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Examining Correlates of Alcohol Related Condom-less Sex among Youth in Kampala, Uganda

by

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B.S., UNIVERSITY OF GEORGIA

B.A., UNIVERSITY OF GEORGIA

A Thesis Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

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ABSTRACT

Examining Correlates of Alcohol Related Condom-less Sex among Youth in Kampala, Uganda

By

SAGAR KUMAR

APRIL 18, 2018

The purpose of this study is to examine the factors associated with alcohol related condom-less sex among youth living in the slums of Kampala, Uganda. Analyses are based on cross-sectional survey data, collected in 2014, of a convenience sample (n = 1134) of urban service-seeking youth participating in a Uganda Youth Development Link drop-in center. Logistic regression analyses were computed to determine the factors associated with intoxicated condom usage. The analytic sample consisted of only youth who responded to the dependent variable (n = 347), youth who reported not using a condom due while intoxicated and youth who reported using a condom while intoxicated. In the bivariate analysis, not using a condom while intoxicated was associated with being female (OR: 1.86; 95% CI: 1.21, 2.85), age of first drinking being between ages 13-16 (OR: 1.5; 95% CI: .79, 2.85), age of first time drunk being between ages 13-16 (OR: 2.88; 95% CI: 1.47, 5.67), binge drinking (OR: 3.64; 95% CI: 2.21, 5.98), rape (OR: 2.69; 95% CI: 1.64, 4.41), sex work (OR: 5.91; 95% CI: 3.09, 11.29), and being able to refuse sex when intoxicated (OR: 1.69; 95% CI: 1.10, 2.61). In the multivariable analysis, not using a condom while intoxicated was associated with being binge drinking (AOR: 2.97; 95% CI: 1.71, 5.17) and sex work (AOR: 3.48; 95% CI: 1.62, 7.49). The findings of this study emphasize many unmet needs of this vulnerable population. Strategies that specifically seek to address teenage alcohol prevention and delaying initial alcohol consumption may be particularly beneficial in this low-resource setting.

APPROVAL PAGE

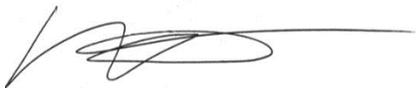
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by

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Approved:

Monica Swahn, PHD, MPH
Committee Chair

A handwritten signature in black ink, appearing to read 'Rachel Culbreth', with a long horizontal line extending to the right.

Rachel Culbreth, PHD Candidate
Committee Member

April 18, 2018
Date

I would first like to acknowledge Dr. Monica Swahn and Rachel Culbreth at the School of Public Health at Georgia State University for their guidance and the opportunity to work with them, without your help this thesis would not be possible. I would like to acknowledge the staff and faculty at the School of Public Health at Georgia State University for giving me the foundation for a future in public health.

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Author's Statement Page

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Sagar Kumar
Signature of Author

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1. INTRODUCTION

1.1 Background

Estimates indicate there are about 346 million youth worldwide, most of them living in lower and middle-income countries (Unicef, 2017). Uganda falls below the poverty line set by the World Bank (2018) and has one of the highest population growths in the world, due to its extremely high birth rate (49 births per 1,000, compared with 14 births per 1,000 in the United States) (2006 World Population Data Sheet, 2013; Worldwatch Institute, 2011). Kampala, the capitol of Uganda, has a population that is 78% youth. (Swahn et al. 2014, Uganda Bureau of Statistics, 2002).

Worldwide alcohol use is the eighth leading cause of death, accounting for 2.5 million deaths, including 320,000 people between ages 15 and 29 (Hingson et al. 2011). Uganda is estimated to have one of the highest levels of alcohol consumption per capita globally, with an estimate of 23.7 liters of pure alcohol consumed per capita (Weiss et al. 2016, Swahn et al. 2014, WHO 2011a, Alcohol Consumption Levels and Patterns, 2014). It is well documented that alcohol and drug use in youth populations are linked to other risky behaviors such as fighting, unsafe sex, or increased and unprotected sexual activity (Swahn et al. 2017).

Alcohol is easily available to many youths as they grow up in Uganda and its use plays a key role in the lives of youth, and especially female sex workers in Kampala (Mbonye et al. 2014). Among commercial sex workers, 51% have started drinking by age 17 (Kalichman et al. 2007). Commercial sex can be defined as receiving food or money as payment for services in the forms of sexual acts (Swahn et al. 2014).

In Uganda, alcohol consumption before sex is common (Zablotska et al. 2007). Alcohol use is also associated with testing positive for sexually transmitted infections (STIs) (Kalichamn

2007). Risk behaviors, such as alcohol use, that may influence STI transmission are often initiated during adolescence which makes it critical for implementation of STI prevention interventions (Khan et al. 2012).

Inconsistent condom use is a risky sexual behavior associated with alcohol consumption (Zablotska et al. 20017). High alcohol consumption is associated with inconsistent condom use (Ehrenstein et al. 2003). Earlier drinking in life has also shown to predict later risk taking such as multiple sex partners and inconsistent condom use, and these in turn have been shown to correlate with human immunodeficiency virus (HIV) transmission (Stueve & O'Donnell 2005).

Individuals who use alcohol are estimated to be about twice as likely than the general population to be HIV infected (Weiss et al. 2016). Both HIV infection and alcohol use around the world are most concentrated in areas of poverty (Kalichman et al. 2007). Previous studies in Uganda show that alcohol may be a risk factor for HIV because it exacerbates sexual risk-taking and is associated with unprotected sex (Zablotska et al. 2007).

While drug abuse, condom-less sex, and commercial sex work play a role in the spread of HIV, the intersection is not well understood (Surratt 2007). Relatively few studies have examined factors that predict alcohol use and sexual risks in sub Saharan Africa (Kalichman et al. 2007). The need for studies in Uganda is necessary because HIV prevalence among youth is 13.9% (Swahn et al. 2016).

1.2 Purpose of Study

Vulnerable youth's perceptions of alcohol and drug-related risky behaviors and the context surrounding them have not been studied among vulnerable youths in the slums of Kampala, Uganda (Swahn et al. 2014). The purpose of this study is to examine the association between teenage alcohol use and condom usage, along with factors associated with these

behaviors among youth in Kampala. There have been studies that link alcohol use to HIV and STI, along with studies between condom usage and HIV/STIs; however, very few studies have looked at alcohol use and condom usage. No studies have examined the association between alcohol use and condom usage in Kampala. Studying factors associated with condom usage can benefit safer sex programs and can help tailor interventions to decrease the transmission of HIV.

1.3 Research Question

The youth in the slums of Kampala are often overlooked and underserved, and many turn to risky behaviors that could impact their lives. As it stands, there is currently a gap in knowledge about the correlates of alcohol related condom-less sex. This study will add to the current literature by examining the correlates of alcohol related condom-less sex. A better understanding of these associations can lead to policies and interventions to curb the transmission of HIV and STIs. Reducing the spread of HIV/STIs is a public health necessity for this population.

This study aims to examine the following:

- 1) Is there an association between teenage alcohol use and condom-less sex among youth living in the slums of Kampala, Uganda?
- 2) What correlates are associated with teenage alcohol use and at time of condom-less sex?
- 3) Are any of these correlates significantly related to not using a condom due to alcohol?

2. LITERATURE REVIEW

2.1 Early Drinking

In general, rates of screening and intervention for alcohol and other drug use in primary care for adolescents are low (Meredith et al. 2018). Prevention of alcohol consumption in minors is typically weaker, especially in countries that are riddled with poverty (Hingson et al. 2011). The legal drinking age in Uganda is 18, but many of the Ugandan youth begin drinking before this age (WHO 2014, Mbonye et al. 2014). While under-age drinking is discouraged in Uganda, many youths are not supervised, which allows many children to taste alcoholic drinks (Mbonye et al. 2014).

Youth, in general, cannot process alcohol in the same way an adult can (Hingson et al. 2011). Many youths do not know about the harms of alcohol, and some youth seek out alcohol because of the sensation they feel from drinking, or they think it will help their sexual performance (Blignaut et al. 2015). Youth aged 12-18 in Kampala, Uganda believe that using alcohol or drugs makes one more likely to engage in sex (Swahn et al. 2014). Alcohol-related effects on developmental and contextual factors may lead to sexual risk behaviors in adulthood by increasing adolescent sexual risk-taking (Khan et al. 2012).

Adolescent alcohol use may lead to continued alcohol use in young adulthood, an established risk factor of STI risk in adulthood (Khan et al. 2012). When polled by Staton and colleagues, students believed that alcohol and drugs exacerbate risky behavior (1999). Adolescent history of any alcohol use is associated with a 90% increase in the odds of inconsistent condom use in adulthood (Khan et al. 2012). Khan and colleagues state adolescent alcohol use is an important marker of a high-risk trajectory that results in sexual risk and

infection in adulthood (2012). It is important to continue educating youth about the dangers of alcohol and risky behavior.

2.2 Problem Drinking

Substance use, alcohol use, and misuse such as problem drinking and drunkenness, have also been well-established as having a negative association with adolescent health (Culbreth et al. 2018). Problematic alcohol use is defined by the National Institute of Alcohol Abuse and Alcoholism (NIAAA) using the CAGE questionnaire (2002). Those who score a “2” or greater in the questionnaire are considered problem drinkers. The overuse of alcohol is associated with mental health disorders, injury, death, and HIV and sexually transmitted infections (Mbonye et al. 2014).

Alcohol is an addictive substance that can alter a developing brain and can increase risk for impulsive behaviors; this is magnified if alcohol is consumed in excess (Stueve & O’ Donnell 2005). Problem drinking is likely a coping strategy for Ugandan youth with elevated levels of adverse childhood experiences (e.g., physical abuse, being an orphan, homelessness, and rape) and current health issues such as HIV/AIDS and other STIs (Culbreth et al. 2018). Alcohol expectations might account for the association between impulsive behaviors such as sensation seeking and alcohol use during sex (Kalichman et al. 2002). Alcohol abuse for sexual gain has been shown to be significantly related to sexual violence (King et al. 2004). Alcohol is an addictive substance that has been shown to impair judgement and affect the personality.

2.3 Binge Drinking

Binge drinking can lead to alcohol dependence due to the addictive nature of alcohol. Among people who drink, greater quantities of alcohol consumption predict greater sexual risks than does frequency of drinking (Kalichman et al. 2007). Binge drinking, defined by the NIAAA,

is a male consuming five or more and a female four or more drinking on an empty stomach over a two-hour period (Hingson et al. 2011, Theall et al. 2006). Binge drinking has been linked to alcohol abuse and alcoholism (Meredith et al. 2018).

Weiss and colleagues state binge drinking are associated with initial drinking age being a younger age (2016). Children are at risk of developing habits that remain lifelong such as alcohol abuse. Staton and colleagues state significant substance abuse developed patterns of substance use during high school (1999). This implies that earlier introduction of alcohol can result in a greater likelihood of binge drinking and alcohol abuse as youth develop. These personality characteristics can affect an adolescent and create risk-taking habits that last a lifetime.

Theall and colleagues state the frequency of alcohol consumption or number of drinking occasions per week are positively associated with sexual risk behavior (2006). Alcohol use affects sexual practices immediately at a given sexual encounter rather than over long term (Ehrenstein 2003). This shows sexual practices become riskier with a quantity of alcohol consumed at one time than alcohol consumption that is spread out over time. Alcohol elevates sexual risks through multiple channels, including risk-taking personality characteristics (Kalichman et al. 2007).

Binge alcohol consumption is positively associated with the partner refusing or not wanting to use a condom (Theall et al. 2006). While impaired, there is a greater chance for casual sex, which can lead to a spur of the moment encounter where a condom may or may not be present. Heavy use of alcohol has been correlated with increased casual sex without condoms (Staton et al. 1999)

2.4 Condom Use

Among Ugandan youth, there seems to be a varied and incomplete understanding of safe sex and STDs (Swahn et al. 2014). The true definition of safe sex is sex with correct condom use (Hennessy et al. 2013). Some Kampalan youth believed safe sex was loving and being faithful to their partner; in another example some youth believed safe sex was when both partners discussing when to have sex. (Swahn et al. 2014).

Staton and colleagues state alcohol use among teenagers and college students has been related to risky sexual behavior; students admitted engaging in riskier behaviors during sexual encounters when they used alcohol or other substances compared with encounters they did not use substances (1999). When polling adolescents, a positive association between alcohol consumption and inconsistent condom use was observed by Theall and colleagues (2006).

Heavy drinkers who report being intoxicated in sexual situations also report less condom use and more concurrent sex partners (Kalichman et al. 2007). Rehm and colleagues state those who are drunk are 1.54 times more likely to consider condom-less sex compared to those who had not used alcohol (2017).

Condom-less sex intentions are a surrogate measure of actual condom use behavior, which itself is linked to HIV incidence (Rehm et al. 2017). Having condom-less sex puts partners at risk for STI transmission and unwanted pregnancy. Staton and colleagues polled why youth in their cohort used condoms, most respondents who used condoms were interested in pregnancy prevention; only 10% stated for disease prevention (1999).

Condom use is often a joint decision, rather than a single partner insisting on a barrier method (Blignaut et al. 2015). Some youth have stated they did not use condoms because they did not know how to use them. Many have stated that they did not use condoms because they

are not readily available (Anderson et al. 1999). Interventions need to be tailored so youths understand the importance of condom usage.

2.5 Coercion and Rape

Alcohol is associated with higher frequency of physical abuse and forced sex (Weiss et al. 2016). Both males and females are at risk of unprotected sex when engaging in impaired intercourse. Alcohol use to the point of intoxication is believed to lower sexual inhibition; creating barriers to using condoms among both men and women (Kalichman 2007). Almost all the women who drink alcohol regularly admitted that they have a higher chance of engaging in unsafe sex when they drink (Mbonye et al. 2014).

In Kampala, while males are thought to have sex by their own choice, females are often described as being coerced into having sex, usually by means of intoxication (Swahn 2016). Alcohol can accelerate forced sex because of impaired judgement. Alcohol may be an important catalyst for intimate partner physical violence and sexual coercion (Zablotska et al. 2007). Women are at a greater risk of having unprotected sex due to their impaired judgement, particularly during coerced sex.

Zablotska and colleagues state that alcohol may play a role in various forms of domestic violence, especially if consumed by females. Alcohol use impairs brain function and engaging in alcohol can impair decision making power (Blignaut et al. 2015). Alcohol use has been linked to violent behavior and may be part of the dynamics of sexual control or may be used to obtain sex against a woman's consent, which is known as rape (2007). With rape, there is a greater chance of the perpetrator not using a condom, therefore increasing the chance of HIV spread.

2.6 Sex work

Sex work has been reported more frequently in large cities where there are more bars and a nightlife setting. In Uganda, alcohol and sex work are often linked. Sex work makes up a portion of the employment for youth in Kampala, Uganda because many of the youth do not have another outlet for making income (Swahn et al. 2014).

Informal alcohol serving establishments, such as private homes where alcoholic beverages are sold and served, are also often the same place where sex partners meet (Kalichman et al. 2007). Women are often recruited by bar owners to attract men to premises to drink (Surratt 2007). Some sex workers are given a commission based on how much alcohol they can get their client to buy (Mbonye et al. 2014).

Sex workers are often encouraged to consume alcohol with their clients prior to sexual activity. When meeting clients, 50% of sexual encounters are preceded by both the client and the sex worker drinking alcohol (Surratt 2007). Moreover, sex workers have also been reported as being paid in alcohol (Swahn et al. 2016). Additionally, some sex workers have stated that their clients will pay more for unprotected sex (Swahn et al. 2016). Mbonye and colleagues state that experienced women [sex workers] know that one strategy used by clients is to get the women drunk so they would not need to pay and/or use condoms. There is the possibility of being taken advantage of by the clients and not having condoms used.

Almost all women drink alcohol regularly admitted that they had a higher chance of engaging in unsafe sex (Weiss et al. 2016). Women classified as binge drinkers are more likely to report inconsistent condom use for vaginal sex (Theall et al. 2006). Alcohol use coupled with interactional problems or power differentials in sexual relationships places women at risk for unsafe sex and its potential consequences (Theall et al. 2006).

Some sex workers have taken it as their responsibility to supply the condoms or even use female condoms. Busza and Baker state women who incorporate the female condom into their work wield control over their working conditions feel a sense of control over their identity (2004). Sex work has been shown to increase HIV incidence and prevalence (Swahn 2014). Sex workers can reduce the risk of HIV transmission by using condoms.

2.7 HIV and STI

Unprotected sexual intercourse is the most ‘universally available’ mode for transmitting HIV (Ehrenstein et al. 2003). Previous research in Kampala have a basic understanding of sexually transmitted diseases including HIV/AIDS (Swahn et al. 2014). One area to improve on is increasing understanding of how STIs are transmitted.

The association of alcohol with unsafe sex in HIV-uninfected persons has been described both generally and in special populations such as young adults (Ehrenstein 2003). Many young adults are not educated about the dangers of sexual risk taking; therefore, when they drink they may not consider the outcomes. As substance abuse could impair judgement, this could lead to risky sexual behavior, which in turn could increase the risk of contracting HIV (Blignaut et al. 2015). Research on adolescent risk behaviors documents the co-occurrence of alcohol use, sexual risk taking, and other problem behaviors (Stueve & O’Donnell 2005).

Using substances such as alcohol may lead to risky sex behaviors, which may place young adults at increased risk of STDs including HIV (Staton et al. 1999). Any alcohol use at all and drinking greater quantities of alcohol are closely associated with HIV transmission risks (Kalichman 2007). Alcohol and drug use have been linked to risky sexual practices among HIV-infected persons (Theall 2006).

Unsafe sexual behavior remains common among people with HIV (Ehrenstein et al. 2003). HIV transmission has been found to be associated with unprotected sex among HIV patients including injection drug users (Theall et al. 2006). Kalichman and colleagues note one in three HIV-positive persons continue to practice HIV transmission risk behaviors (2002).

3. METHODS

3.1 Setting

The current study is based on the “Kampala Youth Survey 2014.” This is a cross-sectional survey conducted between March and April of 2014 to quantify and examine high-risk behaviors and exposures, with a focus on alcohol use, sexual behaviors, and HIV, in a sample of urban youth, 12-18 years of age, living in the slums or on the streets of Kampala, Uganda, who were participating in Uganda Youth Development Link (UYDEL) drop-in center for disadvantaged street and slum youth. Study participants were recruited at six drop-in centers and the neighborhoods surrounding the UYDEL drop-in centers primarily through word-of-mouth (Uganda Youth Development Link).

3.2 Data Collection

Over a fifteen-day (March 19 to April 2) data collection period, 1628 youth were approached for participating in the survey. Participants were informed about the study and read (or were read) the consent forms for the survey. All participants provided verbal consent to participate in the study. Youth who “cater for their own livelihood” are considered emancipated in Uganda and can provide their own consent for the survey without parental consent. Participation was limited to youth ages 12–18 present in-person on the day of the field visit. There were no other exclusion criteria. All subjects gave their informed consent for inclusion before they participated in the study. 131 declined and 320 surveys were lost due to technical difficulties with the offline server. 1134 youth participants completed the surveys making up the final sample size.

Each social worker/peer educator received training on the study methodology and survey questions, and they recruited potential participants among attendants at their specific drop-in

center. Each survey question was translated into Luganda, the native language, if needed. Social workers and peer educators employed by UYDEL conducted peer face-to-face interviews. The survey was administered to participants on Google Nexus 7 tablets. Interviews lasted 20–30 min and were conducted after proper consent procedures (parental consent had been waived for youth ages 12–17). While sensitive topics were covered in the survey, the parental consent waiver was approved for three reasons: (1) In Uganda, children who cater to their own livelihood are considered emancipated at age 14; (2) Children as young as 12 can consent to HIV testing without parental consent; and (3) Because many of these youth are orphans and otherwise “abandoned”, UYDEL is considered serving the children and their best interest. Youth recruited received a small snack and a drink (juice or soda) as incentive for participating in the survey. All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and IRB approvals were obtained from Georgia State University and the Uganda National council for Science and Technology to conduct this study in Kampala (SS3338). The questions included in the Kampala Youth Survey 2014 were mostly collected from previously validated instruments, including: Global School-based Student Health Survey (GSHS), Kampala Youth Survey 201, MAMPA 2012 Questionnaire, AUDIT Questionnaire, CAGE Questionnaire, iMPPACS, AIDS Indicator Survey, and the Demographic Health Survey.

3.3 Measures.

3.3.1 Dependent Variable.

Condom use -A youth was classified having sex without a condom due to alcohol use if he or she answered “yes” to “because of your own alcohol use, how often during the last 12 months have you experienced the following? -Had sex without a condom.” In the original study, respondents

fell into three categories “never, 1-2 times, and “3 or more times” In these results the variable was listed as “condom was not used” and “condom was used”

3.3.2 Independent Variables

Sex- Sex was categorized into male or female

Education Level- Education levels were categorized into three levels: primary education or less, completed primary education, and secondary education or higher

Problem Drinkers -The CAGE questionnaire consists of four questions, “Have you ever felt you should cut down on your drinking?”; “Have people annoyed you by criticizing your drinking?”; “Have you ever felt bad or guilty about your drinking?”; and “Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover (eye opener)?” Participants could answer yes (1) or no (0). CAGE scores were totaled, and scores of 2 or greater indicate problem drinking, whereas scores lower than 2 indicate non-problem drinking. For this analysis, the variable was categorized into problem drinkers, non-problem drinkers, and non-drinkers (Culbreth 2018).

Age of First Drink- Age if first drink was categorized into three levels: less than 13, 13-16, and greater than 16.

Age of First Time Drunk- Age if first time drunk was categorized into three levels: less than 13, 13-16, and greater than 16.

Binge Drinker – Youth were classified as binge drinkers if he or she answered “1 or more days” to “In the past month: -How many times (if any) have you had five or more drinks on one occasion (in a row)?”

Rape - Youth were classified as having history of rape if he or she answered “yes” to “have you ever been raped?”

Sex Work – Youth were classified as sex workers if he or she answered “yes” to “Are you currently engaged in commercial sex work?”

HIV - Youth were classified as HIV-positive if he or she answered “yes” to and HIV-negative if he or she answered “no” to “have you ever been told by a doctor/nurse or HIV counselor that you have HIV?”

It is ok for a girl to suggest condoms – Youth could “agree” to “Sexual intercourse is defined as a penis entering a vagina. -It is okay for a girl to suggest condom use to a sexual partner” and all other answers were considered “Don’t agree”

Refusal to have sexual intercourse when intoxicated - Youth could “agree” to “I would be able to refuse to have sexual intercourse even if I had been drinking alcohol” and all other answers were considered “Don’t agree”

Plan to use condoms - Youth could “agree” to “I plan to use a condom when I have sexual intercourse” and all other answers were considered “Don’t agree”

3.4 Data Analysis

Descriptive statistics were computed for condom use. Descriptive statistics were also computed for sociodemographic variables and hypothesized risk factors among outcome categories, alcohol related condom-less sex (no condom use vs. condom use).

To assess the correlation between dependent and independent variables, a chi square test was conducted, which addressed the first and second research aims. Bivariate logistic regression analysis was used to determine the association between condom use and the hypothesized risk factors, adjusting for sociodemographic variables; this test was used as a means to address the first and third research aim. The bivariate logistic regression was used to test for significance between correlates and alcohol related condom-less sex. The correlates that were shown to be

significant in the bivariate logistic regression were then used in a multivariable analysis to truly understand significance in the context of all relevant variables, which is the goal of the third research aim. All analyses were performed using SAS 9.4 (SAS Institute, Cary, NC, USA).

4. Results

Among the youth participants (n = 1134), 347 (30.60%) were eligible to answer the question “because of your own alcohol use, how often during the last 12 months have you experienced the following? -had sex without a condom” (Table 1). 175 (50.43%) of the 347 youth admitted “yes” to having sex without a condom whereas 172 (49.57%) youth responded “no” to the question. Of the 175 youth who admitted to having sex without a condom due to alcohol, 136 (77.71%) admitted to “1-2 times” and 39 (22.29%) reported “3 or more times”.

The first aim of this study was to look at the association between teenage alcohol use and condom-less sex. Among problem drinkers, approximately the same amount of youth did not use a condom compared to those who did use a condom (25.00% and 25.87% respectively). Most of youth’s first time trying alcohol was between 13-16 (71.18%), and more from this group (39.48%) of this group did not use a condom compared to the other age categories. The greatest proportion of youth involved with alcohol related condom-less sex came from those who began drinking between the ages of 13-16 (39.48%). The trends for the age of first time drunk are similar those of age of first drink; 120 (34.58%) of the youth who were drunk for the first time between 13-16 did not use a condom when intoxicated, and this was shown to have a significant association in the chi square analysis ($p < .005$). Binge drinkers had the highest frequency (42.03%) of not using a condom among all the factors that were looked at and this was significant correlation ($p < .0001$).

The second aim of this study was to examine which correlates were associated with alcohol related condom-less sex among the youth in the slums of Kampala. The variables that were shown to have significant correlation after the chi square analysis were sex, age of first drink, age of first time drunk, binge drinking, history of rape, and sex work. The sample was

mostly female (55.33%, $p < .005$). Early drinking and binge drink were examined in the first research aim. 65 (18.73%) youths in the sample had been raped and did not use a condom ($p < .0001$). Those who were engaged in sex work were similarly more likely to engage in alcohol related condom-less sex (16.43%, $p < .0001$).

The third aim of the study was to examine which correlates were significantly related to alcohol related condom-less sex, which occurred using a bivariate analysis and a multivariate analysis. Binge drinking (OR: 3.64; 95% CI: 2.21, 5.98), age of first drink between ages 13-16 (OR: 1.5, 95% CI: 1.47-5.67), age of first time drunk between ages 13-16 (OR: 2.88; 95% CI: 1.47, 5.67) were all correlates that involved alcohol consumption and were significantly associated with alcohol related condom-less sex. In the bivariate analyses (Table 2), condom-less sex due to alcohol was significantly associated with being female (OR: 1.86; 95% CI: 1.21, 2.85), having a history of rape (OR: 2.69; 95% CI: 1.64, 4.41), and engaging in commercial sex work (OR: 5.91; 95% CI: 3.09, 11.29) were shown to be significantly associated with not using a condom due to alcohol. Those who agreed that they would be able to refuse sexual intercourse while intoxicated (OR: 1.69; 95% CI: 1.10, 2.61) were also significantly associated with not using a condom.

In the multivariable analyses (Table 2), binge drinking (AOR: 2.97; 95% CI: 1.71, 5.17) and sex work (AOR: 3.48; 95% CI: 1.62, 7.49) were statistically associated with condom-less sex due to alcohol. Sex, age of first drink, age of first time drunk, rape, a being able to refuse sex while intoxicated were no longer statistically associated with not using a condom due to alcohol in the multivariable analysis

The bivariate analysis also found problem drinkers (OR: 1.13; 95% CI: .74, 1.72) were shown to be less likely to use a condom when intoxicated, but this was not significant. Those

who are HIV positive (OR: 1.21; 95% CI: .64, 2.29) were more likely to have condom-less sex; this was not statistically significant in the bivariate analysis. Those who agreed that it was ok for a girl to suggest using condoms (OR: 1.09; 95% CI: .66, 1.76) were more likely to not use a condom, but this was not significant. Those who agreed they planned to use condoms (OR: 1.58; 95% CI: .98, 2.55) were more likely to not use a condom, but this was not significant.

Additionally, completing secondary education was shown to be inversely related to condom-less sex due to alcohol, and completing secondary education (OR: .65; 95% CI: .40, 1.06) were shown to be protective, but this were not significant.

5. DISCUSSION

5.1 Discussion of research questions

The study's first aim was to examine the association between alcohol consumption and teenage condom usage among youth in Kampala, Uganda. One demographic factor this study examines is age of alcohol consumption. The age group that was most likely to not use a condom due to alcohol was those who had their first drink between ages 13-16 and those whose first time drunk was between 13-16. Delaying alcohol use by even a few years may be protective (Stueve et al. 2005). The 13-16 age range seems to be when many adolescents are the most impressionable and develop habits that can last them a lifetime.

Another key finding of this study is that binge drinkers are 3.64 times more likely than non-binge drinkers to have condom-less sex while intoxicated, and this was confirmed in the multivariable analysis. As this study shows, having five or more drinks seriously impairs judgement and can lead to risky behavior with negative and possibly lifelong consequences. Literature also supports that greater quantities of drinking in one instance play a more harmful role in the usage of condoms than moderate drinking over extended periods of time (Kalichman et al. 2007).

Problem drinkers were less likely to use a condom while intoxicated, but this was not significant. Problem drinking is different from binge drinking because problem drinking is defined by the CAGE Questionnaire, whereas binge drinking is considered five or more drinks in under two hours, defined by NIAAA. Problem drinkers more frequently used condoms compared to binge drinkers and this could be possible because people are heeding the warnings by being particularly cautious when drinking in sexual situations (Leigh & Miller 1995).

Factors associated with alcohol related condom-less sex also were examined during this study. Those who were educated were also more likely to use condoms during sexual intercourse. Those who completed secondary education were least likely to not use condoms while intoxicated. Prevention programs need to begin even earlier than seventh grade and must address the combined risks of early drinking and sexual experimentation (Stueve et al. 2005).

This study shows that women are at a greater risk than men to not use a condom during sex due to alcohol. Women who were raped were shown to be less likely to use a condom as well. This is concurrent with literature as research has shown that young females remain the most at risk for HIV infection (Blignaut et al. 2015). Sex workers were highly likely to not use a condom due to alcohol, and this was significantly supported by the binary analysis and the multivariate analysis. Sex workers in Kampala have stated that some clients will pay them more to have sex without a condom (Swahn et al. 2014). Promoting condom use during risky sexual behavior has always been a major goal of programs designed to prevent HIV infection and other sexually transmitted diseases (Anderson et al. 1999).

HIV positive youth are more likely than HIV negative youth to not use a condom, which exacerbates HIV transmission. Screening alone is not enough, as it must be paired with approaches for delivering brief interventions in the primary care setting (Meredith et al. 2018). Alcohol still carries many health risks and has been shown to be positively correlated with HIV and other STIs; interventions must be created so people understand the need to curb their problematic alcohol drinking.

5.2 Limitations

Due to this study focusing on youth, the population was difficult to reach, and the collection of this data provides an invaluable insight to an understudied and overlooked population. This was a cross-sectional study design; therefore, the study had limited temporality and causality cannot be determined. Sensitive topics have been discussed in this study, and misclassification may be present and have likely produced an underestimate of the overall and true prevalence of risky behaviors in the population. Self-reporting over the past year and self-reporting about actions due to intoxication are subject to recall bias. This study was conducted via a convenience sample through the survey. Because of this, there was limited generalizability. The literature needs longitudinally designed studies between alcohol use and sexual risks (Culbreth et al. 2018, Swahn et al. 2017, Swahn et al. 2014, Kalichman et al. 2007, Zablotska et al. 2007).

5.3 Implications

Alcohol consumption among youth in Kampala is high, and teenage alcohol use is an important public health matter, especially when coupled with condom use. Interventions to reduce teenage alcohol use have rarely been implemented in sub-Saharan Africa (Weiss et al. 2016). Many studies have not looked at young adults, aged 19-21, who are not in school which implies a greater need for studies and interventions in these groups.

High HIV prevalence among youth is a cause for concern. Establishing and strengthening intervention programs, school-based child protective protocols, professional educations of teachers, and school personnel community prevention programs, and initiatives could help prevent adolescent sexual violence and reduce the sequelae associated with the problem (King et al. 2004). Educating and encouraging the youth to use condoms can decrease HIV prevalence in the community.

It is of the utmost importance to teach youths the dangers of alcohol and the importance of condoms. Disparate levels of knowledge about the meaning of “safe sex” indicate a need for increased sexual health intervention and education (Swahn et al. 2014). While many colleges emphasize the importance of sexual health, for some students it may already been too late. In addition, future HIV prevention interventions geared toward college students may overlook individuals in the same age group who are not attending college (Staton et al. 1999). Targeting HIV prevention to young adults and college students should begin by enhancing HIV awareness efforts with younger school-aged students (Staton et al. 1999). Adolescent alcohol prevention should also be paired with rigorous, consistent STI testing, treatment, and condom promotion among all youths (Khan et al. 2012).

Risky behaviors fueled by alcohol abuse need to be addressed in future studies, and prevention methods need to be made more readily available. Condoms can be made accessible in drinking establishments and clinics with minimal disruption to the environment and can be promoted with simple messages displayed in small medial such as posters and brochures (Kalichman et al. 2007). HIV prevention and alcohol reduction interventions can be integrated into existing counseling services, such as counseling for HIV risk reduction in clinic setting (Kalichman et al. 2007). At an individual level, motivational interviewing has been found to be effective in promoting the reduction in alcohol consumption (Mbonye et al. 2014). More alcohol prevention strategies are needed to delay alcohol use initiation, binge drinking, and encourage condom usage. Reducing alcohol use in youth can benefit the fight against HIV transmission and other alcohol-related harm.

5.4 Conclusion

The youth in the slums of Kampala are often overlooked and underserved, and this study shows that this population has a considerable unmet health need. From a public health perspective teenage alcohol consumption is an important concern, as is condom usage or lack thereof. Interventions need to be tailored to delay alcohol use and increase condom usage; in addition, current programs need to be strengthened. Because alcohol makes up such an important part of the Ugandan culture, the population may be less receptive to policies restricting alcohol use, but by delaying consumption we can curb the detrimental effects of alcohol on the lives of these youths.

Prevention of risky behavior is a public health goal and a key to prevention is education the youth in the slums of Kampala. Most importantly, basic education needs to be accessible for the youth to know their options to better protect themselves. It is our hope that the findings of this study lend support to creating better prevention plans in specific populations among youth in Kampala to restrict alcohol use and encourage condom promotion. Education can help alleviate this unmet health need, and in doing so, the role of alcohol in condom usage and HIV transmission can be reduced.

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Table 1. Characteristics of youth living in the Slums of Kampala who did not use a condom due to alcohol (N=347)

Demographic variables and correlates		Condom was not used n = 175(%)	Condom was used n =172 (%)	Total N=347	Chi-Square Tests, (df), p-value
Problem Drinkers (CAGE > 2)	Yes	86 (25.00)	89 (25.87)	164 (47.67)	0.31, (1), p=.58
	No	78(22.67)	91 (26.45)	180 (52.33)	
Sex	Male	65 (18.73)	90 (25.94)	155 (44.67)	8.09, (1), p=<.005
	Female	110 (31.70)	82 (23.63)	192 (55.33)	
Age of First Drink	<13	20(5.76)	24 (6.92)	44 (12.68)	10.43, (2), p=.005
	13-16	137 (39.48)	110 (31.70)	247 (71.18)	
	>16	18 (5.19)	38 (10.95)	56 (16.14)	
Age of First Time Drunk	<13	11 (3.17)	12 (3.46)	23 (6.63)	13.92, (2), p=<.005
	13-16	120 (34.58)	86 (24.78)	206 (59.37)	
	>16	29 (8.36)	43 (12.39)	72 (20.75)	
Binge Drinker	Yes	145 (42.03)	97 (28.12)	242 (20.14)	27.41, (1), p=<.0001
	No	30 (8.70)	73 (21.16)	103 (29.86)	
Education Level	<Primary	67 (19.48)	56 (16.28)	123 (35.76)	4.27, (2), p=.012
	Completed Primary	42 (12.21)	33 (9.59)	75 (21.80)	
	Completed Secondary	64 (18.60)	82 (23.84)	146 (42.44)	
Rape History	Yes	65(18.73)	31 (8.93)	96 (27.67)	15.85, (1), p=<.0001
	No	110 (31.70)	141 (40.63)	251 (72.33)	
Sex Work	Yes	57 (16.43)	13(3.75)	70 (20.17)	33.70, (1), p=<.0001
	No	118 (34.01)	159 (45.82)	277 (79.83)	
HIV Positive	Yes	31 (9.04)	24 (7.00)	55 (16.03)	0.92, (1), p=0.34
	No	142 (41.40)	146 (42.57)	288(83.97)	
It is ok for a girl to suggest condoms	Agree	132 (38.04)	132 (38.04)	264 (76.08)	0.083, (1), p=0.77
	Don't agree	43 (12.39)	40 (11.53)	83 (23.92)	
Able to refuse sex while intoxicated	Agree	94 (27.09)	114 (32.85)	208 (59.94)	5.70, (1), p=0.017
	Don't agree	81 (23.34)	58 (16.71)	139 (40.06)	
Plan to use condoms	Agree	119 (34.49)	131 (37.97)	250 (72.05)	3.55, (1), p=0.06
	Don't agree	39 (11.30)	56 (16.23)	95 (27.38)	

Table 2. Demographic and correlates associated with alcohol related condom-less sex among youth living in the Slums of Kampala.

Demographic Variables and Correlates		Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Problem Drinkers (CAGE > 2)	Yes	1.13 (0.74- 1.72)	
	No	1.00	
Sex	Female	1.86 (1.21-2.85)	1.41 (.83 - 2.41)
	Male	1.00	
Age of First Drink	<13	1.00	1.00
	13-16	1.50 (0.79 - 2.85)	1.28 (.50-3.23)
	>16	0.57 (0.25 - 1.29)	1.05 (.30-3.67)
Age of First Time Drunk	<13	1.89 (0.68- 5.28)	1.02 (.26-3.98)
	13-16	2.88 (1.47- 5.67)	1.48 (.70-3.11)
	>16	1.39 (0.64 - 3.03)	.80 (.30-2.11)
Binge Drink	Yes	3.64 (2.21 - 5.98)	2.97 (1.71-5.17)
	No	1.00	1.00
Education Level	<Primary	1.00	
	Completed Primary	1.06 (0.60-1.90)	
	Completed Secondary	0.65 (0.40-1.06)	
Rape	Yes	2.69 (1.64-4.41)	1.31 (.71-2.43)
	No	1.00	
Sex Work	Yes	5.91 (3.09 - 11.29)	3.48 (1.62-7.49)
	No	1.00	
HIV Positive	Yes	1.33 (0.74 - 2.37)	
	No	1.00	
It is ok for a girl to suggest condoms	Agree	1.09 (0.66 - 1.76)	
	Don't agree	1.00	
Able to refuse sex while intoxicated	Agree	1.69 (1.10 - 2.61)	1.41 (.87-2.28)
	Don't agree	1.00	
Plan to use condoms	Agree	1.58 (0.98 - 2.55)	
	Don't agree	1.00	