Rev Saúde Pública 2008;42(5):830-7

Monica Malta[I]

Simone Monteiro[I]

Rosa Maria Jeronymo Lima[II,III]

Suzana Bauken[II,III]

Aliamar de Marco[III]

Gleisse Cristine Zuim[III]

Francisco Inacio Bastos[I]

Merrill Singer[IV]

Steffanie Anne Strathdee[V]

HIV/AIDS risk among female sex workers who use crack in Southern Brazil

Risco frente ao HIV/Aids entre mulheres trabalhadoras do sexo que usam crack no sul do Brasil

ABSTRACT

OBJECTIVE: To understand the social context of female sex workers who use crack and its impact on HIV/AIDS risk behaviors.

METHODODOLOGICAL PROCEDURES: Qualitative study carried out in Foz do Iguaçu, Southern Brazil, in 2003. Twenty-six in-depth interviews and two focus groups were carried out with female commercial sex workers who frequently use crack. In-depth interviews with health providers, community leaders and public policy managers, as well as field observations were also conducted. Transcript data was entered into Atlas.ti software and grounded theory methodology was used to analyze the data and develop a conceptual model as a result of this study.

ANALYSIS OF RESULTS: Female sex workers who use crack had low self-perceived HIV risk in spite of being engaged in risky behaviors (e.g. unprotected sex with multiple partners). Physical and sexual violence among clients, occasional and stable partners was widespread jeopardizing negotiation and consistent condom use. According to health providers, community leaders and public policy managers, several female sex workers who use crack are homeless or live in slums, and rarely have access to health services, voluntary counseling and testing, social support, pre-natal and reproductive care.

CONCLUSIONS: Female sex workers who use crack experience a plethora of health and social problems, which apparently affect their risks for HIV infection. Low-threshold, user-friendly and gender-tailored interventions should be implemented, in order to increase the access to health and social-support services among this population. Those initiatives might also increase their access to reproductive health in general, and to preventive strategies focusing on HIV/AIDS and other sexually transmitted infections.

DESCRIPTORS: Women. Prostitution. Crack. Acquired Immunodeficiency Syndrome. Health Knowledge, Attitudes, Practice. Qualitative Research.

[I] Fundação Oswaldo Cruz. Rio de Janeiro, RJ, Brazil

[II] Centro de Estudos, Pesquisa e Atenção a Drogas e Aids. Foz do Iguaçu, PR, Brazil

[III] Secretaria de Saúde de Foz do Iguaçu, Foz do Iguaçu, PR, Brazil

[IV] Center for Health Communication and Marketing. Center for Health, Intervention and Prevention. University of Connecticut. Storrs, CT, United States

[V] San Diego School of Medicine. University of California. San Diego, CA, United States

Correspondence:
Monica Malta
Departamento de Ciências Sociais
Escola Nacional de Saúde Pública Sérgio Arouca (ENSP)
Fundação Oswaldo Cruz (Fiocruz)
R. Leopoldo Bulhões, 1480 – sala 905
Manguinhos
21041-210 Rio de Janeiro, RJ, Brazil
E-mail: mmalta@jhsph.edu

Received: 4/5/2007
Reviewed: 8/4/2008
Approved: 7/28/2008

RESUMO

OBJETIVO: Compreender o contexto social no qual estão inseridas trabalhadoras do sexo que usam crack e seu impacto na adoção de comportamentos de risco frente ao HIV/Aids.

PROCEDIMENTOS METODOLÓGICOS: Estudo qualitativo realizado em Foz do Iguaçu (PR), em 2003. Foram realizadas 26 entrevistas em profundidade e dois grupos focais com trabalhadoras do sexo que utilizam crack freqüentemente. Também foram realizadas entrevistas em profundidade com profissionais de saúde, líderes comunitários e gerentes de políticas públicas, além de observações de campo. Os dados transcritos foram codificados com auxílio do software Atlas.ti e a metodologia *grounded theory* (teoria fundamentada em dados) foi utilizada para analisar os dados e desenvolver um modelo conceitual como resultado do estudo.

ANÁLISE DOS RESULTADOS: As trabalhadoras do sexo que utilizam crack apresentaram baixa autopercepção de risco frente ao HIV, apesar de estarem envolvidas em comportamentos de risco, como sexo desprotegido com múltiplos parceiros. Experiências de violência física e sexual com clientes, parceiros ocasionais e estáveis foram bastante freqüentes entre estas mulheres, prejudicando a negociação e o uso consistente de preservativos. Segundo profissionais de saúde, líderes comunitários e gerentes de políticas públicas, diversas trabalhadoras do sexo usuárias de *crack*, são moradoras de rua ou favelas, raramente acessam serviços de saúde, de aconselhamento e testagem anônimos, de apoio social e de saúde reprodutiva e pré-natal.

CONCLUSÕES: As profissionais do sexo que utilizam crack vivenciam vários problemas sociais e de saúde que parecem influenciar o risco à infecção pelo HIV. Intervenções de limiar baixo, amigáveis e voltadas para questões de gênero devem ser implementadas objetivando facilitar o acesso a serviços de saúde e de apoio social nessa população. Tais iniciativas poderão também facilitar o acesso deste grupo a serviços voltados para saúde reprodutiva em geral e estratégias especificamente voltadas para prevenção do HIV/Aids e demais infecções sexualmente transmissíveis.

DESCRITORES: Mulheres. Prostituição. Cocaína Crack. Síndrome de Imunodeficiência Adquirida. Conhecimentos, Atitudes e Prática em Saúde. Pesquisa Qualitativa.

INTRODUCTION

In many parts of the world, there is significant overlapping between populations of sex workers and injection drug users (IDU), and, more recently, between crack cocaine smoking and unprotected commercial sex. In settings as diverse as India, China, Indonesia, Russian Federation, and Ukraine, the HIV epidemic has rapidly spread among sex workers and/or IDU and HIV prevalence has been as high as 70% in some sex workers and IDU populations.[26]

Some drug users turn to sex work out of financial need to support their addiction, while some sex workers seek escape from their life circumstances and work situations through drug use.[22] In either cases, the exchange of sex for drugs or money under the influence of drugs is a high-risk encounter that can compromise judgment and the ability to practice safe sex.

In Brazil, a major aspect is the specific drug scene, where the main drug of abuse is cocaine.[10] Due to specific patterns of cocaine use – constant and repetitive use in a single day – active cocaine users frequently engage in risk behaviors to maintain their patterns of consumption.[11,12] Some studies have also reported the transition toward crack cocaine of former cocaine snorters and/or injectors in Brazil.[1,5,8]

This paper reports major findings of a study targeting female commercial sex workers who use crack from Foz do Iguaçu, southern Brazil. The study is an

outcome of a joint effort from the Brazilian Ministry of Health and the Global AIDS Program of the Centers for Disease Control and Prevention (CDC), designed to empower Brazilian non-government organizations (NGO). During a few weeks, NGOs from around the country received training to develop and conduct qualitative research studies targeting populations more vulnerable to HIV/AIDS.[8] During this training, the use of multiple, overlapping qualitative methods was emphasized to increase the accuracy of research findings.[17,20,25] Following the training five projects were selected for funding. Herein we report findings from one of those five projects, conducted by an NGO – CEPADA – working in Foz do Iguaçu.

The objective of the present study was to describe risk and health behaviors of female commercial sex workers who use crack cocaine.

METHODODOLOCIAL PROCEDURES

The study was conducted in Foz do Iguaçu, a city located in Southern Brazil in an area that borders both Paraguay (Ciudad Del Este, Paraguay is readily visible from the city) and Argentina. Like many border towns, Foz do Iguaçu is known as an important area of drug trafficking (particularly cocaine and crack-cocaine), trade of diverse goods and commodities, and commercial sex transactions.

The following qualitative methods were adopted: observations in a selected venue, brief interviews with local experts, focus groups and in-depth interviews with female commercial sex workers who use crack.

Data collection began with field observations at a number of sites known to be common crack use and trafficking sites and commercial sex transaction locations in Foz do Iguaçu, from January to December, 2003. The time of field observations varied to cover morning, afternoon, evening, and late night hours. Short interviews were conducted with six community health providers, four community leaders from slums where female commercial sex workers live and/or use crack cocaine, three police officers, and the coordinator of the local HIV/AIDS Program. Participants were asked to share their viewpoints about the use of crack cocaine by young females, the involvement of crack-user women in commercial sex and their vulnerability to HIV/AIDS and other sexual transmitted infections (STIs). In the interview with the HIV/AIDS Program coordinator, issues related to access to treatment and care for this population and public initiatives targeting female commercial sex workers who use crack were also discussed.

In-depth interviews were then conducted with a snowball sample of 26 crack-user women recruited through street outreach at identified sites. Interview topics included: sexual/drug use behavior; involvement in commercial sex; and knowledge, attitudes and beliefs regarding HIV infection. Two focus groups were conducted with the same population at the end of the study, in order to confirm and expand initial findings.

All transcripts were analyzed using principles of grounded theory.[23] ATLAS.ti, a software program for computer-based text search and retrieval, was used to help manage data during the coding process.[16] Selected quotes were included to illustrate major research findings reported by the interviewees. The selection of quotes aimed at covering all expressed viewpoints while avoiding redundancy.

Investigators used previously published domains of HIV/AIDS behavioral risks to draft a preliminary framework for those domains among female commercial sex workers.[28] After reviewing the initial interviews, the team reached five major domains for analysis: (1) daily life, (2) knowledge about STIs and HIV/AIDS, (3) access to health services, (4) sexual behavior and condom use, and (5) alcohol and illicit substance use. After the framework was revised, a coding hierarchy was developed, accounting with 55 codes within those five major domains. All transcripts were reviewed and independently coded by three investigators, and coding discrepancies were discussed to reach an agreement. During this process, the domain structure was continually reassessed and underwent subsequent revisions.

ANALYSIS OF RESULTS

Sociodemographic characteristics of 26 female commercial sex workers who use crack who participated on in-depth interviews are described on the Table. A subsample of 13 female commercial sex workers who use crack participated in a one-session focus group (one group with six participants and another with seven). Focus group participants had similar sociodemographic characteristics than those of in-depth interview participants (data not shown).

Figure 1 presents the final framework developed by our research team, illustrating five major domains of HIV/AIDS behavioral risks among female commercial sex workers who use crack. Each domain was identified in every interview and focus group, suggesting that additional interviews/groups would be unlikely to yield additional domains.

The findings suggest that sex workers' life is complex and they lead to a chaotic lifestyle. Everyday life is stressful and at work they face many dangers including police arrest, harassment by thugs, intimidation by clients, threats by pimps and violence from their regular partners. Economic hurdles, child-care and daily life problems are their urgent priority and they find their life distressing and depressing. Alcohol/drugs are often

Table. Sociodemographic characteristics of female commercial sex workers who use crack who answered in-depth interviews. Foz do Iguaçu, Southern Brazil, 2003.

Variable	n	%
Age		
18–20	5	19.2
21–25	5	19.2
26–30	7	26.9
31–35	4	15.4
36–40	5	19.2
Marital status		
Married/stable union	11	42.3
Single	15	57.7
Years of formal education		
Illiterate	2	7.7
Less than 4 years	6	23.1
5–8 years	7	26.9
9–11 years	11	42.3
Monthly income		
$ 100.00 – $ 175.00	9	34.6
$ 200.00 – $ 500.00	-	-
$ 501,00 – $ 800.00	2	7.7
$ 801.00 – $ 1,000.00	1	3.8
NA	10	53.9
Mean number of children (range)	2.2 (0–8)	
Total	26	100

used as a stress coping agent, and the frequent use highly influence their engagement in unsafe sex. The everyday normality and acceptability of unprotected sex with long-term heterosexual partners in the general population is also applicable to sex workers in their long-term relationships. While it is normal for female commercial sex workers who use crack to talk about condom use in paid encounters, the same is not true in their sexual relationship with regular partners and pimps. Despite their knowledge that these regular partners and pimps are "risky," issues of trust, intimacy and dependence interfere with the practice of safer action. Substance use by those partners also helps them to "throw caution into the wind" and conform to the norm of unprotected sex with long-term partners. Fear of violence/abuse from clients and being high also influence their engagement in unsafe sex with clients. Figure 2 shows how the synergy of commercial sex and alcohol/drug abuse, in a setting characterized by frequent violence, might influence unsafe practices of female commercial sex workers who use crack with different partners.

According to the majority of participants, early initiation (around 8-11 years old) of drug use was commonplace, and usually drug use preceded sex work. Participants reported usually starting to use inhalants, such as glue. Study participants also referred to early engagement in commercial sex and/or drug trafficking, behaviors highly influenced by their early drug use:

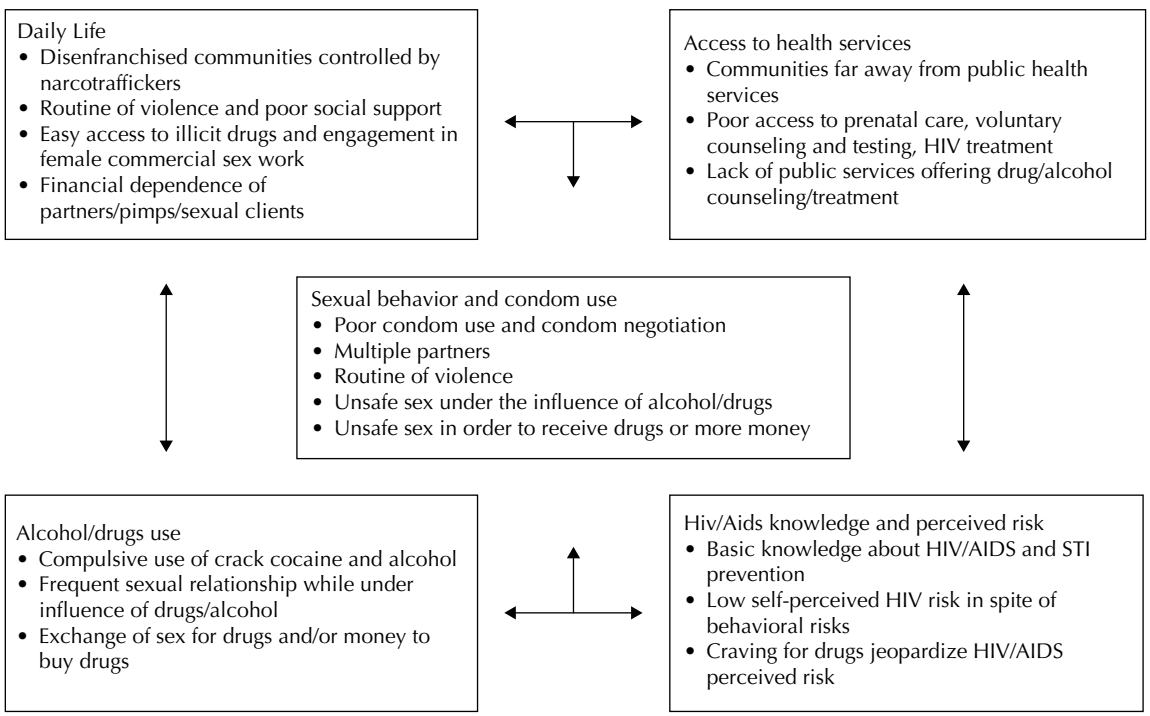

Figure 1. Conceptual model of the domains of HIV/AIDS behavioral risks among female commercial sex workers. Foz do Iguaçu, Southern Brazil, 2003.

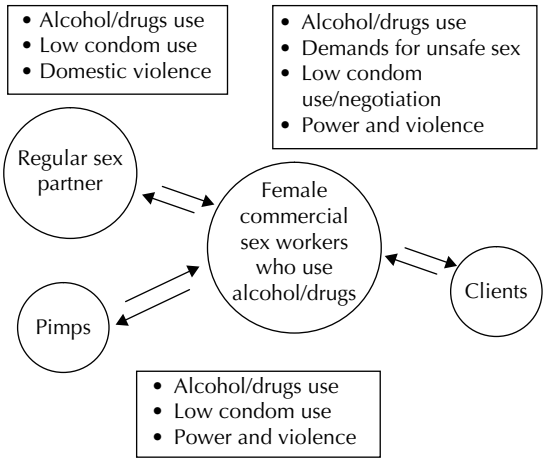

Figure 2. Intersecting populations of commercial sex workers, clients and their regular sex partners. Foz do Iguaçu, Southern Brazil, 2003.

"I was 13 years old, and I was sort of… a rebel, you know? I always was the most... let's say, the most active kid in my group. I was curious, extroverted, you know? And I was really pretty, all dealers liked me… So, the dealers liked me, and usually gave me drugs for free. I mean, I didn't have any allergic or strong reaction, you know? So, it was all about having fun and enjoying myself. Soon I was snorting cocaine, using meth and all that stuff." [Female, commercial sex worker, 37 years]

HIV/AIDS knowledge and self-perceived risk

All participants had good knowledge about HIV/AIDS and other STIs. However, it was not enough to influence their behavioral risks, and some participants had even low self-perceived HIV risk in spite of being engaged in unprotected sex with multiple partners.

"Yeah, dude, I do have all info about that [how to protect against HIV/AIDS]. *Those ladies from this stuff told me…* [AIDS-NGO], *you cannot make sex without a condom, should never share a needle and syringe, I know it all… But you know what? Condom is useless for me… I just hate it… I feel like eating paper wrapped candy, you know what I mean?"* [Female, commercial sex worker and drug dealer, 27]

Nevertheless, the major problems influencing HIV/AIDS behavioral risk taking did not seem to be lack of self-perceived risk. The context of violence, commercial sex and lack of social support jeopardized those women's empowerment and the engagement in safer behaviors.

Sexual risk behaviors

According to most participants, high-risk sexual behaviors were very common among female commercial sex workers who use crack, and they usually had daily multiple sexual partners, unprotected sex being very common. According to participants, unprotected sex was frequent with clients who paid more, were perceived as "regular", or simply "looked clean." No condom use was reported with steady partners.

"Every day I hang out with around five or six different clients, 'cause I work day and night. All of us usually have lots of clients, and we get more money or drugs.[for unprotected sex]*"* [Female, commercial sex worker, 22]

Being high negatively affected their ability to negotiate condom use. Unprotected sex frequently ensued when participants were desperate for crack or to get money to buy crack, while fear of violence and/or lack of confidence also contributed to poor condom negotiation/use:

"(...) 'cause the more you smoke it [crack], *the more you wanna smoke. Then you don't have it and someone tells you: 'Let's do it* [have sex]*?,' you don't have condoms, but you say 'Okay,' then you make out without condom. 'Cause you're dying for a stone…* [crack]. "[Female, commercial sex worker, 22]

Pipe sharing

The majority of participants reported to have shared their pipe and/or to use pipes from friends. This was mainly driven by fear of being arrested by police officers or for the belief that having a pipe will increase their crack cocaine use. Most were unaware of the risks related to pipe sharing. Interviewees seldom or never mentioned hepatitis, oral herpes, and respiratory illnesses related to smoking crack.

"I got tuberculosis from a pipe, but I still share it, I don't wanna have my own pipe, you feel even crazier to get high when you have it. I mean, if I'm at home and I see a pipe... Got it? (...) I don't have my own pipe, cannot keep that thing at home… And what about the cops? They cannot find a pipe with me! I can use anything to smoke, you just need a cup and a piece of aluminum, you know? But... I've shared pipes a lot. If you have a stone, you won't think about any disease at all" [Female, commercial sex worker, 37]

Daily life and access to health services

Participants frequently reported difficulties to have access to public health services, usually facing long waiting periods before getting an appointment and/or experiencing prejudice/stigma in health facilities against their drug use habit or their engagement in commercial sex.

"My doc was really cruel with me. I was really skinny, and at that time I had sensitive skin. So, I was really sick, and he wanted to run lots and lots of tests. So I always complained that I was feeling pain, but he usually cursed and keep telling me that when I was going to

the streets to get this disease [HIV] *I didn't think about any pain… I mean, that's not the way a doc is supposed to treat or talk to his patient, you know? So I really felt ashamed in this facility, I mean, I felt mistreated."* [Female, commercial sex worker and homeless, 25]

Besides facing those problems related to prejudice/stigma, another important barrier was the lack of health services near slum areas. According to several key informant interviews, the single health facility located close to a slum no longer functioned and became an abandoned building, nowadays being used by drug dealers to sell crack and by clients to consume it.

Interviewer: *So, why was this public health facility located here in the slum closed?"*

"I don't know, it was on the previous administration. I mean, everyone used to go there for pre-natal care, pediatric, GYN and primary care. But everything's gone, it's a pity! Nowadays it's just an abandoned building, without windows and doors, a place where kids go just to smoke crack." [Community leader]

The inexistence of a maternity nearby the larger slum from Foz do Iguaçú influences the poor access to prenatal care. According to a few key informants, young women often deliver their babies in the slum, without any kind of health support, and unfortunately live birth abortion is very common.

"Once, a guy was smoking crack in the abandoned building, and he was really crazy. So, he felt a really stinky smell and heard someone crying. He thought it was a cat or something like that, that maybe a cat had just delivered some kitty cats, and it smelled pretty bad. But when he approached, he just saw a girl who had just delivered her baby, with her newborn on the grass. He called the cops, and they took them to a public health facility. I mean, it's quite common to have those girls delivering babies in the slum, on the streets or anywhere." [Woman who lives in the slum]

Access to drug treatment remained a major problem for such disenfranchised populations, because this municipality did not have any public facility for drug treatment. According to a public health representative, the government was neglecting its duty related to drug treatment in Foz do Iguaçu.

Interviewer: *"Is there any specific program for the treatment of drug dependents in the public health system here in Foz do Iguaçu?"*

"I'm not aware of any public facility for drug abuse here (...) I guess the government is delegating this task to NGO and others, but the government needs to be more proactive about that. We need to have early detection of drug abuse, so you can promptly act. 'Cause people get lost, once you start using drugs, and keep using it for a while, it will be really hard to recover. You can see lots of kids engaging in prostitution, and sometimes it's a dead-end way. [Local public health representative]

DISCUSSION

In the present study, female commercial sex workers who use crack cocaine had both early drug use initiation and involvement in commercial sex. Also, this population lives in a situation of social exclusion, and is highly vulnerable to HIV/AIDS and other STIs. Other studies conducted in Brazil[7] and Canada[2] highlight the social exclusion that crack cocaine users face, increasing their vulnerability to different STis, their less than optimal access to gynecological and prenatal care, among others health (e.g. frequent tuberculosis and other respiratory illnesses) and social problems.

According to Ferreira Filho et al,[7] crack cocaine use is increasing among disenfranchised population in Brazilian urban areas, such as the city of São Paulo. The present study shows that crack cocaine users have low formal education, high unemployment rates, and have been or still are homeless. Due to the specific patterns of crack cocaine use – repetitive use in a single day – active crack cocaine users frequently engage in risk behaviors to maintain their patterns of consumption.[11,12] Many female crack users are engaged in commercial sex, are homeless or living in shelters, and/or are dealing small amounts of illicit drugs. These behaviors place females who use crack cocaine at high risk for HIV/AIDS, other STIs, tuberculosis, and viral hepatitis.[21]

Female crack cocaine users interviewed in our study face a crucial problem: the scarcity, or even inexistence, of health services available to this population. This lack of access to health services is influenced by different factors. First, there is no public health service near any of the disenfranchised communities, and the single public facility located in the largest slum was closed, nowadays being an abandoned building used for crack use. Second, the available public health facilities do not target the specific needs of this population; for instance, the facilities do not work after hours, only early in the morning. Therefore, female commercial sex workers who use crack and drug users usually do not attend their appointments, have poor adherence to treatment and/or do not have access to voluntary counseling and testing for HIV/AIDS, viral hepatitis and STIs. Finally, experiences of stigma in health facilities were common among female commercial sex workers who use crack, compromising their willingness to attend further appointments, to seek treatment and care and/or voluntary counseling and testing.

Butters & Erickson[2] conducted a study of health care needs and experiences of 30 women who were heavily involved in the street life of crack and prostitution in Toronto, Canada. The main barriers to have access to health services were: previous experience of stigma/prejudice in health facilities, lack of services targeting the specific needs of drug-dependent women and lack of comprehensive services including medical, psychological and

social support.[2] On the other hand, accessible services such as mobile units, day-care hospitals and peer-groups were identified as important factors to stimulate crack cocaine user women to adhere to both health and drug-dependence treatment.[2] Although the population of commercial sex workers in Brazil is vastly different, the present study data nevertheless suggest the urgency for implementing better services targeting this population, developing culturally appropriate and gender-tailored interventions and improving their access/adherence to voluntary counseling and testing and care.

Stigma dramatically affects life experiences of drug dependents, their partners, family and friends. The fear of being stigmatized can be an important barrier to care. For example, many drug users are not accustomed to asking for help. The social stigma surrounding drug abuse sometimes leads to isolation. Some female drug users also have relatives with health problems of their own, thereby compromising this potential source of care. Health care providers and planners should be aware of the dynamics within informal care networks of drug using population that may leave those patients without necessary care.[3,4,14]

Unequal gender relationship and fear of violence also influenced the difficulties crack cocaine female users face about condom negotiation, leading women to engage in unprotected sex with steady/occasional partners and sexual clients. It is fundamental to develop interventions aiming at increasing and maintaining female drug user's autonomy and empowerment to engage in and negotiate safer sexual behaviors.[13,14,21]

The early involvement of this population in illicit activities – commercial sex, drug use and drug dealing – usually before adolescence, also influence their patterns of drug consumption and engagement in high-risk activities. It is pivotal to develop interventions targeting street children in this area in order to prevent their engagement in high-risk activities and provide the necessary social support. Among participants, the initiation of drug use precedes their engagement in sex work, suggesting that sex work may be a vehicle for income generation to support a drug habit. Interventions targeting this population should aim at preventing drug use, and refer drug users to treatment, in order to break the cycle of crack cocaine use and commercial sex.

Drug abuse – and particularly crack abuse – has been associated with commercial sex by several authors.[2,19,21,24,27] The majority of sex workers in this study had first used crack before they first sold sex, suggesting that crack addiction may force some into turning to sex work to support their addiction. The early initiation (around 8–11 years old) of any drug use among participants may also facilitate addiction, which in turn may increase the likelihood of entry into prostitution as a means of supporting their drug dependence. These findings are similar to those reported in a study conducted with 330 female street youths aged 14 to 25 years in Montreal, Canada. According to this study, the use of acid/phencyclidine (PCP), and frequent use of other drugs, increased the risk of initiation into prostitution.[27]

Crack cocaine causes blisters, sores, and cuts on the lips and inside the mouth of those who smoke it, and such sores may facilitate the oral transmission of HIV.[6,18] Therefore, the high frequency of pipe sharing found among participants might increase theirs vulnerability to HIV. Educational prevention strategies promoting safer crack smoking behaviors are clearly needed.

The major limitation of our study is the reliance only on self-reported data, particularly important for studies addressing sensitive issues such as drug abuse and sexual behavior. The evaluation of beliefs and behaviors related to those issues through self-report might lead to some "socially acceptable" responses, such as consistent condom use, that may have been over-reported. Another limitation refers to the interplay of complex factors at the individual level, their networks and the social environment at large. The study design does not allow to further understanding the specific role of such factors, neither to establish causal relationships between factors and findings. Some specific designs can address such limitations with relative success.[9,15]

Despite these limitations, our findings support the need to target HIV, other STI and tuberculosis prevention in sex workers who use crack in these urban neighborhoods. Since a high proportion of sex workers who use crack live in the streets, shelters, and welfare hotels and practice sex work in diverse locations, frontline interventions led by community-based organizations and neighborhood groups are needed to complement prevention efforts in health care, drug treatment, and correctional facilities where many of these sex workers receive care or live. Prevention programs need to consider strategies to promote safer behaviors, social mobility and empowerment of sex workers who use crack.

Female commercial sex workers who use crack experience a synergy of health and social problems, increasing their vulnerability to HIV infection. Efforts to prevent HIV infection among this population require multifaceted, culturally appropriate and gender-tailored interventions. Low-threshold and user-friendly approaches should be promptly implemented. NGO, outreach work and community-based organizations are key actors to promote behavioral changes and the maintenance of protective behavior over time.

REFERENCES

1. Burattini MN, Strazza L, Paoliello AA, Carvalho HB, Azevedo RS, Coutinho FA, et al. The change from intravenous to crack cocaine and its impact on reducing HIV incidence in Brazilian prisons. *Int J STD AIDS*. 2005;16(12):836-7. DOI: 10.1258/095646205774988136
2. Butters J, Erickson PG. Meeting the health care needs of female crack users: a Canadian example. *Womens Health* 2003;37(37):1-17. DOI: 10.1300/J013v37n03_01
3. Celentano DD, Galai N, Sethi AK, Shah NG, Strathdee SA, Vlahov D, Gallant JE. Time to initiating highly active antiretroviral therapy among HIV-infected injection drug users. *AIDS*. 2001;15(13):1707-15. DOI: 10.1097/00002030-200109070-00015
4. Cohn JA. HIV-1 infection in injection drug users. *Infect Dis Clin North Am*. 2002;16(3):745-70. DOI: 10.1016/S0891-5520(02)00012-0
5. Dunn J, Laranjeira RR. Transitions in the route of cocaine administration-characteristics, direction and associated variables. *Addiction*. 1999;94(6):813-24. DOI: 10.1046/j.1360-0443.1999.9468135.x
6. Faruque S, Edlin BR, McCoy CB, Word CO, Larsen SA, Schmid DS, et al. Crack cocaine smoking and oral sores in three inner-city neighborhoods. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1996;13(1):87-92. DOI: 10.1097/00042560-199609000-00012
7. Ferreira Filho OF, Turchi MD, Laranjeira R, Castelo A. Perfil sociodemográfico e de padrões de uso entre dependentes de cocaína hospitalizados. *Rev Saude Publica*. 2003;37(6):751-9. DOI: 10.1590/S0034-89102003000600010
8. Ferri CP, Gossop M. Route of cocaine administration: patterns of use and problems among a Brazilian sample. *Addict Behav*. 1999;24(6):815-21. DOI: 10.1016/S0306-4603(99)00036-2
9. Fortenberry JD, Orr DP, Katz BP, Brizendine EJ, Blythe MJ. Sex under the influence. A diary self-report study of substance use and sexual behavior among adolescent women. *Sex Transm Dis*. 1997;24(6):313-9. DOI: 10.1097/00007435-199707000-00001
10. Hacker MA, Leite IC, Renton A, Torres TG, Gracie R, Bastos FI. Reconstructing the AIDS epidemic among injection drug users in Brazil. *Cad Saude Publica*. 2006;22(4):751-60. DOI: 10.1590/S0102-311X2006000400014
11. Inciardi JA, Surratt HL. Drug use, street crime, and sex-trading among cocaine-dependent women: implications for public health and criminal justice policy. *J Psychoactive Drugs*. 2001;33(4):379-89.
12. Latkin CA, Knowlton AR, Sherman S. Routes of drug administration, differential affiliation, and lifestyle stability among cocaine and opiate users: implications to HIV prevention. *J Subst Abuse*. 2001;13(1-2):89-102. DOI: 10.1016/S0899-3289(01)00070-0
13. Logan TK, Cole J, Leukefeld C. Gender differences in the context of sex exchange among individuals with a history of crack use. *AIDS Educ Prev*. 2003;15(5):448-64. DOI: 10.1521/aeap.15.6.448.24041
14. McKinney MM, Marconi KM. Delivering HIV services to vulnerable populations: a review of CARE Act-funded research. *Public Health Rep*. 2002;117(2):99-113.
15. Minayo MCS, Assis SG, Souza ER, organizadores. Avaliação por triangulação de métodos: abordagem de programas sociais. Rio de Janeiro: Fiocruz; 2005.
16. Muhr T. Atlas/ti for Windows. Berlin: Scientific Software Development; 1997.
17. Needle RH, Trotter RT 2nd, Singer M, Bates C, Page JB, Metzger D, et al. Rapid assessment of the HIV/AIDS crisis in racial and ethnic minority communities: an approach for timely community interventions. *Am J Public Health*. 2003;93(6):970-79
18. Porter J, Bonilla L. Crack users' cracked lips: an additional HIV risk factor. *Am J Public Health*. 1993;83(10):1490-1.
19. Sharpe TT. Sex-for-crack-cocaine exchange, poor black women, and pregnancy. *Qual Health Res*. 2001;11(5):612-30. DOI: 10.1177/104973201129119334
20. Singer M, Stopka T, Siano C, Springer K, Barton G, Khoshnood K, et al. The social geography of AIDS and Hepatitis risk: qualitative approaches for assessing local differences in sterile syringe access among injection drug users. *Am J Public Health*. 2000;90(7):1049-56.
21. Spittal PM, Bruneau J, Craib KJ, Miller C, Lamothe F, Weber AE, et al. Surviving the sex trade: a comparison of HIV risk behaviours among street-involved women in two Canadian cities who inject drugs. *AIDS Care*. 2003;15(2):187-95. DOI: 10.1080/0954012031000068335
22. Strathdee SA, Sherman SG. The role of sexual transmission of HIV infection among injection and non-injection drug users. *J Urban Health*. 2003;80(4 Supl 3): iii7-14. DOI: 10.1093/jurban/jtg078
23. Strauss A, Corbin J. Basics of qualitative research: grounded theory procedures and techniques. Newbury Park: Sage; 1990.
24. Surratt HL, Inciardi JA. HIV risk, seropositivity and predictors of infection among homeless and non-homeless women sex workers in Miami, Florida, USA. *AIDS Care*. 2004;16(5):594-604. DOI: 10.1080/09540120410001716397
25. Trotter RT II, Needle RH, Goosby E, Bates C, Singer M. A methodological model for rapid assessment, response, and evaluation: the rare program in public health. *Field Methods*. 2001;13(2):137-59.
26. UNAIDS, World Health Organization. 2007 AIDS epidemic update. Geneva; 2007.
27. Weber AE, Boivin JF, Blais L, Haley N, Roy E. Predictors of initiation into prostitution among female street youths. *J Urban Health*. 2004;81(4):584-95. DOI: 10.1093/jurban/jth142
28. World Health Organization. A rapid situation assessment of sexual risk behaviour and substance use among sex workers. Genebra; 1998.

The study was funded by the Centers for Disease Control and Prevention, UNESCO and the Brazilian Ministry of Health. SA Strathdee is supported in part by the endowment from the Harold Simon Chair Foundation at the University of California, San Diego and by National Institute on Drug Abuse, grant DA19829.