

Do sexual expectancies and inhibitions predict high-risk sexual behaviours? Evidence from a cross-sectional survey among young psychoactive substance users in the informal settlements of Kampala, Uganda

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Abstract

Background

The use of psychoactive substances is a public health challenge among young people in informal settlements. Though rarely examined, the use of psychoactive substances is linked to sexual expectancies and inhibitions, and consequently high-risk sexual behaviours. This study examined the association between sexual expectancies and inhibitions on high-risk sexual behaviours among young psychoactive substance users (PSU) in the informal settlements of Kampala, Uganda.

Methods

This cross-sectional study recruited 744 young PSU in the informal settlements of Kampala. Data were analysed using Stata 14 software. A 'modified' Poisson regression model was used for inferential statistics.

Results

Of the 744 study participants, 45.6% believed that psychoactive substance use improves sexual performance; 43.3% believed that psychoactive substances make sex more pleasurable; while more than half (53.3%) believed that psychoactive substances give courage or confidence to approach a partner for sex.

The belief that psychoactive substance use improves sexual performance (PR 1.14, 95% CI: 1.01-1.30), increases the likelihood of engaging in sex (PR 1.20, 95% CI: 1.04-1.40) or gives courage or confidence to approach a sexual partner (PR 1.21, 95% CI: 1.05-1.39) were positively associated with ever having sex while under the influence of psychoactive substances. The belief that a psychoactive substance user, under the influence of psychoactive substances is more likely to engage in sex (PR 1.48, 95% CI: 1.15-1.90), and likely to find it difficult to refuse sex (PR 1.28, 95% CI: 1.06-1.55) were positively associated with engaging in multiple sexual partnerships. The belief that one easily forgets to use a condom when under the influence of psychoactive substances, was positively associated with inconsistent condom use (PR 1.26, 95% CI: 1.09-1.45).

Conclusion

Psychoactive substance use expectancies such as the belief that psychoactive substances improve sexual performance, and give courage or confidence to approach a sexual partner, and inhibitions such as an increased likelihood of engaging in sexual intercourse, finding difficulties in refusing to engage in sexual intercourse, and forgetting to use condoms while intoxicated predicted high-risk sexual behaviours among young PSU. Therefore, it is essential to implement sexual and reproductive health and risk reduction interventions targeting young PSU in informal settlements.

Background

Psychoactive substance use is a risk factor for high-risk sexual behaviours such as multiple sexual partnerships and unprotected sexual intercourse (1–4). The theoretical point of departure in this study is enshrined in alcohol myopia, cognitive escape, and expectancy theories. These theories provide the basis for discussions on how the use of psychoactive substances influences the users' perceptions and actions (5, 6).

Users of psychoactive substances often have the perception that they will provide them with benefits that no other substance can. According to the expectancy theory, users suppose that psychoactive substances will reduce sexual inhibition, such as lack of confidence to approach sexual partners, and on the other hand, enhance benefits such as sexual pleasure, arousal, and performance (7–10). Such expectancies often drive the desire to engage in high-risk sexual behaviours. Generally, a reduction in sexual inhibition and an increase in expected sexual benefits make sexual life among such users more risky (7).

Emerging evidence indicates that users of psychoactive substances perceive them to be associated with increasing sexual arousal, delaying premature ejaculation, and prolonging sexual intercourse (8). Such perceptions are often driven by cultural beliefs that portray good sex to be long and penetrative (8). In a society where having a sexual partner is necessary to show that someone is normal, the use of psychoactive substances has been key in stimulating erections and boosting the confidence of young people to initiate sexual relationships or even engage in sexual intercourse (8).

High-risk sexual behaviours can be viewed from the perspective of impaired cognition, which can be explained by alcohol myopia and cognitive escape theories. Based on the cognitive escape theory, individuals may opt to use certain substances to escape the self-known implications of high-risk sexual behaviours (11). Similarly, the alcohol myopia theory points out that the use of psychoactive substances such as alcohol often alters perceptions, mood and decision making (5, 12). Therefore, psychoactive substances are often used to disengage the mental processes related to the prevention of negative consequences of high-risk sexual behaviour (12, 13). Cognitive escape is often driven by expectancies such as better sexual pleasure and performance, and is often associated with turning attention away from threatening cues (14). However, these sexual expectancies are short-lived, while the consequences of engaging in high-risk sexual behaviours pose long-term negative effects (11, 14, 15).

There is an emerging body of evidence suggesting an interaction between sexual expectancies, inhibition, and escape from self-awareness of HIV/AIDS risk and high-risk sexual behaviours, especially among men who have sex with men (13), and young people in high income countries (16, 17). The young people in peri-urban settings often have a higher tendency of taking risks and engaging in high-risk sexual encounters (18–20). Peri-urban settings in Africa generally have a growing challenge of psychoactive substance use (21–24), but relatively less research is conducted in this area. Some studies also show that use of some of the drugs such as heroin and alcohol which are viewed as less risky on the other hand often lead to injecting drug use (25–27), which is more difficult and expensive to manage (28).

The mechanisms underlying the association between psychoactive substance use and high risk sexual behaviours are underwhelmingly examined (29). Further, there is a dearth of evidence linking

psychoactive-substance use related expectancies and inhibitions, and self-reported high-risk sexual behaviours (30). In our study, we hypothesised that sexual expectancies such as improved sexual pleasure and performance, and inhibitions are associated with high-risk sexual behaviours such as engaging in multiple sexual partnerships or relationships, inconsistent condom use, and having sexual intercourse, while under the influence of psychoactive substances. These findings can be used to inform targeted sexual and reproductive health interventions that aim at reducing sexually transmitted infections among young PSU in informal settlements.

Methods

Study design, setting, and population

This was a descriptive cross-sectional survey among young PSU in informal settlements in Kampala, Uganda's capital city. Administratively, Kampala is divided into five divisions: Central, Kawempe, Makindye, Nakawa and Rubaga. Kampala is situated on approximately 189 km² of land and has an estimated population of over 1,507,080 people, most of whom (70%) are living in informal settlements (31). Kampala remains Uganda's main economic hub, generating 65% of the national GDP. The study was conducted in four divisions: Kawempe, Makindye, Lubaga, and Nakawa. This study included sexually active young people aged between 18 and 24 years with a history of psychoactive substance use and who had resided within the informal settlements of Kampala city for at least 6 months. We excluded non-residents (e.g. visiting relatives or friends), and those who were not mentally sound or were intoxicated at survey time.

Sample Size Determination

A total of 768 young PSU were estimated as the appropriate sample size for this survey using the Kish Leslie formula for cross-sectional studies (32). We assumed a prevalence of high-risk sexual behaviours among young PSU of 50% because of limited literature in the study domain. We assumed a 5% margin of error for the estimated prevalence, 95% confidence interval around the estimates, and a design effect of 2.0 to adjust for clustering by informal settlement (33). A design effect of 2.0 is recommended for behavioural surveys that use respondent driven sampling (RDS) (34). A final sample of 744 young PSU was interviewed representing, a 96.9% response rate.

Sampling

We purposively selected 12 informal settlements (four in Nakawa, four in Kawempe, two in Lubaga, and two in Makindye). These were selected on the basis of the geographical representation of informal settlements in Kampala. In each informal settlement, we employed RDS to select study participants. This approach is often appropriate for hard-to-reach populations (34).

In each settlement, four young PSU (2 males and 2 females) were enrolled as seeds using contacts obtained in an earlier study (35). Consenting seeds were initially interviewed, given three coupons, and briefly trained to recruit their peers into the study. The coupons had information about the study, its objective, coupon identification number, the start and expiry date, survey location, and contact information of the principal investigator. The expiry dates enabled research assistants to estimate the number of valid and expired coupons still in circulation. However, participants presenting with expired coupons were still allowed to enrol as long as they met the eligibility criteria. Secondary seeds were asked by primary seeds to report for the interview. These participants made up the first wave. In turn, their recruits then formed the second wave. Interviews with the different seeds continued until the sample size was reached. Interviews were conducted at fixed locations, such as bars at appropriate times.

Data Collection and Study Variables

Data were collected using an interviewer-administered structured questionnaire developed after a critical review of the existing literature. We collected information on sociodemographic characteristics such as age, educational status, marital status, average monthly income, duration of stay in the informal settlement, and history of psychoactive substance use and sexual expectancies and inhibitions. The main outcome variables were “engaging in multiple sexual partnerships”, inconsistent condom use and having sex under the influence of psychoactive substances. Multiple sexual partnerships or relationships were defined as having more than one sexual partner in the last 30 days. The main predictors in this study were sexual expectancies and inhibitions accrued from the use of psychoactive substances. Expectancies were defined as perceptions of positive outcomes accrued from the use of psychoactive substances on an individual’s sexual behaviour (36). In this study, the positive outcomes included improved sexual pleasure or euphoria, and performance, and boosting one’s courage or confidence to approach a sexual partner. Inhibitions were defined as behaviours that go against one’s conventional or natural sexual practices (37). Such behaviours included finding it difficult to use condoms, forgetting to use a condom, a higher likelihood of engaging in sex intercourse, finding it difficult to refuse sex, and finding one’s self-wanting sex while under the influence of psychoactive substances.

The questionnaire was administered using the Kobo Collect application installed on android phones and tablets. Interviews were conducted by well-trained data collectors. In preparation for actual data collection, we pretested the tools among 30 young PSU in a similar setting in Kajjansi town council, Wakiso district. The feedback obtained during pretesting was used to refine the questionnaire.

Statistical Analyses

We used descriptive statistics such as frequencies and proportions to summarise categorical data, while continuous data were expressed as means and standard deviations. We compared the substance use related perceptions on sexual expectancies and inhibitions among men and women using chi-square statistics. The main outcomes (ever engaging in multiple sexual relationships, inconsistent condom use

and ever having sex under the influence of psychoactive substances) were all dichotomous. Multivariable analysis using a generalized linear model of the Poisson family with a robust error variance was performed to separately model the association between each study outcome and perceptions of sexual expectancies and inhibitions. Simpler models consisting of the outcome and one predictor were initially run, and variables with p -values ≤ 0.2 were included in the multivariable model. We used prevalence ratios (PRs) as measures of association because the prevalences of the outcomes were greater than 10% (38). We adjusted for known confounders such as age, sex, and level of education. A p -value < 0.05 was considered statistically significant. All analyses were done using Stata 14 (StataCorp, Texas, USA).

Results

Respondents' characteristics

A total of 744 young PSU were studied. The mean age of the respondents was 21.5 years (SD \pm 2.1). About 76.6% of the respondents were aged 20–24 years; 78.0% were males; and 85.3% did not live with their parents or guardians (Table 1).

Table 1

Characteristics of young psychoactive substance users in the informal settlements of Kampala, Uganda.

Variable	Attribute	Frequency (n = 744)	Percentage (%)
Age category	18–19	174	23.4
	20–24	570	76.6
Sex	Male	580	78.0
	Female	164	22.0
Marital status	Single	582	78.2
	Married	162	21.8
Level of education	Primary or less	310	41.7
	Post primary	434	58.3
Religion	Catholic	291	39.1
	Anglican	126	16.9
	Muslim	222	29.8
	Born again/ Pentecostal	80	10.8
	Other religion	25	3.4
Still staying with parents	Yes	109	14.7
	No	635	85.3
Duration of staying in area (in years)	0–5	264	35.5
	6–10	145	19.5
	> 10	335	45.0
Average monthly income (Exchange rate: 1 USD = 3,755).	0-250,000	477	64.1
	250,001-500,000	204	27.4
	Above 500,000	63	8.5

Sexual Behaviours

The median age at sex debut was 16.0 years (IQR = 14, 17), with a median number of sexual partners in the last 12 months at 3 (IQR = 1, 9). Nearly a quarter (23.6%) of respondents admitted ever intentionally intoxicating someone with psychoactive substances with the aim of luring them into sex. About 44.8% of

respondents or their partners used a psychoactive substance before the last sexual intercourse. Among those reporting psychoactive substance use before sex, 55.5% mentioned that it was only them that had used the substances; 39.2% both the respondent and the partner; while 5.2% only their sexual partner. Over half (55.5%) of the respondents who used the psychoactive substances before sex reported being intoxicated at the time of sexual intercourse, 36.3% indicated that even their partner was intoxicated and 5.2% said only their partner was intoxicated. Only 2.9% of respondents reported that none of them was intoxicated before the last sexual intercourse.

Sexual Expectancies And Inhibitions

Over 45% of the respondents believed that psychoactive substance use improves sexual performance, 43.3% believed that sex is more pleasurable when under the influence of psychoactive substances, while more than half (53.1%) believed that using psychoactive substances gives courage or confidence to approach a partner for sex (Table 2).

Table 2

Sexual expectancies and inhibitions among young psychoactive substance users in the informal settlements of Kampala, Uganda

Variable	Attribute	Overall (n = 744) (%)	Males n (%)	Females n (%)	p-value
Psychoactive substance use improves sexual performance	Yes	339 (45.6)	262 (45.2)	77 (46.9)	0.686
	No	405 (54.4)	318 (54.8)	87 (53.1)	
Sex is more pleasurable when under the influence of psychoactive substances	Yes	322 (43.3)	237 (40.9)	85 (51.8)	0.012*
	No	422 (56.7)	343 (59.1)	79 (48.2)	
Being under the influence of psychoactive substances make it difficult for you to use condoms	Yes	220 (29.6)	241 (40.0)	51 (30.9)	0.034*
	No	524 (70.4)	362 (60.0)	114 (69.1)	
Being under the influence of psychoactive substances make you forget to use a condom	Yes	205 (27.6)	163 (28.1)	42 (25.6)	0.528
	No	539 (72.4)	417 (71.9)	122 (74.4)	
Likely to engage in sex when under the influence of psychoactive substances	Yes	333 (44.8)	254 (43.8)	79 (48.2)	0.320
	No	411 (55.2)	326 (56.2)	85 (51.8)	
Likely to find it difficult to refuse sex when under the influence of alcohol or substances	Yes	274 (36.8)	217 (37.4)	57 (34.8)	0.533
	No	470 (63.2)	363 (62.6)	107 (65.2)	
Agreed that using psychoactive substances gives courage or confidence to approach a partner for sex	Yes	395 (53.1)	311 (53.6)	84 (51.2)	0.586
	No	349 (46.9)	269 (46.4)	80 (48.8)	
Find yourself wanting to have sex when using psychoactive drugs	Yes	352 (47.3)	270 (46.5)	82 (50.0)	0.435
	No	392 (52.7)	310 (53.5)	82 (50.0)	

Association between sexual expectancies and inhibitions and high-risk sexual behaviours

Results in Tables 3 and 4 show that respondents who endorsed that they were likely to engage in sex when under the influence of psychoactive substances had a 48% higher likelihood of engaging in multiple sexual relationships compared to those who did not think so (PR 1.48, 95% CI: 1.15–1.90). Respondents who indicated that it is difficult to refuse sex when under the influence of psychoactive substances had a 28% higher likelihood of engaging in multiple sexual relationships compared to those who did not think so (PR 1.28, 95% CI: 1.06–1.55) (Table 3). Believing that there is a high likelihood of forgetting to use a condom while under the influence of psychoactive substances was positively associated with inconsistent condom use (PR 1.26, 95% CI: 1.09–1.45) (Table 4).

The belief that psychoactive substance use improves sexual performance (PR 1.14, 95% CI: 1.01–1.30) or increases sexual urge (PR 1.20, 95% CI: 1.04–1.40) were associated with a higher likelihood of having sex while under the influence of psychoactive substances. The feeling that using psychoactive substances gives courage or confidence to approach a partner increased the likelihood of having sex while under the influence of psychoactive substances by 21% (PR 1.21, 95% CI: 1.05–1.39). Lastly, respondents who indicated finding themselves wanting to have sex when intoxicated had a 22% higher likelihood of having sex under the influence of psychoactive substances compared to those who thought otherwise (PR 1.22, 95% CI: 1.03–1.43) (Table 5).

Table 3

Association between sexual expectancies and inhibitions, and multiple sexual partnerships among young psychoactive substance users in the informal settlements of Kampala, Uganda

Variable	Freq (n)	Engaged in multiple sexual relationships in the last one month		Unadjusted PR (95% CI)	P value	Adjusted PR (95% CI)	P value
		Yes	No				
Age category (years)							
18–19	174	73 (24.2)	101 (22.9)	1.0		1.0	
20–24	570	229 (75.8)	341 (77.1)	0.95 (0.78–1.17)	0.674	0.89 (0.73–1.07)	0.228
Sex of the respondent							
Male	580	220 (72.8)	360 (81.4)	1.0		1.0	
Female	164	82 (27.2)	82 (18.6)	1.31 (1.09–1.58)	0.003	1.31 (1.10–1.56)	0.003*
Highest level of education							
Primary and below	310	137 (45.4)	173 (39.1)	1.0		1.0	
Above primary	434	165 (54.6)	216 (60.9)	0.86 (0.72–1.02)	0.089	0.98 (0.83–1.16)	0.903
Psychoactive substance use improves sexual performance							
No	405	128 (42.4)	277 (62.7)	1.0		1.0	
Yes	339	174 (57.6)	165 (37.3)	1.62 (1.36–1.93)	< 0.001	1.13 (0.92–1.38)	0.225
Sex is more pleasurable when under the influence of psychoactive substances							
No	422	135 (44.7)	287 (64.9)	1.0		1.0	
Yes	322	167 (55.3)	155 (35.1)	1.62 (1.36–1.93)	< 0.001	0.99 (0.81–1.21)	0.975
Being under the influence of psychoactive substances make it difficult for you to use condoms							
Yes	220	112 (37.1)	108 (24.4)	1		1.0	

Variable	Freq (n)	Engaged in multiple sexual relationships in the last one month		Unadjusted PR (95% CI)	P value	Adjusted PR (95% CI)	P value
		Yes	No				
No	524	190 (62.9)	334 (75.6)	1.40 (1.18–1.66)	< 0.001	0.85 (0.70–1.04)	0.132
Likely to forget to use a condom while under the influence of psychoactive substances							
No	539	193 (63.9)	346 (78.3)	1		1	
Yes	205	109 (63.1)	96 (21.7)	1.48 (1.25–1.76)	< 0.001	0.86 (0.71–1.06)	0.172
Likely to engage in sex when under the influence of psychoactive substances							
No	411	111 (36.8)	300 (67.9)	1.0		1.0	
Yes	333	191 (63.2)	142 (32.1)	2.12 (1.76–2.55)	< 0.001	1.48 (1.15–1.90)	0.002*
Likely to find it difficult to refuse sex when under the influence of psychoactive substances							
No	470	153 (50.7)	317 (71.7)	1.0		1.0	
Yes	274	149 (49.3)	125 (28.3)	1.67 (1.41–1.97)	< 0.001	1.28 (1.06–1.55)	0.008*
Using psychoactive substances gives courage/confidence to approach a partner for sex							
No	349	103 (34.1)	246 (55.7)	1.0		1.0	
Yes	395	199 (65.9)	196 (44.3)	1.70 (1.41–2.06)	< 0.001	1.16 (0.93–1.45)	0.171
Find yourself wanting to have sex when using psychoactive drugs							
No	392	107 (37.4)	285 (64.5)	1.0		1.0	
Yes	352	195 (64.6)	157 (35.5)	2.02 (1.68–2.44)	< 0.001	1.24 (0.96–1.61)	0.093

Table 4

Association between sexual expectancies and inhibitions and condom use among young psychoactive substance users in the informal settlements of Kampala, Uganda.

Variable	Freq (n)	Condom use		Unadjusted	P value	Adjusted	P value
		Consistent	Inconsistent	PR (95% CI)		PR (95% CI)	
Age category (years)							
18–19	174	76 (27.3)	98 (21.0)	1.0		1.0	
20–24	570	202 (72.3)	368 (79.0)	1.14 (0.99–1.32)	0.064	1.12 (0.97–1.29)	0.107
Sex of the respondent							
Male	580	223 (80.2)	357 (76.6)	1.0		1.0	
Female	164	55 (19.8)	109 (23.4)	1.07 (0.95–1.22)	0.234	1.09 (0.95–1.23)	0.185
Level of education							
Primary and below	310	115 (41.4)	195 (41.8)	1.0		1.0	
Above primary	434	163 (58.6)	271 (58.2)	0.99 (0.88–1.11)	0.898	1.05 (0.93–1.17)	0.387
Psychoactive substance use improves sexual performance							
No	405	157 (56.5)	248 (53.2)	1.0			
Yes	339	121 (43.5)	218 (46.8)	1.05 (0.93–1.17)	0.387		
Sex is more pleasurable when under the influence of psychoactive substances							
Yes	322	106 (38.1)	216 (46.4)	1.0		1.0	
No	422	172 (61.9)	250 (53.6)	1.13 (1.04–1.26)	0.027	1.00 (0.88–1.14)	0.931
Being under the influence of psychoactive substances make it difficult for you to use condoms							
Yes	220	55 (19.8)	165 (35.4)	1.0		1.0	

Variable	Freq (n)	Condom use		Unadjusted	P value	Adjusted	P value
		Consistent	Inconsistent	PR (95% CI)		PR (95% CI)	
No	524	223 (80.2)	301 (64.6)	1.30 (1.17–1.45)	< 0.001	0.96 (0.83–1.10)	0.587
Likely to forget to use a condom while under the influence of psychoactive substances							
No	539	230 (82.7)	309 (66.3)	1.0		1.0	
Yes	205	48 (17.3)	157 (33.7)	1.33 (1.20–1.48)	< 0.001	1.26 (1.09–1.45)	0.002*
Likely to engage in sex when under the influence of psychoactive substances							
No	411	175 (62.9)	236 (50.6)	1.0		1.0	
Yes	333	103 (37.1)	230 (49.4)	1.20 (1.07–1.34)	0.001	1.07 (0.92–1.25)	0.355
Likely to find it difficult to refuse sex when under the influence of psychoactive substances							
No	470	193 (69.4)	277 (59.4)	1.0		1.0	
Yes	274	85 (30.6)	189 (40.6)	1.17 (1.04–1.30)	0.005	1.01 (0.89–1.15)	0.840
Using psychoactive substances gives courage/confidence to approach a partner for sex							
No	349	130 (46.8)	219 (47.0)	1.0			
Yes	395	148 (53.2)	247 (53.0)	0.99 (0.89–1.11)	0.951		
Find yourself wanting to have sex when using psychoactive substances							
No	392	164 (59.0)	228 (48.9)	1.0		1.0	
Yes	352	114 (41.0)	238 (51.1)	1.16 (1.04–1.29)	0.008	0.99 (0.85–1.16)	0.942

Table 5

Association between sexual expectancies and inhibitions and 'ever had sex while under the influence of psychoactive substances among young psychoactive substance users in the informal settlements of Kampala, Uganda

Variable	Freq (n)	Ever had sex under the influence of drugs		Unadjusted PR (95% CI)	p-value	Adjusted PR (95% CI)	p value
		Yes	No				
Age category (years)							
18–19	174	82 (18.1)	92 (31.7)	1.0		1.0	
20–24	570	372 (81.9)	198 (68.3)	1.38 (1.17–1.68)	< 0.001	1.32 (1.13–1.54)	< 0.001
Sex of respondent							
Male	580	337 (74.2)	243 (83.8)	1.0		1.0	
Female	164	117 (25.8)	47 (16.2)	1.22 (1.08–1.38)	0.001	1.19 (1.05–1.34)	0.004*
Level of education							
Primary and below	310	209 (46.0)	101 (34.8)	1.0		1.0	
Above primary	434	245 (54.0)	189 (65.2)	0.83 (0.74–0.93)	0.002	0.94 (0.84–1.05)	0.288
Psychoactive substance use improves sexual performance							
No	405	200 (44.1)	205 (70.7)	1.0		1.0	
Yes	339	254 (55.9)	85 (29.3)	1.51 (1.35–1.70)	< 0.001	1.14 (1.01–1.30)	0.029*
Likely to forget to use a condom while under the influence of psychoactive substances							
No	539	294 (64.8)	245 (84.5)	1.0		1.0	
Yes	205	160 (35.2)	45 (15.5)	1.43 (1.28–1.59)	< 0.001	1.05 (0.93–1.18)	0.360
Likely to engage in sex when under the influence of psychoactive substances							
No	411	192 (42.3)	219 (75.5)	1.0		1.0	

Variable	Freq (n)	Ever had sex under the influence of drugs		Unadjusted PR (95% CI)	p-value	Adjusted PR (95% CI)	p value
		Yes	No				
Yes	333	262 (57.7)	71 (24.5)	1.68 (1.49–1.89)	< 0.001	1.20 (1.04–1.40)	0.013*
Likely to find it difficult to refuse sex when under the influence of psychoactive substances							
No	470	254 (55.9)	216 (74.5)	1.0		1.0	
Yes	274	200 (44.1)	74 (25.5)	1.35 (1.20–1.50)	< 0.001	1.05 (0.93–1.18)	0.371
Using psychoactive substances gives courage/confidence to approach a partner for sex							
No	349	162 (35.7)	187 (64.5)	1.0		1.0	
Yes	395	292 (64.3)	103 (35.5)	1.59 (1.40–1.80)	< 0.001	1.21 (1.05–1.39)	0.006*
Find yourself wanting to have sex when using psychoactive drugs							
No	392	178 (39.2)	214 (73.8)	1.0		1.0	
Yes	352	276 (60.8)	76 (26.2)	1.72 (1.52–1.95)	< 0.001	1.22 (1.03–1.43)	0.016*

Discussion

This is the first study to establish associations between sexual expectancies and inhibitions and high-risk sexual behaviours among young PSU in the informal settlements of Kampala. Young PSU in this study on average had an early sexual debut (15.2 years). These findings imply that young people using psychoactive substances, engage in early sexual intercourse compared to the national median age in the general population of 17.6 years for females and 18.0 years for males (39). This finding is similar to that of Doku (40) among those in Ghana who had an average age at sexual debut of 14.8 years. In an era, where several young people are living with HIV, some due to vertical transmission, it is critical to institute strategies to reduce the transmission of infections among young people who may assume that their peers and sexual partners are HIV negative.

Our study revealed significant differences in the proportion of males and females who felt that being under the influence of psychoactive substances made it difficult for them to use condoms. A higher proportion of males found it difficult to use condoms, compared to females. This could be due to the

varying effects of psychoactive substances on sexual behaviour or perhaps more emphasis on the girl child in most sexual and reproductive health and rights programs (41, 42). Some psychoactive substances may deprive male users, the ability to wear a condom while others may think that sexual intercourse is more pleasurable without condoms. There is also evidence that some psychoactive substances could deprive male users the ability to sustain an erection, hence difficulties in putting on a condom (43). In addition, Calsyn, Peavy (44) in their study reported that men often pointed out the negative effects of condom use on sexual experience. Young PSU in their study reported not feeling good or natural, condoms not fitting well, change in orgasm, interruption of the sexual mood, and interference with feelings close to one's partner. A significantly higher proportion of females felt that sex was more pleasurable when under the influence of psychoactive substances. Although each psychoactive substance has its varying effects, it is believed that substances such as alcohol increase the sexual libido of women, and consequently pleasure (45, 46).

Nearly a quarter of the sexually active young PSU in this study had ever made some one intoxicated with psychoactive substances in order to have sex with them. In addition, nearly half of the young PSU or their partners used a psychoactive substance before last the sexual intercourse. This is because a considerable proportion of the young PSU expect that the use of psychoactive substances would improve sexual performance, give courage or confidence to approaching a partner for sex, and make sexual intercourse more pleasurable as evidenced by the study findings. Similar findings have been reported elsewhere (36, 47, 48). Furthermore, getting someone intoxicated would make it easier for the partner to engage in sexual activity even against their consent, mainly due to impaired cognition and decision making (49, 50). Using psychoactive substance prior to the last sexual intercourse could also have been thought to improve their confidence to approach sexual partners. The use of these substances has been reported to improve aggression among users (51, 52). These expectancies are likely to have lured some respondents into intoxicating their partners with psychoactive substances or even using psychoactive substances during their last sexual intercourse.

Respondents who felt that they were likely to engage in sex under the influence of psychoactive substances were more likely to engage in multiple sexual relationships compared to those who did not think so. Users of psychoactive substances are significantly more likely to have sexual intercourse compared to non-users (53). Therefore, psychoactive substances may have increased the sexual urge of young people in our study, thereby prompting multiple sexual partnerships. Similarly, an increase in the sexual urge or libido, which often characterises psychoactive substance use, may have been an important driver for young people who find it difficult to refuse sex while under the influence of psychoactive substances for engaging in multiple sexual relationships. Having multiple sexual partners in Kampala's informal settlements, a setting that already has a high prevalence of sex work and HIV among young people (54, 55) and the general population (56), is likely to escalate the transmission of sexually transmitted infections (STIs), including HIV/AIDS.

Respondents in our study, who felt they were likely to forget to use a condom, while under the influence of psychoactive substances, did not consistently use condoms. These findings reaffirm the fact that the use

of psychoactive substances impairs judgment and cognition (57). Once under the influence of psychoactive substances, young people often fail to make the correct decisions or choices as far as the use of condoms. The failure to have protected sexual intercourse could exacerbate the spread of STIs not only among young PSU but also among the general population in the informal settlements. Our findings therefore implore the need for risk reduction interventions for sexual and reproductive health among this high-risk group.

This study also indicates that sexual expectancies such as improved sexual performance, confidence or courage, and increased sexual desire increased the likelihood of engaging in sex under the influence of psychoactive substances. Young PSU often resort to the use of these substances as a way of sustaining erections and bettering sexual performance (36). Given the fact that a significant proportion of young girls and women in the informal settlements of Kampala engage in commercial sex (54), female users could as well resort to the use of these substances to get the energy to have as many sexual clients as possible.

Young PSU in this study were less sexually inhibited. Those who endorsed that they were likely to engage in sex when under the influence of psychoactive substances were actually more likely to have sex while intoxicated compared to those who did not think so. This as well, could be attributed to the effects of psychoactive substance use of sexual urge, desire, and anticipated expectancies such as better sexual performance. There is evidence for instance that alcohol makes women more sensuous and more romantic (58). It could be this feeling that propels young PSU to further engage in sexual intercourse when intoxicated. Our findings should be an eye opener to policy makers and those who engage in HIV/AIDS programming on the immediate risk posed by young PSU as far as the transmission of HIV is concerned. It is therefore important to extend HIV prevention services such as testing and enrolment into HIV care of young PSU living in informal settlements. This would help tame the transition to injecting drug use, which is more complex to manage (28), and the immediate risk of transmission of STIs, including HIV.

Strengths And Limitations Of The Study

To the best of our knowledge, this is the first study to establish an association between sexual expectancies and inhibitions and high-risk sexual behaviours among young PSU in informal settlements. However, this was a cross-sectional design; thus, it was not possible to draw causal inferences between the influence of psychoactive substances and high-risk sexual behaviours. Sexual expectancies and inhibitions could be affected depending on the dose of the psychoactive substance used; therefore, these findings cannot be generalised to all PSU with varied doses. Substance use and sexual behaviours were self-reported, which could be subject to both recall and social desirability biases.

Conclusion

This study has unearthed the association between sexual expectancies and inhibitions with high-risk sexual behaviours i.e. inconsistent condom use, engagement in multiple sexual partnerships, and having sex, while under the influence of psychoactive substances, in informal settings where other complications like poverty already expose young people to STIs and HIV risk. Psychoactive substance use expectancies associated with high-risk sexual behaviours included the belief that psychoactive substances improve sexual performance and give courage or confidence to approach a sexual partner. Psychoactive substance use inhibitions associated with high-risk sexual behaviours included an increased likelihood of engaging in sexual intercourse, difficulties in refusing to engage in sexual intercourse, and forgetting to use condoms while intoxicated. These findings suggest the need to implement risk reduction interventions in informal settlements. Further research could focus on understanding how expectancies and inhibitions accrued from independent psychoactive substances influence high-risk sexual behaviours, and/or how the dose of psychoactive substances influences sexual expectancies and high-risk sexual behaviours.

Abbreviations

AIDS Acquired immunodeficiency syndrome

HIV Human immunodeficiency virus

PR Prevalence ratio

PSU Psychoactive substance users

STI Sexually transmitted infection

Declarations

Ethics approval and consent to participate

We obtained ethical approval for the study from the Makerere University School of Public Health Higher Degrees, Research and Ethics Committee (HDREC). We also sought permission to conduct the study from Kampala Capital City Authority (KCCA) and the local authorities in the study informal settlements. Participation in the study was entirely voluntary and informed written consent was obtained.

Consent for publication

Not applicable

Availability of data and materials

The datasets analysed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

TS, SPSK and MT conceptualised the study, participated in data collection, analysis and drafting the manuscript. JBI, RKM, STW, EB, CKN, JNB, and RKW participated in the analysis, and drafting of the manuscript. All authors read and approved this manuscript before submission to this journal.

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