

Methamphetamine Use and Sexual Risks for HIV Infection in Cape Town, South Africa

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Presentation at the 4th IAS Conference on HIV
Pathogenesis, Treatment and Prevention 22-25 July
2007 in Sydney Australia

HSRC RESEARCH OUTPUT

5301

Abstract

- **Objectives:** The current study is among the first to examine the use of Methamphetamine (Meth) in a South African community sample.
- **Methods:** Street intercept methods were used to collect surveys of substance use and sexual behavior from 441 men and 521 women living in a township in Cape Town South Africa.
- **Results:** The study found that 78 (18%) men and 63 (12%) women had tried Meth and 49 (11%) men and 34 (6%) women had used Meth in the preceding six months. Meth was the second most commonly used non-alcohol drug only next to cannabis. We found that Meth use was closely associated with other drug use, indicating a pattern of poly-substance use among Meth users. Recent Meth use was associated with being male and with engaging unprotected intercourse and having multiple sex partners in the previous six months. Meth users also demonstrated greater condom use than non-users, although less than half of all intercourse occasions among Meth users were condom protected.
- **Conclusions:** These results suggest that Meth is used by a substantial and likely growing number of people in this Cape Town township and the close association of Meth to sexual risk practices raises concern that Meth could fuel the spread of HIV infection in new South African sub-populations.

Background

- There is mounting evidence of increased methamphetamine use especially from amongst patients in the drug treatment centres in the Cape Town area in South Africa's Western Cape Province (Parry, Myers and Pluddemann, 2004). For example:
 - Meth use has increased from no reported cases in 2002, to 12% in 2003, to nearly 60% in 2004.
 - More than one in four drug treatment patients in Cape Town use Meth as their primary or secondary drug, with 39% of Meth users in treatment reporting daily use.

Background (contd)

- It is also common for Meth to be only one of several drugs that drug treatment patients report using.
- A major concern is that Meth has the potential to spread HIV and AIDS faster (Morris & Parry, 2006) especially in a province with the lowest HIV prevalence and fastest growing epidemic in the country.
- The current study is the first that we are aware of that examines Meth use in a community sample in Africa.

Research methods

Sampling and data collection

- **Street intercept methods were used to collect surveys of substance use and sexual behaviour from 441 men and 521 women living in a township in Cape Town South Africa.**
 - **The participants were approached while attending one of 25 venues within the township and its surrounding settlements.**
 - **Interviews were conducted within the commercial centre of the township as well as along main thoroughfares running through the township.**

Research methods (contd)

Sampling and data collection

- Venues included a day hospital (35% of surveys), seven shopping areas (25%), the Community Centre that includes six social service facilities (20%), taxi waiting areas (15%), and nine street junctions that included bus stops, waiting areas, and street vendors (5%).
- These venues were purposively pre-selected because they represent public access areas throughout the township and its surrounding areas.
- The questionnaires were mainly self-administered in English, Xhosa (an indigenous African language), and Afrikaans (a South African national language rooted in Dutch).

Research methods (contd)

Measures

- Questionnaires were developed that measured the following variables:
 - demographic characteristics,
 - sexual behaviors including numbers of partners,
 - unprotected and condom protected acts practiced over the previous 6 months,
 - lifetime history of STI diagnoses for lifetime and for the past 6 months,
 - substance use (alcohol* & drug use especially Meth use**),
 - HIV risk history, and
 - sexual behavior.

* Alcohol Use Disorder Identification Test (AUDIT) to assess quantity and frequency of alcohol use (Allen et al., 1997; Barbor et al., 1992).

** Participants were asked four questions pertaining to Meth: "Have you ever heard of the drug called Tik (Crystal, or Methamphetamine)?", "Do you know anyone who has used Tik?", "Do you think Tik is a problem in your community?", and "Have you ever tried Tik?".

Research methods (contd)

Data analyses

- We first conducted descriptive analyses for substance use in the entire sample followed by descriptive analyses of people who had ever used Meth compared to those in the sample that had not indicated using Meth.
 - The main study analyses focused on comparing individuals who reported currently using Meth, that is people who had used Meth in the past six months, to individuals who had used other non-alcohol drugs (Mandrax, dagga, cocaine, heroin) in the past 6 months but had not used Meth.
- All comparisons of Meth users to non-Meth drug users were made using logistic regressions controlling for age, gender, and race.

Research methods (contd)

Data analyses

- Finally, we conducted multivariate logistic regressions to examine independent factors associated with Meth use among drug users.
 - These analyses included all variables found significant in the univariate models (viz., having exchanged sex; alcohol use and binge drinking; numbers of sex partners; unprotected intercourse while involved with multiple partners; frequencies of unprotected intercourse; and the proportion of intercourse occasions that were condom protected), again controlling for age, gender, and race.
- All results report odds ratios (OR) adjusted for all variables included in analyses with 95% confidence intervals associated significance values.
- Numbers of participants included in various models varied due to non-systematic missing values.

Results

Substance use

- Results showed that substance use was common in the sample. Sixty-five percent of men (N = 282) and 37% (N = 188) of women reported currently using alcohol.
- Thirty-seven percent (N = 164) of men and 19% (N = 96) of women reported drinking at least six drinks on one of more occasions at least monthly.
- In terms of non-alcohol drug use on more than one occasion, 21% (N = 88) of men and 5% (N = 27) of women had used Cannabis, 7% (N = 32) men and 1% (N = 7) women had used Mandrax, and 2% (N = 8) of men and less than 1% (N = 5) of women had used cocaine in the previous six months.
- Less than 1% of men and women reported injecting drugs.

Results (contd)

Methamphetamine use

- The majority (83%) of participants indicated that they had heard of Meth and 90% of the sample agreed with the statement that Meth use is a serious problem in their community.
- Both men (63%, N = 278) and women (58%, N = 302) indicated that they have known someone who used Meth.
- In addition, we found that 18% (N = 78) men and 12% (N = 63) women had used Meth in their lifetime.
- In addition, 11% (N = 49) men and 6% (N = 34) women reported using Meth in the previous six months.

Results (contd)

Methamphetamine use

- Individuals who had ever used Meth were significantly younger than those who had not used Meth; 56% (N = 78) of persons who tried Meth were age 25 or younger compared to 37% (N = 307) persons who had not tried Meth, OR = 2.1, 95%CI = 1.4-2.9.
- In addition, men (56%, N = 78) were significantly more likely to have tried Meth than women (63, 45%), OR = 1.6, 95%CI = 1.1-2.2.
- Persons who identified as Coloured race (82%, N = 112) were more likely to have tried Meth than Indigenous Africans (14%, N = 20), and persons of other races (4%, N =5), OR = 0.6, 95%CI = 0.4-0.7.
- There were no differences between individuals who had tried Meth and those who had not tried Meth on other demographic characteristics.

Table 1. Demographic characteristics, STI history, and HIV testing history among persons who used non-Meth drugs and persons who had used Meth in the previous 6 months.

	Drug users not using				OR	95%CI
	Meth (n=131)		Meth users (n=83)			
	n	%	n	%		
Under age 25	55	42	53	54	0.4 [†]	0.2-0.7
Gender						
Male	91	70	49	59		
Female	40	30	34	41	1.6	0.9-2.8
Race						
African	34	26	13	16		
Coloured	85	65	63	78	1.9	0.9-3.9
Other	12	9	7	8		
Married	51	39	28	34	1.2	0.7-2.2
Employed	56	43	34	42	1.0	0.6-1.8
>12 years education	25	19	24	30	1.8	0.9-3.4
Received money/ goods for sex	7	5	13	16	3.2 [†]	1.2-8.6
STI history	24	18	13	16	1.2	0.6-2.5
STI in past 3 months	8	6	6	7	0.8	0.3-2.4
Tested for HIV	47	37	33	42	0.8	0.5-1.4
Tested HIV positive	4	5	2	4		

[†]p<0.01.

Table II. Alcohol and other drug use among persons who used non-Meth drugs and persons who used Meth in the previous 6 months.

	Drug users not using Meth (N=131)		Meth users (N=83)		OR	Adjusted 95% CI
	n	%	n	%		
Alcohol						
Currently uses alcohol	92	70	70	84	2.6 [†]	1.2-5.6
2+ drinks per week	27	21	32	39	2.5 [†]	1.4-4.8
6+ drinks per occasion monthly	56	44	50	53	2.4 [†]	1.3-4.3
Drugs						
Mandrax						
Used once	9	7	5	6	1.1	0.3-3.6
More than once	21	16	12	15	1.1	0.5-2.3
Dagga						
Used once	36	28	20	24	0.9	0.4-1.9
More than once	61	47	40	48	0.9	.05-1.7
Cocaine						
Used once	6	5	2	2	n/a	n/a
More than once	7	5	6	7	n/a	n/a
Heroin						
Used once	0	0	3	4	n/a	n/a
More than once	7	5	4	5	n/a	n/a
Injection drugs						
Used once	5	4	6	7	n/a	n/a
More than once	3	2	2	2	n/a	n/a

Adjusted for age, gender, and race; [†]p<.01; n/a=not applicable; small cell sizes.

Table III. Sexual partners and sexual behaviors in the past 6 months among persons who used non-Meth drugs and persons who used Meth in the previous 6 months.

	Drug users not using				Meth users (n=83)		Adjusted	
	Meth (n=131)				n	%	OR	95%CI
	n	%	n	%				
Sex partners								
0	28	21	9	11				
1	71	54	20	24				
2	12	9	16	19				
3+	20	15	38	45	2.5 ^a	1.8-3.5		
Multiple partners and unprotected intercourse	24	18	44	53	6.2 ^a	3.1-12.3		
Sex involving alcohol	59	45	47	57	2.4 ^a	1.3-4.6		
Sex involving								
Non-Meth drugs	11	9	12	15	2.1	0.9-5.1		
Meth	7	5	33	40	11.9 ^a	4.8-29.2		
	M	SD	M	SD				
Number of sex partners	2.1	5.6	4.5	7.7	1.2 ^a	1.1-1.2		
Unprotected intercourse	12.3	21.9	5.1	9.1	0.97 ^a	0.95-0.99		
Protected intercourse	3.4	10.7	3.1	3.9	0.99	0.96-1.0		
Percent of intercourse occasions protected by condoms	28.2	36.1	48.1	32.5	5.8 ^a	2.2-15.8		

Note: Odds ratio adjusted for participant age, gender, and race. ^ap<.01

Results (contd)

Substance Use and Sexual Risks among Meth Users and Non-Meth Drug Users

- Meth users were significantly younger and significantly more likely to have exchanged sex for money or drugs than non-Meth drug users.
- There were no other differences between Meth users and non-Meth drug users on demographic characteristics, as well as no differences in STI history or HIV testing history.
- Meth users were significantly more likely to currently drink alcohol and drink more heavily than non-Meth drug users.
- Results indicated that aside from the use of Meth itself, there were no differences in non-alcohol drug use among Meth users and other drug users.

Results (contd)

Substance Use and Sexual Risks among Meth Users and Non-Meth Drug Users

- However, Meth users were significantly more likely to use multiple drugs, with 27% of Meth users reporting use of another drug in addition to Meth and 13% reporting use of two more additional drugs.
- In contrast, 89% of non-Meth users reported only using one drug in the past six months and this difference was significant after adjusting for gender, age, and race, OR = 5.1, 95%CI = 2.6-9.9.
- Meth users were significantly more likely to have multiple sex partners and to have practiced unprotected intercourse while having multiple sex partners than were their non-Meth drug using counterparts.
- There were no differences between the groups on their rates of engaging in unprotected intercourse in the past 6 months.

Results (contd)

Substance Use and Sexual Risks among Meth Users and Non-Meth Drug Users

- However, Meth users reported that a greater proportion of their intercourse occasions were protected by condoms in the past six months as compared to non-Meth users.
- Finally, we found that 9% of non-Meth users used other drugs in sexual contexts as did 15% of Meth users, a non-significant difference.
- In contrast, 40% of Meth users indicated that they or their partner had used Meth in sexual situations as did 5% of non-Meth users, indicating that their sex partners had used Meth in sexual contexts in the past six months.

Results (contd)

Multivariate Model

- In a final multivariate test comparing Meth users to non-users, the results showed significant associations for
 - participant gender, adjusted OR = 2.9, 95%CI = 1.1-73.7,
 - engaging in unprotected intercourse while having multiple partners, adjusted OR = 5.6, 95%CI = 2.0-15.6, and
 - proportion of intercourse occasions protected by condoms, adjusted OR = 4.8, 95%CI = 1.2-19.1.
- Thus, Meth use was related to male gender, engaging in unprotected intercourse while having multiple sex partners, and greater use of condoms.

Conclusions

- **The significant use of Meth suggested by these findings is disturbing because Meth itself is a dangerous drug, and because of the close association between Meth and sexual risks for HIV infection.**
- **Multiple factors likely contribute to the Meth risky sex association, including sexual enhancing and stimulant properties of the drug, impaired judgment and its highly addictive pharmaceutical properties.**
- **Because Meth is inexpensive to make from readily available substances, poverty is not as much of a barrier to Meth use as it is to other drug use.**
- **Without effective measures taken to stem the use of Meth, it is likely that a new wave of HIV infections will soon spread throughout communities that, until now, have been relatively spared from the greatest burden of HIV/AIDS.**

Acknowledgements

- The National Institute of Alcohol Abuse and Alcoholism Grant R21-AA014820 and The National Institute of Mental Health (NIMH) Grant R01-MH071160 supported this research. The authors thank MaAfrika Tikkun for their assistance with undertaking fieldwork on this study.
- This poster is based on the following article:
Simbayi, L.C., Kalichman, S.C., Cain, D., Cherry, C., Henda, N., & Cloete, A. (2006). Methamphetamine Use and Sexual Risks for HIV Infection in Cape Town South Africa. *Journal of Substance Use*, 11(4), 291-300.

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