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Methamphetamine (“tik”) Use and Its Association with Condom Use among Out-of-School Females in Cape Town, South Africa

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Abstract

Background—Little is known about the association between methamphetamine use and sexual risk behaviors among young South African women between 13 and 20 years of age.

Objective—To examine the association between methamphetamine use and condom use among out-of-school South African female adolescents.

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Methods—Black and Coloured female adolescents were interviewed and categorized into methamphetamine user ($n = 261$) or non-user ($n = 188$) groups.

Results—Methamphetamine use was reported by 58% of the total sample. Higher methamphetamine rates were found among young Coloured females (87%) than among young Black females (11%). In a multiple logistic regression analysis that adjusted for relevant confounders and included an interaction term for race and methamphetamine use, Coloured female methamphetamine users were over six times more likely than other participants to report not using a condom the last time they had sex (OR = 6.21; 95% CI = 1.21, 31.94).

Conclusions and Scientific Significance—Efforts are needed to reduce methamphetamine use and related sexual risk among adolescent females in Coloured communities and to prevent the spread of methamphetamine use in Black African communities.

Keywords

Adolescent females; methamphetamine use; sexual risk behavior; South Africa

Introduction

Rates of methamphetamine (locally known as “tik”) use are increasing in Cape Town, South Africa (1, 2). Methamphetamine use is particularly high among young people (2, 3) and in Coloured communities¹ in the Cape Town region (3). And methamphetamine is the most commonly abused substance among individuals under the age of 20 in substance abuse treatment in Cape Town (3).

Strong associations have been found between drug use and high-risk sexual behaviors, such as inconsistent condom use and multiple sex partners, among South African adolescents (4, 5). Recent methamphetamine users were more likely to have engaged in risky sexual behaviors (e.g., trading sex for money or goods and having sex with multiple partners) than individuals who had not used methamphetamine recently (6). Similarly, 9th-grade students in Cape Town who reported past 30-day methamphetamine use were significantly more likely to have had vaginal, anal, or oral sex; to have been pregnant or responsible for a pregnancy; and to have had a sexually transmitted infection (STI) than students who had never used methamphetamine (7).

These findings suggest that methamphetamine use may act as another vector for the transmission of HIV among young people in Cape Town. This is worrisome, given the already high prevalence of HIV (13%) among South Africans under the age of 20 (8). In South Africa, young women are disproportionately affected by HIV, with women between 15 and 19 years of age being more than twice as likely to be infected with HIV than males from the same age group (9). Findings from several studies highlight high levels of sexual risk behavior among women in this age group, including pregnancy rates as high as 33%, with many of these pregnancies being unplanned (10); more than one-fourth of females not using a condom at last sex (9); more than a quarter having sexual partners who are 5 or more years older (9); and many young Black females' first sexual experience being coercive in nature and characterized by violence (11). In addition, a recent national survey reported that almost three-quarters of female adolescents lacked adequate knowledge about ways of preventing the sexual transmission of HIV (9).

¹The terms “Black African,” “Coloured,” “Asian,” and “White” refer to demographic markers that were chosen for their historical significance and that are still used in South Africa today. These markers are important, as accurate user profiles assist in identifying vulnerable population subgroups and in planning effective intervention programs. The term “Coloured” refers to a cultural grouping of mixed-race ancestry.

Young South African women who drop out of school may be especially at risk for contracting HIV. South African studies have shown that sex risk behaviors are strongly associated with substance use and that substance use is associated with dropping out of school (12). In addition, adolescent females who drop out of school are significantly more likely to have had sexual intercourse (13) and to be infected with HIV (14, 15) than females who complete school. Despite the noted intersection between sexual risk and methamphetamine use, few studies have examined the association between methamphetamine use and sex risk behaviors among young South African women. No studies to date have been completed with out-of-school females to illustrate the intersection of methamphetamine use and sexual risk. This paper aims to narrow this gap by describing the sociodemographic and sex risk behaviors associated with methamphetamine use among out-of-school Coloured and Black African females in Cape Town.

Method

Overview and Sampling

A total of 449 (170 Black African and 279 Coloured) out-of-school adolescent females were recruited from March to August 2006. Participants were recruited using a targeted sampling plan similar to that used in other studies (e.g., 16). This sampling plan was developed by mapping the geographic distribution and characteristics of potential participants across the study area, which included Coloured and Black African communities in the Cape Town metropolitan region of the Western Cape Province. Survey eligibility criteria included being female, living in a target community, self-identifying as either Black or Coloured, being between 13–20 years of age, and not currently enrolled in school. Institutional Review Boards (IRBs) of RTI International in the United States and the University of Stellenbosch in South Africa approved the study.

Instrument

A survey instrument was developed using items drawn from the Problem Oriented Screening Instrument for Teenagers (POSIT; 17), the Beck Depression Inventory (BDI; 18), and additional sex risk measures from the Women's Risk Behavior Assessment that has been adapted for use in South Africa (19). Other added items included addressing sex behaviors, male and female condom use, methamphetamine and other substance use, substance use prior to sex, exposure to violence, HIV knowledge, and mental health.

Procedures

Black African and Coloured women, working as teams within their respective ethnic communities, targeted 10 communities. The number of recruits per community was roughly proportional to the number of people in the community, with greater numbers of people recruited from communities with larger populations. Young women in the community were approached on the street by outreach workers and screened for eligibility. Eligible participants completed a written assent/consent prior to receiving the paper-and-pencil survey instrument. Surveys were conducted in private field settings.

Analysis

Bivariate analyses were performed separately for each racial group to assess differences between participants reporting methamphetamine use in the previous 30 days and participants who did not report use (non-users). The Pearson chi-square test was used to assess associations between methamphetamine use and categorical variables, and *t*-tests were used to assess associations between methamphetamine use and continuous variables. Multiple logistic regression analysis was performed to evaluate independent associations

between methamphetamine use and not using a condom at last sexual encounter while adjusting for differences between participants who reported or did not report recent methamphetamine use. This analysis was restricted to participants who reported ever having sex ($n = 375$). Because our primary interest was in determining if there was an independent association between methamphetamine use and condom use at last sex, variables on which methamphetamine users differed significantly from non-users in either racial group were forced into the model.

Results

Sample Characteristics

Among the total sample, 38% are Black African and 62% are Coloured, with a mean age of 16.8 years ($SD = 1.9$) and nine grades attended ($SD = 1.3$). Table 1 presents the characteristics of the participants by racial grouping (i.e., Black vs. Coloured) and recent methamphetamine use status. Overall, 58% of participants reported using methamphetamine in the previous 30 days. Both groups reported marijuana and alcohol use. Among methamphetamine users, 98% reported using it in the previous 7 days. Methamphetamine use was significantly higher among Coloured females (87%) than among Black females (11%). Both Coloured and Black methamphetamine users were younger than non-users, Table 1 also presents detailed comparisons of methamphetamine users and non-users by race.

Unprotected Sex during Last Sexual Encounter Model

In a model that included all variables on which methamphetamine users differed from non-users, repeating a grade due failing (Odds Ratio [OR] = 1.73; 95% Confidence Interval [CI] = 1.04, 2.88), alcohol use in the previous 30 days (OR = 2.07; 95% CI = 1.08, 3.95), having ever been forced to have sex (OR = 3.81; 95% CI = 2.02, 7.18), having sex with someone at least 5 years older (OR = 1.82; 95% CI = 1.11, and the interaction between methamphetamine use and Coloured race/ethnicity (OR = 6.21; 95% CI = 1.12, 31.94) were strongly associated with not using a condom at last sex. Marijuana use in the previous 30 days was associated with lower odds of unprotected sex (OR = .46; 95% CI = .24, .88) in the model. No other variables were significant in the model (Table 2).

Discussion

The percentage of Coloured and Black adolescent females reporting methamphetamine use in this study (58%) is similar or somewhat higher than the rates of methamphetamine use among Coloured and Black African adults (20) or adolescents presenting to treatment for substance use disorders (2). The level of reported use among Coloured females at 87% reinforces the notion that the drug trade is controlled by gangs in the Coloured communities and that these young females also report having older sexual partners. At the time of this study, less methamphetamine use was found in the Black African community; however, focus groups conducted with men from both communities supported the movement into the Black African community, as many drug epidemics in Cape Town initially start in the Coloured community (21).

Coloured methamphetamine users were over six times more likely than other participants to report not using a condom the last time they had sex. The significant interaction between methamphetamine use and Coloured race and not using a condom at last sex are consistent with the bivariate analyses, which show that methamphetamine use is associated with decreased condom use among Coloured females and increased condom use among Black females in this sample. This is particularly troubling given the high rates of

methamphetamine use among Coloured women as well as in another study in the Western Cape where adult Black women reported greater condom use (20). Overall, the association between methamphetamine use and higher sexual risk is similar to what was found among women in other parts of the world (22–24).

Understanding how the inequality of gender roles leaves women vulnerable to HIV through their sexual risks with men (25), especially as many of these young women reported having boyfriends 5 or more years older than them, lies within a context of power and poverty. Young women have little or no power or control over sexual protection in their relationships with men (K. Sawyer-Karian, PhD, unpublished data, 2010). Further, poverty is an overarching phenomenon that may encourage and reinforce these young women to both use substances and engage in risk behaviors with men, such as transactional sex for things they need and want because they have little access to items most young women desire nor much pleasure in their life.

There are several limitations to this study. First, surveys were administered in the field, where privacy may have been limited; however, the high rates of methamphetamine use and sex risk behaviors temper this concern against biased reporting. Second, the convenience sampling method used may not yield a sample or results representative of Cape Town adolescents in general; however, these data are an important first step in understanding the extent of substance use and HIV risk behavior problems. Third, the small numbers of Black methamphetamine users and Coloured non-users limit the statistical reliability of within racial group comparisons between methamphetamine use status.

Despite these limitations, the present study provides some of the first data examining the rates of methamphetamine use in young South African women who are out of school and its relationship with risky sexual behaviors. Future research must focus on several important issues. First, an examination is needed of the effects of methamphetamine use, in combination with alcohol and/or marijuana, on sex and HIV risk behaviors. While methamphetamine-related sexual risk was less of an issue among Black female adolescents in this Cape Town sample, anecdotal evidence suggests methamphetamine use is starting to increase in this subpopulation and these reports merit systematic examination. Second, ongoing surveillance of multiple communities is needed to monitor changing patterns of methamphetamine use and associated risk behavior. Third, research is needed in South Africa to assess the extent to which methamphetamine is fueling the HIV epidemic and to develop effective interventions to address this public health problem, especially as methamphetamine moves into traditionally Black African communities already hit hard by HIV. This may be especially true with young women who may have older boyfriends or trade sex with older men of other races and may become part of a bridging population.

In summary, these results demonstrate that methamphetamine use is strongly associated with sex risk behaviors among young Coloured women. Although HIV prevalence is lower among Coloured women in Cape Town relative to their Black African counterparts, high levels of methamphetamine use among the Coloured population and the association between methamphetamine use and unprotected sex may fuel the rapid transmission of HIV in this population subgroup. Consequently, these findings highlight the urgent need for interventions that address the intersection between methamphetamine use and sex risk behaviors among young women from these communities.

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TABLE 1
Demographics, HIV testing, depression, drug use and sexual behaviors of out of school Coloured and Black females who use or do not use methamphetamine

	Total (N = 449)	Coloured			Black		
		used methamphetamine previous 30 days			used methamphetamine previous 30 days		
		no (n = 37)	yes (n = 242)	p-value	No (n = 151)	yes (n = 19)	p-value
Demographics							
% ≥ 17 years of age	54.1	70.3	47.1	0.009	64.9	26.3	0.001
% Ever repeated a grade due to failing	42.8	40.5	32.2	0.318	59.6	47.4	0.308
Highest grade attended (SD)	9.0 (1.3)	8.9 (1.3)	8.8 (1.3)	0.595	9.3 (1.2)	8.9 (1.4)	0.195
HIV testing							
% Ever been tested for HIV	34.7	48.6	23.1	0.001	53.0	10.5	< 0.001
% Received results after last HIV test	33.9	48.6	23.1	0.001	50.3	10.5	0.001
Depressive symptoms							
Mean Beck Depression Inventory Scale score (SD)	19.4 (9.1)	21.5 (10.9)	19.5 (9.2)	0.527	19.7 (9.0)	18.7 (8.5)	0.461
Alcohol and other drug use							
% Drank alcohol previous 30 days	58.5	32.4	36.1	0.664	95.4	100.0	1.000
% Used marijuana previous 30 days	73.1	64.9	56.2	0.321	99.3	94.7	0.212
% Used mandrax (i.e., methaqualone) previous 30 days	13.6	10.8	9.1	0.761	19.9	26.3	0.549
Sexual behaviors							
% Ever had sex	83.5	86.5	72.7	0.074	99.3	89.5	0.033
% Ever had sex without a condom	57.9	32.4	45.9	0.125	82.1	68.4	0.213
% Had sex before age 15	63.7	48.6	57.0	0.339	76.2	78.9	1.000
% Ever been forced to have sex	16.9	2.7	11.2	0.145	26.5	42.1	0.154
% Ever had sex while high on alcohol or other drugs	56.6	51.4	57.4	0.487	57.0	52.6	0.720
% Sexually transmitted infection symptoms previous 12 months	27.0	13.5	12.0	0.788	53.6	31.6	0.070
% ≥ 2 Sex partners previous 3 months	31.4	18.9	36.8	0.033	26.5	26.3	0.987
% Ever had anal sex	8.9	2.7	5.4	1.000	15.2	15.8	0.584
% Used a condom at last sex	51.9	73.0	43.0	0.001	58.3	73.7	0.196
% Had sex with someone ≥ 5 years older	33.6	10.8	26.9	0.035	52.3	15.8	0.003

TABLE 2

Multiple logistic regression analysis of unprotected sex at last sexual encounter.*

Variable	Odds Ratio	95% Confidence Interval	p-value
≥17 years of age	1.60	(.89, 2.89)	.115
Coloured	.43	(.13, 1.4)	.160
Ever repeated a grade due to failing	1.73	(1.04, 2.88)	.035
Highest grade attended	.95	(.77, 1.18)	.659
Ever tested for HIV	2.73	(.25, 30.31)	.414
Ever received HIV test result	.30	(.03, 3.28)	.322
Drank alcohol previous 30 days	2.07	(1.08, 3.95)	.028
Used marijuana previous 30 days	.46	(.24, .88)	.018
Used Mandrax previous 30 days	1.05	(.52, 2.09)	.897
Had sex before age 15	1.02	(.57, 1.81)	.957
Ever been forced to have sex	3.81	(2.02, 7.18)	<.001
Had sex with someone ≥5 years older	1.82	(1.11, 2.98)	.018
Used methamphetamine previous 30 days	.60	(.18, 2.03)	.409
Methamphetamine by Coloured interaction	6.21	(1.21, 31.94)	.029

* Used condom at last sex act coded as 0; did not use condom at last sex act coded as 1.