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Full Length Research Paper

Alcohol consumption in Lusaka urban district, Zambia: A population based survey, 2007

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Alcohol use is an important preventable risk factor for several non-communicable diseases (NCDs) and injuries that is related to lifestyle choices. The objective of the study was to determine the prevalence of alcohol consumption and its correlates. A cross sectional study utilizing a WHO stepwise approach to surveillance of NCDs was conducted in Lusaka district, Zambia. Current alcohol consumption was defined as having consumed alcohol in the previous 30 days to the survey. Complex samples logistic regression was used to determine independent predictors. A total of 1928 individuals participated in the survey. A third of the participants were males and 53.2% were in the age group 25 to 34 years. Overall, 35.8% of the respondents had attained secondary level of education. The prevalence for current consumption of alcohol was 20.7% (37.9% of males and 12.2% of females). Sex was associated with alcohol consumption, with females being 68% (AOR = 0.32, 95%CI [0.20, 0.51]) less likely to consume alcohol compared to male respondents. Age, education, body mass index and sedentary were not independently associated with alcohol consumption. The high prevalence of alcohol use among Zambian adults indicates an urgent need for specific measures such as public awareness campaigns, policies, and regulations.

Key words: Alcohol consumption, gender, Zambia.

INTRODUCTION

Despite communities having the knowledge of the physical, psychological and social problems associated with use and abuse of alcohol, it is being used in most cultures (Kuendig et al., 2008). Alcohol use is responsible for high mortality and morbidity due to injuries, including at the workplace (Rehm et al., 2009; WHO, 2009), interpersonal and intimate violence (Ntaganira et al., 2008), productivity losses (Paileeklee et al., 2010), tuberculosis (Rehm et al., 2010; Parry et al., 2009), HIV infection (Zablotska et al., 2009; Chersich et al., 2008), cardiovascular disease, cancers, and cirrhosis of the liver (Puddey et al., 1999; WHO, 2009; Rehm et al., 2003). The drinking of home brewed alcohol has been linked to oesophageal carcinoma in parts of Zambia. The association has been linked to contaminants like Zinc, Iron, Copper and Nitrosamine-like compounds which result from the use of old metal drum during production (Reilly, 1976). Home brewed alcohol which is unrecorded may account for a significant percent of total alcohol consumption in Zambia. One survey reported 29% of those surveyed indicated consuming illicit alcohol (Haworth and Simpson, 2004).

In another survey in Kitwe among miners more than two decades ago, Buchanan showed that 30% of accident cases had measurable blood alcohol levels. Buchanan also reports that a third of randomly selected miners had measurable alcohol before starting work and 9% of these had levels above 17.8 mmol/L. He further reports that two thirds of a group of miners referred to hospital on suspicion of being under the influence of alcohol had blood alcohol levels exceeding 35.2 mmol/L

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He concluded that these findings were significant enough to justify further studies (Buchanan, 1988).

A recent report on the Zambia 2004 Global School-based Student Health Survey indicates that levels of drinking alcohol among 13 to 15 year-olds-school going adolescents are as high as 38.7% among males, and 45.1% among females (<http://www.who.int/chp/gshs/Zambia%20fs%202004.pdf>). This is an indication that, unless preventative and control measures are set in place, the burden of alcohol will increase considerably in Zambia. The aim of this study was to estimate the prevalence and determinants of alcohol use in the adult population of Lusaka District, Zambia.

MATERIALS AND METHODS

Sample size and sampling

Details of the methods that were used in the survey are reported elsewhere (Nsakashalo-Senkwe et al., 2011; Siziya et al., 2011). However in summary, a cross sectional study using a WHO global surveillance initiative NCD-Step 3 was used. The sample size, 1915 study participants was powered enough to produce estimates for Lusaka district.

A multi-stage cluster sampling technique was used to select study participants. From each selected constituency, one ward was selected. The number of Standard Enumeration Areas (SEAs) selected in each ward was proportional to its population size. The SEAs were selected using a systematic random sampling method. Households were then systematically sampled in order to widely cover the selected SEAs. All persons of ages 25 or more years in the selected households were invited to participate in the survey.

Ethical considerations

The study protocol was reviewed by the University of Zambia (UNZA) Research Ethics Committee (REC), and the study only commenced when approval from the UNZA REC was granted. All entry forms were kept in the office of the Principal Investigator. Entry forms were only viewed by approved study personnel.

Data collection

The WHO global surveillance initiative for NCD (WHO, 2005) has three steps: Step 1 is the questionnaire, Step 2 is physical examinations, and Step 3 is biochemical examinations. The questionnaire was interviewer-administered. All these steps were conducted within the participants' houses. However, only data from Steps 1 and 2 was used for the current study.

Interviews

An interview schedule was used to elicit responses from the interviewees. The questionnaire was divided into the following sections among others: Demographic information, alcohol consumption, sedentary behaviour, height and weight. Interviews were conducted by interviewers (who included nurses and laboratory technicians) who had gone through a 5 days training in both administering the questionnaire and taking measurements. The use of show cards to show or explain the meanings of some of the items asked minimized inter- and intra-observer variability (WHO, 2005).

Measurements

***Height*:** The Seca Brand 214 Portable Stadiometer (Seca gmbh & Co.kg, Hamburg, Germany) was used to measure the heights of the participants. Height was measured without the participants wearing foot or head gear. Before the reading was taken, the participants were requested to have their feet together, heels against the back board, knees straight, and look straight ahead. Height was recorded in centimetres.

Weight: Weight was measured using the Heine Portable Professional Adult Scale 737 (Seca gmbh & Co.kg, Hamburg, Germany). Participants were asked to stand still, face forward, and place arms on the sides of the body. Weight was recorded in kilograms.

Standard drink of any alcoholic drink

A standard drink is the amount of ethanol contained in standard glasses of beer, wine, fortified wine such as sherry and spirits (WHO, 2005). In Zambia, 1 standard bottle of regular beer is 375 ml, 1 single measure of spirits is 30 ml, and 1 medium size glass of wine is 120 ml.

Data entry

Two data entry clerks were trained to enter the data using Epi Data version 3.1. Data was double entered and validated. The data entry template had consistency and range checks embedded in it. The data entry clerks were trained and supervised by SS. The validated data was exported to SPSS version 14.0 for analysis.

Data analysis

The variables we selected for analysis were those that were found to be significantly associated with alcohol consumption in the literature. Body Mass Index (BMI) obtained by dividing the weight (kg) by height (m^2) was categorized as <18.5 (underweight), 18.5 to 24.9 (normal), 25.0 to 29.9 (over weight), and 30+ (obese) as defined by WHO (1995). Age was obtained as a continuous variable but was categorised into the classes: 25 to 34, 35 to 44 and 45+ in order to fit in the classes recommended by WHO (2005) for across countries comparisons. The factor 'education' was obtained by asking the question: What is the highest level of education you have completed? The possible responses were: No formal schooling, less than primary school, Primary school completed, secondary school completed, high school completed, college/university completed, post graduate degree and refused. Because of the small numbers in some of the classes, we recoded education as none (No formal schooling), Primary (less than primary school or Primary school completed), Secondary (Secondary school completed or High school completed) and College/University (College/University completed or Post graduate degree); and refused was coded as missing. The question on sedentary behaviour was phrased as: How much time do you usually spend sitting or reclining on a typical day? The responses were obtained as continuous values in hours and minutes but were categorised into three classes during the analysis: <1.5, 1.5 to 3.4 and 3.5+ h. The variables on alcohol consumption were phrased in two ways as descriptive variables: Have you consumed alcohol (such as beer, wine, spirits, fermented cider) or *[chibuku, kachasu]* within the past 12 months? The responses were 'Yes' or 'No'; and

Table 1. Demographic characteristics and alcohol consumption for study participants in Lusaka, Zambia, 2007.

Factor	Total [n (%)]	Male [n (%)]	Female [n (%)]
Age group (years)			
25-34	1015(53.2)	337(53.7)	675(52.9)
35-44	413(21.6)	135(21.5)	277(21.7)
45+	481(25.2)	156(24.8)	323(25.3)
Sex			
Male	634(33.0)	-	-
Female	1288(67.0)	-	-
Education			
None	408(21.5)	76(12.2)	330(26.0)
Primary	276(14.5)	61(9.8)	214(16.9)
Secondary	679(35.8)	242(38.8)	435(34.3)
College/university	534(28.1)	244(39.2)	290(22.9)
Consumed alcohol in past 12 months			
Yes	505(26.3)	276(43.5)	227(17.7)
No	1418(73.7)	358(56.5)	1056(82.3)
Average number of standard alcoholic drinks drank in a day			
1-2	96(19.8)	30(11.4)	66(30.0)
3-4	174(35.8)	91(34.5)	82(37.3)
5-6	120(24.7)	73(27.7)	46(20.9)
7+	96(19.8)	70(26.5)	26(11.8)
Consumed alcohol in past 30 days			
Yes	398(20.7)	240(37.9)	156(12.2)
No	1525(79.3)	394(62.1)	1127(87.8)

When you drink alcohol, on average, how many drinks do you have during one day? The responses were coded as 1 to 2, 3 to 4, 5 to 6, and 7 or more standard drinks. The outcome variable was phrased as: Have you consumed an alcoholic drink (such as beer, wine, spirits, fermented cider or home brewed alcohol [*chibuku, kachasu*]) within the past 30 days? The responses were 'Yes' or 'No'. During the analysis, 'Yes' was recorded as 1 and 'No' as 0. Unadjusted odds ratios (OR), and adjusted odds ratios (AOR) together with their 95% Confidence Intervals (CI) were computed to estimate magnitudes of associations. Complex samples logistic regression was used in multivariate analysis.

RESULTS

A total of 1928 individuals participated in the survey, of which 33.0% were males. About half of the participants were in 25 to 34 years age group (53.2%), and a third of the respondents had attained secondary level of education (35.8%). The overall prevalence of alcohol consumption over a period of one year was 26.3% (43.5% among males and 17.7% among females). Among the participants who consumed alcohol in the previous one year to the survey, 44.4% of them (54.2% of males and 32.7% of females) consumed an average of 5 or more standard alcoholic drinks in a day. Meanwhile, the prevalence of current alcohol consumption in past 30 days was estimated at 20.7% (37.9% among males and 12.2% among females). Further description of the sample is presented in Table 1.

Among the factors considered to be associated with alcohol consumption in bivariate analyses (Table 2), only sex and body mass index were significantly associated with current alcohol consumption. However, during multivariate analysis, only sex remained significantly associated with alcohol consumption. Female respondents were 68% (AOR = 0.32, 95% CI 0.20, 0.51) less likely to consume alcohol compared to male respondents.

DISCUSSION

The present study estimated the prevalence and associated factors for adult alcohol consumption in Lusaka

Table 2. Factors associated with alcohol consumption in bivariate analyses among adults in Lusaka, Zambia.

Factor	OR (95%CI)[1]
Age (years)	
25-34	1
35-44	0.89(0.53, 1.52)
45+	1.02(0.57, 1.81)
Sex	
Male	1
Female	0.32(0.20, 0.51)
Completed level of education	
None	1
Primary	1.51(0.69, 3.30)
Secondary	1.74(0.92, 3.30)
College/university	1.67(0.86, 3.23)
Body mass index (BMI)[1]	
<18.5	1
18.5-24.9	0.48(0.16, 1.41)
25.0-29.9	0.28(0.09, 0.86)
30+	0.37(0.11, 1.24)
Time usually spent sitting or reclining on a typical day (h)	
<1.5	1
1.5-3.4	1.31(0.74, 2.32)
3.5+	1.02(0.57, 1.82)

OR (95%CI)[1], Unadjusted odds ratio (95% Confidence interval); BMI[2] = [Weight (kg)/Height (m^2)] The outcome variable was the current alcohol consumption in the past 30 days.

Zambia in 2010. Current alcohol consumption was defined as having taken alcohol in the past 30 days. The prevalence of current consumption of alcohol was 20.7% (37.9% of males and 12.2% of females). Meanwhile, alcohol consumption in the past 12 months was reported by 26.3% (43.5% of male and 17.7% of female) study participants. These prevalence estimates are lower than those reported in Cameroon (Health of Populations in Transition Research Group, 2004) of 85% overall (89% among males, and 82% among females), but comparable to alcohol consumption rate of 39.6% in the past 12 months in Eritrea (Usman et al., 2006). In Nauru, alcohol consumption in the past 12 months was reported by 46.2% (60.7% of male and 32.1% of female) respondents [Ministry of Health (Nauru et al., 2005)]. Zambia had lower prevalence of adult alcohol consumption. The difference in the prevalence estimates could be partly because in the Zambian study, adolescents were excluded from participation in the survey while adolescents were included in Nauru.

Current alcohol consumption prevalence of 12.2% among females in Lusaka reported in this study is about twice the estimate for the country (of 5.9% for Zambia women countrywide), three times and 12 times respectively the estimate for Kenyan and Malawian women (Martinez et al., 2011). The finding that females in Lusaka were less likely to consume alcohol than males suggests that societies may be less tolerant to females who consume alcohol. Rarely are women, other than sex workers, in Zambia seen in drinking places consuming alcohol. They may consume alcohol at kitchen parties where males are absent, or they may consume alcohol at home. Lower alcohol drinking among women may also represent the fact that women, compared to men, may not have as much disposable income to spend on their own.

The current trends indicate that alcohol consumption among African women is increasing and has reached alarming rates; for example, previous studies have reported rates of alcohol use among women as high as 30% in Botswana (Weiser et al., 2006) and 47% in Namibia (WHO, 2004). Although the prevalence of alcohol consumption among adult females in our study is much lower than what has been reported in Botswana

and Namibia, the fact that Zambian female adolescents have higher rates of alcohol use than male raises serious concerns (http://www.who.int/chp/gshs/Zambia2004.pdf) and calls for immediate action.

LIMITATIONS

Although the study used a validated data collection instrument and the sampling design allowed that the findings be representative of the study area, there are some limitations. The survey was done in Lusaka district, and hence the results can only be generalized to the sampled population and not the whole country. We did not have reliable information on the number of all household members of age 25 years or older in order to calculate response rates. Therefore, we could not compute weights that could have been used in the analysis. Our findings may be biased to the extent that non-respondents differed from those that participated in the survey. We are unable to suggest the direction of bias. Some study factors in our survey were obtained through self-reports, and as in all such studies, both inadvertent and deliberate reporting is a concern, more so that we obtained personal identifiers. In spite of the aforementioned limitations, we believe that our findings are credible as they compare favourably with those obtained in the 2007 Zambia Demographic and Health Survey (Central Statistical Office [CSO] et al., 2009).

Conclusion

The high prevalence of alcohol use among Zambian adults indicates an urgent need for specific measures such as public awareness campaigns, policies, and regulations.

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