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Research paper

Sexual pleasure and sexual risk among women who use methamphetamine: A mixed methods study

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ABSTRACT

Background: The intersection of drug use, sexual pleasure and sexual risk behaviour is rarely explored when it comes to poor women who use drugs. This paper explores the relationship between sexual behaviour and methamphetamine use in a community-based sample of women, exploring not only risk, but also desire, pleasure and the challenges of overcoming trauma.
Methods: Quantitative data were collected using standard epidemiological methods ($N = 322$) for community-based studies. In addition, using purposive sampling, qualitative data were collected among a subset of participants ($n = 34$). Data were integrated for mixed methods analysis.
Results: While many participants reported sexual risk behaviour (unprotected vaginal or anal intercourse) in the quantitative survey, sexual risk was not the central narrative pertaining to sexual behaviour and methamphetamine use in qualitative findings. Rather, desire, pleasure and disinhibition arose as central themes. Women described feelings of power and agency related to sexual behaviour while high on methamphetamine. Findings were mixed on whether methamphetamine use increased sexual risk behaviour.
Conclusion: The use of mixed methods afforded important insights into the sexual behaviour and priorities of methamphetamine-using women. Efforts to reduce sexual risk should recognize and valorize the positive aspects of methamphetamine use for some women, building on positive feelings of power and agency as an approach to harm minimization.

> I do feel invincible. . .like nothing's gonna touch me. . .like I could do this forever. And sometimes I wish that I could have that sexual pleasure feeling forever. I don't want it to end.

Introduction

The intersection of drug use, sexual pleasure and sexual risk is rarely explored, especially when it comes to poor "high-risk" women. Rather, research regarding HIV and sexual behaviour among female drug users is dominated by a risk-focused epidemiological paradigm which narrowly defines risk behaviours, measures their prevalence and explores the correlates of these behaviours (e.g., age, race/ethnicity, depression). This work sometimes also identifies larger social or contextual influences on risk, such as housing status and gender-power dynamics (Holt & Treloar, 2008; Moore, 2008; Sobo, 1993). Vital knowledge has been gained about drug-using women and sexual risk behaviour (such as unprotected sex and multiple male partners) using epidemiological methods (Johnson, Cunningham-Williams, & Cottler, 2003; Logan & Leukefeld, 2000; Miller, Liao, Wagner, & Korves, 2008). Particularly valuable is evidence showing the importance of gender-based violence and social disadvantage in shaping risk (El-Bassel, Gilbert, Wu, Go, & Hill, 2005b; Logan, Cole, & Leukefeld, 2002; Magee & Huriaux, 2008). However, the focus on violence, trauma and social disadvantage often predominates to the degree that it obscures any sense of agency or pleasure women who use drugs may experience. Higgins (Higgins, Hoffman, & Dworkin, 2010) observes that the recognition of the role of gender-based social and structural inequalities in enhancing women's susceptibility has been a groundbreaking shift in addressing HIV among women worldwide. However, she also notes that the focus on women's vulnerability can "mask women's power and agency." Similarly, Valentine (Valentine & Fraser, 2008) and others (Moore, 2008; Race, 2008) contend that while it is essential to recognize

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the marginalization, abuse and deprivation that sometimes accompany drug use, it is also important to avoid seeing these factors as obliterating the experience of agency. In social science, the concept of 'agency' is a fraught one. Common sense notions of 'free will' and individual control belie the complex ways culture shapes emotions and frames choices and how power relations constrain individual decision-making and limit life options (Bourgois & Hart, 2011; Farmer, Nizeye, Stulac, & Keshavjee, 2006; Quesada, Hart, & Bourgois, 2011). Nevertheless, the common-sense notion of agency as a measure of individual empowerment and efficacy is valued by drug users and can be a powerful component of successful drug treatment (Bourgois & Hart, 2010).

The pursuit of pleasure is one arena in which feelings of agency may play out. Despite the fact that pleasure is a core motivation for drug use and sexual activity, it is rarely addressed in research on substance abuse and HIV risk (Duff, 2008; Holt & Treloar, 2008). One explanation for this absence is the emphasis on pathological theories of drug use in the U.S. For poor women in particular, the amelioration of psychological pain is often assumed to be the primary motivation for drug use (Valentine & Fraser, 2008). Similarly, drug-related needs – not pleasure or desire – are seen as the primary motivation for sexual engagement. In this framework, it is difficult to make room to document the potentially positive aspects of sexual activity in the context of drug use. In addition, the widespread criminalization and social condemnation of drug use contributes to a research environment that rewards scientists for focusing on disease and risk, and provides little incentive to delve into areas like pleasure that appear vaguely disreputable, not to mention difficult to quantify and analyse (Duff, 2008). Seemingly an exception, research regarding HIV risk among men who have sex with men (MSM) sometimes does recognize sexual pleasure as a motivating factor for drug use (Green & Halkitis, 2006; Prestage, Grierson, Bradley, Hurley, & Hudson, 2009). However, sexual behaviour among gay men in the context of drug use is often implied to be "hypersexual" and pleasure, again, is seen primarily through the framework of risk.

The marginalization of desire and pleasure in HIV research may imperil our ability to develop effective prevention strategies. To date, interventions to reduce sexual risk behaviour among drug users, tested in randomized controlled trials, have been moderately successful at best. Meta-analyses reveal that such interventions (such as enhanced education or cognitive behavioural therapy) often have small effect sizes, when compared to no-intervention control conditions (Cross, Saunders, & Bartelli, 1998; Meader, Li, Des Jarlais, & Pilling, 2010). Furthermore, differences in behaviour change between intervention groups typically are not sustained over time (Booth & Watters, 1994; Gibson, McCusker, & Chesney, 1998). In addition, it has been found repeatedly that intensive interventions (for example, drug treatment plus sexual risk education groups) are no more effective than 'standard' or minimal interventions such as treatment only (Colfax et al., 2010; Semaan, Jarlais, & Malow, 2006). The lackluster showing of sexual risk behaviour interventions suggests that we may be missing key information about sexual behaviour among drug users, and that intensive efforts to date may not be pursuing a productive direction. Research which ignores drug users' sense of the positive aspects of sexual activity and drug use runs the risk of not only being ineffective, but also of alienating drug users by dismissing their key priorities and life experiences as irrelevant (Holt & Treloar, 2008; Moore, 2008). An enhanced evidence base – one which incorporates the perceived rewards and benefits of sexual behaviour in the context of drug use – may be needed to develop more effective sexual risk reduction strategies. Exploring desire and the pursuit of pleasure may lead to new ideas and approaches to promote sexual behaviour that carries no risk of infection.

This paper explores the relationship between sexual behaviour and methamphetamine use in a community-based sample of women who use drugs in San Francisco, CA. Using mixed methods, it delves into different dimensions of sexual behaviour and methamphetamine use – inclusive not only of the risk of unprotected intercourse, but of desire, pleasure and the challenges of overcoming trauma. Our goal was to understand sexual behaviour as an experience rather than solely as a risk behaviour. By extending the boundaries of conventional HIV risk assessment; this research strives to bring new depth and insights to understanding the sexual behaviour of women who use drugs.

Methods

This paper uses mixed methods, defined as "research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches" (Tashakkori & Creswell, 2007). Mixed methods can help build an understanding of phenomena that are multidimensional and contextually driven, providing a multifaceted understanding of the issue under study (Greene & Caracelli, 2003). Iteratively building an understanding of *what* is happening and *why* it is happening has a pragmatic appeal that often outstrips loyalty to a single research paradigm, particularly in practice-oriented fields such as public health (Forthofer, 2003; Greene & Caracelli, 2003). That said, there are inherent difficulties in integrating data that arise from substantially different epistemological traditions Qualitative data do not simply 'illustrate' quantitative findings nor do quantitative data simply 'summarize' what is learned through qualitative methods. Rather, the two methodological approaches provide different perspectives on similar, but often not identical, issues. Interpreting data using mixed methods requires active engagement in both views (Ciccarone, 2003), much like looking through the dual lenses of a pair of binoculars.

The study described here was designed to use mixed methods from its inception. Based on the knowledge that sexual behaviour among disadvantaged women is complex and multi-dimensional, the intention was to complement quantitative findings with qualitative data regarding the contexts and circumstances of unprotected sex. Greene (1989) describes this purpose as *complementarity*, which she defines as "enhancement, elaboration, illustration, clarification of results from one method with results from another (p. 259)." In the data collection and analysis process, it became clear that risk was not the central dimension of sexual behaviour that was important to the women in the study. Desire, pleasure and disinhibition arose as central themes relevant to sexual behaviour and methamphetamine use, as well as to definitions of the self. Greene refers to the emergence of new concepts as a result of mixed methods analysis as *initiation*, the development of fresh insights and areas of inquiry (Greene, 1989). Thus, in this paper, mixed methods served both the purposes of complementarity (as planned) and initiation (as discovered).

Study procedures

Quantitative and qualitative data collection were conducted simultaneously from July 2007 to June 2009 in San Francisco, California. All study procedures were reviewed and approved by the Institutional Review Boards at RTI International and the University of Pennsylvania. A community-based sample was recruited using respondent-driven sampling (RDS), a form of chain-referral sampling (Abdul-Quader, Heckathorn, Sabin, & Saidel, 2006; Heckathorn, 1997). A group of initial participants (or "seeds") were identified by the research team through outreach in the community. Participants were then given six coupons to recruit other

Table 1
Characteristics of qualitative study participants compared to other study participants.*

	Qual & quant ($n=34$) %	Quant only ($n=286$) %
Age		
18–29	22	21
30–39	22	23
40–49	25	34
50+	31	23
Race/ethnicity		
White	47	31
African American	36	47
Latina	5	4
Mixed race	8	9
Other	4	9
Drug use past 30 days		
Injected meth	58	52
Smoked/snorted meth	85	89
Smoked crack	50	63
Mean no. days used meth	17	18
Sexual behaviour past 6 months		
Unprotected sex, ≥2 partners	61	56
Traded sex for drugs or money	69	59

* All p values non-significant (>.05).

methamphetamine-using women that they knew, and so on, using this process to build the quantitative sample. Eligibility criteria for the study were (a) biological female; (b) age 18 or older; (c) methamphetamine use in past 30 days; (d) one or more male sexual partners in past 6 months; (e) referred by another participant with RDS recruitment coupon (except initial recruits). Eligibility was determined through a screening process that masked criteria by including several questions unrelated to eligibility. All participants engaged in an informed consent process, a quantitative interview, and HIV/STI testing at a centrally located community field site. The quantitative interview was conducted face-to-face, with interviewers posing questions verbally and recording responses in a computer-based personal interviewing system (Blaise®, Westat). Participants received $40 for the initial interview and testing session and $30 for HIV and STI results counselling sessions. They also received a $10–$20 incentive for each eligible participant they referred to the study (the incentive was increased midway through the study to improve recruitment).

Participants for in-depth qualitative interviews ($N=34$) were drawn from the ongoing quantitative component using purposive (Creswell & Plano Clark, 2007) and strategically targeted (Bourgois, Kral, Edlin, Schonberg, & Ciccarone, 2006) sampling. Through purposive sampling, we achieved diversity in the qualitative sample in terms of race/ethnicity, age; relationship status and housing status (see Table 1). We also sought variation in sexual experiences and frequency of unprotected sex. In the process of strategically targeted sampling, the research team met weekly to discuss emerging quantitative and qualitative findings regarding methamphetamine use and sexual behaviour, and identified potential candidates for in-depth qualitative interviews. For example, we discussed "marathon sex" as a behaviour of interest based on a quantitative survey item, and, for qualitative interviews, we intentionally recruited some women who did and some who did not report this behaviour. Similarly, as we began to note themes from qualitative findings, we selected participants and modified topics to further pursue our ideas, while simultaneously sampling strategically for the null hypothesis to control for potential subjective analytical bias and for potential distortions inherent to purposeful sampling (Bourgois et al., 2006). Qualitative participants were recruited when they returned to the field site for HIV and STI results counselling, one week after the quantitative interview. The repeated interactions with study participants (1 interview, 2 counselling sessions, and 1 qualitative interview) provided further opportunities to collect qualitative observations regarding institutional interactions and structural vulnerabilities, made in the form of field notes by study staff.

Following informed consent, open-ended interviews lasting 60–90 min were conducted using a topic-based interview guide. Topics included life history, family and intimate relationships, drug use history, sexual experiences and preferences, and methamphetamine use. Interviews were conducted in a conversational style flowing from the participants' perspective, and sought to strike a balance between maintaining focus on issues related to study objectives while allowing ideas to flow freely (Strauss & Corbin, 1998). Interviews were digitally recorded, transcribed and entered into Atlas Ti (Atlas.ti GmbH, Berlin). In addition, we reviewed field notes by interviewers that summarized their observations and impressions from the quantitative and qualitative interviews, and counselling sessions. Qualitative data collection reached the point of saturation at 34 interviews, as the research team noted the repetition of central findings with little new information arising.

Quantitative measures

Quantitative data was used primarily to reveal the prevalence of different sexual behaviours and patterns of drug use. In addition, perceptions of the impact of methamphetamine use on sexual behaviour were examined using a standardized scale.

Sexual risk behaviour

Our overarching measure of sexual risk behaviour was unprotected vaginal or anal sex with male partners. The number of male partners was measured with the item: "In the past six months, how many different male sexual partners (including steady, casual or paying partners) did you have vaginal, anal or oral sex with?" Multiple male sexual partners was defined as a response >1. The identical question was asked regarding female partners. These items were followed with questions regarding the number of partners by type (steady, casual and paying) in the past six months. For each type of partner, participants were asked "how many of your [steady, casual or paying] partners did you have vaginal sex with?" and "what percent of the time did you use condoms when you had vaginal sex with your [steady, casual, paying] partners?" The same questions were asked regarding anal sex. Marathon sex was defined as "prolonged sexual activity for several hours." A series of items designed to maximize recall examined each participant's most recent sexual encounter. They were asked, "The last time you had sex, did you have [vaginal, anal] sex?" "The last time you had sex, did you use a condom?" "The last time you had sex, were you high on meth?"

Drug use

Participants were asked about the use of several drugs, including methamphetamine, crack cocaine and heroin. The 30-day measure was "in the past 30 days have you used [drug]?" Affirmative responses were followed by the question, "how many days in the past 30 have you used [drug]?" Injection and non-injection use were recorded separately.

The perceived impact of methamphetamine use on sexual behaviour was assessed using the Subjective Experience of Meth Sex (SEMS) subscale (Semple, Grant, & Patterson, 2004), which poses 14 statements regarding how methamphetamine may affect sexual behaviours, thoughts and feelings. The scale has been used previously with heterosexual methamphetamine users (alpha = 0.93). Response categories are: strongly disagree, somewhat disagree, somewhat agree and strongly agree. Values from 1 to 4 was assigned to responses in this order.

Quantitative analysis

Point prevalence data describing demographic characteristics and prevalence of risk behaviours obtained using SAS Version 9.2 (Cary, NC). To assess the similarity of qualitative subsample to the larger quantitative sample, we compared the two groups on a number of demographic, drug use and sexual behaviours (Table 1). These comparisons were conducted using Pearson's χ^2 tests of significance. For the SEMS subscale, means were calculated per participant and then combined for overall scores.

Qualitative analysis

Qualitative analysis was conducted using an inductive approach, which Thomas describes as "detailed readings of raw data to derive concepts, themes, or a model (Thomas, 2006)." Initially, a small group of transcripts were reviewed separately and coded thematically by three members of the research team. Codes were then compared, expanded and refined to develop a working codebook. Interview transcripts were entered into Atlas Ti and coded accordingly. Research team members discussed transcripts in monthly meetings, identifying key constructs, new themes and emerging findings, and modifying codes as warranted. In a second phase of analysis, the authors focused in on the relationship of sexual behaviour and methamphetamine use. Through the lens of this specific line of inquiry, transcripts were re-read and re-analysed to cull the full range of data (supportive, negative and null) that described and helped illuminate the experience and meaning of sexual pleasure, desire and risk-taking in the context of methamphetamine use. Data were then grouped by theme (e.g., "desire"), and analysis was conducted using constant comparative methods (Corbin & Strauss, 2008). Through constant comparisons and the author's ongoing process of immersion and crystallization (Borkin, 1999), the relationships between sexual behaviour and methamphetamine use were explored and elucidated.

Integrating qualitative and quantitative data

Synthesis of qualitative and quantitative findings was an iterative process. Quantitative data were summarized in a series of tables and cross-tabulations. Qualitative data were organized thematically. Matrices were then developed that summarized quantitative and qualitative findings in key topic areas (Creswell & Plano Clark, 2007). Topic areas were loosely defined and somewhat fluid, as findings rarely matched up neatly across paradigms (Bourgois, 2002). Data were integrated in order to add depth and richness to findings, rather than a directed effort at triangulation.

Findings

The full study sample consisted of 322 women, of whom 34 participated in qualitative data collection. The qualitative subsample did not differ significantly from the rest of the sample in terms of demographic characteristics, frequency and modes of methamphetamine use or sexual behaviour (Table 1). The sample was racially diverse, and over half of participants were age 40 or older. The mean days of methamphetamine use in the past month was 18. Most women (91%) used illicit drugs in addition to methamphetamine, most commonly crack cocaine.

Over three-quarters (79%) of participants in the study had multiple male sexual partners in past six months (Table 2). The median number of male partners was 4 (interquartile range 2, 10). In addition, over a third of participants had one or more female sexual partners. Women were frequently "high" on methamphetamine while having sex. Women were asked, "When you had sex with male partners in the past 6 months, what percent of the time were you high on meth?" The median percent time was 80%. Over a third of women said they were *always* high on methamphetamine when having sex with men, and over half (59%) of those who reported same-sex partners said they were *always* high on methamphetamine when having sex with women.

Table 2
Sexual behaviour past 6 months ($N = 322$).

	%
Number of male partners	
1	21
2–5	39
≥6	40
Number of female partners	
0	64
1	16
≥2	20
Types of male partners	
Steady	69
Casual	43
Paying	58
How often high on during sex w/male partners	
Never	4
Sometimes	59
Always	37
Unprotected vaginal sex	79
Unprotected anal sex	22
"Marathon" sex	53

Desire

Interpretation of these findings is enriched by qualitative data which suggest a strong relationship between methamphetamine use and sexual desire. In open-ended interviews, many participants described methamphetamine as creating an intense desire for sex. Methamphetamine use led to a "High sex drive. I gotta have it, gotta have it," as one participant said. Levels of sexual activity were often attributed to methamphetamine use.

> It [methamphetamine] definitely made – increased my libido, to put it nicely... So that part of it I enjoyed. I wasn't promiscuous by any means but I, you know, I had about three sexual partners in the last year... It definitely reduced my inhibitions and increased my desire, or libido, to want to have sex.

The participant described an intensification of sexual desire directly related to methamphetamine use. In addition, methamphetamine use contributed to protracted sexual encounters, or marathon sex. Over half of women reported engaging in marathon sex in the past 30 days (Table 2). Women described this practice as inherently linked to methamphetamine use.

> ... Marathon sex, I don't think I would ever do that without being high... it's not my normal thing. But when you're high, that's real – I mean, I've done that quite a bit. Yeah. But never not high.

Participants linked methamphetamine use with a desire for more frequent and prolonged sex. This fostering of sexual desire is likely connected to the relatively high levels of sexual activity reported by participants.

Pleasure

Women participating in the study described sexual pleasure as a key benefit of methamphetamine use. "I love the way it makes me feel sexually," said one participant. Methamphetamine use facilitated sexual satisfaction: many women felt their orgasms were

Table 3
Selected items from the MethSex scale.

When I'm high on meth...	Agree[a] %	Disagree[a] %
My desire for sex increases	75	25
I enjoy sex more	82	18
I am able to satisfy my intimate sexual needs	72	28
I feel less shy	82	18
I'm less nervous about sex	76	24
I am more sexually disinhibited	72	28
My desire for sex is out of control	43	57
I'm less concerned about getting HIV or another STD from my partner	46	54

[a] Combined categories of 'strongly' and 'somewhat.

better when using methamphetamine and some reported only having orgasms when high. Another dimension of pleasure was that sexual activity on methamphetamine was longer lasting.

> When you're not high it's just really, it's quick even if there's foreplay... When you get high it's like it prolongs everything and makes you want to take the time... And it, it prolongs, um, my orgasms. Being on meth, I...it, it prolonged the orgasming.

Some women described methamphetamine in instrumental terms, as a pleasure-increasing sex aid. As one 54-year-old African American, poly-drug using woman said, "Meth is my sex drug." The mutually reinforcing pleasure provided by sexual activity and methamphetamine use was described by another participant:

> It's almost like an orgasm to begin with, when you fix [inject] you know. It really is, it's like an orgasm and uh, you feel it travel your body and you know, it's very warm and it's very nice, you know. And you put it with sex it's gonna really be exciting.

These findings suggest that a key reason women used methamphetamine was to enhance sexual pleasure.

Disinhibition

The Subjective Experience of Meth Sex (SEMS) subscale (Semple et al., 2004) described above, measured the perceived influence of methamphetamine use of sexual thoughts and behaviour. Three-quarters of participants agreed strongly or somewhat with statements such as, "when I'm high I enjoy sex more," and "when I'm high on meth I'm more sexually disinhibited" (Table 3). The mean score on the scale was 2.9 (range 1–4). A strong relationship between methamphetamine use, disinhibition and sexual pleasure was described by many women. Loss of inhibition was considered a positive experience that improved sexual encounters.

> I do like the way it [methamphetamine] makes me feel sexually. It makes me uninhibited... It gives you a sense of euphoric, 'Yeah, let's try it.' It opens the door, let's just put it that way.

Women described methamphetamine as promoting sexual exploration and freedom. Sex was described "fun" and "liberating."

> You have sex for hours... nonstop, every position – every which way but loose (laughs). Any which way you can (laughs). Sex was fun.

Disinhibition enabled women to act on sexual desires that they perceived as unconventional, or "freaky." Voyeurism, masturbation, multiple partners and sexual liaisons with women were some of the sexual behaviours ascribed to methamphetamine-related disinhibition. As one woman described it, "I have been more open to the multiple partners at one time, like female and maybe just a little more freaky shit." Another said:

> I get so horny...I wanna have two men on me, never one... My sexual pleasures are more intense. It's like I've taken a Spanish Fly or something. I don't know, but I get so horny and I wanna engage in orgies or oral sex with multiple partners. I get real freaky.

The loss of inhibition associated with methamphetamine use felt sexually empowering to some women. Seventy-two percent of women agreed with the statement that with meth, "I am more able to satisfy my intimate sexual needs" (Table 3). They described feeling more confident and assertive. "*I guess it kinda makes me a little more confident, a little more straightforward,*" said one participant. Another said she feels more sexually attractive when using methamphetamine. "*It makes me feel sexy. It makes me feel like, 'I know you want me, damn it!'*. Enhanced sexual confidence seemed to facilitate sexual pleasure for many women.

In addition to enhancing confidence, methamphetamine use allayed insecurities regarding body image for some participants. One woman described how methamphetamine use made her more comfortable being naked in front of her husband. Another compared sex while not high to sex while high as follows:

> When I'm not doing meth it [sex] feels like I'm – it feels, feels like more painful or something. It's not as pleasurable as it, as it would be when you're doing meth because when you're not doing meth you kinda get shy during the middle of it... When you're not high, you're actually thinking about, "Oh, god, how do I look?" You know, you're thinking about your self-image... But when you're doing meth you don't care, like it – you jump around; you know, you go with the flow. Like you're not gonna think about how your body looks.

This suggests a fluid relationship between the seeking of pleasure and avoidance of pain for some participants.

Methamphetamine use and sexual pain

As the excerpt above suggests, some women felt methamphetamine helped them cope with uncomfortable sexual situations. Disinhibition verged on dissociation in some of these descriptions, as women describe physically and/or emotionally 'checking out' when they had sex on methamphetamine. In these instances, methamphetamine use was more focused on amelioration of pain rather than enhancement of pleasure.

> It's like you leave your body in the middle of sex when you smoke speed... It's like with meth you don't feel any pain. You don't feel no pain whatsoever.

One woman who described methamphetamine as both numbing her feelings and enhancing her focus:

> it [meth] numbs you in order to focus on getting the job done without feeling bad about yourself, or letting the trick [customer] make you feel bad about yourself... being high kind of like numbs your emotions and, and just, you know, keeps me a little focused, like a painkiller.

The use of methamphetamine to assuage sexual pain is perhaps best understood in the context of extremely high levels of adverse sexual experiences among study participants, both in childhood

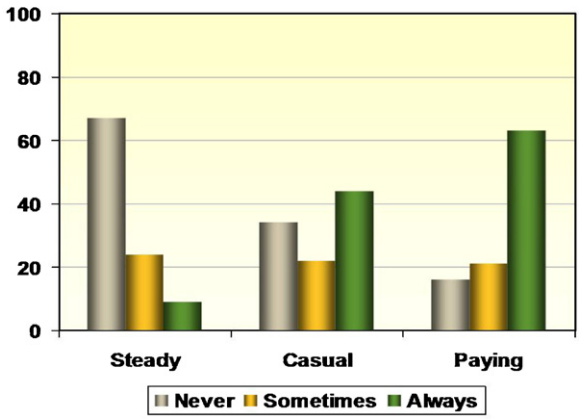

Fig. 1. Frequency of condom use for vaginal sex by partner type, past 6 months.

and as adults. In the full study sample, 68% of women in the study experienced childhood sexual abuse, and the median age of molestation was 8.5 years. In addition, nearly three-quarters (73%) reported unwanted sexual contact during their adult lifetime and 30% reported it in the past six months. The psychological sequelae of sexual trauma are far reaching, and can include both dissociation and hypersexuality, potentially influencing the perceptions and behaviour of participants (Chu, Frey, Ganzel, & Matthews, 1999; Johnson, Pike, & Chard, 2001).

Methamphetamine and sexual risk behaviour

Many women reported engaging in sexual behaviours that could potentially create HIV risk (Table 2). Forty percent of women had more than six male partners in the past six months, and over 90% reported being 'high' on methamphetamine some or all of the time during sexual encounters. In addition, the prevalence of condom use was low. Only 12% of women used condoms consistently during vaginal sex with all types of partners. Over a third of women reported unprotected vaginal sex with sex trade partners in the past six months, and the proportion increases with casual and steady partners (Fig. 1). In addition, 22% of women reported unprotected anal sex in the past 6 months.

Perceptions of the relationship between methamphetamine use and sexual risk-taking varied considerably among women in the study. While many participants felt that methamphetamine influenced both the frequency and content of sexual activity, fewer than half agreed that being high on methamphetamine reduced their concerns about HIV/STD transmission or made their desire for sex 'out of control' (Table 3). However, some women described a loss of inhibition or a feeling of invulnerability that undermined considerations about sexual safety.

One woman said,

> . . . when I'm high on meth, I don't even think about any type of disease. It's like a, oh, I'm gonna get this orgasm and that's all that matters. I'm not thinking about what I could catch. And it could be just 'cause I just don't wanna think about it or because I really feel I'm untouchable.

Another women described thoughts of condom use as "something you compartmentalize and set aside" when high. The long duration of sexual activity while high on methamphetamine was also seen to undermine safer sex efforts.

> . . . even if you start with using some kind of protection, it generally – you discard it before you're finished, you know?

Other women described proactively assessing potentially risky sexual situations created by methamphetamine use and adapting to control them. Several said they avoided men while high on methamphetamine in order to avoid sexual situations. One woman explained why, despite increased sexual desire, she chooses to be alone when high on methamphetamine.

> I do get hornier, like, yeah, but you see, I just can't let myself off, because I, I know that there's AIDS. . . I know that there's STDs, I know that these people don't give a f***. . .

Still other women insisted that methamphetamine use did not influence their sexual risk behaviour. These women felt they used the same preventative measures whether or not they were high on methamphetamine. These measures included using condoms with selected partners – new partners or sex trade partners – but not steady partners. Others engaged in serial monogamy or felt their risk was reduced because they didn't engage in sex work. One woman described how she relies on her powers of observation and judgement skills to stay safe:

> If it doesn't look right, the skin looks a mess or whatever, I'm not touching it. There's no need for me to touch it 'cause I'm putting myself at risk. . .. So the partners that I do have, I can say that I'm, I'm not totally sure, but I'm confident with their health and mine.

The sexual safety measures described by these participants evoke a practical sense of agency, even though some measures are generally considered more effective than others (U.S. Surgeon General, 2007).

Using quantitative data, we examined whether being high on methamphetamine was associated with condom use during the most recent sexual encounter, as reported by participants. There were no statistically significant differences in condom use at last encounter according to whether participants were high on methamphetamine. Of the women who reported vaginal sex at their last sexual encounter, condom use was reported by 30% of those who were high and 32% of those who were not high; for anal sex, condom use was reported by 31% of those who were high and 15% of those were not high.

Quantitative and qualitative analyses provided no simple explanation of the relationship between methamphetamine use and unprotected sex. Rather, there were many perceptions of the role of methamphetamine use on sexual risk.

Discussion

The pleasurable aspects of sexual activity and substance use are largely overlooked in studies focusing on drug use and HIV, which instead tend to emphasize risk and addiction. Studies of sexual risk behaviour among drug-using women often focus on victimization (Logan et al., 2002; Simpson & Miller, 2002), mental illness (Hutton et al., 2001; Johnson et al., 2003), and relationship abuse (El-Bassel, Gilbert, Wu, Go, & Hill, 2005a; El-Bassel et al., 2005b). We do not intend to minimize the importance of this research, nor the intensity of these experiences, which create a great deal of suffering and danger (Bourgois, Prince, & Moss, 2004). The alarmingly high prevalence of unwanted sexual experiences (73%) in this study reflects the "everyday violence" (Bourgois et al., 2004) faced by many disadvantaged women who use drugs. However, there was much positive discourse about sexual activity and drug use among this population of mostly middle-aged, impoverished women. Many of them enjoyed sex, and especially appreciated the combination of sex and methamphetamine. For some, it represented a positive

dynamic in their lives and seemed to help define their sense of self. The complex and intimate experience of "sex while high" is routinely overlooked in epidemiological risk behaviour surveys. By utilizing mixed methods, we were able to capture a dimension of sex and drug use that could be useful in developing strategies to help women increase their safety when engaging in sexual behaviour. Our findings do reflect that many women deeply valued their sense of sexual agency while high.

Many participants reported unprotected sex and multiple male partners. However, it is unclear to what degree these sexual behaviours may be attributed to methamphetamine use per se. Some women felt that methamphetamine use contributed to unprotected sex and others did not. Some perceived a link between unprotected sex and methamphetamine use, and acted to reduce their risk. An association between methamphetamine use and lack of condom use at last sexual encounter was not established in this study's quantitative analyses. Our qualitative data indicate that many women believed methamphetamine increased the frequency and scope of their sexual activity. Along with relatively low levels of condom use, the increased sexual activity that accompanies methamphetamine could potentially amplify sexual risk.

The use of mixed methods contributed substantially to the value of this research. In the discourse of HIV risk behaviour epidemiology, sexual behaviour is essentially defined in terms of potential HIV risk, and disinhibition is seen primarily as pathway to risk and infection (Halkitis & Jerome, 2008). This was the assumption inherent in our epidemiological survey items, which focused on risk behaviours, and of our quantitative analyses which assessed associations between methamphetamine use and unprotected sex. By comparison, in the less pre-defined qualitative discourse, sexual behaviour had many meanings, including pleasure, self-confidence and, in some cases, the experience of grappling with trauma. In this context, we learned that disinhibition is often related to increased sexual confidence, sexual exploration and pleasure. These insights would not have emerged without the qualitative component of the study.

While HIV prevention specialists may define methamphetamine-related sexual disinhibition as a 'negative' factor that increases risk behaviour, many participants saw it as a 'positive' factor that improved their sexual experiences and, in some cases, their sense of self. It will not work to simply advise women who prioritize sexual pleasure through methamphetamine use to avoid sex under the influence. Institutional public health messages such as these can actually help propagate symbolic violence against women (Bourgois et al., 2004). However, messages that recognize some of the benefits of disinhibition while minimizing harms may have a greater effect in reducing risk taking. For example, it may be worth testing a prevention messaging strategy that ties the use of condoms to feelings of sexual confidence. The challenge and opportunity for public health is to build on women's feelings of agency and prevent it from exacerbating or rationalizing sexual risk-taking.

Several limitations of the study should be noted. While the qualitative sub-sample appears to be roughly representative of the larger quantitative sample, the generalizability of our findings to methamphetamine-using women on a greater scale is unknown. Data were self-reported, and may be subject to response bias. In qualitative inquiry, the meaning of 'sexual risk' was not explicitly defined for participants. Thus, it is possible that interpretations of "sexual risk" varied by individual participant. Similarly, in both quantitative and qualitative inquiry, we did not specifically define the meaning of being "high" on methamphetamine. Thus, there is probably variation in how participants interpreted this term.

Compared to the handful of previous studies examining methamphetamine use and sexual behaviour among women, the prevalence of unprotected sex fell between earlier findings. For example, a study of methamphetamine-using women in San Diego (Cheng et al., 2009) found that 90% of women reported unprotected sex in the past two months, whereas a state-wide study in California found that 56% of methamphetamine-injecting women reported unprotect sex in the past six months (Kral et al., 2011). Some studies have found a correlation between methamphetamine use and unprotected sex at last sexual heterosexual encounter (Molitor, Truax, Ruiz, & Sun, 1998; Zule, Costenbader, Meyer, & Wechsberg, 2007), but ours did not. Work exploring the relationship between methamphetamine use and sexual behaviour among men who have sex with men has identified some similar themes as this study, in particular the connections between methamphetamine use, sexual arousal and disinhibition (Halkitis, Fischgrund, & Parsons, 2005; Mullens, Young, Hamernik, & Dunne, 2009).

A strength of this work is that it puts forward a fresh strategy for tackling the complex issue of sexual behaviour and HIV risk among women. It draws from the strength of both quantitative and qualitative methods, and shows that a focus on the negative dimensions of sexual risk alone may not be adequate to truly understand – and effectively promote – sexual health among drug-using women. In particular, women's positive feelings about disinhibition and validation of their sexual pleasure need to be incorporated into current thinking about among women who use methamphetamine and other stimulants.

Both the World Health Organization and the Centers for Disease control are beginning to promote a comprehensive approach to sexual health that extends beyond combating negative outcomes such as HIV and unwanted pregnancy. As defined by WHO,

> Sexual health is a state of physical, emotional, mental and social wellbeing in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. (http://www.who.int/reproductivehealth/en/)

Findings from this paper support the importance of that more holistic approach. Working to understand sex as an experience, rather than a risk behaviour, could bring new insights to improving sexual health among impoverished, drug-using women.

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