Peer Information and Substance Use Decision Making in Street-Involved Youth

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Abstract
In the context of adolescent substance use, peers are a primary source of both influence and information. Substance-related peer information sharing is a relatively understudied phenomenon, particularly in street-involved youth. We recruited 84 youth from a community drop-in centre to complete a survey assessing substance use and peer influence on drug use. A subset of youth completed a semi-structured interview assessing factors related to peer information sharing around drug use. Results showed that peer influence was highly relevant to drug use patterns in street-involved youth. Trust in the person supplying information, personal and peer experience, and salience of information played important roles in youths' assessments of drug-related information exchanged with peers. Implications for improving community information dissemination strategies are discussed.

Keywords
Adolescence, Homeless Youth, Peer Information, Peer Influence, Substance Use

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Introduction

When adolescents take part in risky activities such as experimenting with drugs, they rarely do so alone. High-risk behaviors frequently occur within peer groups composed of similar-aged people engaging in similar decision-making processes (Gardner & Steinberg, 2005; Kobus, 2003). Several lines of inquiry have examined mechanisms of direct or indirect peer influence on adolescent risky behavior, but adolescents (and emerging adults) also turn to their peers to seek *information* about high-risk behaviors (Morse et al., 2013). Substance use in particular is a high-risk behavior that peaks in adolescence and emerging adulthood. Compared to older cohorts, U.S. youth aged 18–25 and Canadian youth aged 15-24 report the highest rates of use of cannabis and illicit drugs (Canadian Alcohol and Drug Use Monitoring Survey, 2011; Substance Abuse and Mental Health Services Administration, 2018).

Studies examining mechanisms of peer influence in adolescence have largely focused on samples of teens in *mainstream* settings (e.g., living with family and attending school). Far fewer have examined the effects of peer influence and information-seeking in youth experiencing homelessness (e.g., sleeping on the street, in a shelter, or "couch-surfing") or who are active participants in peer groups largely composed of youth experiencing homelessness (we refer to these youth collectively as *homeless or street-involved*). Homeless and street-involved youth are known to be at greater risk in numerous ways, including higher levels of substance use (Kirst & Erikson, 2013), higher levels of illegal activity, more physical

and sexual victimization, and higher rates of substance use disorders (Rice et al., 2008; Tyler & Melander, 2015). Understanding the impact of peer influence is therefore critical to informing prevention and intervention efforts, as well as to understanding more broadly how peer influence mechanisms operate outside of mainstream settings. Of key concern is the potential for peer networks among substance-using youth who are homeless or street-involved to be influential sources of substance use information, particularly if the information they are disseminating is inaccurate or misleading.

In a mixed methods study, we draw on transcripts from semi-structured interviews and survey responses to explore processes of peer influence and peer information sharing among street-involved youth, and their associations with patterns of substance use.

Peer Influence on Adolescent Risk Taking

Peer groups serve as a formative social context of adolescent development. The transition to adolescence is marked by an increased frequency of peer interactions and decreased time spent with family (Brown et al., 1997; Larson et al., 1996). Emerging adulthood features even greater declines in time spent with parents and corresponding increases in time spent with peers and romantic partners (Roisman et al., 2004). Although parental monitoring and support in adolescence buffer against high-risk behaviors such as heavy drinking (Windle et al., 2008), drug use, physical violence, and theft (Claes et al., 2005), increased time spent with peers during this period can also create opportunities for increased risk-taking

behaviors.

Adolescents are more likely to take part in a given behavior if their peers engage in that same behavior (e.g., Albert Steinberg, 2011; Bauman Ennett, 1994; de Water et al., 2016), a phenomenon known as *peer influence*. Often the strongest predictor of high-risk behavior in adolescence is affiliation with peers engaging in similarly high-risk behavior (Albert et al., 2013; Bauman Ennett, 1994), and peer influence has been cited as a main predictor of substance use initiation (Bauman Ennett, 1994). Peer influence appears to wield substantial power in decision making within adolescent peer groups that may contribute to heightened risk-taking behaviors. However, the peer influence literature focuses primarily on samples of youth in mainstream settings, who are living with family and attending school. It is unclear whether conclusions from this literature generalize to youth removed from mainstream settings, such as those experiencing homelessness.

Peer Affiliation and Substance Use in Homeless and Street-Involved Youth

Youth aged 13 to 24 represent approximately 20% of the estimated 35,000 Canadians who are homeless on a given night (Gaetz et al., 2016). In the United States, 4.2% of youth aged 13 to 17 and 9.6% of youth aged 18 to 25 experience homelessness in a year (Morton et al., 2017). The consequences of high-risk behaviors, such as substance use, unprotected sex, or illegal activity, are anticipated to be severe for this population, as they tend to have less access to the same levels of social support and resources as their mainstream counterparts, and may be more likely to risk sexually transmitted infections, face physical or sexual victimization, or develop a substance use disorder (Rice et al., 2008; Tyler & Melander, 2015).

Homeless and runaway adolescents show significantly higher rates of substance use than their mainstream youth counterparts, up to 10 times higher for men and 17 times higher for women (Whitbeck et al., 2004). A study of 150 youth aged 16 to 21 experiencing homelessness in Toronto showed that 40% to 71% reported using substances in the past 30 days. The most common substances used were tobacco, alcohol, and cannabis (91%, 71%, and 73%, respectively), followed by hallucinogens (34%), amphetamines (16%), cocaine (25%), and crack (11%; Kirst & Erikson, 2013). Homeless youth use more and varied substances at higher rates than mainstream youth, heightening the risk for potential substance use disorders and overdoses (Rice et al., 2008; Tyler & Melander, 2015).

From the perspective of the *Risk Amplification* and *Abatement Model* (Milburn et al., 2009), heavier and more frequent substance use in homeless and street-involved youth is a consequence of their higher-risk familial and peer contexts. Youth experiencing homelessness are more likely to come from dysfunctional and often abusive families (Tyler & Melander, 2015) and are traversing a maladaptive developmental trajectory given their comparative lack of exposure to prosocial developmental contexts. When these youth leave home,

they may become increasingly involved in networks of peers with similar backgrounds and face increased opportunities to engage in high-risk activities. Indeed, homeless youth report a higher number of peers engaged in substance use compared to non-homeless youth (Tompsett et al., 2013). Affiliation with antisocial peers (i.e., those who are engaging in high-risk and deviant behaviors) is associated with amplified risk, whereas affiliation with prosocial individuals (i.e., those who are still in school, have jobs, and are not engaging in deviant behaviors) is associated with reduced risk of experiencing homelessness (Milburn et al., 2009; Whitbeck et al., 1999). In one study, youth affiliation with highly deviant peers was associated with increased involvement in high-risk sexual behaviors such as unprotected sex or trading sex for money or shelter, but affiliation with prosocial peers also reduced the risk of engaging in high-risk sexual behaviors (Rice et al., 2008). To the extent that homeless and street involved youth are disconnected from mainstream social structures, peer groups may take on a disproportionately influential role in youths' lives. Peer groups are a key setting in which homeless and street-involved youth make decisions around substance use, and the types and quality of drug-related information exchanged within these groups are likely potent forces.

Peer Information-Sharing

Peer information sharing occurs when peers communicate directly about any relevant topic and share information or advice that is largely based on personal experience (Rupert et al., 2016). When the topic is substance use, peer information may be particularly relevant (Morse et al., 2013), given that adolescents rely on their peers to gauge what substance use behaviors are desirable and relatively safe (Maxwell, 2002). In a rare empirical example, students in a Canadian high school sample who identified as already using drugs, or likely to start using drugs, reported relying most heavily on their friends for information about drug use compared to their family, schools, or religious institutions (Fejer et al., 1971).

Few studies have examined direct peer-to-peer information sharing. One exception is a qualitative study describing adolescents' experiences seeking online peer-generated health information that identified three influential factors: (1) *saliency* (how relevant is the information to the person), (2) *prior experience* experience (with the topic of information itself and whether the source has prior experience with the topic), and (3) *credibility* of the information source (evaluated through perceived expertise, trustworthiness, and empathy; Gray et al., 2005). An adolescent contemplating using a specific drug *(saliency)* may evaluate a peer with *prior drug experience* as a source of expert knowledge. Such perceived expertise may serve as a peripheral, contextual cue that enhances the apparent trustworthiness—and therefore *credibility*—of the drug-related information provided to them by the peer. Crucially, information that is inaccurate may nonetheless appear credible if the peer's perceived expertise supplants motivation to deeply process the content of the shared in-

formation (e.g., see Petty & Cacioppo, 1986 for a discussion of *elaboration likelihood* processes of decision-making). Highly substance-using peers may thus be influential sources of salient drug-related information, regardless of the accuracy of the information they share.

In the current study, we aimed to evaluate mechanisms of peer influence on substance use by exploring themes relevant to peer information sharing surrounding substance use in a sample of homeless and street-involved youth. Prior research and theory provide a useful framework for understanding peer influence, but its conclusions are largely tailored to mainstream youth. We used mixed methods to build upon the existing peer-information framework of salience, prior experience, and credibility (Gray et al., 2005) as well as to explore other factors street-involved youth consider when establishing whether a peer is a credible source of information, and whether the information a peer provides is valid.

Method

Recruitment

Our team partnered with a non-profit organization serving homeless and street-involved youth in a large Canadian urban center. Homeless youth are defined here as youth who endorsed sleeping on the street, in a shelter, or 'couch-surfing'. Street-involved youth are defined here as youth who are currently housed but attended the drop-in center and remained involved in peer groups with homeless youth. Participants were recruited from among visitors to their drop-in center. Staff from the partner organization assisted with recruitment by distributing information about the purpose and nature of the study and participation. Participation was restricted to English-speaking youth with a history of substance use or who were currently using substances. Eligibility was determined before study enrollment.

Recruitment and data collection took place across three 1-week sessions in each of July, August, and September 2018. In the July and August sessions all participants completed both a survey and a semi-structured interview. Participant engagement was higher than expected, and a third session of survey-only data collection was added to increase the sample size for the quantitative arm of the study. Interviews were not conducted in this session as the research team concluded through check-in discussions following interviews that theoretical saturation was met after the first two sessions—additional interviews would have served to confirm information rather than provide new insights (Schwab & Syed, 2015).

Participants and Procedure

A total of 84 youth participated in the study (*M* age = 21.35, range 16 - 27), of whom *n* = 47 completed a semi-structured interview during the July and August sessions. Participants completed an informed consent, followed by a brief paper-and-pencil survey, with a member of the research team remaining in the room to answer participant questions or clarify wording.

The survey included measures of youths' past-year frequency of substance use, level of substance dependence, and factors informing level of peer influence over substance use decision-making (survey available online at osf.io/x3dnm).

During the July and August sessions, participants next engaged in an audio-recorded semi-structured interview with a member of the research team. Participants supplied a pseudonym under which their quotes would appear in publications resulting from this research. Participants who completed both the survey and interview were compensated with a $25 gift card. Survey-only participants in September were compensated with a $10 gift card. All participants were invited to provide an email addresses to participate in a follow-up focus group to provide feedback on initial study results. Participants were contacted prior to the focus group, and three volunteer participants attended.

We retained 82 surveys and 46 interviews for analysis. Two surveys and one interview from three separate participants were excluded following observations by the research team that the participants were unable to consistently answer the survey questions. One interview was removed because the participant was agitated and unable to remain focused on the topic of the interview and thus did not answer the majority of the interview questions. In all cases participants were still compensated for their participation.

We approached this study using mixed methods in a *convergent parallel design* (Creswell & Plano Clark, 2011), using qualitative and quantitative instruments concurrently, keeping data from each method separate during analysis, and drawing on results from each method in the overall interpretation of our findings. We prioritized the qualitative arm of the study, with *complementarity* being the primary rationale for taking a mixed methods approach. We sought to identify themes using qualitative methods, and to provide illustrative context, enhancement, and clarification using quantitative methods (Green et al., 1989). The measures section that follows describes quantitative survey instruments as well as our qualitative semi-structured interview.

Measures

Demographic Information. Participants reported their month and year of birth, gender identity, relationship status, number of children, current school status and level of education, current housing status during the interview, and whether participants were currently receiving ongoing substance use or mental health support from a professional source (e.g., counselling, psychology, inpatient or outpatient treatment; see Table 1). Participants were queried on their racial/ethnic background, but closer inspection of the surveys revealed that this question was interpreted by most youth as their country of birth (e.g., "Canadian") instead of race/ethnicity, preventing us from accurately describing the ethnic composition of the sample.

Substance Use. Past-year substance use frequency was assessed for several different classes of substances on an 8-point

Likert scale (e.g., 1 = Not at all, 3 = About once per month, 5 = About once per week, 7 = Daily or almost daily, 8 = Multiple times per day). Substances assessed included alcohol, cannabis, hallucinogens, cocaine, crack, amphetamines, heroin, prescription opiates, methamphetamine, fentanyl, inhalants (e.g., paint thinners, glue) and over-the-counter medications used for reasons other than their intended purpose. Participants were provided with a reference sheet for common street names and classifications of drugs.

Severity of Dependence Scale. Level of substance dependence was assessed using a modified version of the Severity of Dependence Scales (Gossop et al., 1995). Participants were asked to report the substance currently causing the most problems in their life and were asked 5 questions regarding their use of that specific substance in the past 12 months. Items included "How much did you worry about your use of the drug?" and "How difficult would you find it to stop or go without this substance?" on a 4-point Likert scale ranging from 0 (not difficult at all) to 3 (*impossible*). Responses were averaged to create a final dependence score, where higher scores indicate higher levels of dependence ω=.94).

Semi-Structured Interview. The semi-structured interview assessed factors relating to ways that participants exchange and evaluate peer information regarding drug use. The interview comprised three sections, each containing core questions and follow up probes, as well as yes or no questions completed during the interview (the complete interview text is available online at osf.io/x3dnm). Interview durations ranged from 13 to 67 minutes (*M* = 21.35, *SD* = 14.26).

The first section aimed to learn contextual factors about participants' substance use. The core question in this section was "Who do you usually get your drugs from?" with follow up probes asking, "Would you consider them a friend?" and "How often do you get your drugs from this person?".

The second section assessed factors specific to peer information sharing. A core question in this section asked participants to create a list of individuals with whom they might discuss their substance use, including friends, a romantic partner, parents, close family (e.g., sibling, cousin), dealer, addiction support worker, and other. Using this list, follow-up questions asked whether the participant uses, shares, and buys drugs from/with each person or group of people listed. The researcher wrote down yes or no answers for each response for later analysis. Additional core questions in this section included "Do you ever get information about drugs from your friends or social group, like what drugs might be best to use, how to use them, and how much to use?", "How frequently do you think you get information or advice on drug use?", and "Did you ever get information or advice about using drugs that you didn't take?", followed by several probes.

The third section of the interview aimed to further probe the types of information that guide substance use decision making in this population, as well as specific information of interest to the partner organization. Core questions in this section included "Do you ever use the internet to look up information about drugs or drug use?", "How much do you feel your drug use is influenced by your peers (for example, friend, acquaintance, dealer, etc.)?", and "Do you have any ideas about how we could help street-involved youth find good, accurate information about drugs, and safe ways of using drugs? How can we help to stop the spread of bad information about drug use?".

Post-Interview Comment Form. Each researcher completed a post-interview comment form to reflect on the participant's mood, tone, emotions, and reactions (e.g. emotional and physical), and any notable strong or weak features of the interview. This process allowed for methodological reflexivity and possible changes should systemic issues arise during the interview process (no systemic issues were noted).

Research Team
The primary researcher (EM) had the biggest impact on survey creation, data collection, qualitative analysis, and writing results. Her potential bias as a white, female, middle class Canadian psychology student with no lived experience of homelessness should be noted in the interpretation of these results. She kept the community partner involved in survey creation and data collection to mitigate potential biases in the wording of the questions. The research team consisted of EM and three undergraduate research assistants recruited from the psychology department at Carleton University. The first research assistant was involved with the interviewing, transcription, and coding; the second with transcription, coding, and conducting the focus group; and the third with transcription and survey data entry.

Planned Thematic Analysis
Semi-structured interview responses were analyzed following the guidelines for thematic analysis outlined by Braun and Clarke (2006), including transcription, coding, and the creation of higher order themes.

Transcription and initial coding. Each interview was transcribed verbatim using Trint voice-to-text software (Trint.com, 2019) and anonymized to remove personal identifiers (names, places, etc.). All transcripts were reviewed by the primary researcher to ensure accuracy. Following transcription, three researchers independently coded 5 randomly selected interviews to ensure reliability, and 5 interviews were randomly selected to remain uncoded to test the final thematic framework. Codes were defined as the smallest pieces of data that could be interpreted meaningfully (Boyatzis, 1998). The majority of the codes from the 5 independently coded interviews overlapped, and any discrepancies were resolved in order to establish an initial coding framework. Once a reliable coding framework was established, the remaining interviews were divided among the research team to complete coding. While we had some knowledge of a prior theoretical framework for peer information sharing (Gray et al., 2005), we used open-coding (highlighting all codes) to allow for an inductive

Table 1. Demographic Characteristics of Participants.

Variable	Total Sample (N = 82)	Interview Sample[a] (n = 46)
Age, M (SD)	21.35 (3.0)	21.58 (2.8)
Gender identity, n (%)		
Male	52 (63.4)	27 (58.7)
Female	26 (31.7)	19 (41.3)
Nonbinary	4 (4.9)	0
Relationship status, n (%)		
Single	38 (46.3)	17 (37)
In a relationship/ dating	31 (37.8)	18 (39.1)
Common law	10 (12.2)	8 (17.4)
Married	2 (2.4)	2 (4.3)
Children, n (%)		
No children	55 (67.1)	32 (69.6)
1 child	15 (18.3)	8 (17.4)
2 children	9 (11)	4 (8.7)
3 children	2 (2.4)	1 (2.2)
4 children	1 (1.2)	1 (2.2)
Currently in school, n (%)	19 (23.2)	10 (21.7)
Education level completed, n (%)		
Less than high school	8 (9.8)	4 (8.7)
Some high school	47 (57.3)	24 (52.2)
Completed high school	24 (29.3)	16 (34.8)
Completed postsecondary	3 (3.7)	2 (4.3)
Housing status, n (%)		
Their own apartment or house	32 (39)	21 (45.7)
Shelter, church, or street	25 (30.5)	15 (32.6)
Supportive housing (e.g., YMCA)	8 (9.8)	3 (6.5)
Parents' house	11 (13.4)	4 (8.7)
Friends' house	4 (4.9)	2 (4.3)
Mental health support[b]	39 (47.6)	21 (45.7)
Substance use support[b]	24 (29.3)	15 (32.6)

[a]Interview sample were participants in the first 2 weeks of data collection. An additional n = 36 participants were gained through a third week of survey-only recruitment
[b]Receiving professional support services, not specific to the community partner location

approach to thematic analysis, creating themes based on the data present in the set rather than relying only on an existing theoretical framework to evaluate the data (Braun & Clarke, 2006). Analysis of the codes focused on providing a detailed understanding of the themes relevant to the research questions (i.e., peer influence and peer information), leaving codes out of the analysis that were not relevant to the research questions (e.g., harm reduction strategies, experiences of youth homelessness).

Establishing higher-order themes. From the final list of codes, EM created higher-order themes and subthemes that were representative of patterns within the data. These initial themes were presented to three volunteer participants in a 1-hour focus group discussion to test the validity of the initial themes as they relate to the participants' own experiences. During this focus group the lead researcher presented initial themes and subthemes to participants and sought verbal feedback on the validity of those themes. The feedback from the participants indicated that most initial themes accurately captured their lived experiences. Nuances within the themes (i.e., personal and peer experience) were noted and an additional

subtheme (salience of information) was added following the focus group.

After receiving participant feedback, EM reviewed and refined the themes to ensure they were distinct from one another and formed a cohesive pattern. This was accomplished by a recursive, twofold process, first by analyzing the data excerpts relevant to each theme and subtheme to ensure internal coherence (i.e., data excerpts all consistently represented a single idea). Second, by analyzing the themes in relation to one another to ensure they were distinct and represented a story reflecting overall patterns in the data. To ensure accuracy of the themes as they related to the dataset, EM tested the thematic framework on the five randomly-selected uncoded interviews. All three main themes were represented in 100% of the uncoded interviews, and subthemes were represented in 60% - 80% of the uncoded interviews, confirming a good fit of the data to the thematic framework. We illustrate themes with representative data excerpts (See Table 2 for additional qualitative quotes).

Descriptive Analyses

We gathered demographic and substance use information with the intention of including tables of descriptive statistics to provide important context for our sample to enhance our qualitative findings. We included some exploratory descriptive analyses as online supplements (see Supplement Tables S1A, S1B, S2A, S2B) that break down theme endorsement and rates of substance use across demographic categories (housing status, school enrollment, level of education, age, gender, relationship status, and children).

Results

Table 1 summarizes demographic data obtained from this sample. Participants were mostly men (63%) and ranged from 16 – 27 years old ($M = 21.35$). Most participants had completed some high school (57.3%), or had completed high school (29.3%), and 23.2% of the participants reported being currently in school at the time of participation. A minority of participants reported most frequently sleeping in shelters or on the street at the time of the interview (30.5%), while many reported having their own apartment or house (39%). Almost half of the sample reported receiving mental health support (47.6%) at the time of participation, and 29.3% reported receiving substance use support. Participants who completed semi-structured interviews were demographically similar to the survey-only participants.

Table 2 shows participants' past-year frequencies of use of alcohol, cannabis, illicit substances, and misused prescription drugs. Nearly all participants reported past-year use of alcohol and cannabis. The most commonly-endorsed illicit substances were stimulants (cocaine, amphetamines, methamphetamine/crystal meth), prescription opiates, and misused over-the-counter medications. Heroin and fentanyl were rarely endorsed, as were inhalants.

Most participants (59 out of 82; 71.9%) reported dependence on one or more substances, most commonly cannabis or stimulant drugs. Table 4 shows substance dependence scores across five substance classes (alcohol, cannabis, hallucinogens, stimulants, and opiates). Dependence scores across the five classes of substances were similarly high, with the highest levels of dependence evident for opiates ($M = 2.68$, $SD = .96$) and the lowest for cannabis ($M = 2.16$. $SD = .72$).

Thematic analysis results

Our analysis revealed three overarching themes, summarized in Table 5. Social influence of peer groups is a prominent theme within drug use in this sample of youth (THEME 1), seen in ways that participants describe using substances socially, using similar substances within a social group, and initiating or stopping the use of specific substances due to peer influence.

Peer groups also tend to share information about drug use (THEME 2). A number of relevant themes appear important to understanding how youth share drug-related information

with each other, including the salience of the information to the individual, the trustworthiness of the person sharing the information, and finally the level of drug-related experience accumulated by the youth and by the person supplying information.

Finally, while a number of social factors influenced how drug-related information was sought out, received, and evaluated, participants reported regularly using the internet to seek out drug-related information, and should thus be considered equally in this analysis (THEME 3).

Theme 1: Peer Influence on Patterns of Drug Use

Both the thematic analysis and the survey data revealed a significant social component to drug use, where peer groups talked about, shared, and used drugs within their peer group. In response to our survey questions, most youth reported talking to their friends about their drug use ($n = 64$), as well as using ($n = 73$) and sharing ($n = 69$) drugs with friends and buying drugs from friends ($n = 54$; see Table 6). Rates reported for friends exceeded rates reported in every other category, with the exception that most youth reported buying drugs from a dealer.

Thematic analysis of the interview data yielded several subthemes relevant to understanding potential mechanisms of peer influence in this population: youth reported using drugs most regularly with their peers (Subtheme 1a), youth tended to engage in the same types of substance use as their peers (e.g., close friends using cannabis together, but not heroin; Subtheme 1b), and youth discussed that they started or stopped using a particular substance due to peer influence (Subthemes 1c and 1d).

Subtheme 1a: Drug use occurring with peers. Most participants ($n = 32$, 70%) discussed engaging in substance use within social situations in their peer groups, rather than alone. This type of peer influence on drug use was succinctly described by Kwame in responding to whether he felt his drug use was influenced by his peers, stating: "Of course. Yeah. They always smoke [cannabis]. So when I'm around them, I smoke." (Kwame, 21/M).

Similarly, Gwenyth stated feeling that her usage was heavily influenced by her friends, as her use of cannabis occurs almost exclusively within the context of her peer group, saying: "I find that I never really smoke weed alone. I'm often with friends whenever I do it." (Gwenyth, 24/F). Interviews revealed several motivations behind peer groups' tendency to use substances together, highlighted in examples youth gave of using drugs socially for fun, for safety, or for convenience.

Subtheme 1b: Peers Using Similar Drugs. Most youth reported choosing similar drugs to those of their peers ($n = 31$, 67%). This incidental finding was particularly interesting as it was not a direct question within the interview, but rather a theme that emerged organically during participant interviews. For example, Sarah discussed using the same drugs (speed) with both her romantic partner and roommates while they all

Table 2. Past-year Frequency of Substance Use.

Substance	N (%) of Users	M	SD	M (Users)[a]	SD (Users)[a]
Cannabis	80 (97.56)	6.95	1.72	7.10	1.46
Alcohol	78 (95.12)	4.05	2.07	4.21	2.00
Hallucinogens	43 (52.44)	2.05	1.50	3.00	1.54
Cocaine/ crack	38 (46.34)	2.27	2.04	3.74	2.23
Amphetamines	30 (36.59)	2.30	2.18	4.50	2.27
Prescription Opiates	30 (36.59)	1.76	1.39	3.00	1.63
Meth/ Crystal meth	27 (32.93)	2.04	1.98	4.15	2.30
OTC Medication[b]	27 (32.93)	1.79	1.51	3.41	1.76
Fentanyl	8 (9.76)	1.10	.30	2.00	.00
Heroin	4 (4.88)	1.12	.71	3.50	2.38
Inhalants	3 (3.66)	1.10	.68	3.67	2.89

Note. Frequency of use scale ranged from 1 (Not at all) to 8 (multiple times per day)
[a]Users variables describe the amount of use occurring only in participants who had responded as using that substance at least once in the past year.
[b]Describes over-the-counter medication being used for a reason other than its intended purpose.

Table 3. Summary Statistics for Substance Dependence Scores by Sub- stance Category (n = 59).

Substance Category	N (%)	M	SD
Stimulant[a]	25 (30.5)	2.44	.66
Cannabis	23 (28)	2.16	.72
Alcohol	5 (6.1)	2.32	.86
Opiate[b]	5 (6.1)	2.68	.96
Hallucinogen[c]	1 (1.2)	2	N/A

lived together, stating: "I had three other roommates at the time and all four of us were doing speed. I, I was living with three guys, my boyfriend two other roommates and all four of us were doing speed . . . " (Sarah, 19/F).

Denis Rogers noted that his peers tended to share opinions on what drugs were acceptable and unacceptable to use, stating: "A lot of my friends share the same opinion, on what drugs are clearly fucked up and what drugs are clearly there for pleasure. So." (Denis Rogers, 19/M). Other participants more directly called out patterns of similarity of the substances used within peer groups. For example, Liz (18/F) stated that while different peer groups who spend time in different locations used mostly cocaine or crack cocaine, the majority of her own peer group primarily used cannabis.

Subtheme 1c: Starting Use. Most participants reported that their initial use of a given substance occurred as a result of peer influence (*n* = 32, 70%). For example, Catwoman notes that her close friend using drugs influenced her to start using drugs, stating: "To be honest that's actually who got me on my drugs was my best friend. [Laughs] . . . I never tried them until I hung out with her and then she started doing them so I started doing them." (Catwoman, 24/F). In constructing this theme, we distinguished incidents of peer influence in which youth exhibited personal choice or agency (including incidents other than initial use, this was reported by *n* = 42 or

91% of participants) from outlying incidents of peer pressure, in which they used drugs in a context of threat or coercion (reported by *n* = 16; 36%).

Recalling a time when she felt her drug used had been influenced by her friends, Mary (25/F) discussed first trying hallucinogenic mushrooms when her friends offered to share them with her. Mary stated that while she initially refused the offer, she changed her mind because the drugs were easily accessible to her in that situation. Several other participants referenced ease of accessibility, but others noted that simply watching their friends having fun using a drug influenced their initial use, as described by Batman:

> Um, yeah. Well that was like, probably. . . actually yeah, it was back uh when I did acid. Yeah. Just cause . . . I really didn't want to do it, I was scared to do it. And... and then when I saw them all having a good time, laughing and stuff, I did it. (Batman, 21/M)

Negative case analysis revealed that two participants reported initial use occurring with a parent rather than a peer. In one example, Sparky (24/F) stated that her biological father offered her cocaine, later going on to state that this was her first drug experience outside of alcohol and cannabis use at that time.

Subtheme 1d. Stopping Use. Over half of participants (*n* = 24, 52%) also reported stopping the use of a substance due to peer influence, and several specifically referenced the death of a friend due to overdose as a catalyzing incident. In one example, Emily stated: ". . . like one of my friends OD'd and died, so like, it kinda woke me up. So, I kind of stopped using." (Emily, 23/F). Other participants reported seeing the effects of drug use on their peers as influencing their decision. Josh discussed this occurrence in stopping his use of amphetamines after seeing his partner become heavily dependent on speed: "Because [speed] was something that I wasn't gonna do very

Table 4. Themes, Subthemes, and Participant Endorsement.

Themes	Participant Endorsement, n (%)
Theme 1: Peer Influence on Patterns of Drug Use	
1a. Drug use occurring with peers	32 (69.57)
1b. Peers using similar drugs	31 (67.39)
1c. Starting use due to peer influence	32 (69.57)
1d. Stopping use due to peer influence	24 (52.17)
Theme 2: Peer Information about Drug Use	
2a. Context of Peer Information Sharing[a]	46 (100)
2b. Trust of others	19 (41.30)
2c. Experience with drugs	
Peer experience with drugs	40 (86.96)
Personal experience with drugs	22 (47.83)
2d. Salience of information	22 (47.83)
Theme 3: Internet Use for Drug Information	42 (91.30)

[a]Subtheme consists of each participant's subjective experience of peer information sharing regarding drug use, as such, every participant endorsed this subtheme

Table 5. Indicators of Drug Influence Among Social Categories.

Social Group	Talk, n (%)	Use, n (%)	Share, n (%)	Buy, n (%)	Valid Responses (n)
Friends	64 (80.00)	73 (91.25)	69 (86.25)	54 (67.50)	80
Romantic partner	45 (73.77)	37 (60.66)	39 (63.93)	13 (21.31)	61
Parents	41 (53.95)	15 (19.74)	14 (18.42)	7 (9.21)	76
Close family	29 (39.19)	29 (39.19)	27 (36.49)	12 (16.22)	74
Dealer	36 (49.32)	46 (63.01)	41 (56.16))	67 (91.78)	73
Support Worker[a]	29 (52.72)	0 (0.00)	0 (0.00)	0 (0.00)	55

Note. n (%), reporting YES responses and percentage out of valid data responses.
[a]Support Worker refers to a substance use counselor or mental health professional.

often at the time. But. And then, whenever she got addicted to it, and she like freaked out, I'm like, that could be me. So then I stopped." (Josh, 19/M). Finally, some participants discussed stopping their own drug use in order to support a friend, for example:

> Um... Yeah. Uh, one of my buddies was trying to, get away from like, speed... and coke. And then, like me a couple of our other friends, had to stop doing that stuff around him. But we still hung out with him all the time, so we cut back like, a lot.(Philipe, 18/M)

Theme 2: Peer Information

Given that most youth reported using drugs with their friends or romantic partners, it follows that peer groups likely serve as a frequent source of information about drug use. This hypothesis resonated with interview participants, who stressed the importance of peer-specific factors they consider when evaluating drug-related information, consistent with the framework outlined by Gray et al. (2005): the trustworthiness of the information source, the level of drug experience, both of the person giving and receiving the information, and the salience of the information to the person.

Subtheme 2a. Trust of Others. We did not directly ask participants about trust during the semi-structured interviews, but several participants reported evaluating advice about drugs more positively when it came from a trusted source ($n = 19$, 41%). There was often less emphasis placed on the informational content, and more emphasis on the amount of trust in the person who was providing the information.

In discussing Mackenzie's initial use of speed, she stated that although she did not know the appropriate amount of speed to take, she trusted her best friend both to have that information and to measure out the correct dose for her. This example highlights that the actual information (what the correct dosage would be) did not appear to be as important to Mackenzie as the level of trust she had in the friend providing the information:

> To be honest, the thing is I really didn't know what the right amount was at the time ... But the thing is, because I had so much trust in the girl, because she was my best friend since four years old. I trusted her enough to know, like, I didn't do drugs, she did. So I trusted her enough to know that she was gonna at least be decent with me, and that trust ended up being good enough. (Mackenzie, 18/F)

Similarly, in elucidating the reasons she would ask her friends for information about drug use, Cola (16/F) stated that she believed her friends would give her accurate and objective information about the drugs she was using because she trusted and felt close to them. Close, trustworthy friends were often described by youth in this sample as sources of drug-related information. Bob stated that he would typically seek drug-related information from his close friend, a person he had known for a long time and felt was a trustworthy source of information:

> And, you know, and then I got my good friend, my good buddy of mine who's, we, we've grew up together since we were kids there. We knew each other since we were little. And, he's always been there for me and I've always been there for him so I know he's someone I can trust as well and talk to about drugs. (Bob, 25/M)

In contrast, three participants reported not trusting peers for drug-related information. Analysis of these negative cases revealed some complexity within participants' descriptions of trust as an important factor in their decision making. For example, in discussing whether she talks to her peer groups about her drug use Catwoman (24/F) stated "Mmm, no. Cause I don't trust anyone", but went on to endorse the theme of trust in her interview in discussing trusting her friend as a source of both drugs and information. These negative cases highlight the fluid nature of trust around drug-related information.

Subtheme 2b. Experience with Drugs. Participants noted that peers with more drug experience were more influential sources of drug-related information, but those youth who themselves possessed higher levels of personal experience with drugs tended to seek less information about drug use overall.

Peer Expreience. Most participants ($n = 40$, 87%) reported seeking advice about drugs from someone who had previous experience with the drug in question. Cupcake stated: "Um, my boyfriend. Cause he had experience with stuff before. So, yeah. I would ask him." (Cupcake, 19/F). Water described talking to a specific peer for information regarding drug use because they were highly experienced in using and selling a variety of substances, which led her to believe that the information they provided would be reliable:

> Uh, [they] did drugs for years, experimented with so many different types of drugs. They would even do like Native tea, ayahuasca and stuff like that. And, they went to a lot of raves. They've also supplied a lot of drugs. So... they know a lot about drugs [laughs]. So I assume they know what they're talking about because every time I've taken their word, it's, it's been right. (Water, 22/F)

Participants also noted seeking out peers experienced with the specific drug they were interested in using. For example, John

Doe (25/M) described seeking out multiple, experienced peers to get a broad scope of information regarding experiences with a particular drug. In other examples, a peer's previous drug experience overlapped with trusting that peer as a source of drug-related information. Ginger recalled his initial use of LSD occurring with his partner, who was previously experienced with LSD and thus considered a trustworthy source of information:

> She was like uh, raised by like hippies and, they gave it to her when she was like 14, 15. So she's, she's grown up on it, and like, I trusted her. Like, uh, to get it for me if I was gonna try for my first time. So I was like, uh, might as well like try it from someone that's had experience over the years with it. (Ginger, 22/M)

Personal Expreience. Some participants ($n = 22$, 48%) explained that they preferred to make drug use decisions based on their own personal experiences and opinions rather than seeking information from external sources. For example, Antonio (No age given/M) noted that each experience using a drug built onto his knowledge base; having a good or bad experience of using a drug that looked or felt a certain way would inform his next experience in using that drug. Similarly, Eric stated that his own experience with drugs makes him a knowledgeable source of information for his own peer group, noting that he was more likely to provide information about drug use rather than seek it, as his previous experience with drugs informed his own decision making.

> So it's um, I've done a lot of drugs in my past, so I know what's supposed to be in different drugs and what's not. And so, when people bring like white powder to me, I'll tell them what's in it. And then, yeah. [Interviewer: How did you come to have that kind of information?] I've been doing drugs since I was 8. So. And then I went to a rehab center, ended up working in a rehab center. Relapsing, coming back to [city name], started, doing drugs again. Yeah. (Eric, 24/M)

Subtheme 2c. Salience of Information. We did not directly ask participants about information salience during the semi-structured interviews, but nearly half ($n = 22$, 48%) volunteered that they preferred information that was relevant to their own experience. Salience of drug-related information was noted either in the relevance to the drugs that the participants were currently using, or the relevance to issues in the community that might impact their own lives (i.e., fentanyl overdoses).

Youth reported seeking out information specific to the drugs that they were currently using and being interested in learning more about these drugs. John Doe succinctly describes this experience in responding to whether the drug-related information he had received was helpful to him, stating

"Oh yeah. I'd like to know about the drugs that I'm puttin' in my body [laughs]." (John Doe, 25/M). Similarly, Water stated that while she typically heard a lot of information about drugs and drug use within her social group, she would only listen to the information about drugs that she was using because this information was relevant to her:

> I've heard a lot. About a lot of drugs. And effects, on a lot of drugs. I've heard a lot of different things about the same drugs. There's a lot of information going around, but, like if I don't do that particular drug, I won't really listen to it. (Water, 22/F)

In addition to seeking information specific to their own drug use, information regarding fentanyl was a salient topic among participants, despite low rates of use by participants in this sample (see Table 3). Currently, fentanyl is a major concern for overdosing within this community, either through purposeful use or through fentanyl being unknowingly laced into other drugs. For example, RAKS stated that he had lost multiple peers due to fentanyl overdoses, stating: "Um, fentanyl... that's probably one of the scariest drugs I've ever learned about. I've actually lost a few people on fentanyl, and... Yeah, it scares the shit outta me. Like I won't even touch it." (RAKS, 27/M). Sabrina stated that fentanyl was a significant topic of discussion within her social group, given that many people have been overdosing on drugs laced with fentanyl:

> We just like, talk, I don't know like... a lot of people, die so we talk about like Fentanyl quite a bit. Apparently there's been fentanyl in weed too, so my friend told me that like, four people in [city name] have died from fentanyl in their weed. Some shit like that. (Sabrina, 18/F)

Theme 3: Internet Use for Information

Peer groups were often reported as a source of information about drug use, but peers were not always viewed as reliable sources of drug related information. The majority of participants (*n* = 42, 91%) reported using the internet to look up information related to drug use, mostly via search engines such as Google or information pages such as Wikipedia. The internet was used as a resource for learning more about a specific drug before trying it as well as after initial use, to learn more about the contents of the drug, side effects, overdose information, and more. Several participants (*n* = 9, 20%) reported using the internet to confirm or elaborate upon information that they had learned through their peer group. Further analysis of negative cases within peer information themes revealed four participants who explicitly stated trusting the internet over their peers for drug related information as it was a more objective source of information, or would not be biased by personal experience:

> When I do researches on drugs I do a couple of websites over about, all the information. I'd

> rather believe something I see like, that makes more sense, than someone that's using constantly and thinks it's amazing. (Ethan, 19/M)

Youth reported using multiple, reputable sources of information on the internet in order to ensure they were gathering reliable information. For example, in responding to ways in which he would use the internet to seek drug-related information, Rico Suave (23/M) stated that he would make sure the message was consistent across multiple websites before trusting that information. Similarly, in responding to what types of drug-related information she looked for on the internet, Britney Spears (21/F) discussed relying on medical grade websites as she felt they were the most reliable sources of information. In addition, she reported researching the creators of the website in order to check for potential biases in the information being reported.

Discussion

This mixed-methods study broadly examined drug-related information sharing among peers in a sample of youth who were street-involved and/or experiencing homelessness. The primary aim of this study was to investigate factors that homeless and street-involved youth consider when establishing both the credibility of a peer as a source of information, and the validity of the information the peer provides. Key findings supported Gray and colleagues' (2005) conceptual framework, demonstrating that peer influence was an important factor in drug use patterns among high-risk youth, and that trust, experience, and salience of information were key factors in assessing peer information regarding drug use. Summary statistics from our surveys aligned with the qualitative findings, indicating that most youth discuss, use, and share drugs with their peers. These findings provide valuable insights into mechanisms of peer influence within an understudied and marginalized population of youth.

Peer Influence Contexts of Drug Use

Overall, youth reported using drugs within their peer groups, using similar drugs to the members of their peer group, and initiating or stopping the use of a substance due to peer influence. These summary statistics support the Risk Amplification and Abatement Model (Milburn et al., 2009), suggesting that homeless and street-involved youth are more heavily exposed to peers engaging in substance use. This exposure may intensify the effects of peer influence on drug use and may be exacerbated by the potentially greater overall time these youth spend with peers compared to mainstream youth (who are also regularly exposed to school, parent, and extracurricular influences). Indeed, parental support and monitoring often protect against adolescent engagement in high-risk behavior (e.g., Claes et al., 2005; Windle et al., 2008). These factors may contribute to the higher frequency and severity of drug use we observe in homeless and street-involved youth populations.

Findings from this study are consistent with the body of peer influence literature that is largely based on studies using samples of mainstream youth. Like their mainstream counterparts, homeless or street-involved youth are likely to engage in substance use if their friends are engaging in that same behavior. This is consistent with a socialization mechanism, suggesting that individual behavior is influenced by their peer affiliations and that behavior within a peer group will therefore grow more similar over time (Kobus, 2003; Prinstein & Dodge, 2008). Indeed, this pattern of influence also manifested as peer groups collectively using similar substances. Groups of peers may co-create a setting within which substance use occurs and boundaries of substance use are negotiated (e.g., types of substance, frequency of use, context of use; Foster & Spencer, 2013). We found this to be equally true for youth we interviewed who were actively homeless ($n = 15$) and for youth who were housed ($n = 31$)—similar proportions of youth in different housing statuses endorsed each of the study themes (Table S1A). Patterns we observed in this study closely align with peer influence findings in samples of mainstream youth, suggesting that peer influence mechanisms may operate similarly across low- and high-risk populations, as well as across different categories and severities of substance use.

Given the frequency of substance use in this population, it is all the more critical to understand whether and how peer groups of homeless or street-involved youth are sharing information regarding drug use, in an effort to further understand ways in which we can disseminate accurate information on safe drug use in the community.

Peer Information Sharing

A key finding of the present study was that, consistent with the literature (e.g., Morse et al., 2013), most participants reported talking to their friends about drug use and getting information or advice regarding substance use from their peer group. Consistent with Gray and colleagues' (2005) framework, participants in many interviews reported greater willingness to take information from trusted, experienced members of their peer group, particularly in times when they themselves had little experience or information about the topic at hand.

Participants attended more closely to information that was relevant to the types of drugs that they engage with, and information relevant to topics within their peer group or community (e.g., laced drugs, fentanyl). Crucially, these findings suggest that important drug safety information may be more difficult for communities and public health professionals to successfully disseminate to youth who are not currently engaged in or contemplating using a particular drug. For example, an adolescent who is engaging only in moderate use of cannabis may retain less or entirely dismiss information regarding risks and safe practices for using opioids due to its lack of personal relevance/salience. An important implication is the relevance of this finding to drug information programming that occurs in schools, for example, the abstinence-based D.A.R.E. (Drug Abuse Resistance Education) program (e.g., West & O'Neal, 2004). Youth who are actively, purposefully using substances as well as youth who have not yet developed an interest in substance use may see the messaging from this type of program as irrelevant because it is implicitly targeted at youth who are positioned and receptive to advice about avoiding drugs. At the same time, many participants in this sample reported a high interest in seeking drug-related information—at least for those drugs of direct interest to them. One priority for future work may be to make available more and diverse sources of high-quality drug information for use when it is relevant to the information-seeking youth.

When youth did seek out information, it was often from peers whom they perceived to have more experience with substance use than themselves. Several youth noted that they would intentionally seek out peers with experience in the specific drug that they were using, suggesting an overlap between saliency of information and previous experience. However, participants also reported seeking less information as they gained personal experience with substance use. This finding suggests that youth who have more experience with drug use (i.e., have used many drugs, or for a longer period of time) may be less engaged in seeking new information on drug use, particularly information that overlaps with the drug experience they already have. Given these findings, highly substance-experienced youth may be influential sources of drug-related information, particularly for those with less drug experience. Harm reduction initiatives may have increased success by targeting inexperienced drug users who, as a group, may tend to be more receptive to new information about relevant drug use practices.

Finally, our qualitative results supported the hypothesis that credibility—the intersection of trustworthiness and peers' drug use expertise—weighed heavily in how youth evaluated substance information that they received from peers. Trustworthiness in particular was noted as an important factor, and a peer's previous experience with a drug engendered greater trust in that person as a reliable source of information. A number of the youth emphasized in their interviews the priority of trust in the source of the information over the quality of the information itself. Over repeated interactions with the same peer, youth will find their trust reinforced to the extent that the advice they receive pans out as advertised (such as recommended doses and sensations to expect while using a specific drug). Notably, three participants showed conflict within their own narratives around trust, highlighting the fluid nature of trusting peers or other groups as sources of drug-related information. Further, descriptive analysis showed that endorsement of trust in the thematic analysis was lower in homeless youth ($n = 4$, 22%) compared to housed youth ($n = 14$, 47%; see Table S1A), highlighting an area for further investigation. These findings may have implications for public health efforts to disseminate strategies for safer drug use. Recruiting highly experienced or widely trusted members of a peer group to support the dissemination of accurate information on safer

practices may be particularly effective.

Internet use for drug-related information

The youth in our sample reported receiving information from a number of sources, and they were not entirely reliant on their peers for accurate drug information. Substance-experienced peers were influential sources of information for many youth, but some perceived their drug-experienced peers to be biased and consequently less reliable sources of information. In these few cases, participants reported using the internet to gain objective drug related information. In contrast, many youth used peer generated information as a starting point for further individual research on a particular drug.

The proliferation of smartphones over the past decade has created an additional means by which to disseminate drug-related information. Indeed, in an assessment of internet use among youth living in homeless shelters, 86% reported accessing the internet at least once per week, and 66% reported accessing the internet primarily on a smartphone (VonHoltz et al., 2018). Thus, it is plausible to anticipate that rates of smartphone and internet use would be at least this high in our sample of youth who were either actively homeless, living with friends or family, or had an apartment or house of their own.

An unanticipated finding of this research was the regularity with which the internet is being used as a means to research safe drug use among homeless and street-involved youth. While this sample of youth showed high rates of substance use, they also displayed high interest in using these drugs safely and with minimal risk. Youth reported feeling that the resources available for information on safe drug use were not always adequate (e.g., pamphlets advertising abstinence from drug use rather than harm reduction strategies), or created concern about associated stigma (e.g., avoiding safe needle exchanges out of concern over being judged for intravenous drug use by their non-intravenous drug using peers). This is consistent with other research findings showing that harm-reduction strategies targeted to homeless or street-involved youth are frequently perceived as being inadequate in the support that they provide, or that stigma and neighborhood considerations deter these youth from accessing services (Bozinoff et al., 2017). Information adequacy and perceived stigma may be influential factors in how frequently youth use the internet to find information regarding safe drug use.

Moreover, this sample showed crucial information literacy skills in seeking drug-related information. This was demonstrated by youth confirming information across multiple websites to ensure reliability or using the internet to confirm information received within their peer group. Further, some youth stated a preference for objective information from the internet rather than potentially biased information from a substance using friend. Although highly substance-using youth may be portrayed as disinterested or indifferent to learning about drug use, these results emphasize that homeless and street-involved youth also engage in rational, critical appraisal when attempting to make informed decisions about safe drug use.

Findings from this study offer guidance for improving communication mechanisms of harm reduction strategies to populations of heavily substance using youth. For example, recruiting and deploying trusted and drug-experienced youth to disseminate current harm reduction strategies might engender more trust in youth using substances who are also aiming to gain more information about safe drug use. More effective communication techniques might include engaging youth on social media platforms that we know they are regularly using (e.g., Facebook, Instagram, Snapchat, etc). Social media may provide avenues through which youth can engage with harm reduction information privately, to reduce feelings of judgement from peers, and may provide a safe mechanism for youth to privately and anonymously request information relevant to their own drug use experience.

Limitations

Working within the drop-in center of our community partner was an ideal setting as it allowed access to a large number of youth with experiences of homelessness, who represent a typically difficult to reach population. At the same time, this sample represents only youth who are currently accessing resources through our community partner. Homeless and street-involved youth who are not currently accessing community resources may have different patterns of substance use (e.g., using substances intravenously), and may exchange peer information in ways that are not represented by this sample. Furthermore, literature on youth homelessness has suggested that the duration of homelessness varies in this population, with short-term homelessness being a common experience in youth (e.g., Johnson et al., 2005). As such, the short time frame in which participant recruitment and data collection occurred was a limitation in accessing a broader sample of homeless or street-involved youth. This study also exclusively recruited youth with a history of and/or current substance use. As such, the perspectives of youth who do not use any substances were not included in this research. We also assessed whether participants were currently accessing mental health support but did not assess or consider mental health comorbidities in the analysis, potentially lending some bias to the results. Furthermore, a direct comparison group of mainstream youth may have allowed us to explicitly explore differences in peer influence and peer information sharing between youth in different social settings. Finally, interpretation of themes was confined to the research team and partner organization, and not cross-referenced against the views of other independent researchers. This limitation is not unique to our study but warrants acknowledgement as a potential source of bias influencing the interpretation of our results.

Conclusion

Homeless and street-involved youth are heavily influenced by their peers in their drug use, as evidenced by engagement in drug use with their peer group, using similar types of drugs as their peers, and being influenced to start or stop the use of a particular drug by their peers. Patterns of peer information sharing aligned closely with Gray and colleagues' (2005) framework of information saliency, trustworthiness of the source of information, and prior experience both of the individual and the source of information. Most youth were also highly motivated to seek information about safe drug use and reported using the internet to seek information on drug use. These findings are crucial in understanding patterns of drug use among peer groups and the ways that drug information is evaluated by the highly substance using youth to whom this information is typically targeted. These results provide clues to identifying the shortcomings of current harm reduction messaging presented to youth, and a view toward potential avenues to improve how safer drug use information is communicated.

Given the high interest in this sample for more information on safe drug use, future strategies may include targeting peer groups as opposed to individual youth, implementing peer led information sessions, and using the internet and social media to communicate harm-reduction information. Such strategies may be more effective in communicating safe drug use to a broader audience of homeless and street-involved youth.

Acknowledgements

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article Table S1. (A) Number and Percent of Youth, By Demographic Subgroup, Endorsing Each of the Subthemes Identified in the Thematic Analysis. (B) Number and Percent of Youth, By Demographic Subgroup, Endorsing Each of the Subthemes Identified in the Thematic Analysis. Table S2. (A) Average Fre-

quency of Substance Use By Demographic Subgroup.
(B) Average Frequency of Substance Use By Demographic Sub-group.

Table 6. Appendix 1

Selected Qualitative Quotes

Themes	Selected Qualitative Quotes
1. Peer influence on patterns of drug use	
1a. Drug use occurring with peers	Cause whenever I, I were to go out and like do drugs or go out and drink and whatever, I'm always with my friends. Yeah, I don't go out alone and drink and do drugs just in case something bad happens. I need somebody there with me. . . . They, they've been through it. And plus on top of that, they'll, they'll know what to do if anything bad happens. (Martina, 21/F).
1b. Peers using similar drugs	And I know some people, at the old building I used to hang out with all do like coke and crack, right? There's like different areas that everyone kind of prefers one drug over the other. Due to accessibility kind of thing, like . . . What I find is like the majority of our friend group does do like, weed right? Cause I'm finding like, there may be a little bit of other users who use other ones, but there's always that majority of hey, we all use this and it's kind of common. (Liz, 18/F)
1c. Starting use due to peer influence	Mmm. . . only like a little bit, cause like, my friend who had the shrooms they were like asking me like, I think like twice if I wanna join. And I was like no at first, but then I was like starting to consider it. [Interviewer: OK. What changed your mind?] Well like, I was like on the fence and then I was like OK I'll just give it a shot, cause like it's in front of me anyways, and I'll take just a little bit, it'll be okay, yeah. (Mary, 25/F)
1d. Stopping use due to peer influence	Yeah. Um, that's why. OK, the reason why I stopped doing drugs, is cause a few people back then passed away that uh, I was really close to. The last one being [name] and uh, [inaudible] well, actually a year and a half, I just was like, I thought about that girl so much. She died doing needles. Fuck. And then I woke up [month, day], it was 7:13 in the morning. I looked at myself, I will never forget it. and I was like I'm not doing this anymore. I'm done. After today, it's done. (RAKS, 27/M).
2. Peer information about drug use	
2a. Trust of others	I mean, like you always feel close to your friends, right. Like I knew I could trust them. I knew that they wouldn't give me false information. I knew that they'd tell me very, quite frankly, like you know, this is what's gonna happen. Like, you either, don't do it or you do it. Take my information as you will. (Cola, 16/F)
2b. Experience with drugs	
Peer experience with drugs	But anything that I was putting my- in my body, I'd look for the information first, or, know from other people's experiences and whatnot. Like, not just from one person. I wanna hear a couple people, I want some comparatives here, like [laughs]. [*Interviewer: Who would you go to?*] Uh, the ones that I, uh, the people that I know that have already done it. (John Doe, 25/M)
Personal experience with drugs	Experiences. Like it's, it's been so long I'm taking drugs I guess and, you just know. Cause when you get started off small you just like, drugs drugs, you know like take it take it. And then honestly, you know when you taken a drug, oh I took a speed, I don't feel nothing, you know. So I know that was, . . . blue ice or something. And they it gave to you, it, it's pretty good they say, and you take it, it's no good. So maybe for the next time now, you'd be like okay I remember the last time, it was blue ice. (Antonio, No Age Provided/M)
2c. Salience of information	Well now with the fentanyl going out, I kind of looking into that more often. After my friend died to kind of see. Cause I knew there's a lot of, some friends were still using, right? So I wanted to see kinda, how fast fentanyl was growing in, kind of drug, like pill drugs like [inaudible]. So, so I can inform my friends and be like don't take it, like [laugh]. (Liz, 18/F)
3. Internet Use for Drug Information	Well, if you do your research and like look up like six, seven, eight different sites and they all say the same thing well then you can, probably lean on that it's real. But if you go to like three different sites and they all say different things about one topic, [. . .] you're gonna be like okay, I don't really trust what the hell this is saying . . . (Rico Suave, 23/M)
	I look for like medical grade websites. That's, that's stuff that I definitely look for. Um, just stuff like that, like reputable Web sites, like I'll look at the person that, you know, runs the website and kinda do like background research and stuff like that, cause. (Britney Spears, 21/F)