THE ROLE OF ALCOHOL ABSTINENCE SELF-EFFICACY IN ALCOHOL USE: A CROSS-SECTIONAL SURVEY OF GHANAIAN UNDERGRADUATE STUDENTS

Franklin N. Glozah[1]*, Joyce Komesuor[2], Nana Ama Takyibea Adu[3] and Felix K. Aggrey[4]

[1]Institute for Psychosocial Research in Child and Adolescent Wellbeing, Accra, Ghana; [2]School of Public Health, University of Health and Allied Sciences, Ho, Ghana; [3]Regent University, Ghana; [4]Department of Psychology, University of Ghana, Legon, Ghana

ABSTRACT

There is an increasing awareness of indiscriminate alcohol use among University students worldwide. Self-efficacy to abstain from alcohol use plays a significant role in the abstinence of alcohol use by perceiving less benefits (pros) and more costs (cons) of alcohol use. However, not much is known about self-efficacy to abstain from alcohol use in relation to the pros and cons of alcohol use among Ghanaian university students. The aim of this study was to examine the role of alcohol abstinence self-efficacy in the pros and cons of alcohol use in Ghanaian university students. Participants consisted of 215 undergraduate students with a mean age of 23.5 years who completed self-report measures assessing alcohol abstinence self-efficacy and pros and cons of alcohol use. Thirty nine percent of students had never used alcohol. Adjusting for age, gender, and residence status, results of a one-way MANCOVA showed significant main effect of alcohol abstinence self-efficacy on both pros ($p < 0.001$) and cons ($p < 0.001$) of alcohol use, although the effect was stronger in cons ($\eta_p^2 = 0.26$) than pros ($\eta_p^2 = 0.18$) of alcohol use. Independent-samples t-test results showed that students classified under high (M = 11.12, SD = 11.02) alcohol abstinence self-efficacy reported more pros than those classified under low (M = 1.68, SD = 3.58) alcohol abstinence self-efficacy, $t(122.25) = -8.22$, $p < 0.001$. Similarly, those classified under high (M = 11.12, SD = 12.17) alcohol abstinence self-efficacy reported more cons than those classified under low (M = 2.03, SD = 6.66) alcohol abstinence self-efficacy, $t(154.58) = -6.59$, $p < 0.001$. Finally, while there were no gender differences in cons of alcohol use, males (M = 8.8, SD = 10.06) reported significantly higher than females (M = 4.61, SD = 8.24) on pros of alcohol use, $t(209) = 2.74$, $p < 0.01$. These findings provide preliminary evidence for the viability of reinforcing self-efficacy, particularly relating to abstinence, as a strategy to encourage abstinence from alcohol use and subsequently prevent harmful use of alcohol in Ghanaian university students.

Corresponding Author: Dr. Franklin Glozah, Institute for Psychosocial Research in Child and Adolescent Wellbeing, PO Box CT 10203, Cantonments-Accra, Ghana. Email: fglozah@iprecaw.org

INTRODUCTION

Harmful use of alcohol among young people, especially in universities, has increasingly become a major global public health concern. As at 2012, about 5.9% of all deaths globally and an estimated 5.1% of the global burden of disease were attributed to alcohol use (WHO, 2014a; WHO, 2014b). Also, about 2.2% of death in Africa is attributable to alcohol use in approximately 30% females and 55% males who drink alcohol, apparently due to the fact that alcohol production and consumption is an integral part of the social and cultural life of the people (Obot, 2000) resulting from cheap and readily available local brews (Zawaira, 2014). In Ghana, presently, there is proliferation and marketing of all kinds of local alcoholic drinks (de Bruijin et al., 2014), compelling alcoholic beverage companies to organise alcohol education programmes to educate and provide factual information to empower university students to make informed choices about alcohol use (Daily Graphic, 2013). In spite of this, there is a paucity of research studies in Africa, in general, and Ghana in particular on the alcohol use behaviour of university students (Karam et al., 2007; Moitlakgola & Amone-P'Olak, 2015).

Although the relationship between alcohol use and health outcomes is complex and multidimensional, research has indicated that, in the general population, harmful use of alcohol is associated with a risk of developing several non-communicable diseases such as increasing risk of cirrhosis of the liver (Beaglehole et al. 2011), mental and behavioural disorders (Room, Babor & Rehm, 2005), and unintentional and intentional injuries, including those due to road traffic accidents and violence (Gjerde et al., 2011), and risky sexual behaviour which may expose the youth to sexually transmitted infections (Oppong Asante, Meyer-Weitz & Petersen, 2014). Among undergraduate students, those who engage in harmful use of alcohol are susceptible, particularly, to serious acute and chronic harms including substance abuse, drink driving, violence, and alcohol dependence (Karam, Kypri & Salamoun, 2007).

In view of the fact that university students are the future leaders of many countries and also that lower-income countries generally have lower capacity for the prevention and control of non-communicable diseases, it is absolutely imperative that, alcohol consumption, one of the well-known contributory factors in non-communicable diseases is controlled, preferably through a message of abstinence. There is a proposed global strategy to reduce the harmful use of alcohol that offers measures and outlines priority areas of action to protect people from harmful alcohol use (WHO, 2010). Some university campus policies, such as total bans on drinking on campus, have been associated with an increased level of abstinence from alcohol use and lower levels of heavy episodic drinking (Wechsler et al., 2001). To that extent, a

strategy that will target the psychological dimension of abstinence or reducing the harmful use of alcohol among university students is essential.

Self-efficacy is a very important concept which could be useful in strategies aimed at preventing harmful use of alcohol in young people. Self-efficacy is the belief in an individual's capabilities to organize and execute the causes of action required to manage prospective situations and to produce given attainments (Bandura, 1977, 1997). According to Bandura (2006) self-efficacy is a judgment of capability while self-esteem is a judgment of self-worth. With respect to the theory of self-efficacy, two types of expectations have a considerable effect on human behaviour. These are outcome expectations - the belief that certain kinds of behaviours may lead to certain outcomes, and self-efficacy expectations - the belief that an individual can successfully perform this particular behaviour (Maddux, Sherer & Rogers, 1982).

Several studies conducted outside Africa have found strong associations between alcohol abstinence self-efficacy and alcohol use. For example, low self-efficacy for refusing heavy drinking has been found to be negatively associated with alcohol use (Gilles, Turk & Fresco 2006, while increased self-efficacy predicted subsequent abstinence from alcohol use (Burleson & Kaminer, 2005). Additionally, drinking expectations and drinking refusal self-efficacy have also been found to predict alcohol use (Oei & Jardim, 2007; Young et al., 2006).

These suggest that individuals' self-efficacy to abstain from alcohol use is largely dependent on the inherent pros (benefits) and cons (cost) they derive or will derive from alcohol use and subsequent harmful use of alcohol. It is plausible to posit that

when individuals' perception of cost outweighs the benefits of using alcohol (i.e. decisional balance) then their self-efficacy to abstain from alcohol use is likely to increase. On the other hand, however, when the perceived benefits outweigh the perceived cost of using alcohol, then self-efficacy to abstain is likely to diminish. Decisional balance in alcohol use suggests that individuals weigh pros and cons when making a decision regarding whether or not to change their behaviour (Prochaska et al., 1994), and in the context of the present study, whether to either start drinking, continue drinking or quit drinking. Among university students in western countries, studies have found that the pros of drinking have a strong association with measures of alcohol use and problems (Maddock, 1997; Migneault et al., 1997). Also, university students who report either normal drinking behaviours or Diagnostic and Statistical Manual of Mental Disorders Text Revision (DSM-IV-TR) criteria for an alcohol disorder, show significantly higher perceived benefits of alcohol use (Morgen & Gunneson, 2008). Additionally, Steinman (2003) found that students who had stopped episodic heavy drinking perceived more risks and fewer benefits associated with harmful use of alcohol.

It is expected that this pattern of findings among university students in western samples would differ significantly from that of Ghanaian university students, essentially because of the religious and cultural background differences between Ghana and western countries. In spite of the rapid socio-economic changes in Ghana, which may create stressful situations conducive for alcohol use, little is known about alcohol abstinence self-efficacy in relation to the pros and cons of alcohol

use among Ghanaian university students. Therefore, the aim of this study is to examine the role of alcohol abstinence self-efficacy in the pros and cons of alcohol use among Ghanaian university students.

METHOD

Participants and procedure

A quantitative cross-sectional survey design was used in this study. Undergraduate students from a population of about 2000 students in a private university in Ghana were invited to participate in the study. A simple random sampling method was used to select six courses from various programmes, after which a simple random sample method was again used to select 40 students from each course, mostly in the fourth year as most of them were available during data collection. The response rate was 89.6% as 25 students in total did not return their questionnaires. The randomly selected sample, thus, comprised of 112 males and 103 females between 16 and 48 years of age with a mean age of 23.5 (SD = 3.9). The study complied with the Helsinki declaration regarding ethical principles for medical research involving human subjects. Students who willingly agreed to participate were invited to complete questionnaires by initially providing signed informed consent forms. Participants were not paid to participate. The Ethics and Research Committee of Regent University gave formal permission and ethical approval (GSR/EA/14/003) for the study to be conducted.

Measures

The questionnaire included demographic variables assessing participants' gender, age, level at university and residence status (home or hostel). For analysis

purposes, age was dichotomised based on median splits into younger (16-23) and older (24-48) students. Alcohol use was assessed by asking "In the past week how often have you used alcohol" and participants responded by indicating either 'never', 'once or twice', 'more than once or twice', and 'regularly - at least once a week'. It is assumed that participants who have never used alcohol will fall under the category 'never'.

Alcohol Abstinence Self-efficacy Scale (AASES)

The AASES (DiClemente et al., 1994) assesses self-efficacy and evaluates an individual's efficacy to abstain from drinking in 20 situations that represent typical drinking cues. Participants are asked to give a current estimate of efficacy to abstain from alcohol. These situations constitute four subscales and are rated on a 5-point Likert scale ranging from not at all [0] to extremely [4] with the total scores ranging from 0 to 80, where higher scores indicate higher self-efficacy to abstain from alcohol use. For the purpose of this study, the AASES was dichotomised based on median split: low (0 - 10.5) and high (11-80). DiClemente et al. (1994) and Carbonari & DiClemente (2000) found a Cronbach's α of 0.92 for the 20-item AASES and 0.88, 0.82, 0.83 and 0.81 for the negative affect, social pressure, physical pain/illness, and thoughts about using subscales respectively. In the present study the Cronbach's α for the total AASES was 0.98 and 0.96, 0.94, 0.97 and 0.96 for the negative affect, social pressure, physical pain/illness, and thoughts about using subscales respectively.

Alcohol Decisional Balance Scale (ADBS)

Decisional balance was measured using the 20-item ADBS (Maddock, 1997).

The ADBS consists of 10 items measuring the benefits (pros) of alcohol use and 10 items measuring the costs (cons) of alcohol use. The scale asks "How important to you are the following statements in making a decision about drinking?" and participants respond on a 5-point Likert scale ranging from 0 - not at all important to 4 - extremely important on both the pros and cons subscales. Items included "Drinking helps me deal with problems" and " I like myself better when I am drinking" on the pros subscale, and "My drinking causes problems with others" and "I could accidentally hurt someone because of my drinking" on the cons subscale. Each subscale had scores ranging from 0 – 40 with higher scores representing both more pros and cons of drinking. In populations or cultures with less drinking experience, the measure is commonly construed as an individual's decision making regarding whether or not to drink at all (Migneault et al., 1999). In the present study, Cronbach's α was high for both the pros (α = 0.93) and cons (α = 0.96) subscales.

Statistical analysis

IBM SPSS version 22 software was used to perform the statistical analyses. A one-way Multivariate Analysis of Covariance (MANCOVA) was the main statistical analysis method used to examine the effects of levels of alcohol abstinence self-efficacy (high and low) on the pros and the cons of drinking alcohol while adjusting for the effect of age, gender and residence status. The univariate adjustment for multiple comparisons was estimated with the Bonferroni correction for all significant main effects for alcohol abstinence self-efficacy at the 0.05 level of significance. Independent-samples t-test was performed when there was a significant effect in any of the covariates.

The Box's Test of equality of covariance matrices which checks the assumption of homogeneity of covariance across the groups was significant (Box's M = 119.61, $p < 0.001$), indicating that there are significant differences between the covariance matrices. As Box's test violated the assumption of homogeneity of covariance, the Pillai's Trace Test, a test statistic that is very robust and not highly linked to assumptions about the normality of the distribution of the data (Pillai, 2006) was used in the interpretation of the results. Finally, a Spearman correlation was used to estimate the interrelationships among the key variables.

RESULTS

Drinking levels and Demographic Characteristics

In the past one month, drinking level was: never – including who have never taken alcohol (38.8%); once or twice (11.2%); more than once or twice (25.2%), and regularly - at least four times a week (24.8%). Categorisation and descriptive statistics on alcohol abstinence self-efficacy, pros and cons of drinking, age, gender, and residence status is presented in Table 1 and this shows that majority of the participants were younger. There were slightly more male students than female students. Also, about two-thirds of the participants reside at home while attending the university. Finally, there were more final year students followed by second year, third year and first year students respectively, this is due to their availability during data collection.

Table 1. Descriptive statistics of variables and demographic characteristics of the sample

Variables	Category	N (%)	M	SD	Range
	Younger	123 (57.7)	-	-	16 - 23
Age	Older	90 (42.3)	-	-	24 - 48
	Total	213 (100)	23.5	3.9	16 - 48
	Male	112 (52.1)			
Gender	Female	103 (47.9)			
	Total	215 (100)			
	Home	144 (67)			
Residence Status	Hostel	71 (33)			
	Total	215 (100)			
	100	29 (13.5)			
	200	45 (20.9)			
Level/year in school	300	37 (17.2)			
	400	104 (48.4)			
	Total	215 (100)			
	High	103 (47.9)	-	-	11 - 80
Alcohol Abstinence Self-efficacy	Low	103 (47.9)	-	-	0 -10.5
	Total	206 (95.8)	24.95	29.58	0 - 80
Pros of Drinking	-	211	6.39	9.36	0 - 40
Cons of Drinking	-	210	6.46	10.66	0 - 40

Alcohol abstinence self-efficacy and pros and cons of drinking

Results of a one-way MANCOVA, Table 2, shows that Pillai's Trace test estimate indicates that alcohol abstinence self-efficacy had a significant effect on both pros and cons of drinking while gender had a significant effect on pros of drinking only. All other variables did not have a significant effect on both pros and cons of drinking. Accordingly, the effect size was small between the covariates and both pros and cons of drinking with the exception of alcohol abstinence self-efficacy which had moderate to high effect size, showing evidence of a higher proportion of variance explained in pros of drinking. Consequently, the multivariate effect size of alcohol abstinence self-efficacy was stronger in cons (η_p^2 = 0.26) than pros (η_p^2 = 0.18) of alcohol use.

Independent-samples t-test results showed that students who reported high (M = 11.12, SD = 11.02) alcohol abstinence self-efficacy reported more pros than those with low (M = 1.68, SD = 3.58) alcohol abstinence self-efficacy, $t(122.25) = -8.22$, $p < 0.001$. Similarly, those reported high (M = 11.12, SD = 12.17) alcohol abstinence self-efficacy reported more cons than those with low (M = 2.03, SD = 6.66) alcohol abstinence self-efficacy, $t(154.58) = -6.59$, $p < 0.001$. Finally, while there were no gender differences in cons of alcohol use, males (M = 8.8, SD = 10.06) reported significantly higher than females (M = 4.61, SD = 8.24) on pros of alcohol use, $t(209) = 2.74$, $p < 0.01$.

With regard to levels of alcohol abstinence self-efficacy, Bonferroni correction estimate showed that there was a sig-

nificant difference between low and high alcohol abstinence self-efficacy for pros of drinking (Mean Difference = -9.15, *p* < 0.001) and a significant difference between low and high alcohol abstinence self-efficacy for cons of drinking (Mean Difference = -8.80, *p* < 0.001).

Overall, levels of alcohol abstinence self-efficacy and the covariates explained a higher proportion of the variance in pros (R^2 = 0.28 (Adjusted R^2 = 0.27)) than cons (R^2 = 0.19 (Adjusted R^2 = 0.17)) of alcohol use. This indicates that age, gender, residence status and self-efficacy to abstain from alcohol are more associated with alcohol use than not using alcohol.

Age, residence status, and alcohol abstinence self-efficacy

Results of Spearman correlation analysis with age, residence status, and alcohol abstinence self-efficacy showed that there were significant associations between the subscales and total alcohol abstinence self-efficacy and pros and cons of drinking. Age and residence status did not have a significant association with pros and cons of drinking and the total alcohol abstinence self-efficacy. However, social pressure self-efficacy, had a significant negative association with students' residence status, indicating that residing at home or in a hostel and attending school is connected to students' social pressure related self-efficacy to abstain from alcohol use. Also, social pressure related self-efficacy had a stronger association with pros than cons of alcohol use, indicating the influence of peers outside home on alcohol behaviour. Table 3 shows the intercorrelations among the study variables.

Table 2. Descriptive statistics and MANCOVA for age, gender and alcohol abstinence self-efficacy on pros and cons of drinking (N = 215)

Independent Variable	Dependent Variable	Category	Mean	SD	Pillai's Trace	df	F	η_p^2
Age	Pros of Drinking	Younger	6.48	9.76	0.017	1	2.94	0.02
		Older	5.89	8.15				
	Cons of Drinking	Younger	6.82	11.13		1	1.83	0.01
		Older	5.57	9.36				
Gender	Pros of Drinking	Male	8.08	10.06	0.039	1	6.43*	0.03
		Female	6.41	8.24				
	Cons of Drinking	Male	6.66	10.66		1	0.00	0.00
		Female	6.24	10.70				
Residence Status	Pros of Drinking	Home	7.18	10.18	0.013	1	1.20	0.01
		Hostel	4.83	7.29				
	Cons of Drinking	Home	7.36	11.18		1	2.42	0.01
		Hostel	4.66	9.33				
Alcohol Abstinence Self-efficacy	Pros of Drinking	Low	1.68	3.58	0.284	1	67.13**	0.26
		High	11.12	11.02				
	Cons of Drinking	Low	2.03	6.66		1	41.56**	0.18
		High	11.12	12.17				

*p < 0.05, ** p < 0.001. Pros of Drinking: R^2 = 0.28 (Adjusted R^2 = 0.27); Cons of Drinking: R^2 = 0.19 (Adjusted R^2 = 0.17)

Table 3. Spearman correlation analysis among key variables (N = 215)

	1	2	3	4	5	6	7	8
1. Residence	--							
2. Age	-0.18**	--						
3. Pros of Drinking	-0.12	-0.06	--					
4. Cons of Drinking	-0.12	-0.06	0.58**	--				
5. Negative Affect	-0.08	0.05	0.27**	0.32**	--			
6. Social Pressure	-0.14*	0.05	0.39**	0.32**	0.92**	--		
7. Physical Pain/Illness	-0.03	0.03	0.26**	0.29**	0.94**	0.86**	--	
8. Thoughts about Using	-0.05	0.02	0.29**	0.29**	0.95**	0.92**	0.95**	--
9. AASES	-0.07	0.04	0.31**	0.31**	0.98**	0.95**	0.97**	0.98**

*$p < 0.05$, ** $p < 0.01$, AASES = Alcohol Abstinence Self-Efficacy

DISCUSSION

The purpose of this study was to examine the role of alcohol abstinence self-efficacy in the pros and cons of alcohol use among Ghanaian undergraduate students. The results indicated that a relatively large number of students had never used alcohol, which is contrary to findings of studies conducted in developed countries among university students where a relatively large number use alcohol (Bullock, 2004; Webb et al., 1996). This may have been so because many university students in Ghana live with their parents or guardians while attending school and are expected to abide by the rules and regulations in the house which includes abstinence from alcohol use. This phenomenon may be influenced by adherence to strict religious principles which is commonly practiced in Ghana and many non-western countries. Life-time abstainers from alcohol use have been found to be more likely to associate abstinence to, among others, religion and upbringing (Bernards et al., 2009). Those who use alcohol, however, probably did so because of a lower social pressure related self-efficacy through their peers outside the home environment.

Results of this study also showed that there were significant alcohol abstinence self-efficacy differences in both pros and cons of alcohol use. High alcohol abstinence self-efficacy was more associated with pros than cons of drinking. These findings are quite similar to that of previous studies that found strong associations between self-efficacy and harmful use of alcohol (Oei & Jardim, 2007; Young et al., 2006). These findings are probably due to the concept of self-efficacy expectation, which is a cognitive process that acts as a mediator between a desired outcome and confidence in an individual's ability to perform that behaviour (Velicer et al., 1990). Students, in this case, perhaps thought that once they have a higher self-efficacy, they were capable of controlling any adverse consequence of alcohol use.

Findings also showed that, independently, cons associated with alcohol use were higher than pros associated with alcohol use, implying that students generally thought that the costs of using alcohol exceeded the benefits of alcohol use. These results are compatible with results of previous studies that found that pros of drinking are strongly associated with alcohol use (Maddock, 1997; Migneault et al.,

1999; Morgen & Gunneson, 2008), and the perception of fewer benefits associated with harmful use of alcohol leading to less alcohol use (Steinman, 2003). It is plausible to assume that students reported more cons than pros of alcohol use because of the influence of parents and guardians in their lives, which involves direct monitoring of their behaviours in and outside the home environment (Bernards et al., 2009). Also, this may be as a result of the fact that a relatively large number of students reported that they have never used alcohol.

With reference to the controlled variables, only gender was found to have significant differences in pros of alcohol use, with males reporting more pros of alcohol use. Perhaps this is because males feel they derive more benefits than females from alcohol use. Previous studies also found among university students that males see benefits in using alcohol which has led to higher prevalence of alcohol use in males (Johnston et al., 2006; Webb et al., 1996). This may be as a result of gender differences in learned expectations about the potency of alcohol. It has been posited that men who have strong expectations that drinking will lead to social and physical pleasure and to sexual enhancement tend to drink more (Norberg et al., 2010). Also, men tend to drink more than women apparently because of social and community norms and expectations that disapprove and look down on women who use alcohol (Neighbors et al., 2010).

Some limitations should be considered when interpreting findings of this study. First, all of the measures depended on the self-report of the participants, which may not have elicited very accurate responses given the sensitive nature of the study, in respect of the social-cultural and religious background of the study setting - which abhors alcohol use. The use of an observational method to corroborate the responses given by participants would be commendable. Second, the relatively small sample size and the fact the study was conducted in a private university limits the ability to generalise the findings to the entire undergraduate student population in Ghana. In future, research using several universities of varying size (private and public), demographics, and across Ghana would produce a sample that could better be generalised to the entire university population of Ghana. Finally, students responded to just normal alcohol use suggesting that the results could have been different if the sample were more of heavy drinkers or if the frame of the questions was shifted to one of avoiding drinking excessively.

Nonetheless, the present study was a good first step in taking alcohol use behaviour and research among university students on a sound path, especially in Africa and Ghana in particular. Furthermore, the present study offers a contribution of being the first examination of how alcohol abstinence self-efficacy influences self-reported benefits and costs of alcohol use among university students in Ghana. By understanding the role of alcohol abstinence self-efficacy in the pros and cons of alcohol use, specific and personalised interventions can be designed that would ensure that students who have never used alcohol would continue to abstain and those who are already using would avoid excessive and harmful use, if not quit completely.

CONCLUSIONS

This study has shown that self-efficacy to abstain from alcohol use is an important attribute that could stimulate university

students to believe that the costs exceed the benefits of alcohol use and that they have the self-belief and capacity to abstain, reduce or quit alcohol use.

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