Patterns of Prescription Drug Misuse among Young Injection Drug Users

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ABSTRACT *Misuse of prescription drugs and injection drug use has increased among young adults in the USA. Despite these upward trends, few studies have examined prescription drug misuse among young injection drug users (IDUs). A qualitative study was undertaken to describe current patterns of prescription drug misuse among young IDUs. Young IDUs aged 16–25 years who had misused a prescription drug, e.g., opioids, tranquilizers, or stimulants, at least three times in the past 3 months were recruited in 2008 and 2009 in Los Angeles (n=25) and New York (n=25). Informed by an ethno-epidemiological approach, descriptive data from a semi-structured interview guide were analyzed both quantitatively and qualitatively. Most IDUs sampled were both homeless and transient. Heroin, prescription opioids, and prescription tranquilizers were frequently misused in the past 30 days. Qualitative results indicated that young IDUs used prescription opioids and tranquilizers: as substitutes for heroin when it was unavailable; to boost a heroin high; to self-medicate for health conditions, including untreated pain and heroin withdrawal; to curb heroin use; and to reduce risks associated with injecting heroin. Polydrug use involving heroin and prescription drugs resulted in an overdose in multiple cases. Findings point to contrasting availability of heroin in North American cities while indicating broad availability of prescription opioids among street-based drug users. The results highlight a variety of unmet service needs among this sample of young IDUs, such as overdose prevention, drug treatment programs, primary care clinics, and mental health services.*

KEYWORDS *Prescription drug misuse, Injection drug use, Young adults*

INTRODUCTION

Misuse of prescription drugs has increased among young adults in the USA over the past two decades.^{1,2} During this same time period, the prevalence of injection drug use among young adults has risen.³ These trends have coincided with an escalation in drug overdoses among young adults.⁴ Prescription drugs, such as opioids and tranquilizers, have emerged as a primary cause of death in overdose cases,⁴ while overdose is a leading cause of death among young injection drug users (IDUs).⁵

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Despite these upward trends in drug use and mortality, few studies have examined prescription drug misuse among young IDUs.

Young IDUs—persons aged 30 years and younger who currently inject drugs^{6–8}—are a group of young adults at increased risk for an array of negative health outcomes, such as hepatitis C, HIV, and drug dependence.^{9–11} While no studies have formally assessed the prevalence of prescription drug misuse among young IDUs, data from several studies provide the basis for preliminary estimates: opioids, lifetime (84 %) ¹² and 90 days (58 %); ¹³ tranquilizers, lifetime (80 %) ¹² and 90 days (approx. 45 %). ¹⁴ These studies suggest that the prevalence of prescription drug misuse among young IDUs is five to ten times higher than in the general population of young adults. ^{1,2}

While prevalence estimates suggest the severity of the problem, qualitative studies ^{12,15–17} have begun to document features of prescription drug misuse among IDUs,* including practices, risk behaviors, settings, and subgroups. Key qualitative findings from these studies, which recruited IDUs in New Orleans, ¹² New York, ^{12,16} Los Angeles, ^{12,16} Toronto, ¹⁵ and Montreal, ¹⁷ include: IDUs were commonly homeless, white, and male; ^{12,15–17} prescription opioids were readily accessible from street-level dealers; ^{15–17} prescription opioids were misused as part of a broader pattern of polydrug use; ^{12,15–17} and accumulating and sharing prescription opioid residue, or “wash,” posed risks for infections and disease transmission. ¹⁷ Furthermore, our recent qualitative research found that young IDUs frequently initiated opioid use—including injection drug use—with a prescription opioid and later transitioned into using heroin. ¹⁶

While these studies offer important descriptive findings, a qualitative study was undertaken to address additional unanswered questions about current patterns of prescription drug misuse among young IDUs: what motivates IDUs to use particular prescription drugs; what strategies do young IDUs utilize to source prescription drugs; what drugs and practices are employed by young IDUs during polydrug use; what additional risks are posed by prescription drug misuse, including dependence and overdose; and how does misuse of prescription drugs fit into young IDUs’ overall health and well-being?

METHODS

The study design was informed by an ethno-epidemiological methodology^{18–20} that utilizes both quantitative data, i.e., frequencies and percentages, to describe broader patterns found within a study sample and qualitative data, i.e., narrative accounts, to provide contextualized details as reported by individual participants. This mixed method approach has been used previously to describe risk behaviors and patterns of substance misuse among smaller samples of high-risk youth.^{21–24}

Study Sample

IDUs ($n=50$) described in this analysis are a subgroup of a larger sample ($n=150$) who were recruited into a two-city study examining non-medical prescription drug use among young adults in New York and Los Angeles.¹⁶ Prior to sampling, trained

*IDUs in the studies of Lankenau and colleagues^{12,16} ranged in age from 16 to 29 years, i.e., young IDUs, while IDUs included in Firestone and Fischer’s study¹⁵ ranged in age from 18 to 50 years and in the study of Roy et al.¹⁷ from 18 to 60 years.

ethnographers from each site conducted a Community Assessment Process (CAP)²⁵ which recorded local knowledge of prescription drug misuse among high-risk youth and determined the locations of groups of young IDUs. Following the CAP, ethnographers sampled young IDUs using a combination of targeted sampling,²⁶ and chain referral sampling.^{27,28} Using this approach, IDUs were sampled from Union Square and the East Village in New York and from Venice and Hollywood in Los Angeles—areas known to attract a diverse population of young IDUs.²⁹

A screening tool assessed IDUs for study eligibility based upon two criteria: age between 16 and 25 years and misuse of a prescription drug at least three times in the past 3 months. Targeted prescription drugs included opioids, tranquilizers, and stimulants. “Prescription drug misuse” or “non-medical use” was defined 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.”³⁰ All screened individuals received a US \$3 gift card.

In Los Angeles, an ethnographer interviewed 25 IDUs between September 2008 and May 2009. In New York, an ethnographer interviewed 25 IDUs between October 2008, and July 2009. All study procedures were approved by Institutional Review Boards at local sites prior to implementation.

Data Collection

Ethnographers interviewed study participants in each site using a semi-structured instrument. Interviews were programmed using Questionnaire Development Software (QDS), administered on laptop computers, and recorded with digital recorders. Ethnographers conducted interviews in semi-private settings, such as a coffee shop or park bench, in the neighborhoods where participants were recruited. Following each interview, participants received a US \$25 cash incentive and outreach information.

Measures

The semi-structured instrument consisted 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 taken a prescription pain medication non-medically with another drug at the same time?” and qualitative follow-up questions, e.g., “Tell me more about that experience.” The content of the three interview modules was derived from existing measures, e.g., DAST-10, previous studies,¹² and themes that emerged during the CAP.

Data Analysis

Data consist of three types: SPSS files, transcripts, and field notes. Responses to structured questions were uploaded from QDS case files and into a SPSS database. All digital recordings were transcribed verbatim into a Word document. Following each interview, ethnographers completed a field note that summarized key characteristics and primary patterns of drug use. All qualitative data were loaded into Atlas.ti.

The qualitative coding process began with a set of primary codes of interest, such as “opioid: polydrug,” or “opioid: overdose.” Based on these primary codes, four analysts coded all transcripts using Atlas.ti. All transcripts were reviewed by two or more analysts to ensure the consistent use of codes within and between transcripts. Following this primary level of coding, emergent themes were labeled during a

secondary level of coding, such as “substitution,” which continued until all relevant themes were identified.

All first names within narrative quotes are pseudonyms. Names beginning with the letter “l” designate Los Angeles respondents, while names beginning with “n” indicate New York respondents. Comparisons between Los Angeles and New York, while not a primary focus of this analysis, are noted where differences emerged.

RESULTS

Sample Characteristics

Overall, the sample was typically male, white, heterosexual, and in their early 20s (Table 1). About half did not complete high school or were expelled from school, while some were held back a grade. Less than one quarter reported being in foster care or a group home as a minor. Nearly all were homeless at some point, most were currently homeless, and most regarded themselves as transient or travelers. Nearly all had been arrested and served jail time. Three quarters had a history of a

TABLE 1 Demographics (n = 50)

	Total (n=50), n (%)	New York (n=25), n (%)	Los Angeles (n=25), n (%)
Mean age	21.4	22.2	20.6
Gender: Male	35 (70)	17 (68)	18 (72)
Sexual orientation			
Straight	41 (82)	20 (80)	21 (84)
Bisexual	8 (16)	5 (20)	3 (12)
Gay/lesbian	1 (2)	0	1 (4)
Racial and ethnic group			
White/Caucasian	36 (72)	18 (72)	18 (72)
African American	2 (4)	2 (8)	0
Multiracial	10 (20)	3 (12)	7 (28)
Other (including Hispanic only)	2 (4)	2 (8)	0
Is Hispanic	5 (10)	2 (8)	3 (12)
Did not complete high school	24 (48)	8 (32)	16 (64)
Held back a grade	10 (20)	5 (20)	5 (20)
Expelled from school	22 (44)	10 (40)	12 (48)
History of foster care/group home	11 (22)	1 (4)	10 (40)
Currently homeless	33 (66)	16 (64)	17 (68)
Ever homeless	49 (98)	24 (96)	25 (100)
Currently a traveler	30 (60)	15 (60)	15 (60)
History of arrest	47 (94)	22 (88)	25 (100)
History of jail time	45 (90)	22 (88)	23 (92)
History of psychological diagnosis	37 (75)	12 (50)	25 (100)
History of drug treatment	22 (44)	11 (44)	11 (44)
Blood-borne pathogens			
HCV test (ever)	39 (78)	22 (88)	17 (68)
HCV-positive ^a (self-report)	13 (26)	7 (28)	6 (24)
HIV test (ever)	47 (94)	25 (100)	22 (88)
HIV-positive ^a (self-report)	0	0	0

^aAmong participants who were tested for HCV or HIV

psychological diagnosis, such as depression, anxiety, or attention deficit hyperactivity disorder, about half had a history of drug treatment, one quarter reported being HCV positive, and none reported being HIV positive. Overall, participants in LA and NY were largely similar across these characteristics, except that LA IDUs more frequently had histories of foster care/group home, psychological diagnosis, and arrest.

Substance Use History

All IDUs had misused heroin and prescription opioids, and most had misused a range of other drugs, such as cocaine, prescription tranquilizers, prescription stimulants, and ketamine (Table 2). Initiation into misuse of prescription stimulants, opioids, and tranquilizers commonly occurred before initiation of heroin. Most had injected heroin, opioids, and cocaine; other commonly injected drugs included methamphetamine, crack, ketamine, and tranquilizers.

Prescription opioids, tranquilizers, and heroin were among the most frequently misused drugs in the previous 30 days. IDUs in Los Angeles and New York reported similar patterns of 30-day misuse of opioids and tranquilizers: 88 % of IDUs in both sites reported misuse of opioids, while 40 and 52 % in Los Angeles and New York, respectively, reported misuse of tranquilizers. Differences were more apparent regarding 30-day use of heroin: 72 % in Los Angeles versus 100 % in New York. The following qualitative analysis focuses on the patterns of drug use among these three primary substances—heroin, opioids, and tranquilizers.

TABLE 2 Substance use histories (*n*=50)

Substance	Mean age at initiation	Ever used, <i>n</i> (%)	Ever injected, <i>n</i> (%)	30-Day use, <i>n</i> (%)
Marijuana	12.5	50 (100)	0	40 (80)
Alcohol	12.8	50 (100)	0	46 (92)
Cocaine	15.4	49 (98)	40 (80)	23 (46)
Mushrooms	15.7	47 (94)	0	11 (22)
GHB	15.9	18 (36)	0	1 (2)
LSD	16.3	45 (90)	0	9 (18)
Methamphetamine	16.6	41 (82)	44 (48)	11 (22)
Heroin	16.6	50 (100)	46 (92)	43 (86)
Ecstasy	17.0	48 (96)	0	13 (26)
Ketamine	17.1	36 (72)	14 (28)	7 (14)
PCP	17.3	30 (60)	0	1 (2)
Crack	17.6	43 (86)	21 (42)	17 (34)
Stimulants ^a	14.1	41 (82)	5 (10)	8 (16)
Opioids ^b	14.6	50 (100)	40 (80)	44 (88)
Tranquilizers ^c	15.6	46 (92)	12 (24)	23 (46)
Muscle relaxants	15.9	28 (58)	0	2 (4)
Over-the-counter	16.0	34 (68)	0	5 (10)
Sleeping pills	17.9	21 (42)	0	1 (2)
Sedatives	18.6	2 (4)	0	0

^aIncludes Ritalin, Adderall, and Desoxyn

^bIncludes Vicodin, codine, Oxycontin, morphine, and similar medications

^cIncludes Xanax, Valium, Klonopin, and similar medications

Substitute with Prescription Drugs

Finding heroin on a regular basis—daily or several times a week—was a necessity for most IDUs in both New York and Los Angeles. Many reported substituting with prescription opioids or tranquilizers when they could not locate heroin, as described by Naheem, a homeless IDU living in New York:

Right now, I have to do at least like 8 bags [of heroin] a day. A couple days ago, I just could not find heroin at all and I was starting to really get sick. This dude [dealer] didn't have dope [heroin], but he had Oxys. I paid him \$40 for like 80 mg.

Other homeless IDUs, like Laurence, who spent hours on the streets of Los Angeles each day, devised specific strategies to identify prescription opioids users when heroin was scarce:

I could not find any heroin, but I could always find Oxys. There is always somebody in pain out there. It's easy to spot somebody with an Oxy. Look at the way people walk. Are they walking with a limp? If they look to be a cool person why not hit them up—"Hey you got any pain pills for sale?"

An IDU's ability to find heroin depended upon a variety of factors, but was fundamentally linked to supply in a given neighborhood or city. Since most IDUs were homeless—locally based in New York or Los Angeles, or traveling from city to city—finding a consistent person or place to buy heroin was a challenge. For example, Natalie, who had been traveling for 3 years, said she could not find heroin in Florida, but could access prescription opioids from pain management clinics—so-called pill mills—where doctors supplied prescription medications on site:

You can't get dope in Florida but there are ads in the back of the newspaper like: "Need Vicodin? Need Oxy's?" Like, "Call Dr. Whatever."

Some IDUs deliberately traveled to specific locations known to offer readily available supplies of prescription opioids. Nathan, a regular heroin user, traveled across country for "Mexican Vicodins," which could be obtained in large quantities from a pharmacy across the border:

We left Boston for the Percocets and Vicodins in Mexico, like Mexican Vicodins. And we got two big bottles and just fucking drank, took drugs, slept on trains, wake up, "oh shit, gotta get off," get on the other train.

Like opioids, prescription tranquilizers were often used when heroin was difficult to access, and the ubiquity of these drugs meant that they were usually easy to obtain. For example, Nina said that she used Xanax because she was "waiting on dope," and Norah said she used Valium because, "it was free and I didn't have any heroin." Overall, it was typical for participants to say that tranquilizers "came around a lot" or were frequently "kicked down" to them.

The cost of heroin and prescription drugs varied across the country, and prices were generally linked to location. In many cases, the price differentiation between heroin and opioids was a primary factor in the decision about which substance to use. As Lloyd explained:

It depends where you go. In some places, an 80-milligram of Oxycontin is \$80—a dollar a milligram. So I am like, "Okay, heroin is cheaper." In other places, I'll find an

older lady who has a whole bunch of 80's of Oxycontin and wants to give them away for 5 bucks. So, the price is always different. Most people just come up to you and ask, "Hey, you want some Oxycontin." Like last night [in LA], some guy just gave us a bunch. They just automatically assume, "These guys must do pills."

Being homeless and poor often led IDUs to use whatever drugs were the cheapest. For instance, Logan, who found tranquilizers to be more easily gotten through trades, explains:

It's just barter out here [on the streets in Los Angeles] because we are all homeless. We don't have much money.

Polydrug Combinations: Heroin and Prescription Drugs

Many IDUs sought out prescription opioids or tranquilizers and co-used them with heroin to "boost" or enhance the effects of heroin. Nolan explained how he intensified the effects of heroin—low-quality or otherwise—by first consuming a prescription opioid and then injecting heroin:

For crappy dope, I'm gonna try to get some Oxy's for free, take those, and do a shot of dope. Or, I'll take a Percocet, start feeling that, and then do a shot of dope, which just intensifies it.

Similarly, simultaneous use of heroin and tranquilizers was reported due to the boosting effect provided by the tranquilizer. For instance, Naheem explained that he would shoot Xanax and heroin together because "the benzos amplify the effect of opiates by tenfold." Laurel said that she used Klonopin as much as she could—"a good 300 [Klonopin] in the last 3 months." She explained that tranquilizers gave her an improved and longer lasting heroin high:

It intensifies the heroin, the feel of the heroin. Heroin by itself normally makes me really hyper and aggravated easily by noise. But Klonopins take the anxiety off of it for me.

However, combining heroin and a prescription drug could be a potentially lethal combination—especially when mixed with alcohol, as Leah explains:

I shot some dope and then shot some methadone and was drinking. I blacked out in the bathroom—I basically overdosed on this kid's floor. I just did too much or got a pack [of heroin] that was way more potent.

Overall, 13 participants reported overdosing on a prescription drug; nine overdoses involved co-use or simultaneous use of a prescription drug and at least one additional substance. Some were aware of the potential for overdose when combining heroin with prescription tranquilizers, but not necessarily opioids, as described by Natalie:

Recently, I've been taking Percocets and Vicodins with heroin. A lot of people do heroin and Xanax. I don't do that cause it's really dangerous.

Self-Medicate with Prescription Drugs

Many IDUs reported seeking out prescription opioids and tranquilizers to self-medicate for untreated pain. More than half ($n=28$) described coping with various

types of current pain conditions—short-term, acute, or chronic—as a result of injuries suffered while homeless or from accidents extending back years. Often, prescriptions opioids or heroin would be acquired to medicate pain. For instance, Neal described how an injury and a lack of health insurance prompted him to self-medicate with OxyContin and heroin:

I broke my collar bone [three months ago] and I didn't have health insurance. I needed medication so I had to get it other ways. We got a connection in Florida—\$35 for 80 mgs of OxyContin. I split them with my friend and we'd shoot them. It still hurts—like there's a nerve pinched. For now, I'm drinking, smoking weed, doing heroin, taking pills—whatever's available at the cheapest price.

Moreover, many IDUs used prescription opioids and/or tranquilizers to avoid heroin withdrawal symptoms, which was often a priority since the symptoms could be so disabling. For example, Naheem explained, “Oxycontin, Xanax, Percocets, morphine—they don't usually get me high, but it's just so I don't get dopesick.” Similarly, many used opioids and tranquilizers to self-medicate withdrawal symptoms, as Nydia described:

Yesterday, I took a Percocet and a Xanax....When I took the Xanax, I was like, all right, I'm just kind of like, whatever. But then, when I took the Percocet—my whole body felt better 'cause I just have really bad [withdrawal] pains right now.

Traveler IDUs described how the threat of being dope sick affected their traveling plans and patterns of drug use. Leah used prescription opioids to prevent getting sick while on the road and removed from a regular source of heroin:

I was just maintaining [my heroin habit]. I didn't have heroin, [and] I was sick, so I took some Oxy. I had just hit Oklahoma City and I had just eaten a bunch of Oxycontin. I was hitching and I can't be sick when I was hitching.

Substitute to Curb Heroin Use

Beyond medicating withdrawal symptoms, some IDUs substituted with prescription drugs, which were viewed as less potent, to curb or stop heroin use. Reducing heroin use was particularly salient for travelers who might not easily find heroin, as Lloyd reported:

I haven't used [heroin] in a while. I was going through my withdrawals a few days ago and I was like, “I am done.” I can't travel with a habit—it's really hard. So as far as heroin goes, I am going to stick to prescription drugs. I don't build up enough of a tolerance to get really addicted to them.

Others had been previously enrolled in opioid replacement therapy programs that prescribed longer acting opioids, such as methadone or buprenorphine, to treat heroin dependence. IDUs, such as Ned, were aware of the effects of such opioids and specifically sought out Suboxone (buprenorphine/naloxone) as a means to stop using heroin for a few days:

I didn't want to use any heroin that day—for a couple of days actually. I bought two [Suboxone] to help me stay off heroin. I just wanted to take a break. I used to have a bad habit and I don't want to get a bad habit again.

Similarly, other IDUs substituted with tranquilizers to decrease their heroin use. However, substituting with a tranquilizer was not as effective as substituting with an opioid and could lead to increased drug use as, Nelson explained:

I started taking Xanax while I was trying to cut my [heroin] habit down. Then, I started taking way too many Xanax bars and blacking out. I went from Xanax to Klonopins and the same thing happened—just went from taking two or three to taking ten a day. For some reason, my habits skyrocketed really fast.

Reducing Risks

Some IDUs reported substituting with prescription opioids to reduce the risks or problems associated with injecting heroin. For example, when Lana incurred an abscess from “muscling heroin,” she took Vicodin orally because she could get high without injecting. In cases where heroin was perceived to have inconsistent potency or purity, IDUs preferred prescription opioids because these seemed safer than heroin. For instance, Lamar explained, “a lot of heroin is cut with fentanyl [a potent opioid]. It’s making people die everywhere.” Lucy said that she suspected that “bad heroin” led to the death of three of her friends, which prompted her to use Oxycontin instead:

We figured that there was something bad [heroin] going around and we didn’t want to use anymore. We were like, “Okay, maybe we shouldn’t—that’s three friends [who died] in a year.” It was really hard, but we found Oxycontin.

DISCUSSION

Our previous study indicated that young IDUs frequently initiated opioid use—including injection drug use—with a prescription opioid and later transitioned into using heroin.¹⁶ These current findings suggest that heroin became the primary drug for most IDUs sampled in New York and Los Angeles, but that prescription opioids—and tranquilizers—remained important components of ongoing patterns of opiate use. Our findings contrast with qualitative studies from Toronto and Montreal which reported that crack¹⁵ or cocaine¹⁷—rather than heroin—were the primary street drugs used by IDUs along with prescription opioids. In these studies, IDUs transitioned to using prescription opioids due to poor quality heroin, high cost of heroin, or a lack of heroin while continuing to use crack or cocaine. IDUs in our sample—a majority of whom were both homeless and transient—often encountered these same circumstances in New York, Los Angeles, and other cities, but most continued to use both heroin and prescription opioids. Collectively, these qualitative findings point to the different availabilities of heroin in North American cities^{31,32} while also corroborating research suggesting the broad availability of prescription opioids among street-based drug users.^{33,34}

Our qualitative findings reveal several key motivations—corroborated by other qualitative studies*—for current misuse of prescription drugs: to boost the effects of

*Several of these qualitative studies^{35–39} did not focus on IDUs, but include descriptions of prescription drug misuse.

an illicit drug;^{12,35,36} as a substitute for illicit drugs that were unavailable or were more expensive;^{15,17,37} to self-medicate for heroin withdrawal;^{12,15,17,35,36} and to self-medicate for untreated physical pain.^{38,39} Not previously reported in these studies was the practice of substituting with a less potent prescription drug to either curb heroin dependence or reduce the risks associated with heroin use. Significantly, our sample of IDUs described self-medicating for several types of health conditions, such as chronic pain, heroin dependence, and heroin withdrawal, which have been absent in quantitative studies that assess self-medication motivations.⁴⁰

Polydrug use—co-use or simultaneous use⁴¹ of heroin and prescription drugs—was the primary practice employed to boost the effects of heroin. For instance, co-use included taking a prescription opioid (orally or snorting) followed by injecting heroin, and simultaneous use involved injecting Xanax and heroin at the same time. Motivations to boost a heroin high were likely linked to the declining purity of heroin in local drug markets and/or increased tolerance to opiates.^{31,38} Significantly, combining heroin and prescription drugs to boost a heroin high resulted in numerous overdoses in this sample. While some IDUs expressed an awareness of the risks associated with polydrug use, including overdose, many did not. Traveler IDUs, whose tolerance for opioids fluctuated given their varying access to opioids, may be particularly susceptible to overdose.⁴² Moreover, IDUs who perceived variations in heroin purity,⁴³ sometimes indicated by increased numbers of overdose deaths among their peers, substituted less potent prescription opioids for heroin.

Narrative data visibly portrayed the struggles associated with heroin dependence and how young IDUs used prescription medications—both opioids and tranquilizers—to cope with dependence. In some cases, IDUs substituted with prescription drugs to reduce or stop using heroin all together. Several reported successfully curbing heroin use with Suboxone obtained on the street.⁴⁴ Some described substituting with opioids to self-medicate for heroin withdrawal with no negative effects. Tranquilizers, however, were ineffective substitutes since several reported “blacking out” or developing a dependence after using a tranquilizer to curb heroin use or self-medicate. For many young IDUs, current patterns of prescription drug misuse were symptomatic of long-standing patterns of drug dependence.

Overall, these findings on prescription drug misuse point to numerous gaps in the available healthcare and treatment options for young IDUs. Most reported some type of pain condition that often stemmed from past accidents or exigencies linked to homelessness and injection drug use. Additionally, while not described in detail, many suffered from ongoing psychological conditions, such as depression and anxiety. In response, IDUs frequently used heroin or prescription drugs to self-medicate for these conditions since legitimate prescriptions were often unavailable to them. However, clear risks linked to self-medicating with prescription drugs were identified, such as the potential for drug overdose and drug dependence. The common occurrence of overdose among this sample of young IDUs—whether attributed to heroin, a prescription drug, or a polydrug combination—highlights the need for overdose prevention training.¹⁰ Additionally, while many reported a past history of drug treatment, there was a clear need among this sample of young IDUs for more accessible and sustainable opioid replacement therapy programs, including buprenorphine, which has been shown to be effective among opioid-dependent young adults.⁴⁵ A primary challenge for treatment providers is keeping transient young IDUs enrolled in programs when frequent movement within and between cities is part of their daily existence. To better understand these challenges, future studies should enroll a longitudinal cohort of transient young IDUs and examine the

possibilities of IDUs developing consistent relationships with drug treatment providers, needle exchanges, and overdose prevention programs. As a starting point, previous studies have shown that transient young IDUs can be retained for follow-up interviews in longitudinal studies.^{46,47}

The study has some limitations. First, qualitative studies are designed to describe practices, individuals, groups, or settings rather than generalize to larger populations,^{15,17} which is also true of this qualitative study of young IDUs. However, patterns of prescription drug misuse were similar between young IDUs sampled in New York and Los Angeles, which suggests a certain degree of external validity. Second, the sampling methods captured a sample that was largely white, male, and homeless. Hence, youth of color, women, or housed youth who inject drugs may evidence different patterns of prescription drug misuse. However, these sample characteristics are similar to other samples recruited in Baltimore, Chicago, New York, Los Angeles, and Seattle,¹³ as well as Toronto¹⁵ and Montreal,¹⁷ suggesting that white, male, and homeless individuals comprise a significant proportion of the young IDU population.

CONCLUSIONS

Young adults who began their drug-using careers with prescription drugs, such as opioids and tranquilizers, and later transitioned into using heroin or injecting drugs continued to use prescription drugs in significant ways. Patterns of prescription drug use, including polydrug use, drug substitution, and self-medication, were connected to both the contingencies of heroin dependence and the general availability of prescription drugs in locations across the USA. The results highlight a variety of unmet service needs among this sample of young transient IDUs, such as overdose prevention trainings that focus on polydrug use, drug treatment programs that target opioid and tranquilizer misuse, primary care clinics to treat pain, and mental health services to address long-standing psychological problems.

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