (92.9%). Grade 10 comprised the greatest proportion of students (32.9%). Two thousand four hundred and thirty-five (72.4%) and 2,998 (89.1%) of students reported having good relationship with father and mother respectively. Six hundred and seventy-three (20.0%) and 486 (14.4%) of students opined that drinking alcohol frequently and getting drunk were very harmful to the health respectively (Table 1).

There were statistically significant associations between students' age ($p=0.00$), grade ($p=0.00$), drinking alcohol frequently ($p=0.00$) and getting

Table 1. Sociodemographic Characteristics of Secondary School Students in Jamaica, 2013, N = 3,365

Characteristics	Frequency (n)	Percentage (%)
Age		
12 years/younger	1,129	33.5
Above 12 years	1,014	30.1
Gender		
Male	1,426	42.4
Female	1,915	56.9
Type of School		
Public	3,295	97.9
Private	70	2.1
Grade		
8 th	1,037	30.8
10 th	1,109	32.9
11 th	888	26.4
12 th	331	9.84
Relationship with father		
Good	2,435	72.4
Bad	669	19.9
Relationship with mother		
Good	2,998	89.1
Bad	242	7.19
Drinking alcohol frequently		
Slightly harmful	673	20.0
Very harmful	2,262	67.2
Getting drunk		
Slightly harmful	486	14.4
Very harmful	2,407	71.5

n, number; %, Percentage; Note, Missing data Percentages may not add up to 100 due to rounding error

Table 2. Alcohol Use by Sociodemographic Characteristics, Relationship with Parents, and Risk Perception among Jamaica Secondary School Students, 2013.

Characteristics	Past year, n(%)	X ² (P-value)	Past month, n(%)	X ² (P-value)
Age				
12 years/younger	741 (74.4)	17.51 (0.00)	445 (56.8)	19.81 (0.00)
Above 12 years	646 (65.8)		312 (45.2)	
Gender				
Male	620 (70.6)	1.49 (0.22)	363 (53.9)	4.85 (0.02)
Female	829 (68.1)		428 (48.3)	
Type of School				
Public	1,428 (69.3)	0.85 (0.36)	774 (50.4)	5.52 (0.02)
Private	25 (62.5)		21 (72.4)	
Grade				
8 th	262 (57.6)	42.28 (0.00)	134 (45.12)	7.76 (0.05)
10 th	536 (70.9)		305 (53.0)	
11 th	440 (71.4)		255 (53.4)	
12 th	215 (78.5)		101 (46.8)	
Relationship with Father				
Good	995 (67.9)	2.68 (0.10)	538 (50.0)	0.88 (0.35)
Bad	340 (71.8)		192 (52.9)	
Relationship with Mother				
Good	1,283 (68.8)	3.29 (0.07)	685 (49.7)	6.57 (0.01)
Bad	129 (75.4)		85 (61.1)	
Drinking alcohol frequently				
Slightly harmful	374 (76.9)	17.34 (0.00)	243 (59.9)	17.19 (0.00)
Very harmful	953 (66.9)		481 (47.7)	
Getting drunk				
Slightly harmful	254 (76.0)	8.40 (0.00)	171 (62.18)	9.23 (0.00)
Very harmful	1,047 (67.9)		543 (48.5)	

n, number; %, Percentage; X², Pearson's Chi square. Note, Some data may be missing, and percentages may not add up to 100 due to rounding error.

drunk ($p = 0.00$) with past year alcohol use. Significant associations were also observed for age ($p = 0.00$), gender ($p = 0.02$), type of school ($p = 0.02$), grade ($p = 0.05$), relationship with mother ($p = 0.01$), drinking alcohol frequently ($p = 0.00$) and getting drunk ($p = 0.00$) with past month use of alcohol (Table 2).

Table 3 displays the multivariate logistic regression analysis of risk perception and other factors associated with alcohol use among secondary school students in Jamaica. In the unadjusted model of past year alcohol use, students who were 12 years/younger, males, attending public school, in 8th grade, had good relationship with father and mother, opined that frequent drinking of alcohol and getting drunk were slightly harmful were 0.34, 0.42, 0.44, 0.74, 0.55, 0.48, 0.66 and 0.66 times, respectively, as likely to use alcohol in the past year. In the adjusted analysis students who were 12 years/younger, males, attending public school, and had good relationship with father and mother were 0.53, 0.92, 0.33, 0.88, 0.55 times as likely to use alcohol in the past year. These associations were however significant only for age, (AOR= 0.53, 95% CI= 0.41- 0.67), type of school (AOR= 0.33, 95% CI= 0.17- 0.61), and having a good relationship with mother (AOR= 0.55, 95% CI= 0.35- 0.87).

In contrast, being in 8th grade and perceiving that drinking alcohol frequently and getting drunk was slightly harmful was associated with increased odds of past year alcohol use respectively (AOR= 3.14, 95% CI= 2.12 – 4.66; AOR= 1.54, 95% CI= 1.17 – 2.03; and AOR= 1.06, 95% CI= 0.79- 1.42) respectively. These associations were statistically significant except for perception of harmfulness of getting drunk with alcohol (Table 3).

After controlling for other factors, 12 years / younger, male, good relationship with mother are 0.68, 0.77, and 0.50 times respectively as likely to use alcohol in the past month compared to students who are above 12 years (AOR= 0.68, 95%CI= 0.53- 0.97; AOR= 0.77, 95%CI= 0.60- 0.97, and AOR= 0.50, 95%CI= 0.32- 0.78, respectively).

Instructively, adjusted model also revealed that being an 8th grader, attending public school, who opined that drinking alcohol frequently and getting drunk were slightly harmful was associated with increased odds of past month alcohol use (AOR 1.27, 95%CI: 0.84- 1.93); (AOR 1.08, 95% CI: 0.55- 2.12); (AOR 1.44, 95%CI: 1.09- 1.88); (AOR 1.38, 95%CI: 1.02 – 1.86). These associations were significant for perception of risk (frequent drinking of alcohol and getting drunk) but not for type of school

Table 3. Risk Perception and Other Factors Associated with Alcohol Use among Secondary School Students in Jamaica, 2013.

Variable	Past Year				Past month			
	Crude OR	95% CI	Adjusted OR	95%CI	Crude OR	95%CI	Adjusted OR	95%CI
Age								
12 years/younger	0.34	0.30-0.40	0.53	0.41-0.67	0.76	0.66-0.87	0.68	0.53-0.97
Above 12 years	1		1		1		1	
Gender								
Male	0.42	0.36-0.48	0.92	0.73-1.15	0.85	0.73-0.99	0.77	0.60-0.97
Female	1		1		1		1	
Type of school								
Public	0.44	0.40-0.49	0.33	0.17-0.61	0.98	0.89-1.09	1.08	0.55-2.12
Private	1		1		1		1	
Grade								
8 th	0.74	0.6-0.89	3.14	2.12-4.66	1.22	0.97-1.53	1.27	0.84-1.93
10 th	0.41	0.35-0.48	1.55	1.09-2.22	0.98	0.75-1.04	0.91	0.64-1.29
11 th	0.4	0.34-0.48	1.38	0.96-1.98	0.87	0.73-1.04	0.82	0.57-1.17
12 th	1		1		1		1	
Relationship with father								
Good	0.55	0.51-0.59	0.88	0.67-1.14	0.97	0.89-1.04	0.83	0.63-1.10
Bad	1		1		1		1	
Relationship with mother								
Good	0.48	0.44-0.52	0.55	0.35-0.87	0.94	0.86-1.03	0.50	0.32-0.78
Bad	1		1		1		1	
Drinking alcohol frequently								
Slightly harmful	0.66	0.62-0.70	1.54	1.17-2.03	1.01	0.95-1.07	1.44	1.09-1.88
Very harmful	1		1		1		1	
Getting drunk								
Slightly harmful	0.66	0.63-0.70	1.06	0.79-1.42		0.94-1.06	1.38	1.02-1.86
Very harmful	1		1		1			

OR, Odds ratio; 95% CI, 95% Confidence Interval

and grade at school (Table 3).

Discussion

In this study, 20% and 14.4% of students opined that frequent drinking of alcohol and getting drunk were slightly harmful. These figures are higher than the findings of an earlier study by OAS/CICAD for the entire Caribbean, which showed that 15.7% and 8.7% of students stated that frequent drinking of alcohol and getting drunk were slightly harmful respectively (OAS/CICAD, 2010). In the Caribbean, including Jamaica, alcohol use is deeply entrenched within the culture of the people. As in other cultures, drinking of alcohol is socially acceptable, and discourse about alcohol may possibly downplay its harmfulness, resulting in low perception of its risks (Fox et al., 2009; Reid, 2015).

There were statistically significant associations of students' age, grade, perception of the harmfulness of drinking alcohol frequently and getting drunk with past year use of alcohol. Significant associations were also observed for age, gender, type of school, grade, relationship with mother, drinking alcohol frequently

and getting drunk with past month use of alcohol. These findings agree with other studies which found similar factors to be associated with alcohol use among US adolescents (Windle, 2003).

Students from public schools were less likely to use alcohol in the past month in the unadjusted logit model. The findings of this study differ from the results of a Brazilian study among young people which revealed that over 11% adolescents from inner city public schools, and of low social economic background reported heavy alcohol use (Soldara et al., 2004).

Being in 8th grade was less likely to be associated with past year alcohol use in the unadjusted logistic regression model. However, after controlling for other factors, the association became positive and significant. The association was also significant for 10th grade and past year alcohol use. This finding is in concordance with Windle (2003) who reported strong association among students' age, grade and alcohol use among US adolescents in the past 30 days (Windle, 2003). There has been evidence suggesting the usefulness of controlling for other factors and its likelihood in modifying strength of statistical significance (Becker and

Hu, 2008; Branstetter et al., 2011). It is not surprising that after controlling for other factors, both the direction and strength of relationships between the variables changed. But 8th graders and 10th graders having increased odds of alcohol consumption is a cause for concern. The reason is not clear as the 8th graders are usually new to school, and the 10th graders have just joined the senior classes. The level of risk perception may at play for the 8th graders, who, being young, may have low awareness of the potential harmfulness of alcohol. Qualitative research may therefore, be needed to explore this in more details.

Students who had good relationship with their fathers were less likely to use alcohol in the past year after controlling for other factors, but the association was not significant. On the other hand, students who had good relationship with their mothers were less likely to use alcohol in the past year and past month compared to those who had bad relationship with their parents in both the unadjusted and adjusted logit models. This result seems to suggest that having a good relationship with mother may reduce the likelihood of a student's use of alcohol in past year and past month. This finding agrees with the results of a study of adolescents attending public schools in western United States, which showed that supportive mother-adolescent relationship was associated with lower levels of current substance use as well as lower levels of hard drug use over time (Branstetter et al., 2011). This finding also agrees with an earlier study by Clark et al., (2008), who found that parent supervision (including aspects of parent relationship such as communication and support) consistently influenced adolescents' alcohol use.

Students who indicated that drinking alcohol frequently was slightly harmful had increased odds to use alcohol in the past month. While this association was not significant in the unadjusted model, it became significant after controlling for other factors. This finding seems to suggest that students that who have a low perception of risk tend to underestimate the harmfulness of alcohol use and as such they are likely to abuse/ use alcohol. The finding of this study is consistent with the findings by Lundborg and Lindgren (2002), who opined that individuals with higher perceived risk were less likely to consume alcohol.

Students' perception of risk (getting drunk) had positive and significant association with past month alcohol use in the adjusted logit model. This finding seems to suggest that adolescents' risk perception may be important in explaining their current use (past month use) of alcohol. Perhaps, adolescents might experience reduced odds of alcohol use if they were fully aware of the risks involved in substance abuse including alcohol.

The insights from this study suggest that interventions aimed at preventing adolescents from abusing substances, including alcohol, should incorporate programmes that increase their understanding of the harmfulness of alcohol as well as enhance supportive relationships between parents and adolescents.

In conclusion, perception of the harmfulness of alcohol use is a predictor of alcohol use among secondary school students in Jamaica. Students who indicated that drinking alcohol frequently was slightly harmful had

significantly increased odds of alcohol use in past year and past month compared to students who perceived it as very harmful. Students who opined that getting drunk was slightly harmful were more likely to use alcohol in the past month compared to students who perceived it as very harmful. Being a male, 12 years/ young, with good relationship with mother, had significantly reduced odds of past month alcohol use. Interventions aimed at preventing adolescents from abusing alcohol should incorporate programmes that help in increasing their understanding of the harmful effects of alcohol use and strengthening supportive relationships between parents and adolescents.

Funding/ Conflict of Interest

This study was not funded. The authors declare no conflict of interest.

Acknowledgements

The authors appreciate the Organization of American States/ Inter-American Drug Abuse Control Commission (OAS/ CICAD) and the National Council on Drug Abuse, Jamaica. Thanks also go to the Sir Arthur Lewis Institute for Social and Economic Studies (SALISES) of the University of the West Indies, Mona Campus, for providing the dataset.

References

- Atkinson U (2012). Substance use among youth in Jamaica: A review of research conducted by National Council on Drug Abuse. Available from <http://ncda.org.jm/images/pdf/researchday/substance.pdf> (Accessed on 29 December 2017).
- Atkinson U, Abel WD, Whitehorne-Smith P (2015). Current trends in adolescent substance use in Jamaica. *W Indian Med J Open*, **2**, 15-8.
- Becker JB, Hu M (2008). Sex differences in drug abuse. *Front Neuroendocrinol*, **29**, 36-47
- Branstetter SA, Low S, Furman W (2011). The influence of parents and friends on adolescent substance use: A multidimensional approach. *J Subst Use*, **16**, 150-60.
- Clark DB, Kirisci L, Mezzich A, Chung T (2008). Parental supervision and alcohol use in adolescence: Developmentally specific interactions. *J Dev Behav Pediatr*, **29**, 285-92.
- De Wit DI, Adiaf EM, Offord DR, Ogborne AC (2000). Age at first alcohol use: A risk factor for the development of alcohol disorder. *Am J Psychiatry*, **157**, 745 -50.
- Fox K, Gordon-Strachan G, Johnson A, Ashley D (2009). Jamaican youth health status 2005. *W Indian Med J*, **58**, 533-8.
- Grant BF, Dawson DA (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. *J Subst Abuse*, **9**, 103-10.
- Grant BF (1998). Age at smoking onset and its association with alcohol consumption and DSM-IV alcohol abuse and dependence: results from the National Longitudinal Alcohol Epidemiologic Survey. *J Subst Abuse*, **10**, 59-73.
- Gruza RA, Bucholz KK, Rice JP, Beirut LJ (2008). Secular trends in the lifetime prevalence of alcohol dependence in the United States: a re-evaluation. *Alcohol Clin Exp Res*, **32**, 763-70.
- Kraus L, Bloomfield K, Augustin R, Rees A (2000). Prevalence

- of alcohol use and the association between onset of use and alcohol-related problems in a general population sample in Germany. *Addiction*, **95**, 1389-401.
- Lundborg P, Lindgren, B (2002). Risk perception and alcohol consumption among young people. *J Risk Uncertain*, **25**, 165-83.
- Mäkelä K, Mustonen H (2000). Relationships of drinking behaviour, gender and age with reported negative and positive experiences related to drinking. *Addiction*, **95**, 727-36.
- Soldera M, Dalgalarondo P, Filho HRC, Silvac CAM (2004). Heavy alcohol use among elementary and high-school students in downtown and outskirts of Campinas City – São Paulo: prevalence and related factors. *Rev Bras Psiquiatr*, **26**, 174-9.
- Organization of American States/Inter-American Drug Control commission (OAS/CICAD) (2010). Comparative analysis of student drug use in Caribbean Countries: Antigua and Barbuda, Barbados, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and Suriname: A Report on Student drug use in 12 Caribbean Countries, OEA/Ser.L/XIV.6.4 ISBN 978-0-8270-5633-6.
- Pan American Health Organization [PAHO] (2007). Alcohol, gender, culture and harms in the Americas: PAHO Multicentric Study final report. Washington, D.C: PAHO, 2007.
- Reid SD (2015). Time for a regional alcohol policy- A literature review of the burden of normative alcohol use in the Caribbean. *J Public Health Policy*, **36**, 469.
- Sartor CF, Lynskey MT, Heath AC, Jacob T, True W (2007). The role of childhood risk factors in initiation of alcohol use and progression to dependence. *Addiction*, **102**, 216-25.
- Wilsnack SC, Wisnack RW, Kantor LW (2013). Focus on: Women and the costs of alcohol use. *Alcohol Res*, **35**, 219- 28.
- Windle, M (2003). Alcohol use among adolescents and young adults. Available at <https://pubs.niaaa.nih.gov/publications/arh27-1/79-86.htm> (Accessed on 28 December 2017).



This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International License.