

Full Length Research Paper

# Survey on alcohol exposure in relations to behavioral practices, health situations, and academic performances of students in higher institutions of learning in Buea, Cameroon

Ernest E. Fon<sup>1,2</sup>, Abiya E. Acha<sup>1,2</sup> and Wilfred A. Abia<sup>2,3</sup>

<sup>1</sup>Africa Education Initiative (NEF) Club, Faculty of Science, University of Buea, P.O Box 63, SWR, Cameroon.

<sup>2</sup>Integrated Risk Assessment Initiative of the Integrated Health for All Foundation, Cameroon. PO Box 31717, Yaounde, CR, Cameroon.

<sup>3</sup>Department of Biotechnology and Food Technology, Faculty of Science, University of Johannesburg, P.O. Box 17011, Doornfontein Campus, 2028 Gauteng, South Africa.

Accepted 18, June 2014

Alcohol has a strong effect on people and can cause major health problems, including liver cirrhosis and injuries in consumer's bodies. In Cameroon, data on alcohol consumption levels as well as its influences on youth psychology and education are currently non-existing. The aim of this survey was to determine beer consumption patterns amongst students in higher institutions of learning in Buea, Cameroon, in relations to students' lifestyles, health history and academic performances. Structured questionnaires were randomly administered to some 280 students. A total of 200 responses (males: 56.5%; females: 43.5%) were obtained from students who consume beer. Beer consumption practices were directly associated with students monthly pocket allowances. Averagely, students who drank beer consumed 1.7 L/day. This may partly justify the observed alcohol intoxication related symptoms including nausea, memory loss, accidents as revealed by survey findings. Generally, beer intake correlated negatively with student's attitude toward their studies and positively with violence as well as nasty practices such as unconscious sexual behaviours; pointing at risk of HIV infections. This preliminary survey has for the first time in Cameroon provided data on beer intake and its effects on student's health, behaviours and attitude towards their education.

**Key words:** Alcohol, students', academic performances, behavioural practices, health situations.

## INTRODUCTION

Alcohol, a global public health issues generally has a strong effect on people and can cause major health problems in consumer's bodies. The abuse of alcohol is associated with over 3% (1.8 million) of total deaths and 4% of total disease burden each year worldwide. (WHO, 2011). Alcohol abuse is linked with alcohol addiction (Hingson *et al.*, 2006), accident (Hingson *et al.*, 2000; Hingson *et al.*, 2003), misconduct such as physical violence (Ellickson *et al.*, 2003), criminal activity (Hingson *et al.*, 2001) and increased risk of human immunodeficiency

immunodeficiency disease (HIV) infection (Baliunas *et al.*, 2010; Fisher, 2010). In 2010, World Health Organization (WHO, 2010) established global alcohol abuse reduction strategy with main focus on monitoring and technical support. Notwithstanding, some developing countries, still have an increased burden of disease and injury due to abuse of alcohol consumption (Rehm *et al.*, 2009) probably due to inadequate public health and/or prevention interventions. Generally, increased intake of alcohol has been linked to early exposure to alcohol in Uganda (Swahn *et al.*, 2011), as well as to unprotected sexual intercourse in Botswana (Weiser *et al.*, 2006), Zimbabwe (Nicola *et al.*, 2011), Rwanda (Coldiron *et al.*, 2008) and Zambia (Coldiron *et al.*, 2008; Siziya *et al.*, 2008).

\*Corresponding author. E-mail: [abiawilfred@yahoo.com](mailto:abiawilfred@yahoo.com)

The medical consequences of chronic alcohol abuse and dependence have been well documented in adults. They include liver disease, lung disease, compromised immune function, endocrine disorders, and brain changes. Investigations of the health problems associated with adolescent alcohol abuse are sparse and rely mainly on self-report (Clark *et al.*, 2001; Brown and Taoert, 2004). Clark *et al.* (2001) reported that adolescent alcohol use disorders were associated with higher gamma-glutamyltranspeptidase (GGT) and alanine aminotransferase (ALT). Human studies have observed that alcohol consumption can lower estrogen levels in adolescent girls (Block *et al.*, 1993) and lower levels of luteinizing hormones and testosterone in mid pubertal boys (Diamond *et al.*, 1986; Fehily *et al.*, 1992). Also, human studies have indicated an inverse relationship between alcohol consumption and bone mineral density in adolescent males, but not females (Goldman *et al.*, 1987; Elgan *et al.*, 2002).

Alcohol use plays a role in many social activities. Alcohol consumption is greatly influenced by culture, the setting in which drinking occurs, and expectations about effects of exposure to alcohol (Heath *et al.*, 1987; Leigh, 1989; Castaneda and Cushman, 1989; Leigh and Stacy, 1991). In Cameroon, most people drink under natural conditions of a “beer parlor” (aka bar room) setting with friends, colleagues and women. Some people rely on alcohol to handle psychological distress. There is evidence indicating that people who suffer psychological distress and rely on alcohol to relieve their stress are more likely to develop alcohol abuse and dependence (Cherpitel, 1994; Kessler *et al.*, 1997). Patterns of alcohol consumption have been reported to increase the risk of violence and the likelihood that aggressive behavior will escalate (Cashdan, 1996; Zhang *et al.*, 1997).

In 2004, the Cameroon in the Central African region was noted for high alcohol intake (NIS and ORC, 2004) with alcohol consumption rate estimated to be 2.6 L of pure alcohol per capita for men and women older than 15 years (WHO, 2004). Generally, an estimated 41.4% of men and 25.8% of women consume alcohol regularly in Cameroon (WHO, 2004). Furthermore, the usual diet in Cameroon is rich in alcohol content meanwhile excessive alcohol intake is a common finding (Mennen *et al.*, 2000), likely with adverse health effects to consumer populations. Unfortunately, the risks associated with unhealthy drinking of alcohol is usually undermined by youths who often times consider alcohol intake as being culturally normal (Eide and Acuda, 1996). Based on the reports from the southern African nations (Weiser *et al.*, 2006; Coldiron *et al.*, 2008; Siziya *et al.*, 2008; Nicola *et al.*, 2011; Swahn *et al.*, 2011), alcohol consumption amongst student populations requires more attention. Notwithstanding, the alcohol use or drinking patterns amongst students who are among the main consumers of alcohol in Cameroon is still vague, thus limiting possible decisions to ameliorate the situation. The aims of this

study were to find to what extent alcohol intake influence social behaviour, academic performances and health of students currently enrolled in tertiary institutions of learning in Buea, Cameroon and to propose educational intention programs to reduce alcohol intake levels amongst students.

## METHODOLOGY

### Study setting and context

The study was conducted within the Buea community in the South West Region of Cameroon. Buea municipality harbours one of the seven state universities in Cameroon (University of Buea) in addition to several private/mission universities and higher institutions of learning. These institutions generally offers diversified disciplines/specialisations including vocational and professional education courses, as well as university education specialisation programs in areas of pure science, medical and biomedical sciences, arts and social sciences disciplines thereby constituting a favourable area for many to study.

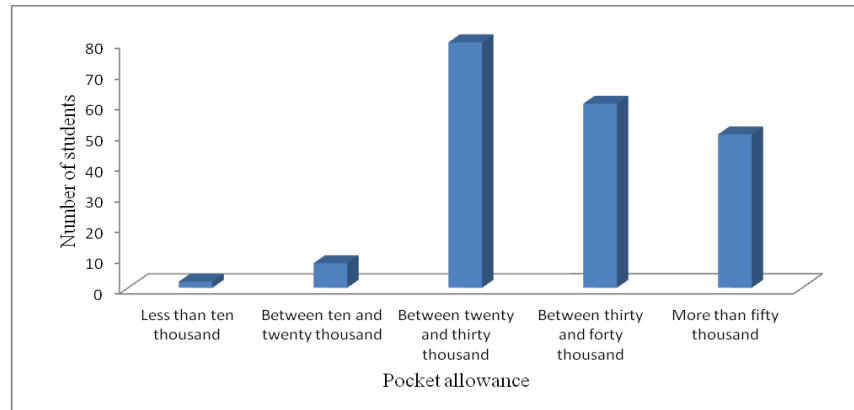
### Survey: Validation of Questionnaire and Recruitment of Participants

A survey team first had an on-the-table survey talks after which a structured questionnaire was developed, reviewed by social science students and then tested in over 30 members (all students) of the Africa Education Initiative (NEF) club, University of Buea, and found relevant to get required data from respondents.

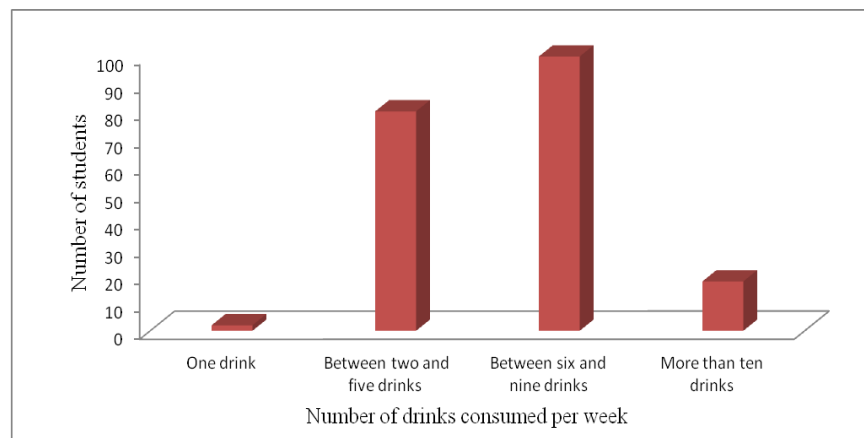
The investigators presented the purpose and the entire study to the awareness and understanding of small-groups of students in their domicile (dormitory or “mini-cite”), in school and in roadside beer parlors in the Buea community and provided responses to all their questions. Where a student became interested and volunteered to participate, s/he was then asked to provide evidence to be a currently enrolled student for example; student identification card, or any official document certifying s/he as a currently registered student in any one of the higher institute of learning in Buea community. Questionnaires were only administered to evidence-based students who provided their responses and return the questionnaire to the investigators. Data was collected through self-reported data (questionnaires and interview), observation (direct and indirect), meetings, and records.

### Statistical Analysis

Basic descriptive statistics including frequencies and percentages were employed using the Statistical pack-



**Figure 1.** Monthly pocket allowance of studied students engaged in alcohol (beer) consumption



**Figure 2.** Average number of beer drinks, irrespective of brands, consumed by students per week.

age for Social Sciences (SPSS) to analyse the data and present results in bar charts.

## RESULTS AND DISCUSSION

### Study Population Characteristics

A total of 200 responses from 113 males (113/200, 56.5%) and 87 females (87/200, 43.5%), all of whom were beer consumers, were obtained from this preliminary survey on alcohol exposure in relations to behavioural practices, health situations and academic performances of exposed students. Generally, a majority (85%, 170/200) of the participants were unmarried or single, while a few (10.5%, 21/200) were either practicing co-habitation (aka “came-we-stay”), or had divorced (4%, 8/200) or were married (0.5%, 1 case).

### Frequency of Alcohol Intake

Figure 1 shows the variations in monthly allowances (aka pocket money) of surveyed alcohol consuming students

currently enrolled in higher institutions of learning in the Buea community. Generally, the average monthly pocket allowance of the surveyed students was 27,500 (range: 20,000-35,000) Fcfa local currency (average: US\$55; range: US\$40-70) while a few students had less than 10,000Fcfa (US\$20) and others above 50,000Fcfa (US\$100).

Figure 2 provide information on the quantity of weekly alcohol (beer) consumption by the students in this survey. On the average, a few students (n=3) drank one bottle of beer/week, likewise a few others (n=13) drank more than 9 bottles of beer/week while the majority of surveyed students (n=184) drank between 2 and 9 bottles of beer (75 cl each) of varied brands per week. The alcoholic contents of these drinks (beers) range from 5-7.5%.

### Alcohol Exposure Related Health Effects Of Students

Alcohol has a number of negative effects on the health of consumers (Table 1). Participants reported symptoms of intoxication such as nausea, hurt, injury, vomiting, and memory loss due to alcohol consumption. Some of these

**Table 1.** Effect of alcohol on student's health in the study site.

Post-alcohol intake feelings	Frequency	Percent
Nauseated or vomited	101	50.5
Experienced memory loss	32	16.0
Hurt or injured due to drinking	59	29.5
Vomited, memory loss and hurt or injured due to drinking	8	4.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table 2.** Effects of alcohol consumption on student social behavior.

Social behavior type	Frequency	Percentage
Have been criticized by someone you know	10	5.0
Have a drinking problem	5	2.5
Have been taken advantage of sexually	65	32.5
Have taken advantage of someone sexually	80	40.0
Unsuccessfully tried to stop drinking	40	20.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

were also confirmed in their medical records while some were deduced or estimated based on the students' description of his/her experiences following alcohol consumption at various volumes at a single drinking shift.

### Alcohol Influence on Student's Attitude Toward their Studies in the Study Site

Eighty-five percent of studied students noted that alcohol intake has negative effects on them. For example, absenting from lectures (71.5%) because of excessive drinking, poor performance in a test and/or an examination (60%), miss a class due to excessive drinking (83%), and miss a test and/or an examination due to excessive drinking (5%). Three percent (3%) conversely stressed that they reason and perform better after at least a bottle of beer.

### Effect of Alcohol Consumption on Student's Social Behavior

Participants reported negative effects of alcohol on their social behaviors (Table 2). Up to 40% of the participants disclosed that they have taken advantage of someone sexually, 32.5% reported to have been taken advantage of sexually, while 20% reported that they have unsuccessfully tried to stop drinking.

## DISCUSSION

The use of the term "alcohol" in this article specifically refers to "brewed beer" and not including other alcoholic

drinks such as wine and whisky. Alcohol (beer) often has a strong effect on people and can cause major health problems, including liver cirrhosis and injuries in consumer's bodies. The case may be severe in Cameroonian youths but which cannot be appreciated due to non-existence of data on its effect on lifestyle, health and consumption patterns. This preliminary survey has provided data on the effects of alcohol exposure on students' lifestyles, health and attitude toward their studies in higher institutions in the Buea community, south west region of Cameroon. Accordingly, 200 respondents to survey questionnaire was obtained from evidence-based students of higher institution of learning who consume alcohol (n=200). Accordingly, 200 beer consuming students provided responses to the questionnaires out of 280 administered in this survey. The findings are therefore evidence-based as the student consumers of beer provided self-experienced information.

Generally, the gap between the low (range 0-10,000Fcfca or US\$0-20), average (range: 20,000-35,000 Fcfca or US\$40-70) and high (range: 50,000-above Fcfca or US\$100-above) per monthly allowances (figure 1) is expected considering that the students come from different backgrounds with varied per capital income levels, although no receipts were provided to back their responses. This was highly proportional to alcohol intake levels (figure 2), however, a few with low allowances also drink over six bottles of beer per week indicating a strong solidarity amongst student friends as beer consumers. This unifying factor was further confirmed by the absence of beer tables on which only a single individual was drinking all alone. It can be deduced that a student who consumes six bottles (0.75 L/bottle) of beer on weekly basis may be exposed to 4.5 L of beer in their systems per week. Probably, students with high pocket allowances

(>20,000FCFA or US\$40) consumed alcohol more than the other students and likely suffered from associated health hazards such as nausea, memory loss, injury and vomiting. In addition, the misuse of the money on alcohol intake also negatively affected their social behavior like sexual abuse as well as attitude toward their studies. The association between economic well-being and sexual relationships is to be expected because men with more resources have greater access to women than poorer men (Cashdan, 1996).

Symptoms of intoxication like nausea, vomiting and memory loss were common among the participants (Table 1). These results corroborate with the findings conducted in the US where alcohol was the greatest single contributor to college student illness (Hingson *et al.*, 2001). Also, in a study of over 2500 New Zealand university students, 81% of students drank in the previous four weeks, 37% reported one or more binge episodes in the last week, and 68% drank to hazardous levels (Kypriet *et al.*, 2009).

Excessive alcohol consumption negatively affected student's attitude towards their studies e.g. it promoted sexual abuse among students (Table 2). Most students who consume alcohol had either been criticised by others due to their behaviours or have been involved in sexual abuse. The study reveals that alcohol consumption promotes sex among unmarried students despite being an unacceptable practice in almost all societies. Gibney *et al.* (2003) reported an association between alcohol use and having sex with commercial sex workers among truck drivers in Bangladesh in 2003 (Gibney *et al.*, 2003). Weiser and collaborators found in a population-based survey in Botswana that men who abuse alcohol were three to four times more likely to have multiple sex partners and unprotected sex and to engage transactional sex than non-drinkers (Weiser *et al.*, 2006).

The present study has several limitations. Information on some useful factors which could confound the relationship between alcohol use and its effects on health, academic performance and social behavior are lacking. In addition, the high percentage of participants 32.5% who reported to have been taken advantage of sexually and 40% who had taken advantage of someone sexually due to alcohol intake may also have get involved in this activity when not drinking. Also, the effects of alcohol on student's health, academic performance and social behavior of students may have other factors which are unknown or were not taken into consideration in the study (Rashad and Kaestner, 2004).

## CONCLUSIONS

The results of this study suggest that student attending higher institutions of learning (universities and/or professional institutions) in Buea, Cameroon, consume high levels of alcohol, specifically beer. This dampens the

students' academic performances and social behavior as well as serves as a potential risk factor to numerous health disorders. Routine informal education, information and communications on alcohol (beer) intake and its multiple effects to the body may be beneficial to student communities. Likewise, strict re-enforcement of the existing control measures by government on alcohol or beer parlors ("off licenses) in student residential areas may further reduce students' exposure levels.

## COMPETING INTERESTS

The authors declare that they have no competing interests.

## AUTHORS' CONTRIBUTIONS

FEE and AAW participated in the design of the study and all authors participated in the questionnaire design. AEA carried out the data analysis and FEE drafted the manuscript. AAW supervised data analysis and handled technical issues and editing of the manuscript. All authors read and approved the final manuscript.

## ACKNOWLEDGEMENT

The study was funded through a grant received from the Africa Education Initiative (NEF), Mystic USA to the NEF Club of the University of Buea, Cameroon. We also thank the NEF club students for serving as panel members in the data collection tool testing process. Authors are also very grateful to the students who voluntarily provided data on which this paper rely.

## REFERENCES

- Baliunas D, Rehm J, Irving H, Shuper P (2010). "Alcohol consumption and risk of incident human immunodeficiency virus infection: a meta-analysis," *International Journal of Public Health*. 55(3): 159–166.
- Block GD, Yamamoto ME, Mallick E, Styche A (1993). Effects on pubertal hormones by ethanol abuse in adolescents. *Alcoholism: Clinical and Experimental Research* 17: 505.
- Brown SA, Tapert SF (2004). Health consequences of adolescent alcohol involvement. In: NRC and IOM. Bonnie, R.J., and O'Connell, M.E., eds. *Reducing Underage Drinking: A Collective Responsibility*. Washington, DC: National Academies Press, pp. 383–401. Available online at: <http://www.nap.edu/books/0309089352/html>
- Cashdan E (1996). Women's mating strategies. *Evolutionary Anthropology*. 5: 134–143.

- Castaneda R, Cushman P (1989). Alcohol withdrawal: A review of clinical management. *J. Clin. Psychia.* 50(8): 278–284.
- Cherpitel CJ (1994). Alcohol and injuries resulting from violence: A review of emergency room studies. *Addiction* 89(2): 157–165.
- Clark DB, Lynch KG, Donovan JE, Block GD (2001). Health problems in adolescents with alcohol use disorders: Self-report, liver injury, and physical examination findings and correlates. *Alcoholism: Clinical and Experimental Research.* 25:1350–1359.
- Coldiron ME, Stephenson R, Chomba E, Vwalika C, Karita E, Kayitenkore K, Tichacek A, Isanhart L, Allen S, Haworth A (2008). “The relationship between alcohol consumption and unprotected sex among known HIV-discordant couples in Rwanda and Zambia,” *AIDS and Behavior.* 12(4): 594–603.
- Eide AH, Acuda SW (1996). Cultural orientation and adolescents' alcohol use in Zimbabwe. *Addiction,* 91: 807–814.
- Elgan C, Dykes AK, Samsioe G (2002). Bone mineral density and lifestyle among female students aged 16–24 years. *Gynecological Endocrinology* 16: 91–98.
- Ellickson L, Tucker JS, Klein DJ (2003). “Ten-year prospective study of public health problems associated with early drinking,” *Pediatrics.* 111(5): 949–955.
- Fehily AM, Coles RJ, Evans WD, Elwood PC (1992). Factors affecting bone density in young adults. *Ame. J. Clin. Nutri.* 56: 579–586.
- Fisher JC (2010). “Can we engage the alcohol industry to help combat sexually transmitted disease?” *International J. Public Health.* 55(3): 147–148.
- Gibney L, Saquib N, Metzger J (2003). Behavioral risk factors for STD/HIV transmission in Bangladesh's trucking industry. *Soc. Sci. Med.* 56: 1411–1424.
- Goldman SA, Brown SA, Christiansen BA (1987). Expectancy theory think about drinking. In: Blane HT, Leonard KE, eds. *Psychological Theories of Drinking and Alcoholism.* New York, NY: Guilford Press, pp. 181–226.
- Heath DB (1987). A decade of development in the anthropological study of alcohol use: 1970–1980. In: Douglas, M., ed. *Constructive Drinking: Perspective on Drink from Anthropology.* Cambridge, UK: Cambridge University Press, pp. 16–69.
- Hingson R, Heeren T, Winter M, Wechsler H (2005). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24: changes from 1998 to 2001. *Annu. Rev. Public Health.* 26: 259–279.
- Hingson RW, Heeren T, Winter MR (2006). “Age at drinking onset and alcohol dependence: age at onset, duration, and severity,” *Archives of Pediatrics and Adolescent Medicine.* 160(7): 739–746.
- Hingson RW, Heeren T, Jamanka A, Howland J (2000). “Age of drinking onset and unintentional injury involvement after drinking,” *J. Ame. Med. Assoc.,* 284(12): 1527–1533.
- Hingson R, Heeren T, Zakocs R (2001). “Age of drinking onset and involvement in physical fights after drinking,” *Pediatrics.* 108(4): 872–877.
- Hingson R, Heeren T, Zakocs R, Winter M, Wechsler H (2003). “Age of first intoxication, heavy drinking, driving after drinking and risk of unintentional injury among U.S. college students,” *J. Studies Alcohol.* 64(1): 23–31.
- Kessler RC, Crum RM, Warner LA, Nelson CB, Schlenberg J, Anthony JC (1997). Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Survey. *Archives of General Psychiatry.* 54(4): 313–321.
- Kypri K, Paschall MJ, Langley J, Baxter J, Cashell-Smith M, Bourdeau B (2009). Drinking and alcohol-related harm among New Zealand university students: findings from a national Web-based survey. *Alcohol. Clin. Exp.* 33(2): 307–314.
- Leigh BC (1989). In search of the Seven Dwarves: Issues of measurement and meaning in alcohol expectancy research. *Psychological Bulletin.* 105(3): 361–373.
- Leigh BC, Stacy AW (1991). On the scope of alcohol expectancy research: Remaining issues of measurement and meaning. *Psychological Bulletin.* 110(1): 147–154.
- Mennen LI, Mbanya JC, Cade J, Balkau B, Sharma S, Chungong S, Cruickshank JK (2000). The habitual diet in rural and urban Cameroon. *Eur. J. Clin. Nutr.* 54: 150–154.
- Nicola JR, Jorm AF, McCann TV, Lubman DI (2011). Alcohol consumption in tertiary education students. *BMC Public Health.* 11: 545.
- NIS (National Institute of Statistics) and ORC (2004). National Institute of Statistics (NIS) and ORC Macro: Cameroon Demographic and Health Survey 2004. Calverton Maryland USA: NIS and ORC Macro.
- Rashad I, Kaestner R (2004). Teenage sex, drugs and alcohol use: problems identifying the cause of risky behaviors. *J. Health Econ.* 23: 493–503.
- Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J (2009). “Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders,” *The Lancet.* 373(9682): 2223–2233.
- Siziya S, Muula AS, Kazembe LN, Rudatsikira E (2008). “Harmful lifestyles' clustering among sexually active in-school adolescents in Zambia,” *BMC Pediatrics,* vol. 8, article 6.
- Swahn MH, Ali B, Palmier J, Sikazwe G, Twa-Twa J, Tumwesigye N, Rogers K (2011). “Early alcohol use and problem drinking among students in Zambia and Uganda,” *Journal of Public Health in Africa.* 2(2): e20–e23.
- Weiser SD, Leiter K, Heisler M, McFarland W, Percy-De Korte F, DeMonner SM, Tlou S, Phaladze N, Lacopino V, Bangsberg DR (2006). “A population-based study on

alcohol and high-risk sexual behaviors in Botswana,”  
 PLoS Medicine, Article ID e392, 3(10):1940–1948.

V, Bangsberg DR (2006). A population-based study on  
 alcohol and high-risk sexual behaviors in Botswana.  
 PLoS Med. 3:e392.

WHO (World Health Organization) (2004). World Health  
 Organization: Global Status Report on Alcohol 2004.  
 [[http://www.who.int/substance\\_abuse/publications/en/ameroon.pdf](http://www.who.int/substance_abuse/publications/en/ameroon.pdf)]

WHO (World Health Organization) (2010). World Health  
 Organization “Global strategy to reduce the harmful use  
 of alcohol”.  
<http://www.who.int/substanceabuse/msbalcstragegy.pdf>

WHO (World Health Organization) (2011). World Health  
 Organization “Global status report on alcohol and  
 health”.  
[http://www.who.int/substance\\_abuse/publications/global\\_alcohol\\_report/msbgsruprofiles.pdf](http://www.who.int/substance_abuse/publications/global_alcohol_report/msbgsruprofiles.pdf)

Zhang L, Wiczorek WF, Welte JW (1997). The nexus  
 between alcohol and violent crime. *Alcoholism: Clinical  
 and Experimental Research*. 21(7): 1264–1271.

Weiser SD, Leiter K, Heisler M, McFarland W, Percy-de  
 Korte F, DeMonner SM, Tlou S, Phaladze N, Iacopino