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Prescription Drug Misuse and Risk Behaviors Among Young Injection Drug Users

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Abstract

Prescription drug misuse among young adults, especially opioids, is a substantial public health problem in the United States. Although risks associated with injection of illicit drugs are well established, injection and sexual risks associated with misuse of prescription drugs are understudied. Forty young injection drug users aged 16 to 25 who reported injection of a prescription drug were recruited in 2008–09 in Los Angeles and New York City. Descriptive quantitative and qualitative data were analyzed to illustrate risky injection and sexual behaviors reported in this sample. Over half of participants engaged in risky injection behavior, three-quarters engaged in risky sexual behavior, nearly half reported both risky behaviors, and five did not report either risk behavior while misusing a prescription drug. Prescription opioids, tranquilizers, and stimulants were misused in the context of risky sexual behaviors while only opioids were misused in the context of injection risk behaviors. Access to clean syringes, attitudes and beliefs regarding hepatitis C, and risk reduction through partner selection were identified as key themes that contextualized risk behaviors. Although these findings help identify areas to target educational campaigns, such as prevention of sexually transmitted infections, risk behaviors specifically associated with prescription drug misuse warrant further study.

Keywords

drug misuse; hepatitis C; injection practices; prescription drug; qualitative analysis

INTRODUCTION

The non-medical use of prescription medications among adolescents and young adults comprises a substantial part of the drug abuse problem in the United States (US). In 2011, over 15% of twelfth graders reported past-year misuse of prescription medications compared to 64% and 36% who abused alcohol and marijuana, respectively (Johnston et al. 2012). The majority of prescription misuse among young adults is attributable to opioids, notably oxycodone and hydrocodone (Schulden, Thomas & Compton 2009), followed by tranquilizers, such as alprazolam (SAMHSA 2010b). In 2009, there were 1.2 million emergency department (ED) visits related to the misuse of prescription drugs, 20% more than ED visits for illicit drug misuse (SAMHSA 2010a). There were also more overdose deaths due to prescription drugs compared to illicit drugs, and 70% of the 20,000 deaths involving prescription drugs were attributable to opioid overdose (CDC 2011). The societal and medical cost of prescription opioid misuse was recently estimated to be \$53 billion (Gilson & Kreis 2009; Hansen et al. 2010).

In 2002, there were an estimated 1.4–1.8 million injection drug users (IDUs) in the US (Mathers et al. 2010). Although rates vary geographically, recent estimates of prescription drug misuse among IDUs were 80–91% (Fischer et al. 2008; Havens, Walker & Leukefeld 2007). The risks associated with injection of illicit drugs and transmission of blood-borne infections, such as hepatitis C (HCV) and HIV, due to shared needles, drug solutions, and drug equipment, frequent injection, and young age at injection initiation are well documented (Chaisson et al. 1987; Doherty et al. 2000; Garfein et al. 1996; Green et al. 1993; Jose et al. 1993; Nelson et al. 2002; Schoenbaum et al. 1989; Shah et al. 1996). In addition to risky injection behavior, risky sexual behavior is also a considerable risk factor for transmission of infections among IDUs (Kral et al. 2001; Strathdee et al. 2001), and is often intertwined with injection behavior. For example, high rates of needle sharing have been reported among sex partners (Bailey et al. 2007), and having sex with an IDU partner carries significant risk for acquisition of HIV infection (Doherty et al. 2000). However, it is unknown if and how these injection and sexual risks translate to misuse of prescription drugs among IDUs.

While several studies have looked at prescription drug misuse among illicit drug users (Davis & Johnson 2008; Firestone & Fischer 2008; Fischer et al. 2008; Sigmon 2006), examining unsafe injection and sexual practices among those who inject prescription drugs has been understudied. A recent qualitative study conducted in Montreal found that the sharing of “washes,” or opioid residues, was a common practice among IDUs injecting prescription opioids (Roy, Arruda & Bourgois 2011), underscoring the need to identify risk behaviors among injectors of prescription medications. The present study explored the prevalence and circumstances surrounding risky injection (e.g., sharing syringes and other equipment) and unsafe sex (e.g., no condom use) among young adults who inject prescription drugs.

METHODS

This study utilized both descriptive quantitative and qualitative data (Creswell & Plano Clark 2007) – an approach that has been used previously to illustrate risk behaviors and patterns of substance misuse among smaller samples of high-risk youth (Hathazi et al. 2009; Lankenau et al. 2005; Lankenau & Sanders 2007; Sanders, Lankenau & Jackson-Bloom 2010).

Study Sample

The study sample consisted of 40 young adult IDUs with a history of prescription medication injection. These individuals were a subgroup of a larger population of 150 young adults who were recruited for a study focused on non-medical use of prescription drugs. Details of participant recruitment can be found elsewhere (Lankenau et al. 2012b; Lankenau et al. 2012c). In short, trained ethnographers screened potential participants for study eligibility: between the ages of 16 and 25 years old and reported misuse of a prescription drug at least three times in the past three months. “Prescription drug misuse” or “non-medical use” was defined to participants as: “drugs you may have used without a prescription, in greater amounts, administered differently, more often, or longer than prescribed, or for a reason other than a doctor said you should use them” (Blanco et al. 2007). IDUs were classified as participants who reported injection of an illicit or prescription drug within the past three months (N = 50). Of those, only individuals who reported ever injecting a prescription drug were included in the present study (N = 40). Participants were recruited in New York City (NY) and Los Angeles (LA), and were interviewed between September 2008 and July 2009.

Data Collection

Ethnographers interviewed study participants using a semi-structured instrument consisting of three interview modules: history of prescribed medications; history of misuse of prescription and other drugs; and demographics. The instrument was a combination of structured questions (e.g., “Have you ever injected any prescription pain medications?”) and qualitative follow-up probes and questions (e.g., “Tell me more about that experience. Where were you? Where did you get it? Who were you with? Why did you inject it?”) Questions regarding risky injection and sexual behaviors were specific to prescription drug misusing events. For example, to assess risky injection behavior, the following questions were asked: “Have you ever shared a syringe while injecting a prescription pain medication?”; and “Tell me about the most recent time this happened.” To assess whether risky sexual behavior occurred while under the influence of prescription drugs, participants were asked “Have you ever had sex after using a prescription pain medication non-medically without a condom?” and “Why do you use prescription pain medications before having sex?”

During the interview, quantitative responses were entered directly by the ethnographer into Questionnaire Development Software (QDS) on laptop computers. All interviews were audio-recorded and transcribed verbatim shortly after the interview was conducted. Detailed field notes were recorded following each interview to capture additional contextual

information and summarize key characteristics of the responses. Interviews were conducted in semi-private settings, such as coffee shops or park benches, in the neighborhoods where participants were recruited. Following each interview, participants received a \$25 cash incentive and information on drug abuse treatment.

Data Analysis

Data collected via QDS were entered into SPSS for quantitative analysis. Interview transcripts were entered into Atlas.ti for qualitative analysis. Qualitative coding was done using a two-level coding process (Miles & Huberman 1994). First, a broad set of *a priori* codes based on the research questions of the larger study, such as opioid injection initiation, were applied to each transcript (the first level). Then, a study researcher (K.J.) reviewed all transcripts meeting the present study's criteria to identify additional themes relating to risky injection and sexual behaviors (the second level).

Risk Groups and Patterns of Prescription Drug Misuse Definitions

Subjects were assigned to risk groups based on their history of risky injection and sexual behavior following misuse of prescription medications. Risk groups were defined as follows: *risky injection behavior* included individuals who reported sharing syringes or drug equipment during prescription drug misuse; *risky sexual behavior* included individuals who reported having sex without a condom while under the influence of a prescription drug that had been misused; and *neither risky behavior* represented individuals who did not report either of these behaviors while misusing prescription drugs. A subgroup of individuals who reported both risky behaviors, *risky injection and sexual behavior*, was also created.

The study protocol was approved by the Institutional Review Boards at Children's Hospital Los Angeles and National Development and Research Institutes, Inc., prior to implementation. To protect participant privacy, all names appearing in the narratives below are pseudonyms.

RESULTS

Overall, a majority of participants were white, heterosexual, male, and in their early 20s (Table 1). Approximately half of the sample reported less than a high school education, two-thirds reported being homeless, half reported a history of treatment for drug abuse, and almost all reported a history of incarceration. Over half reported ever being pregnant or getting someone pregnant. Almost all subjects reported being tested for HIV or HCV, with one-third being HCV-positive and none being HIV-positive. Twenty IDUs from both NY and LA were included in the sample. To compare demographic differences among subgroups, the sample (N = 40) was separated into four groups based upon lifetime prevalence of reporting risky injection and sexual behaviors: risky injection behaviors exclusively (n = 5); risky sexual behavior exclusively (n = 12); both risky injection and sexual behavior (n = 18); and neither risky behavior (n = 5) (Table 1). Participants in the risky injection behavior group were exclusively white and homeless and most never graduated from high school. Among those reporting both risky injection and sexual behaviors, nearly half reported being HCV-positive and one-third were female.

Across the sample, ever engaging in a risky injection or sexual behavior while misusing a prescription drug was common: 58% (n = 23) reported risky injection behaviors; 75% (n = 30) reported risky sexual behaviors; and 13% (n = 5) reported neither risky injection nor sexual behaviors while misusing prescription drugs. Table 2 separates the sample into these non-mutually exclusive groups. Histories of injecting prescription and illicit drugs differed little between the groups with the exception that the “neither risky behavior” group more commonly injected cocaine but less typically injected methamphetamine compared to the other two groups. Overall, ever injecting prescription opioids or heroin was most typical, followed by cocaine and methamphetamine.

A somewhat different picture emerges when examining the particular prescription drugs misused (injected or via other modes of administration) during risky events. Among those who reported a risky injection event during prescription drug misuse, oxycodone (39%), hydromorphone (35%), and morphine (17%) were the most commonly misused prescription opioids at the time of risky injection (Table 3). No subjects reported sharing syringes or paraphernalia when misusing prescription tranquilizers or stimulants. In contrast, while prescription opioids were most commonly used during risky sexual events, a much broader range of prescription substances was also reported.

Participants described several key themes pertaining to risky injection and sexual behaviors during the qualitative analysis.

Risky Injection Behaviors

Access to clean needles—Lack of clean needles, a crucial element of safe injection practices, was the most commonly cited reason for sharing needles when injecting prescription drugs. Sean, a 22-year-old (NY), commented:

There was one time where I was in a friend of mine’s room injecting Dilaudid and she wasn’t in there and my syringe clogged and I couldn’t fix it so I grabbed one of her used one [syringe] and used it.

George, a 21-year-old (NY), attributed his needle sharing to a lack of access to clean syringes coupled with indifference to risks associated with acquiring blood-borne pathogens:

I just shared OxyContin with [name of friend] because we both have hepatitis C and sh_ _, you know it’s like f_ _ _ it, he’s my best friend and we only had one syringe.

Being “dope sick,” withdrawal symptoms due to a dependence on heroin and/or prescription opioids, was also discussed in instances of needle sharing due to a combination of not having clean syringes and a strong desire to relieve the physical discomfort associated with withdrawal.

Risk reduction through injection partner Selection—Another important theme was the practice of selecting only “clean” injection partners to reduce the risks of acquiring blood-borne pathogens. When asked why he shared a needle the most recent time he injected OxyContin, Barry, a 21-year-old (NY), responded:

Because I knew the person was clean. My friend doesn't normally inject and has never shared a needle and I'm really very good friends with them. And I'm familiar with their drug use and their drug use pattern and know that they don't have it [HCV].

Similarly, Max, aged 19 (LA), described the first and only time he shared a syringe:

I shared a needle doing oxycodone with a girl. But I had gone to school with her all these years and that was the first time she had ever shot. I knew that she was clean and I was clean.

Frank, a 22-year-old (NY), expanded on this theme by underscoring the influence of the joint trust between himself and people he shares needles with. He described his experience the most recent time he injected methadone with two friends:

I've known my friends for years and they don't really shoot up. Otherwise, they wouldn't ask me [to share needles]. Obviously, they trust me enough ... One of them is a real good kid, you know? I know he doesn't believe in that [sharing syringes]. And if he probably had some dumb sh___, he wouldn't lie to me. If he knew, he would tell me.

Attitudes and beliefs regarding hepatitis C—There was a general perception that HCV was fairly common among IDUs (one participant believed that “90% of needle users” were HCV-positive), which may have influenced choices regarding needle sharing when injecting either prescription or illicit drugs. Indeed, one participant reported that she shared syringes based upon the assumption that she already had HCV (though, she later discovered she was HCV-negative). This belief was often coupled with indifference regarding acquiring HCV, which in turn may have influenced risky injection behavior. For instance, Barry, who previously reported sharing syringes, stated:

Finding out I was infected with hepatitis C didn't really bother me all that much. I think a lot of people have it... Of the people I know with hepatitis C, I think one or two have liver problems but the majority of them don't.

Notably, Joe, a 19-year-old (LA) who has been injecting both prescription and illicit drugs for three years, believed that his HCV infection was simply inevitable due to being an IDU:

I got myself into this situation. When I found out I had hepatitis C, I was pretty much, 'It comes with the territory'. If you want to be stupid and use needles like me then you are going to get it. If you think 'I probably won't get it'. You *are* going to get it. Everyone I know who used needles has hepatitis C. Out of like the 90 people I know, I would say almost all of them have hepatitis C.

Even among HCV-negative participants, feelings of indifference towards HCV infection were prevalent, as exemplified by Amy, a 25-year-old (NY):

[I shared a needle with my boyfriend who has HCV] because I had shared a needle with this girl that has Hep too, so I was like, 'Oh well, I probably have it too', whatever you know? He's got it but I don't care because I'd already shared a needle that with that girl and she has it.

Notably, although participants acknowledged injection risk associated with HCV, only one participant also acknowledged the risk of HIV from needle sharing. Josh, who recently decided to quit injecting drugs, stated: “it’s a miracle that I got out of the needle game without catching HIV.” None of the 39 participants who reported being tested for HIV reported being positive.

Risky Sexual Behavior

Thirty subjects (75%) reported having sex without a condom while under the influence of prescription drugs. In contrast to risky injection events, which involved injecting prescription opioids, risky sexual behaviors involved a broader range of substances and included other modes of administrations (e.g., sniffing, oral). Most respondents stated that misuse of drugs and unsafe sexual encounters merely “coincided with each other,” since they frequently used drugs and had sex on a daily basis. It was common for male participants to report that misuse of prescription opioids adversely affected their desire to have sex and their sexual performance. Conversely, two female respondents reported that misuse of prescription opioids increased their sexual “confidence” and made them “reckless,” “less shy,” “more outgoing,” and “more impulsive.” Apart from substance misuse, many male participants stated they simply did not like using condoms since condoms reduced sensitivity during sex. Notably, no participants talked about the risks of pregnancy or acquiring HIV through unprotected sex.

Risk reduction through sexual partner selection—Although participants suggested that prescription drug misuse and risky sexual behavior were often “coincidental,” a theme of risk reduction through sexual partner selection emerged. Many participants cited their involvement in a long-term sexual relationship as a primary factor for engaging in unprotected sex. For instance, Matt, a 22-year-old (LA), stated: “I have had sex without a condom [while under the influence of a prescription drug] because usually the chick I was doing was my girl anyway.” Others talked about “trusting the person” and limiting unprotected sex with individuals that “are being truthful” regarding having sexually transmitted diseases (STDs). Joe, a 19-year-old (LA), highlighted:

There’s no reason to use a condom and I am usually okay with it. We have the STD talk. It’s like, ‘Do you have any STD’s?’ ‘No, I have hepatitis C but it’s almost impossible to get through sex’ and they are like ‘Okay’ and that is about it.

Sean, 22 years old, further underscored how partner trust is important:

Having sex without a condom really just depends on the girl. It does not really depend on the drugs. It’s like if it’s a girl I know and trust, what I am saying then I will go straight with her. If it’s a girl I am not too sure about then I am going to use a condom.

Overlap Between Risky Injection and Sexual Behaviors

Sharing needles with sex partners was a common theme identified among the 18 (45%) participants who reported engaging in both risky injection and sexual behaviors while misusing prescription drugs. Six of the seven women who reported sharing a syringe did so

with their boyfriends, and this was also commonly reported among male participants and their female partners. In reference to injecting heroin and prescription opioids, Amy stated:

We were sleeping together and used condoms but then we got drunk together and we didn't. So we were like, 'Whatever, we're not using condoms anymore.' So then, we've had unprotected sex, so we might as well share a needle too.

Notably, this group who reported both risky injection and sexual behaviors also reported the highest percentage of HCV-positivity.

Non-engagers of Risky Behavior

The five (13%) participants who did not report engaging in risky injection or sexual behavior while misusing prescription drugs did not describe the reasons for not participating in these behaviors. Interestingly, all of these participants were male and reported daily or almost daily heroin injection use; only one reported being HCV-positive. Most reported heroin as their drug of choice and claimed to use prescription opioids only when they could not get heroin. Most reported that using prescription opioids lowered their interest in sex, which may explain the lack of risky sexual activity in this subgroup. Only one subject reported sharing needles when using heroin with close friends and sexual partners.

DISCUSSION

This exploratory study used both quantitative and qualitative data to describe risky injection and sexual behaviors among a sample of young adult IDUs who reported lifetime injection of prescription drugs. We found that a majority (58%) reported sharing a syringe or injection paraphernalia while injecting prescription opioids, notably oxycodone, hydromorphone, and morphine. No participants reported sharing equipment when injecting tranquilizers or stimulants, even though injection of these drugs was not uncommon in this sample. Additionally, 75% of participants reported having unprotected sex while under the influence of a prescription drug, most commonly oxycodone, hydrocodone, and methadone, although tranquilizers and stimulants were also noted. Approximately half of the sample reported engaging in both risky injection and sexual behaviors in the context of prescription drug misuse, while five participants did not engage in either risk behavior. Several important structural and psychological themes were identified in the qualitative data that contextualized these risky behaviors, notably the lack of access to clean needles, the practice of selecting a safer injection and sexual partner, and preconceived attitudes and beliefs of HCV.

The characteristics associated with risky injection and sexual behaviors coinciding with prescription drug misuse were similar to those associated with illicit drugs. For example, a greater proportion of females in our sample reported needle sharing compared to males, which is consistent with findings from studies on injectors of illicit drugs (Evans et al. 2003; Frajzyngier et al. 2007; Iversen et al. 2010). Further, previous research has indicated that a lack of access to clean syringes is a primary factor for syringe sharing when using illicit drugs (Bailey et al. 2007). The present study supports this association in the context of prescription drug misuse and provides contextual information to highlight the influence of being dope sick and the perception of "clean" and "trustworthy" shooting partners. These

findings support opportunities to extend harm-reduction strategies, such as syringe exchange, methadone maintenance, and seroconcordant injection and sexual partner selection, to injectors of prescription drugs (Metzger & Navaline 2003; Philip et al. 2010).

Findings suggest that risky sexual behavior occurred while under the influence of prescription drugs, particularly among those who ever misused opioids. However, some qualitative data indicated that this relationship may be a consequence of a high prevalence of unsafe sexual behaviors among IDUs rather than factors specific to prescription drug misuse. Quantitative research of young IDUs who primarily inject heroin and/or cocaine indicates that infrequent condom use is typical (Kapadia et al. 2011). Hence, it is unknown whether the effects of prescription drug misuse influenced decisions about condom use during sex or whether risky sexual behaviors were simply common among IDUs irrespective of drug use. Given the relatively high prevalence of pregnancy history in this study sample (Hathazi et al. 2009), the lack of discussion among participants regarding the risk of pregnancy in the context of unprotected sex and prescription drug misuse is also notable and provides an opportunity for intervention through education.

Similar to previous reports on young IDUs who inject illicit drugs (Bailey et al. 2007; Evans et al. 2003), the present study findings demonstrate the close relationship between risky injection and sexual behaviors: almost half of participants reported unsafe injection behavior with their sex partner. As previous research has found that risky sexual behavior may be more influential for HIV transmission among IDUs (Kral et al. 2001; Strathdee et al. 2001), further research and prevention efforts are needed to identify the most effective strategies among IDUs who misuse prescription drugs.

The self-reported prevalence of HCV in this sample was 36%, which is consistent with national estimates given the low sensitivity of self-reported HCV status among IDUs (Des Jarlais et al. 2003; Hahn et al. 2002; Judd et al. 2005; Schlicting et al. 2003; Thorpe et al. 2002). Participants reported engaging in risky injection behaviors when misusing prescription and illicit drugs in part due to the perceived likelihood of either already having the infection or of contracting it, regardless of the type of drug injected. Given the high prevalence of HCV infection and HIV testing in this study sample, and the estimated prevalence of HIV among young adult IDUs in the US (3–5%) (Rondinelli et al. 2009; Shafer et al. 2002), it is somewhat surprising that no participants in the current study reported being HIV positive. This may be due to a small sample size coupled with social desirability bias (Fisher et al. 2007; Latkin & Vlahov 1998). This may be of particular concern in this sample considering that 65% of subjects reported being homeless and may therefore be more reliant on social networks for survival (Wolitski et al. 2009). Further research into the stigma related to HIV disclosure among young adult IDU networks is warranted to more fully understand these influences. Additionally, these findings suggest that HIV prevention education focused on sexual and injections risks and overlap between risk behaviors should be directed toward young IDUs who inject prescription drugs.

The study identified a small group of individuals who did not report either risky injection or sexual behaviors in the context of prescription drug misuse. This group did not regularly misuse prescription drugs, which could account for their lack of reporting risky behavior in

the context of prescription drug misuse. The low rate of self-reported HCV-positivity in this group may also indicate that individuals engaged in safer injection and sexual behaviors following drug use. However, given the concurrent use of prescription and illicit drugs identified in this sample, these findings underscore that merely describing the prevalence of risk factors among illicit drug users or prescription drug users may be insufficient to assess the risk of blood-borne infections among those who misuse both types of drugs.

Notably, a high proportion of IDUs in this study reported lifetime or current injection of heroin, cocaine, and/or methamphetamine. Patterns of prescription drug misuse and illicit drugs are closely linked among young IDUs, such as substituting with OxyContin when heroin is unavailable (Lankenau et al. 2012b). We have suggested that some of the risky injection and sexual behaviors identified in this analysis are related to past or current use of illicit drugs as well as social and structural factors that shape injection drug use more generally (Rhodes 2009). Nevertheless, we believe these results indicate that misuse of prescription drugs among young IDUs presents circumstances and dynamics for risky injection and sexual behaviors above and beyond those presented by illicit drugs alone.

This study had several limitations. The sample was limited to IDUs aged between 16 and 25 years old, an age group that may have a different risk profile than older IDUs. Although there is the possibility of bias in self-reported drug use and risk behaviors, previous research suggests that these constructs are reasonably reliable and valid in IDU populations (Darke 1998). Additionally, the cross-sectional nature of this study does not allow assessment of the effect of prescription drug misuse and risky behaviors on the acquisition of adverse health consequences (e.g., blood-borne infections, STDs, or unwanted pregnancies), so no causal relationships can be made. Finally, since all IDUs were recruited from Los Angeles and New York, results may be biased towards behaviors or patterns of drug use particular to these two cities (Lankenau et al. 2012a).

CONCLUSION

This study indicates that a majority of young IDUs in this sample engaged in risky injection (e.g., sharing equipment) and/or sexual behavior (e.g., unprotected sex) when misusing a prescription drug. Qualitative data provided contextual details, including circumstances and rationales for these risky behaviors. While similar to risk behaviors associated with illicit drug use, misuse of prescription drugs is another means for young IDUs to engage in behaviors that place them at risk for HIV, HCV, STDs, or unwanted pregnancies. As rates of prescription drug misuse among young adults increase in the US, additional research should be conducted to explore the relationship between risk behaviors and prescription drug misuse. Moreover, it will be important to continue and expand education and harm-reduction strategies aimed at decreasing risk for blood-borne pathogens, such as HCV and HIV, among young IDUs who misuse prescription drugs.

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TABLE 1

Demographics of Study Sample, By Risk Group

| Characteristic | All participants (N = 40) N (%) | Risk groups* | | |
|---|---------------------------------------|---|---|---|
| | | Risky injection behavior (exclusively) (n = 5) N (%) | Risky sexual behavior (exclusively) (n = 12) N (%) | Risky injection and sexual behavior (n = 18) N (%) |
| Sex | | | | |
| Male | 29 (73) | 4 (80) | 8 (67) | 12 (67) |
| Female | 11 (28) | 1 (20) | 4 (33) | 6 (33) |
| Age [†] | 21.6 (18–25) | 21.4 (20–24) | 21.7 (18–25) | 21.7 (18–25) |
| Race | | | | |
| White | 34 (85) | 5 (100) | 10 (83) | 15 (83) |
| Black | 5 (13) | 0 | 2 (17) | 2 (11) |
| Native American | 1 (3) | 0 | 0 | 1 (6) |
| Hispanic ethnicity | 5 (13) | 1 (20) | 1 (8) | 3 (17) |
| Interview site | | | | |
| Los Angeles | 20 (50) | 3 (60) | 7 (58) | 7 (39) |
| New York | 20 (50) | 2 (40) | 5 (42) | 11 (61) |
| Heterosexual/straight | 40 (100) | 5 (100) | 12 (100) | 18 (100) |
| Highest level of education | | | | |
| Less than high school | 19 (48) | 4 (80) | 8 (67) | 5 (28) |
| High school graduate/GED | 14 (35) | 1 (20) | 4 (33) | 9 (50) |
| Some college/technical school | 7 (18) | 0 | 0 | 4 (22) |
| Currently employed | 1 (3) | 0 | 1 (8) | 0 |
| History of mental health care | 31 (78) | 4 (80) | 9 (75) | 14 (78) |
| History of drug treatment program | 21 (53) | 2 (40) | 4 (33) | 11 (61) |
| Currently homeless | 26 (63) | 5 (100) | 10 (83) | 9 (50) |
| Current traveler | 25 (69) | 5 (100) | 3 (33) | 13 (77) |
| History of pregnancy/gotten someone pregnant | 22 (55) | 1 (20) | 6 (55) | 12 (67) |
| History of incarceration | 38 (95) | 4 (80) | 11 (92) | 18 (100) |
| Neither risky behavior (n = 5) N (%) | | | | 5 (100) |

| Characteristic | All participants (N = 40) N (%) | Risk groups* | | | |
|-----------------------------------|---------------------------------------|---|---|---|--|
| | | Risky injection behavior (exclusively) (n = 5) N (%) | Risky sexual behavior (exclusively) (n = 12) N (%) | Risky injection and sexual behavior (n = 18) N (%) | Neither risky behavior (n = 5) N (%) |
| Ever tested for hepatitis C (HCV) | 34 (85) | 4 (80) | 11 (92) | 15 (83) | 4 (80) |
| Ever tested for HIV | 39 (98) | 5 (100) | 12 (100) | 18 (100) | 4 (80) |
| HCV positive ^{††} | 12 (36) | 1 (20) | 3 (27) | 7 (47) | 1 (20) |
| HIV positive ^{††} | 0 | 0 | 0 | 0 | 0 |

* risk groups are mutually exclusive.

[†] years; mean (range).

^{††} self-reported.

TABLE 2

History of Prescription and Illicit Injection Drug Use, By Risk Group

| Drug | All participants (N = 40) N (%) | Risky injection behavior* (n = 23) N (%) | Risky sexual behavior* (n = 30) N (%) | Neither risky behavior (n = 5) N (%) |
|--------------------------------|--|---|--|---|
| Prescription Drug [†] | | | | |
| Opioids | 40 (100) | 23 (100) | 30 (100) | 5 (100) |
| Tranquilizer | 12 (30) | 7 (30) | 10 (33) | 2 (40) |
| Stimulant | 5 (13) | 4 (17) | 2 (7) | 1 (20) |
| Illicit Drug | | | | |
| Heroin | 37 (93) | 23 (100) | 27 (90) | 5 (100) |
| Cocaine | 36 (90) | 21 (55) | 26 (87) | 5 (100) |
| Methamphetamine | 20 (50) | 12 (52) | 16 (53) | 1 (20) |
| Ketamine | 13 (33) | 7 (30) | 9 (30) | 2 (40) |

* risk groups are not mutually exclusive.

[†] study eligibility criteria required all participants to have injected prescription and/or illicit drugs.

TABLE 3

Prescription Medications Taken or Injected at Time of Risky Behavior

| Drug | Risky injection behavior* (n = 23) % | Risky sexual behavior* (n = 30)(br)% |
|-------------------|---|---|
| Alprazolam | – | 37 |
| Buprenorphine | – | 27 |
| Clonazepam | – | 33 |
| Clonidine | – | 3 |
| Codeine | – | 20 |
| Dextroamphetamine | – | 23 |
| Diazepam | – | 20 |
| Fentanyl | 3 | 20 |
| Hydrocodone | – | 60 |
| Hydromorphone | 35 | 33 |
| Lorazepam | – | 7 |
| Meperidine | 3 | 13 |
| Methadone | 8 | 43 |
| Methylphenidate | – | 13 |
| Morphine | 17 | 40 |
| Oxycodone | 39 | 77 |
| Propoxyphene | – | 3 |
| Tramadol | – | 17 |

* risk groups are not mutually exclusive.