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ALCOHOL CONSUMPTION AS A FACTOR IN GUN OR KNIFE CRIMES IN SOUTH AFRICA

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ABSTRACT

South Africa is one of the top ten alcohol-consuming countries in Africa. The South African government has undertaken multifaceted efforts to regulate alcohol consumption to address violent crime. Despite integrated regulation, the link between alcohol consumption and violent crime remains blurred and unclarified. The paper examines the significance of alcohol consumption in relation to violent crime victimization. The study utilized data obtained from the South African National HIV Prevalence, Incidence and Behaviour Survey, 2012. Descriptive, inferential statistics and a factor analysis were used to measure the association between alcohol consumption and violent crime victimization. About 30% of the respondents had been a victim of violent crime where gun or knife was used in the past 12 months. Respondents indicated that 41.1% of the perpetrators were under the influence of alcohol; whereas 20.9% of the victims were under the influence of alcohol. Respondents who had drinking problems were more likely to be a victim of violent crime than those who did not have drinking problem. Furthermore, respondents who were unemployed were two times more likely than those who were employed to be a victim of violent crime. Young people were two times more likely than older people to be a victim of violent crime by gun or knife. Low level of education was a predictor of gun or knife violent crime victimization. Our findings indicate that alcohol consumption was not a strong factor influencing violent crime but having drinking problem underscored violent crime victimization. Furthermore, effort towards education and reducing unemployment would considerably decrease gun or knife violent crime victimization.

Keywords: Alcohol, gun violence, knife violence, South Africa, crime victimization

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INTRODUCTION

South Africa remains one of the top ten countries that consume alcohol in Sub Saharan Africa. South African drinking population aged 15 years and over consumes 26.9 litres of pure alcohol per capita per year (Ferreira-Borges, Dias, Babor, Esser, & Parry, 2015), which translate to daily average 58.1 grams of pure alcohol. In addition, South Africa has appeared as one of the most lethal violent country by either gun or knife violence in African (World Health Organization, 2014). It was documented that 31.1 murders, and 355.6 assaults with intentions to inflict grievous bodily injury, per 100,000 populations was committed in South Africa between 2012 and 2013 (South African Police, 2013). Between 2017 and 2018, 167 352 counts of assault with the intent to inflict grievous bodily harm were reported in South Africa (South African Police Service, 2018) In 2018, it was estimated that 73,3% of all robberies was perpetrated with weapon such as knives and guns in South Africa (Statistics South Africa, 2018). About 46% of adult South Africans were of the view that violent crime increases by 4,5% which translate to over 1,6 million crimes against individuals the previous year (Statistics South Africa, 2018). Both alcohol use disorders and violent crime constitute significant public health concern for burden of diseases and security in South African society. The tangible financial cost related to harmful alcohol use alone was estimated at R37.9 billion, or 1.6% of the 2009 GDP (Matzopoulos, Truen, Bowman, & Corrigall, 2013).

There is evidence that alcohol use was linked to victims of homicide perpetrated by sharp weapons and firearms. National Injury Mortality Surveillance System (NIMSS) of 323 adolescents, (Swart, Seedat, & Nel, 2015) found that use of alcohol was implicated in 39.3% of homicide victims in city of Johannesburg. Another study on intentional injury among 8445 patients, alcohol was recorded in 72% cases in Cape Town (Schuurman et al., 2015). Alcohol was implicated in murders cases in KwaZulu-Natal, North West and Limpopo provinces of South Africa (South African Police, 2018).

Studies elsewhere showed that alcohol was detected in the blood sample of homicide victims, in São Paulo (Andreuccetti et al., 2009) and Udmurt Republica (Pridemore, 2004). Data from two waves of the Brazilian National Alcohol and Drugs Survey, revealed that alcohol has been implicated even when other substances used were not significant predictor of being a victim of IPV (Ally et al., 2016). Alcohol consumption remains the strongest categorical predictor of intentional injury even when controlling for all other selected variables (Dong, Branas, Richmond, Morrison, & Wiebe, 2017).

The prominences of alcohol in violence perpetration and victimization have been observed in empirical studies. However, National surveys have shown weak association between alcohol consumption and violence. In the meta analyses examining the link between alcohol use and violence victimization, the associations between alcohol related violence perpetration and alcohol related violence victimization were not significant (Duke, Smith, Oberleitner, Westphal, & McKee, 2018). According to Branas, Han, & Wiebe, (2016), there exist instances of alcohol consumption with no evidence of firearm violence despite no abstaining in United States. Pérez-diaz & Huré, (2011) on the other hand asserts that even in

alcohol-aggression relationship violence, perpetrators already had a history of peer aggression acts. Studies have shown that in the interplay of addiction and poverty, alcohol has been distinguished to be playing modifying role in firearms violence (Branas et al., 2016; Burnett, 2002; Norman et al., 2007). These studies concluded that alcohol was not a factor in firearms violence occurrence but have been playing a modifying or contributing role in the acts. In South Africa, interpersonal violence ranks higher than alcohol as a contributor to death and disability (Norman et al., 2007). Furthermore, murder cases attributed to alcohol consumption were minimal compared to other violence causes of death in KwaZulu-Natal, North West and Limpopo provinces of South Africa (South African Police, 2018).

South African government has undertaken multifaceted efforts to regulate alcohol consumption. These interventions have been inspired by the evidence that alcohol consumption has a direct link to violent crime perpetration or victimization (Duke et al., 2018; Kuhns, Exum, Clodfelter, & Bottia, 2014). Although much of the violence have been associated with alcohol use, but the link between alcohol consumption and violent crime remains blurred and unclarified in South African society. For instance, it is historical and very common to address service delivery concerns though violence in South Africa. Burnett, (2002) further emphasised that violence is an integral part and a way of life among poverty-stricken people in South African. Pearson & Sale, (2011) noted rightly that putting criminal acts or crowd disorder on mere alcohol consumption is problematic. They contended that complex interactions between alcohol consumption and structural, situational and individual factors which trigger violence has been overlooked by researchers (Pearson & Sale, 2011).

Scientific nexus of alcohol related firearm violence has not been overtly investigated and audited in the context of alcohol as a modifiable risk factor (Branas et al., 2016) because previous studies overlooked key variables (Ostrowsky, 2018). Drinking is not everyday way of life even for most drinkers in South Africa. Ostrowsky rightly posited that sociodemographic variables closely connect alcohol use to violence behaviour. Hence, risk of violence associated with alcohol have shown variations with age, gender, religion, poverty and ethnicity (Ferreira-Borges et al., 2015; Semahegn & Mengistie, 2015). For instance, a peculiar feature of violent crime perpetration and victimization leading to homicide in developing countries is the role of poverty (Burchfield & Silver, 2013; Graif & Matthews, 2017). Other studies have shown differentiation in gender in alcohol use crime victimization (Bunch, Clay-Warner, & Lei, 2015). These studies suggest that alcohol alone cannot account for all acts of violence. While it is accepted to be rowdy or obnoxious when drinking (Ostrowsky, 2018), it can also produce euphoric state of tranquillity.

Despite the plentiful and growing literature in the recent years, the overall relationship between alcohol use violence and victimization remains limited even in developed countries (Duke et al., 2018). For South Africa in particular, it is not easy to link consumption of alcohol and/or drugs to an offender or victim prior to a crime because such information is not always available in the case dockets (South African Police, 2018). South Africa is one of the developing countries where alcohol consumption is very rife. In addition,

studies of violent crime were abundant as compared to studies of alcohol and violent crime victimization by gun or knife in South Africa. The relationship between alcohol consumption and violent crime victimization by gun or knife presents a major gap in knowledge because of dearth of studies in South Africa. Therefore, the study is important to examine the significance of alcohol consumption in relation to gun or knife violent victimization.

METHOD

The study used South African National HIV Prevalence, Incidence and Behaviour Survey (SABSSM) 2012, which was a cross-sectional population-based household survey. A multi-stage stratified cluster sampling approach was employed to select a total of 15,000 households in which all members of the household were eligible to participate. A total of 42,950 individuals in the valid households were eligible to be interviewed and 38,431 were interviewed, resulting in a participation rate of 89.5%. However, the current study focused on Alcohol consumption and violent crime, in the last 12 months before the survey. Also people below the age of 15 years, individuals with missing information on alcohol use and have not been victim or perpetrator of violent crime where gun or knife was used to threaten or harm a person were excluded from the study, thus yielding the sample size of 1836. The full details of sampling and methodology have been presented elsewhere (Shisana et al., 2014).

Variable description dependent variable

The dependent variable was being a victim of violent crime. In the SABSM/SM, 2012 questionnaire used for data collection, individuals were asked if they have been a victim of violent crime where gun or knife was used to threaten or harm you in the past 12 months. The answer was Yes coded as 1 and 0 if the person has never been a victim of gun or knife violent crime.

Independent variables

The major independent variables were drinking problem and alcohol consumption. Respondents were asked six questions which signify signs of abnormal alcohol consumption or abnormal behaviours due to alcohol consumption on a scale from one (never) five (daily). For example, the respondents were asked "how often do you have (for men) five or more and (for women) four or more drinks in a setting" How often during the past 12 months were you not able to stop drinking once you have started; did you fail to do what was normally expected of you because of drinking; did you need a first drink in the morning to get yourself going after a heavy drinking session; did you feel guilt or remorse after drinking and were you unable to remember what happened the night before because of your drinking. Other independent variables include age, sex, education and employment status.

Statistical Analysis

Data were analysed using descriptive and inferential statistics. Sociodemographic profile of the respondents was summarised using frequency and percentages. Associations between the outcome variables of violent crime victimization and sociodemographic variables were analysed using Pearson chi-square tests. The main predictor was drinking problem which was generated using the

six questions which showed reliability of .81 for Cronbach alpha. The six questions were subjected to factor analysis using principal component method. Factors were extracted if the eigenvalue is equal to or greater than one. Factor analysis was used to examine the interrelationships among problem alcohol consumption and violent crime victimization. The assumption of factor analysis is that underlying abnormal alcohol consumption or abnormal behaviour due to alcohol consumption can explain violent crime victimization. Finally, binary logistic regression models were used to examine the effect of the factor analysed alcohol consumption problem and other independent variables on violent crime victimization. The results were presented as odds ratio and confidence intervals.

Ethical considerations

The survey protocol was approved by the HSRC's Research Ethics Committee (REC: 5/17/11/10) as well as by the Associate Director of Science of the National Centre for HIV and AIDS, Viral Hepatitis, STD and TB Prevention at the USA's Center's for Disease Control and Prevention (CDC) in Atlanta. The HSRC's REC has Federal Wide Assurance (FWA) for the Protection of Human Subjects accreditation with the USA's Department of Health and Human Services (DHHS).

RESULTS

Table 1 below presents the demographic profile of the respondents. It shows that slightly over half were males. More than a quarter were of age 20 to 29 years old, followed by nearly one quarter (23.7%) who was aged 50 years and over. A majority had completed grade 12 or less compared to 16.8% who had attained post-grade 12 qualifications. The proportion unemployed were slightly lower than their employed counterparts. Nearly half (48.7%) have never consumed alcohol. Among those who consume alcohol, more than half reported that they consume about 4 drinks or less. In general, 3 in 10 have been a victim of violent crime where gone or knife was used. Over four-fifth reported that no one has been injured as a result of their alcohol consumption. Seventy-eight percent started that no relative, friends, doctor or health worker had ever suggested cutting down on their alcohol consumption. Two-fifth of the victims of violent crime stated that the perpetrator was under the influence of alcohol whereas 58.9% were sober. Furthermore, less than a quarter of the victims of violent crime indicated that they were under the influence of alcohol when they were attacked.

Table 2 below depicts violent crime victims by selected demographic characteristics. Apart from pattern of alcohol consumption, all the examined sociodemographic characteristics showed significant association with reporting being a victim of gun or knife violence. Compared to the females, males were more likely to be victims of violent crime. In terms of age, 36.3% and 21.0% of victims of violent crime was among those of age group 20 to 29 and 30 to 39 respectively. Reporting victims of violent crimes increase with decreasing level of education. Over half of the unemployed respondents have experienced violent crime compared to 42.2% of employed counterparts. Proportion reporting being victims of violent crime was lowest among those who indicated that they consume 7 or more drinks at a

Table 1. Percentage distribution of respondents by selected demographic characteristics

Characteristics	Frequency (N)	Percentage (%)
Sex		
Male	1005	54.7
Female	831	45.3
Total	1836	100.0
Age		
15-19	219	11.9
20-29	499	27.2
30-39	379	20.7
40-49	303	16.5
50+	435	23.7
Total	1835	100.0
Education		
<Grade 12	741	46.4
Grade 12	589	32.1
Post Grade 12	268	14.6
Total	1598	100.0
Employment status		
Unemployment	808	48.0
Employment	876	52.0
Total	1684	100.0
Number of drink		
1 or 2	319	34.0
3 or 4	273	29.1
5 or 6	184	19.6
7+	161	17.2
Total	937	100.0
Drinking Pattern		
Once a month	545	48.7
2-4 times a month	333	29.8
2-3 times a week	145	13.0
4 or more times a week	96	8.6
Total	1119	100.0
Have been a victim of violent crime where gun or knife was used in the past 12 months		
No	1279	69.7
Yes	557	30.3
Total	1836	100.0
Have you or someone else been injured as a result of your drinking?		
No	956	85.7
Yes	160	14.3
Total	1116	100.0
Has a concerned relative, friend, doctor or other health worker ever suggested that you should cut down on your drinking		
No	870	78.3
Yes, but not in the past 12 months	96	8.6
Yes, during the past 12 months	145	13.1
Total	1111	100.0
Was the person who attacked you under the influence of alcohol? Please think about the most recent instance		
No	319	58.9
Yes	223	41.1
Total	542	100.0
Were you under the influence of alcohol at the time? Please think about the most recent instance		
No	434	79.1
Yes	115	20.9
Total	549	100.0

Table 2. Percentage distribution of respondents who have experienced violent crime by selected demographic characteristics

Characteristics	No % (N)	Yes % (N)	X2; p-value
Sex			16.73; p < 0.001
Male	51.6 (660)	61.9 (345)	
Female	48.4 (619)	38.1 (212)	
Total	69.7 (1279)	30.3 (557)	
Age			28.46; p < 0.001
15-19	10.3 (132)	15.6 (87)	
20-29	23.2 (297)	36.3 (202)	
30-39	20.5 (262)	21.0 (117)	
40-49	18.0 (230)	13.1 (73)	
50+	28.0 (358)	13.8 (11)	
Total	69.7 (1279)	30.3 (556)	
Education			43.88; p < 0.001
< Grade 12	41.6 (462)	57.3 (279)	
Grade 12	38.3 (426)	33.5 (163)	
Post Grade 12	20.1 (223)	9.2 (45)	
Total	69.5 (1111)	30.5 (487)	
Employment status			29.50; p < 0.001
Unemployed	43.5 (503)	57.8 (305)	
Employed	56.5 (653)	42.2 (223)	
Total	68.6 (1156)	31.4 (528)	
Number of drink			31.54; p < 0.001
1-2	38.7 (255)	23.0 (64)	
3-4	29.7 (196)	27.7 (77)	
5-6	16.4 (108)	27.3 (76)	
7+	15.2 (100)	21.9 (61)	
Total	70.3 (659)	29.7 (278)	
Drinking Pattern			2.82; p = 0.421
Once a month	15.4 (122)	13.7 (45)	
2-4 times a month	34.5 (273)	32.0 (105)	
2-3 times a week	28.8 (224)	33.2 (109)	
4 or more times a week	21.7 (172)	21.0 (69)	
Total	70.7 (791)	29.3 (328)	
Have you or someone else been injured as a result of your drinking?			27.20; p < 0.001
No	89.2 (707)	77.1 (249)	
Yes	53.8 (86)	46.3 (74)	
Total	71.1 (793)	28.9 (323)	

setting. Over two-third of those who were victims of violent crime stated that their consumption of alcohol has never resulted in injury to them or other people.

The one-dimensional measure of 6 items signifying having problem of alcohol use among respondents is presented in Table 3. The sample adequacy was ascertain based on Kaiser-Meyer-Olkin measure (KMO) value of 0.86 and sufficiency of variables correlations for PCA was confirmed by Bartlett's test of spherity $\chi 2$ (15) = 1699.00; p <.001. The result shows that the one-dimensional measure of having problem with alcohol use explained 53.0% of the variance with Cronbach α = 0.81. The items related to respondents having problem of alcohol use ranges from 16.0% of in ability to carry out expected duty to 51.8% of binge drinking.

Table 3. One-dimensional measure of alcohol use problem

Factor loadings and communality values for response on drinking problem				
	Factor	**Communalities**	**%**	**N**
Cronbach á = 0.81				
How often during the past 12 months did you need a first drink in the morning to get yourself going after a heavy drinking session?	.775	.601	17.2	946
How often during the past 12 months did you fail to do what was normally expected of you because of drinking?	.769	.591	16.3	947
How often during the past 12 months were you not able to stop drinking once you have started?	.745	.555	18.9	946
How often during the past 12 months did you feel guilt or remorse after drinking?	.718	.516	25.5	947
How often during the past 12 months were you unable to remember what happened the night before because of your drinking	.706	.499	16.5	947
How often do you have (for men) five or more and (for women) four or more?	.649	.421	51.8	946
Eigen value	3.182			
Variance explained (%)	53.03			
Kaiser-Meyer-Olkin test of sample adequacy	0.856			
Bartlet test of sphericity	$\chi 2$ (15) = 1699.00, $p < 0.001$			

Table 4 presents the unadjusted and adjusted odds ratios of violent crime victimization by selected demographic variables. All the unadjusted ORs were significantly associated with violent crime victimization by gun or knife. Adjusted model shows that age, educational level, employment status, and problem of alcohol use were significantly associated with being victim of violent crime by gun or knife. Compared to age group 50 years and over, the age group 20-29 were 2.5 times more likely be victims of gun or knife violent crime. Educational levels revealed that respondents who had less than grade 12 qualifications were 2.7 times more likely than those with post grade 12 qualification to be victims of violent crime. Having grade 12 qualification weakly predicted the probability of being a victim of violent crime with (OR= 1.7; P= 0.052). Probability of being a victim of crime perpetrated by gun or knife was high among unemployed respondents compared to their employed counterparts. Having problem with alcohol (Factor) was 1.2 times as likely as those who did not have to be a victim of violent crime.

DISCUSSION

The thrust of the paper was to put in perspective alcohol consumption and violent crime victimization by the use of gun or knife. The findings suggest a possible link between alcohol use and victimization by gun or knife. Data revealed that 41.1% of the perpetrators were under the influence of alcohol; whereas 20.9% of the victims were under the influence of alcohol at the time of the assault. The result of the study showed alcohol dose dependency association with being a victim of violent crime which is in consonance with previous findings (Pridemore,

Table 4. Odds ratios between violent crime victimization and selected sociodemographic variables

	Unadjusted model		Adjusted model	
	OR	**95% C.I.**	**OR**	**95% C.I.**
Age				
15-19	3.064***	2.125-4.418	1.873	0.941-3.727
20-29	3.162***	2.333-4.287	2.543**	1.482-4.364
30-39	2.076***	1.494-2.885	1.341	0.738-2.440
40-49	1.476*	1.029-2.116	1.102	0.567-2.141
50+	1.000		1.000	
Sex				
Male	1.526***	1.246-1.870	1.312	0.894-1.924
Female	1.000		1.000	
Educational level				
< Grade 12	2.993***	2.102-4.260	2.771***	1.600-4.799
Grade 12	1.896**	1.313-2.739	1.741	0.995-3.049
Post Grade 12	1.000		1.000	
Employment status				
Unemployed	1.776***	1.442-2.187	1.884***	1.296-2.738
Employment	1.000		1.000	
Number of drinks				
1 or 2	1.000		1.000	
3 or 4	1.565*	1.070-2.289	1.080	0.680-1.716
5 or 6	2.804***	1.877-4.189	1.471	0.864-2.505
7+	2.430***	1.597-3.699	1.113	0.632-1.960
Factor	1.452***	1.266-1.664	1.207*	1.004-1.452

*p < 0.05; **p < 0.01; *** p < 0.001. ref= reference category, CI= confidence interval OR = Odds ratio

2016; Swart et al., 2015). However, this association became weak when other factors are put into consideration. This suggests that alcohol use may be playing a modifying role in the whole gamut of gun or knife violent crime victimization. Our findings concurred with the previous report (Branas et al., 2009) which indicated that moderate alcohol consumption may not be a risk factor for violent crime victimization rather heavy drinking. Although Alcohol has been consumed, but the individual may still retain lucid verdict to avoid being victimized by knife or gun. The highlight of the study was that having problem of alcohol underscored being a victim of violent crime perpetrated with gun or knife. A finding that is consistent with earlier reports (Ferreira-Borges et al., 2015; Pridemore, 2016; Swart et al., 2015).

The result is in agreement with previous studies (Bunch et al., 2015; Ferreira-Borges et al., 2015) that documented that people of age 20-29 were prone to be victims of violent crime by gun or knife. The possible explanation for this age group being victims of violent crime could be as a result of nature of company they keep or differential in routine activities

between old and young adults. Young adults often gather in premises such as clubs, shebeens and bar or place where there is absolutely no supervision. The fact that perpetrators of these violent are mostly unknown to the victims may suggest that young people are insensitive to unsafely state of their environment.

In line with prior findings low education level (Semahegn & Mengistie, 2015) was predictive of violent crime victimization. Low level of education often predisposes to a lot of negative experiences either through poor reasoning and or wrong perception of circumstances that endangers life. South Africa has good educational policy that would ensure acquiring educational qualifications which would evict people from susceptibility of violent crime victimization attributed to low educational status.

Findings that unemployed people were more prone to be victim of violent crime is in agreement with previous studies (Burchfield & Silver, 2013; Ferreira-Borges et al., 2015; Graif & Matthews, 2017). This finding is not unexpected, given that there is a moral decay in which violence is acceptable on the ground of ignorance, poverty, xenophobia and race rather than fact. It was documented elsewhere that society accept crime and rape while blaming victims and excusing the behaviour of the offender (Johnson, 2017). Most of the violence orchestrated be it interpersonal or xenophobic is linked to poor socioeconomic status in South Africa society. Unemployment is synonymous to poor socioeconomic status which may heightens individual risk of crime victimization. South African government alleviates poverty through grants on certain conditions and health reasons. However, unemployed individuals may not be beneficiaries of this government scheme where ill health or disability is not recorded. Given the rising level of unemployment, the vulnerability of being victim to violent crime by gun or knife may increase.

Limitation of the study

One of the major limitations of the study is the use of secondary data which is limited in several sociodemographic variables thus restricted a nuanced investigation in relationship of alcohol use to gun or knife victimization. Further investigation should delve into structural, situational and individual factors that influence gun or knife violence victimization. Evidence based on hospital or police documentation was not included in the study. However, strength of the study is the use of a national representative sample which could guide as future violent crime victim surveillance by use of gun and sharp weapon.

CONCLUSION

The study demonstrated that having problem of alcohol promotes gun or knife violence victimization. These findings imply that any attempt to prevent violence due alcohol use must consider restriction of gun and knife in premises where alcohol are used. This intervention may have impact in preventing both perpetration and victimization through gun or knife violence. Furthermore, poor socioeconomic state of individuals poses as intensifying factor to victim of gun or knife violence. The strength of the relationship between unemployment and being a victim of violence suggests anticipation for more financial burden on the government as unemployment continues to rise. Interventions tailored to ensuring basic income earning

employment and obtaining higher level of education may impact positively on reduction of vulnerability to gun or knife victimization. More importantly, having problem of alcohol consumption may need establishment of rehabilitation programme for the affected individual. Effort should further be channelled to assessment and evaluation of mental health of these victims to ensure that they do not constitute instability in communities because of their experiences.

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