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Item Type	Article
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Citation	Alcohol use, sexual relationship power, and unprotected sex among patrons in bars and taverns in rural areas of North West province, South Africa. 2014, 18 (11):2230-9 AIDS Behav
DOI	10.1007/s10461-014-0764-5
Journal	AIDS and behavior
Rights	Archived with thanks to AIDS and behavior
Download date	2024-05-02 10:49:53
Link to Item	http://hdl.handle.net/11288/583903

Alcohol Use, Sexual Relationship Power, and Unprotected Sex Among Patrons in Bars and Taverns in Rural Areas of North West Province, South Africa

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Abstract We examined the relative importance of alcohol consumption and sexual relationship power (SRP) in predicting unprotected sex among 406 bar patrons in North West province, South Africa. We assessed participants' demographic characteristics, alcohol consumption, SRP, and number of unprotected sexual episodes in the past 6 months. In correlational analyses, alcohol consumption was significantly associated with frequency of unprotected sex for both males and females. SRP was significantly associated with frequency of unprotected sex for males and marginally associated for females. In multivariate regression analyses, alcohol consumption was significantly associated with frequency of unprotected sex for both males and females. SRP's association was marginally significant for females and not significant for males. Alcohol consumption is more strongly associated with unprotected sex than is SRP among bar patrons. Combination HIV prevention approaches to curb problem drinking and increase condom accessibility, and regular and effective use are needed in tavern settings. SRP needs further examination among tavern populations.

Keywords Alcohol consumption · Sexual relationship power · Unprotected sex · Bar patrons · South Africa

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Introduction

HIV/AIDS is a devastating health problem, particularly for sub-Saharan Africa (SSA) which is home to over two thirds of all people living with HIV (PLWHA) [1]. The impact of HIV/AIDS extends beyond the quality of life of the infected individual; families are often presented with a financial burden when caring for PLWHA due to on-going care-related expenses and loss of income resulting from a reduced ability of the carer and/or the sick individual to work. Additionally, the demands placed on the health care system in caring for PLWHA often put a strain on countries' economies and their often limited resources [2]. While significant declines in new infections have been reported for the period 2001–2011, SSA accounted for 71 % of new infections globally during the same period [1]. Consistent and effective condom use remains one of the most efficient methods for minimising HIV transmission risk attributable to sexual contact [3], particularly for regions like SSA where the majority of infections are through heterosexual contact [1]. Numerous HIV prevention campaigns have thus focused on promoting condom use and free distribution of condoms as an attempt to curb HIV infection rates [4]. The persistent high HIV prevalence and incidence rates, however, demonstrate that much still remains to be done to dissuade people from engaging in unprotected sex. Determining the factors that contribute to non- or inconsistent condom use is paramount in order to inform interventions that are aimed at promoting condom use. Sexual relationship power (SRP) and problem drinking have been identified as key predictors of unprotected sex [5, 6]. However, the relative importance of these predictors, particularly among a tavern-going population, is yet to be determined. This is important for identifying the most appropriate focus areas for interventions among this population.

Alcohol serving environments, such as taverns and bars, are often places where sexual relationships are initiated and present various dynamics that enable the occurrence of risky sexual behaviours [5, 7, 8]. Specifically, unavailability or inaccessibility of condoms, availability of locations for sex, and sexual networks involving non-regular partners have been identified as factors that may facilitate risky sexual behaviours in drinking establishments [8, 9].

Gender-based inequalities are theorised to result in unequal SRP. Men generally have relatively more power than women in sexual relationships [10, 11]. For a man to have SRP means he is able to influence decisions regarding sex and condom use more than his female sexual partner [10, 11]. Men who have high SRP also tend to subscribe to gender inequitable views which often facilitate men's engagement in high risk sexual behaviours such as multiple sexual relationships and unprotected sex [12]. On the other hand, women have minimal or a lack of control in sexual relationships, which often manifests in their inability to negotiate condom use or refuse unwanted sex, among other challenges [11, 12], and consequently in engagement in more unprotected sexual acts. Given this background, the association between SRP and unprotected sex is likely to be positive among men and negative among women.

The SRP construct has been widely applied to explain unsafe sexual practices among women [11]. Indeed, numerous studies have found a positive association between SRP and condom use among women [6, 11, 13–15]. For example, Pulerwitz et al. [11] found that women who reported high SRP were more likely to report consistent condom use, then those who reported medium and low SRP, respectively.

It is noteworthy, however, that some studies have found a negative association between SRP and condom use [16]. Harrison et al. [16] found that higher SRP was negatively associated with consistent condom use among their female participants. The authors postulated that women with high SRP may possibly select sexually safer relationships and thus use condoms less frequently than their counterparts with low SRP.

Finally, some studies have failed to yield a significant association between SRP and condom use among women [17, 18]. These include a study among women in substance abuse treatment [17], and a study among young Asian-American women [18].

The construct of SRP has also been applied in research among men. A few studies have found a positive association between SRP and frequent condom use [19]. However, this study concerned participants' power in casual sexual relationships. It is possible that men engage in frequent condom use in sexual relationships that they perceive to be risky. Other studies, however, have found a non-significant association between SRP and condom use [16, 20]. For example, in their study among young rural South African women and men, mentioned above, Harrison et al. [16] found no significant association between "power in relationships" and condom use with both primary and secondary partners among the male participants. The reasons for these findings need further explanation.

In addition to SRP, drinking contexts and consumption of alcohol appear to present other dimensions of power imbalances that introduce risky sexual encounters, such as transactional sex, and physical and sexual violence [21, 22]. In transactional sexual relations in drinking contexts, alcohol is generally traded for sex, and the 'paying' (usually male) partner typically determines the conditions for sex, leaving women with little or no power to refuse sex or negotiate condom use [22]. Alcohol intoxication among women may often put them at further risk of being victimised as they potentially become easy targets for those who intend to engage in sex with them [21]. Moreover, alcohol intoxication among men can enhance gender inequitable beliefs regarding dominance and control of women which can lead to men's perpetration of physical and sexual violence [21].

Parallel to providing opportunities for risky sexual encounters, alcohol drinking contexts are also places where people tend to drink at hazardous levels [7, 8]. Alcohol consumption can impact on condom use through various mechanisms. First, high levels of consumption can affect cognitions related to decision-making and judgement and thereby interfere with individuals' risk perceptions and perceived need for protective behaviours [21]. Second, individuals' alcohol expectancies, such as their beliefs that alcohol can enhance sexual desire and sexual pleasure, can undermine their perceived self-efficacy to engage in protective behaviours [23]. Last, intoxication can result in psycho-motor impairment that can directly interfere with the action of putting on a condom [24].

Various studies have found a positive association between alcohol use and unprotected sex [24–26]. For example, in a study among high risk men in South Africa, Townsend et al. [24] found that problem drinkers were more likely than non-problems drinkers to not use condoms or to use them inconsistently, with both their main and casual partners. However, some studies have revealed a negative association between alcohol use and unprotected sex [27, 28]. Fisher et al.'s [27] study among high risk women in Tanzania found that the problem drinkers were less likely than the non-problem drinkers to have not used condoms at last sex. This unexpected negative association has generally been found among "high risk" populations, such as hazardous drinkers [29]. Finally, a minority of studies have revealed a non-significant association between alcohol consumption and unprotected sex among various populations [30–32]. These have included studies of university students [30], women in general populations [31],

and male and female STI clinic attendees [32], among others.

Sexual risk behaviour is closely tied to SRP and alcohol consumption within the tavern setting [9, 22] and this suggests the great extent to which SRP and alcohol consumption can predict condom use among a tavern going population. Researchers within the gender field and the alcohol field have identified gender constructs (sexual relationship power) and alcohol constructs (harmful use of alcohol), respectively, as key determinants of unprotected sex. However, these two predictors are rarely examined in the same study. Consequently, the aim of this study was to determine the relative importance of alcohol consumption and SRP in predicting unprotected sex among male and female bar patrons in four bars, in two rural villages in North West province, South Africa.

Methods

Study Design and Participants

The study was conducted in two rural villages of the Bojanala Platinum district, the largest municipality in the North West province with approximately 37.6 % of the province's total population. Black African people make up a large majority (93 %) of the population [33]. Approximately 40 % of the district municipality population is unemployed while over a third lives in poverty [34].

The study employed a cross-sectional design. Recruitment of participants entailed two stages. Firstly, using a purposive sampling approach, four licenced drinking venues were selected using the following criteria: having (a) at least 30 patrons on a normal weekday; (b) at least 25 % of the patrons as female; and (c) a relatively stable clientele over time. Bar patrons were then systematically recruited from the selected bars; every third person to cross a predetermined intercept zone was approached to take part in the study. To be included in the study, the approached patrons had to be at least 18 years old, visit the bar at least once a month, and not be intoxicated at the time of the interview.

Measures

An interviewer-administered structured questionnaire was used to assess participants' demographic characteristics, alcohol use, SRP and condom use in the past 6 months. The demographic factors assessed were participants' age, gender, educational level, marital status, and employment status. Alcohol use was assessed with the ten-item alcohol use disorders identification test (AUDIT; $\alpha = 0.79$) [35]. The AUDIT assesses frequency and quantity of alcohol consumption with scores ranging from 0 to 40. Problem drinking is indicated by a score of 8 or above.

Sexual relationship power was assessed with a modified 17 item version of the sexual relationship power scale (SRPS), which is composed of two subscales, viz. the fourteen-item relationship control ($\alpha = 0.78$) and three-item decision-making dominance ($\alpha = 0.53$) sub-scales [11, 13]. The decision-making dominance sub-scale was excluded from the analysis as the Cronbach alpha was too low. The items of the relationship control sub-scale are scored on a 4-point Likert scale ranging from $1 =$ strongly agree to $4 =$ strongly disagree. High scores indicate greater control in sexual relationships and low scores indicate less control. The SRPS measure was administered to all participants; however participants were instructed to respond about their main partners. Analyses were restricted to those who reported having had at least one partner. Given that the outcome variable of interest was unprotected sex, we excluded the relationship control sub-scale's three condom-related items from the scale used in the analysis [11]. Scores on each of the 11 items were summed to calculate the total score of the subscale. (See Table 1 for a complete list of the 11 items of the relationship control measure).

Number of unprotected sexual episodes in the past 6 months, the outcome variable, was assessed with participants' reports on the following in the past 6 months: (a) the number of people they had had sex with (maximum of 10 partners), (b) the number of times they had had sex with each partner, and (c) the number of times they had used condoms with each partner. Participants' number of unprotected sexual episodes was determined by a sum of the differences between participants' number of sexual episodes and number of 'protected' sexual episodes (i.e. used condoms) with each partner. Participants who reported no sexual partners in the past 6 months were assigned a score of zero on the outcome variable (i.e. 0 episodes of sex minus 0 protected episodes).

The questionnaires were in both English and Setswana and the interviews were held in either preferred language of the participants. Only one participant preferred to be interviewed in Setswana.

Procedure

Permission to conduct the study at the selected drinking venues was obtained from the taverns' managers and/or owners. Fieldworkers visited the taverns during peak drinking periods (Friday evenings, Saturdays and Sundays) to conduct face-to-face interviews with patrons. Tavern patrons who were approached to participate were informed about the aims of the study. Informed consent was obtained from eligible and willing patrons, and they were then

Table 1 Breakdown of relationship control subscale items and frequency of responses among males and females

	Males				Females			
	Strongly agree N (%)	Agree N (%)	Disagree N (%)	Strongly disagree N (%)	Strongly agree N (%)	Agree N (%)	Disagree N (%)	Strongly disagree N (%)
1. Your partner won't let you wear certain things	17 (5.8)	79 (27.0)	147 (50.2)	50 (17.0)	2 (2.3)	25 (28.7)	50 (57.5)	10 (11.5)
2. When your partner and you are together, you are pretty quiet	6 (2.0)	39 (13.2)	172 (58.4)	78 (26.4)	1 (1.2)	13 (14.9)	57 (65.5)	16 (18.4)
3. Your partner has more say than you do about important decisions that affect the two of you	19 (6.4)	70 (23.7)	163 (55.3)	43 (14.7)	5 (5.8)	16 (18.4)	53 (60.9)	13 (14.9)
4. Your partner tells you who you can spend time with	17 (5.8)	71 (24.3)	156 (53.2)	49 (16.7)	5 (5.8)	16 (24.1)	53 (54.0)	13 (16.1)
5. You feel trapped or stuck in your relationship	13 (4.6)	27 (9.3)	189 (65.4)	60 (20.8)	2 (2.3)	12 (14.5)	57 (68.7)	12 (14.5)
6. Your partner does what he/she wants, even if you do not want him/her to	13 (4.7)	64 (22.5)	164 (57.7)	43 (15.1)	1 (1.2)	24 (29.6)	46 (56.8)	10 (12.4)
7. You are more committed to your relationship than your partner is	23 (8.0)	96 (33.5)	128 (44.6)	40 (13.9)	3 (3.5)	29 (33.7)	46 (53.5)	8 (9.3)
8. When your partner and you disagree, he/she gets his/her way most of the time	20 (6.9)	84 (29.0)	150 (51.7)	36 (12.4)	1 (1.2)	26 (30.6)	50 (58.8)	8 (9.4)
9. Your partner always wants to know where you are	48 (16.5)	156 (53.6)	69 (23.7)	18 (6.2)	11 (12.9)	49 (57.7)	17 (20.0)	8 (9.4)
10. Your partner might be having sex with someone else	12 (4.8)	42 (16.8)	145 (58.0)	51 (20.4)	2 (3.3)	16 (26.7)	32 (53.3)	10 (16.7)
11. Because your partner buys you things you want to please him/her	15 (5.1)	93 (31.9)	141 (48.3)	43 (14.7)	3 (3.6)	15 (17.4)	58 (67.4)	10 (11.6)

interviewed by the fieldworkers in quiet places in and around the bars, which were out of hearing range of other people, including the front verandah or in the garden. At the end of the interview the participants were given a t-shirt and a resource list with information and contact details of counselling and treatment services that deal with issues of alcohol abuse and sexual risk behaviour in each area.

Analyses

Data analysis was performed using SPSS Version 21. Descriptive analyses of the sociodemographic, alcohol use, and SRP variables were conducted. Correlational analyses were performed to examine associations among and between the independent variables and the dependant variable. Next, associations between the dependent variable (i.e. number of unprotected sexual episodes in the past 6 months) and independent variables (i.e. age in years, educational level, relationship status, employment status, AUDIT, relationship control) were conducted using standard multiple regression analysis. The outcome variable was log transformed (as it was substantially positively skewed [36]) prior to being entered into the correlational and regression analyses. The categorical independent variables (educational level, relationship status, and

employment status) were dummy coded prior to being entered into the correlational and regression analyses. Separate analyses were conducted for males and females.

The research was approved by the Ethics Committee of the Medical Research Council (Protocol number EC 10-13) and the Centers for Disease Control and Prevention.

Results

Sample Characteristics

A total of 406 participants completed the questionnaire, of whom 314 (77.3 %) were males and 92 (22.6 %) were females. The participants' mean age was 31.0 years (SD = 9.93) for the total sample, and 31.7 years (SD = 8.93) and 27.6 years (SD = 5.97) for the males and females, respectively. Table 2 shows the characteristics of the sample in terms of their sociodemographic characteristics, extent of alcohol use, and SRP, for the whole sample and stratified by gender. As shown in the table, the majority of the sample had grade 12 or less education, were employed, and single.

Of the total sample, 75 % were "problem drinkers" on the basis of their AUDIT score of 8 or above. More males

Table 2 Characteristics of the sample regarding their sociodemographics, alcohol consumption, and sexual relationship power

Variables	Total sample N (%)	Male (N = 314) N (%)	Female (N = 92) N (%)
Age			
18–24	112 (27.6)	78 (24.8)	34 (37.0)
25–29	105 (25.9)	88 (28.0)	17 (18.5)
30–34	90 (22.2)	60 (19.1)	30 (32.6)
>34	99 (24.4)	88 (28.0)	11 (12.0)
Education			
≤Grade 12	289 (71.5)	227 (72.5)	62 (68.1)
>Grade 12	115 (28.5)	86 (27.5)	29 (31.9)
Relationship status			
Single	297 (73.2)	221 (70.4)	76 (82.6)
Non-single[a]	109 (26.8)	93 (29.6)	16 (17.4)
Employment status			
Employed	229 (56.5)	207 (66.1)	22 (23.9)
Unemployed	176 (43.5)	106 (33.9)	70 (76.1)
Alcohol use (AUDIT)			
Problem drinking[b]	305 (75.1)	252 (80.3)	53 (57.6)
Low-risk drinking[c]	101 (24.9)	62 (19.7)	39 (42.4)
Relationship power control			
Low	54 (14.1)	37 (12.5)	17 (19.8)
Medium	209 (54.7)	167 (56.4)	42 (48.8)
High	119 (31.2)	92 (31.1)	27 (31.4)

[a] Non-single category includes: married, cohabiting, separated, divorced, and widowed

[b] AUDIT score ≥8

[c] AUDIT score <8

(80 %) than females (58 %) were "problem drinkers". On the SRPS, 14, 55, and 31 % of the total sample were within the low, medium, and high levels of power, respectively. No differences were observed between males and females on the SRPS. Further examination (see Table 1) of males' and females' responses to the relationship control items revealed generally similar patterns with the exception of items 10 and 11.

Table 3 shows a breakdown of participants' sexual behaviour by gender. As can be seen from the table, males and females typically reported having had sex with only one partner. However, the highest number of sexual partners that was reported was four for females and ten for males. Patterns in frequency of engagement in sex and use of condoms did not seem to differ between males and females.

Correlations between the independent variables and the dependent variable are presented in Table 4 and Table 5 for the males and females, respectively. For the males,

relationship status (r = 0.23), employment status (r = 0.14), alcohol consumption (r = 0.22), and relationship control (r = −0.10) were significantly associated with unprotected sex. Age and education were not significant.

For the females, age (r = 0.23), education (r = −0.30), and alcohol consumption (r = 0.36) were significantly associated with unprotected sex. The relationship between unprotected sexual episodes and sexual relationship power was marginally significant, while relationship status and employment status were not significant.

The results of the linear multiple regression analyses for the males and females can be seen in Table 6. For the male participants, the model explained 11 % of the variance in frequency of unprotected sex in the past 6 months (adjusted $R^2 = 0.107$; $p < 0.0001$). Alcohol consumption ($\beta = 0.21$), relationship status ($\beta = 0.28$), and employment status ($\beta = 0.14$) were significantly associated with frequency of unprotected sex in the past 6 months. The association of age with frequency of unprotected sex in the past 6 months was marginally significant while SRP and education were not significant. For the female participants, the model explained 21 % of the variance in frequency of unprotected sex in the past 6 months (adjusted $R^2 = 0.211$; $p = 0.001$). Alcohol consumption ($\beta = 0.29$) and education ($\beta = -0.31$) were significantly associated with frequency of unprotected sex in the past 6 months. The associations of SRP and employment status with frequency of unprotected sex in the past 6 months were marginally significant. The associations of age and relationship status with frequency of unprotected sex in the past 6 months were not significant.

Discussion

The aim of this study was to determine the relative importance of alcohol consumption and SRP in predicting unprotected sex among bar patrons in four bars, in two rural villages in North West province, South Africa. Four-fifths (80.3 %) of the male and over half (57.6 %) of the female participants consumed alcohol at harmful levels. These rates were very high compared to those of general population samples from the same province reported by Peltzer et al. [37] of 20.6 and 3.3 % for males and females, respectively. However, this is not surprising considering that this study concerned a tavern-going population (i.e. regular tavern attendees), most of whom are likely to be alcohol drinkers, while Peltzer et al.'s study concerned a community population, which was more likely to have included non-drinkers.

It was surprising, however, that there was no difference between the strength nor the pattern of responses to the SRP measure. In gender inequitable societies such as South

Table 3 Descriptive statistics on participants' sexual behaviour characteristics by gender in the past 6 months

Number of people had sex with			Number of times had sex with partner								Number of times used condoms with partner							
Males	Females		Males (N = 295)				Females (N = 84)				Males (N = 295)				Females (N = 84)			
Median (Range)	Median (Range)		N	Me[b]	Mo[c]	Range	N	Me[b]	Mo[c]	Range	N	Me[b]	Mo[c]	Range	N	Me[b]	Mo[c]	Range
1 (0–10)	1 (0–4)	[a]P1	276	20	3	1–630	79	23	2	1–224	276	4	0	0–140	79	5	0	0–168
		P2	140	6	2	0–500	30	5	4	1–168	140	4	0	0–500	30	3.5	0	0–42
		P3	86	4.5	3	0–406	7	3	1	1–21	86	3	0	0–130	7	1	1	0–15
		P4	49	6	3	1–140	2	8	1	1–15	49	3	0	0–140	2	3	1	1–5
		P5	33	6	1	1–50	0	–		–	33	4	1	0–28	0	–		–
		P6	22	4	2	1–210	0	–		–	22	2	2	0–46	0	–		–
		P7	13	4	4	1–55	0	–		–	13	4	4	0–55	0	–		–
		P8	7	4	1	1–25	0	–		–	8	1.5	0	0–25	0	–		–
		P9	3	2	1	1–4	0	–		–	3	2	1	1–4	0	–		–
		P10	3	2	1	2–6	0	–		–	3	2	2	2–6	0	–		–

[a] P = partner

[b] Median

[c] Mode

Table 4 Correlation matrix of predictors and frequency of unprotected sex among males (N = 314)

	1	2	3	4	5	6	7
1. Age	–	0.09[#]	0.48***	0.19***	−0.06	−0.06	0.03
2. Education[a]		–	0.10*	0.14**	−0.13*	0.13*	−0.01
3. Relationship status[b]			–	0.11*	−0.03	−0.07	0.23***
4. Employment status[c]				–	0.01	−0.02	0.14**
5. AUDIT					–	−0.25***	0.22***
6. SRP						–	−0.10*
7. Unprotected sex							–

[#] $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

[a] Education: 1 ≥ grade 12; 0 ≤ grade 12

[b] Relationship status: 1 = non-single (i.e. married, cohabiting, divorced, widowed, or separated); 0 = single

[c] Employment status: 1 = employed; 0 = unemployed

Africa one would expect lower power among women than men [10]. However, previous studies indicate that it is not uncommon for women to report high SRP. For example, Pettifor et al.'s [14] study among young women in South Africa found that those who reported low SRP were in the minority (27 %) compared to those who reported high SRP (73 %). Similarly, it is possible for a sizeable proportion of men to report low SRP as per Magee et al.'s [20] findings that just over half of men (55 %) had low SRP and just under half (45 %) had high SRP in their study among Haitian expectant fathers. Furthermore, it is conceivable that women who go to taverns are more "empowered" than non-tavern going women given that in going to taverns

they are not conforming to dominant societal expectations of women.

Our findings indicate that alcohol consumption is a more important predictor of frequency of unprotected sex than SRP among this tavern-going sample. Alcohol consumption was a significant predictor in both the male and the female multivariate models predicting frequency of unprotected sexual episodes, while SRP was not significant in the male model and only reached marginal significance in the female model. The marginally significant association between SRP and unprotected sex for the women may be due to lack of statistical power given the relatively small sample size. The null finding between SRP and unprotected

Table 5 Correlation matrix of predictors and frequency of unprotected sex among females (N = 92)

	1	2	3	4	5	6	7
1. Age	–	−0.06[#]	0.39***	0.27**	0.22*	−0.12	0.23*
2. Education[a]		–	−0.07[#]	0.24*	−0.18*	0.07	−0.30**
3. Relationship status[b]			–	0.01	−0.07	0.06	0.11
4. Employment status[c]				–	−0.10	0.19*	0.08
5. AUDIT					–	−0.15[#]	0.36***
6. SRP						–	−0.18[#]
7. Unprotected sex							–

[#] $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

[a] Education: 1 ≥ grade 12; 0 ≤ grade 12

[b] Relationship status: 1 = non-single (i.e. married, cohabiting, divorced, widowed, or separated); 0 = single

[c] Employment status: 1 = employed; 0 = unemployed

Table 6 Predictors of frequency of unprotected sex in the past 6 months for males and females

Predictors	Males (N = 271)						Females (N = 79)					
	β	t	sr^2	R^2	Adj. R^2	$F_{(6, 265)}$	β	t	sr^2	R^2	Adj. R^2	$F_{(6, 73)}$
Age	−0.12	−1.84[#]	0.01	0.13	0.11	6.41***	0.02	0.17	0.00	0.27	0.21	4.52***
Education[a]	−0.01	−0.24	0.00				−0.31	−2.91**	0.08			
Relationship status[b]	0.28	4.21***	0.06				0.11	0.96	0.01			
Employment status[c]	0.14	2.32*	0.02				0.22	1.94[#]	0.04			
AUDIT	0.21	3.43***	0.04				0.29	2.73**	0.07			
SRP	−0.03	−0.55	0.00				−0.21	−1.96[#]	0.04			

[#] $p \leq 0.10$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

[a] Education: 1 ≥ grade 12; 0 ≤ grade 12

[b] Relationship status: 1 = non-single (i.e. married, cohabiting, divorced, widowed, or separated); 0 = single

[c] Employment status: 1 = employed; 0 = unemployed

sex for the males is consistent with those reported in previous studies among male samples [16, 20]. Alternatively, these findings among males may suggest that the association between SRP and frequency of unprotected sex is mediated by alcohol consumption (which is associated with SRP) since alcohol consumption remained significant, while SRP was no longer significant, when both were in the multivariate analyses.

Interestingly (although not significant), the association between SRP and unprotected sex was negative for both males and females. Although unexpected, the finding for males is consistent with Bruhin et al.'s findings [19]. The negative association between SRP and unprotected sex among males may be an indication that the assumption that men are often prepared to engage in unprotected sex is flawed. Indeed, it is plausible that men's intentions to use condoms in sexual relationships may vary according to the types of partners (casual vs. steady) whom they engage in sex with, their knowledge about HIV, and their perception of HIV risk, among other factors.

The finding that alcohol consumption is an independent predictor of unprotected sex concurs with findings of various previous studies [24–26]. They indicate that the more involved in alcohol use the greater the number of unprotected sexual episodes among tavern-going patrons. It could be that the psychogenic effects of alcohol interfere with individuals' risk perceptions and self-efficacy beliefs thereby preventing them from ensuring condom use. For women, it may also be that intoxication renders them vulnerable to sexual coercion [21], and heavier drinkers may be more inclined to engage in transactional sex, which tends to involve the non-use of condoms [22].

We also found that a non-single status (i.e. being married, cohabiting, divorced, widowed, or separated) was a risk factor for increased number of unprotected sexual episodes for the male participants. Previous research suggests that it is not uncommon for condoms to be used less frequently in stable partnerships (such as married or cohabiting partners) than with casual partners [4]. Studies have found that the infrequent use of condoms in stable

relationships is partly due to expectations of monogamy, which in turn invalidate the use of condoms [4, 38].

Additionally, among women, those with higher education had engaged in fewer episodes of unprotected sex. This finding is consistent with the notion that higher education plays a significant role in the uptake and acceptability of condom use, particularly among women [4]. It could be that women with higher education have better access to health information and enhanced cognitive skills that aid with risk appraisal. Furthermore, higher education empowers women and possibly accords women independence which in turn puts them in a better position to negotiate condom use.

For both men and women (marginally significant for the latter), those who were employed had engaged in more episodes of unprotected sex. The finding for men is consistent with the notion that men are more likely to persuade their partners to engage in risk-taking behaviour such as unprotected sex when they have economic power in the sexual relationship [10, 12]. In contrast, however, the finding for women is unexpected as lack of economic power has been implicated in women's vulnerability to gender inequality and consequent unsafe sexual practices in sexual relationships [12]. Our finding seems to support the view that women's vulnerability to HIV may also be a function of women's sexual agency and a preference for non-use of condoms rather than men's sexual power [39].

The findings of the study should be interpreted bearing in mind its limitations. First, the cross-sectional design of the study prevents one from determining the direction of the associations or whether they were causative. Second, it is possible that the self-reporting of alcohol consumption and sexual behaviour yielded unreliable information due to (a) the sensitive nature of these behaviours and participants' potential uneasiness about being overheard or watched by others during the interview; and (b) recall or fatigue bias due to the need for participants to think back to 6 months prior to the interview when reporting on their condom use. Third, the relatively low number of women in the sample might have limited our ability to reveal significant findings where they may indeed exist. The fewer females in the study reflected the male to female ratio of approximately 3:1 of the wider tavern populations which we observed during the formative study as well as the purposive sampling technique. Fourth, while the SRP measure is limited to main partners, the unprotected sex variable did not distinguish between partner types. However, when we reanalysed the data to consider participants' unprotected sex with main partners only (i.e. spouse or steady/permanent; results not shown), there was still no indication of a significant association between SRP and frequency of unprotected sex. Last, the generalizability and internal validity of our findings are limited given our use of a purposive sampling approach. Despite the study's limitations, these findings have much to contribute to knowledge regarding the associations between SRP, alcohol use and unprotected sex among populations of men and women who frequent drinking venues in South Africa.

This study offers a few recommendations for policy and interventions. First, tavern-based interventions that focus on reducing levels of alcohol consumption are recommended given our findings that bar patrons drink at high levels and that problem drinking is a risk factor for engaging in unprotected sex. Second, our main results as well as our findings that relationship status, education, and employment status were independently associated with unprotected sex, point to a need for combination, multi-level HIV prevention approaches in tavern settings. Such approaches should target high rates of alcohol consumption, sexual risk behaviour, and other risk factors, at both individual and structural levels [40].

At an individual level, interventions to curb patrons' high levels of drinking could include brief interventions for those at lower levels of risk and alcohol rehabilitation services should be readily available for those who need them. Brief interventions could also address individuals' perceptions of invulnerability to HIV with the goal being to increase their engagement in protective behaviours [41].

At a structural level, policies regarding responsible alcohol serving (e.g. not serving to intoxicated patrons) should be enforced. Appropriate training on policies and responsible alcohol serving should be provided for tavern owners, managers, and servers. Policies for alcohol serving establishments should also comprise promotion of protective sexual behaviours. For example, given the unplanned and often spontaneous nature of alcohol-related sex that may be initiated in bars, such policies could focus on ensuring consistent availability and accessibility of male and female condoms so that a lack of availability is not a reason for non-use of condoms. Indeed, our formative study indicated that condoms were often either unavailable or difficult to access (e.g. placed at indiscreet places such as the bar counter) in tavern settings. Moreover, women's risk of unprotected sex may further be addressed by promoting female condoms and regularly demonstrating the mechanics of their use. Our formative study further indicated that female condoms were quite unpopular among women due to limited knowledge of their use. However, these condoms may be more viable than male condoms as they can be inserted hours before sexual intercourse takes place, and hence are less susceptible to cognitive and psychomotor impairment that may result from intoxication. Finally, HIV prevention may be promoted through deployment of peer educators or popular opinion leaders to spread HIV prevention messages within tavern settings [41, 42].

This study also offers some recommendations for future research studies. First, the non-significant, and marginally significant, association between SRP and unprotected sex among men and women, respectively, needs further examination. Further analyses to examine alcohol consumption as a potential mediator between SRP and unprotected sex are needed. Second, studies should examine the potential interrelationships between alcohol consumption and other power imbalances (such as engagement in transactional sex and sexual coercion) in predicting unprotected sex.

Third, considering that SRP and condom use behaviour may differ depending on partner type (e.g. main vs. casual partner) [4, 38, 43], future studies should examine both SRP and unprotected sex by partner type. Furthermore, we propose that the measure of SRP that currently concerns main partners should be expanded to include other partner types.

Lastly, this study considered condom use as a positive outcome without identifying whether condoms were used effectively. For a tavern-going sample in particular, ineffective condom use is an important risk behaviour to consider as it can often result from impaired psychomotor functioning as a result of intoxication [8, 22]. Future studies would do well to examine the association between alcohol use, SRP, and the extent of correct and effective condom use.

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