Published in final edited form as:

Subst Use Misuse. 2019 ; 54(12): 1929–1937. doi:10.1080/10826084.2019.1609988.

Perceived Causes of Personal versus Witnessed Overdoses among People who Inject Opioids

Emily Behar, MS^{a,b}, Jamie Suki Chang, PhD^c, Kennedy Countess^a, Phillip Coffin, MD, MIA^{a,b}

^aSan Francisco Department of Public Health

^bUniversity of California, San Francisco

^cSanta Clara University

Background

Drug overdose is the leading cause of injury-related death in the United States, outpacing deaths from guns, motor vehicles, and HIV each in their respective peak-death years (National Institute on Drug Abuse [NIDA], 2019). In 2017, more than 70,200 individuals died from drug overdose, the vast majority of which involved opioids (NIDA, 2019). As synthetic opiates such as fentanyl penetrate the street drug market in the US, people who inject drugs (PWID) remain at heightened risk of experiencing and witnessing overdose events (O'Donnell, Halpin, Mattson, Goldberger, & Gladden, 2017).

Extensive research has identified common opioid overdose risk factors such as prior overdose (Coffin et al., 2007; Shane Darke, Williamson, Ross, & Teesson, 2005), polysubstance use (e.g. opioid use with alcohol or benzodiazepines) (Sun et al., 2017; Webster et al., 2011), change in tolerance (Binswanger, Blatchford, Mueller, & Stern, 2013; Jenkins et al., 2011; Ochoa et al., 2005), and injection frequency (Brugal et al., 2002). Risk reduction education is often provided to PWID through low-threshold services such as syringe exchanges. Research shows that PWID who receive overdose education are knowledgeable around risk factors and are able to recognize and respond to an overdose, particularly with the use of naloxone, the opioid antagonist used to reverse the effects of an opioid overdose (Behar, Santos, Wheeler, Rowe, & Coffin, 2015; Bennett & Holloway, 2012; McGregor, Ali, Christie, & Darke, 2001; Strang et al., 2008).

Notwithstanding PWID knowledge of overdose risks, several studies suggest that some opioid users may nonetheless present an optimistic bias, whereby even high-risk individuals may see perceive their overdose risk to be significantly lower than their peers (Behar, Rowe, Santos, Murphy, & Coffin, 2016; McGregor, Darke, Ali, & Christie, 1998; Rowe, Santos, Behar, & Coffin, 2016). No study, however, has explored how this bias is operationalized,

Corresponding Author: Emily Behar, MS, San Francisco Department of Public Health, San Francisco, California, USA, Emily.Behar@sfdph.org, Tel: (415) 437-6251, University of California, San Francisco, Emily.Behar@ucsf.edu.

Declaration of Interest

No potential conflict of interest was reported by the authors

which may limit the effectiveness of current overdose prevention interventions. To further explore this, we sought to assess the way individuals attribute causation of personal versus witnessed overdose experiences. Deeper understanding of differences in perceived causes of overdose may help explain the presented optimism and inform the development of patient-centered, evidence-based behavioral interventions to reduce risky overdose behavior.

Theoretical frameworks

The actor observer bias

The actor observer bias (AOB) is a concept drawn from social psychology that posits that individuals may be more likely to assign responsibility for their own actions to situational causes (e.g. external/environmental factors), while ascribing responsibility for others' actions to dispositional causes (e.g. internal/personal characteristics) (Aronson, 2002; Baron, Byrne, & Branscombe, 2006; Fiske, 2004; Jones & Nisbett, 1971; Malle, Knobe, & Nelson, 2007; Wolfson & Salancik, 1977). For example, imagine a car accident caused by a driver who does not stop at a red traffic light. When asked what led to the event, the driver of the car responsible for the accident may attribute blame to a fallen tree branch blocking his ability to see the traffic light. Conversely, the person whose car was struck may be more likely to attribute blame to the drivers' inexperience or reckless driving. In this example, the driver (the actor) has attributed blame to situational causes, while the witness (the observer) has attributed blame to dispositional factors.

The AOB is particularly salient when applied to events with negative outcomes (Jones, 1990). The AOB, however, has not frequently been applied in public health, and to our knowledge has never been applied to risky drug using behavior. In our analysis, we explore how the AOB can elucidate the different explanatory models used by participants to describe their personal overdose experiences versus those they have witnessed.

Intragroup stigma

Stigma is a complex and dynamic concept that exists when individuals experience structured status loss or discrimination due to specific societally-constructed "negative" characteristic attributed to him/her (Link & Phelan, 2006). It can exist at systemic, structural and individual levels and can be experienced, perpetuated and internalized by individuals. Stigma can have significant health consequences for a person and has been linked to increased risk in stress, hypertension and other significant health problems (Link & Phelan, 2006). Stigma is also enduring-there are often long-term ramifications of stigma even after someone has left their stigmatized group (Link, Struening, Rahav, Phelan, & Nuttbrock, 1997). The concept of stigma is important to consider in our analysis because it is widely noted that PWID experience significantly higher rates of stigma than the general population (Ahern, Stuber, & Galea, 2007; Can & Tanriverdi, 2015; Kulesza et al., 2016; Smith, Earnshaw, Copenhaver, & Cunningham, 2016).

Intragroup stigma is a concept that describes the process by which people from within a stigmatized group internalize the stigma cast upon them and then perpetuate the same stigmatizing process within their own group. Goffman explains that people have a tendency

to develop a hierarchy within their own marginalized group and stigmatize the most vulnerable within that population (Goffman, 1963). Consequently, intragroup stigma is most commonly applied to people in a group that exhibit the most extreme version of the negative characteristic being stigmatized. Intragroup stigma may be more likely to appear when stigmatized groups are highly heterogeneous or easily stratified (Goldenberg, Vansia, & Stephenson, 2016).

Researchers have demonstrated numerous examples of intragroup stigma within the PWID community. For example: heroin users may stigmatize other heroin users who are perceived as lacking control of their substance use (Furst & Evans, 2015); PWID may stigmatize other PWID who contract Hepatitis C (Fitzgerald, Purington, Davis, Ferguson, & Lundgren, 2004); and female substance users may stigmatize other women based on their substance of choice (Gunn & Canada, 2015). In our analysis, we explore how intragroup stigma may be applied to PWID who have experienced an opioid overdose.

Methods

Study sample

Participants were enrolled in REBOOT, a randomized-controlled behavioral intervention to reduce overdose among opioid users in San Francisco (N=63), conducted from 2014–2016 (REBOOT Study; [ClinicalTrials.gov #NCT02093559](https://clinicaltrials.gov/ct2/show/study/NCT02093559)). Subjects were aged 18 and older, current injectors of illicit opioids with opioid use disorder, had received take-home naloxone, lived in San Francisco, and had overdosed within the past 5 years. Participants were recruited through street-outreach and print advertisement at syringe access programs in San Francisco and through snowball sampling. The study was approved by the Institutional Review Board at the University of California, San Francisco (CHR 13–11168).

Data collection and analysis

We qualitatively analyzed the first 41 interviews from REBOOT, stopping once theoretical saturation was reached. We excluded one participant for reporting no injection drug use, making our sample 40 participants. Interviews lasted approximately 45 minutes to one hour, were conducted by research associates, and took place at the San Francisco Department of Public Health. Participants were compensated \$25 for their time. The interviews occurred during participants' first (baseline) visits, which included additional study activities such as randomization, HCV and HIV testing, a urine drug screen, a motivational interviewing (MI)-based counseling session, and a computer-assisted personal interview. The MI-based counseling intervention consisted of two components: the first half was an interview about participants' personal and witnessed overdose experiences; the second half was an MI-based counseling session which included information around overdose risk reduction techniques. We analyzed data from the first segment of the REBOOT counseling intervention during which participants were asked open-ended questions about what factors contributed to their most recent personal overdose event and the most recent overdose event they witnessed. Our analysis is based on participants' responses to these questions.

Interviews were audio-recorded and transcribed verbatim, after which data were entered into ATLAS.ti (Version 7.5). Three independent researchers analyzed the data to ensure interrater reliability. We used thematic content analysis to conduct the analysis (Charmaz, 2014). The analysts developed a codebook, consisting of both *a priori* codes and codes generated inductively from the data. The codebook was applied to all interviews. New concepts that emerged during the coding process were discussed and added to the code list. Coding discrepancies were discussed with the entire research team. Upon completion of the coding process, results were organized into thematic findings.

Results

Demographics and overdose experiences

The study sample of 40 participants was mostly male (73%), white (63%), non-Hispanic (80%), used heroin in the past four months (98%), and had a mean age of 43 years (SD 11.5). The majority (95%) had experienced homelessness at some point in their life. Eighty percent of participants were sero-positive for hepatitis C virus and 10% for HIV.

All participants had experienced an opioid overdose in the past five years, with a mean of 6.2 (SD 15.7) overdoses and over half (53%) had overdosed at least once in the preceding 12 months. All participants had witnessed at least one overdose in their lifetime, with a mean of 14.6 (SD 22.6) witnessed overdoses, and nearly three-quarters (73%) had witnessed at least one overdose in the preceding 12 months. Participants reported believing they were significantly more likely to witness an overdose in the upcoming four months (63%) compared to experiencing an overdose themselves (35%). Most (88%) reported enrolling in a substance use disorder treatment program at least once. (Table 1)

Personal Overdoses-Contributing Factors

When participants described the factors leading to their most recent personal overdose experiences, they frequently cited situational, external attributes such as (1) drug volatility and (2) ascribing blame to others.

Drug volatility—Most participants cited volatility in drug potency, batch or source as the primary contributing factor to their overdose. The majority of participants focused specifically on the strength of the substance, indicating that they were not able to predict when a batch was stronger or weaker than expected. Participant A, a white male in his late 50s, explained that sometimes this is due to inconsistencies in batch preparation. When asked what contributed to his overdose, he stated: “The heroin was better than I...was used to. Yeah. Well, sometimes if they don’t mix it well, there’s a little hot spot.”

Participant B, a Hispanic male in his late 20s, also noted heroin strength as a primary contributing factor:

I: What do you think led up to the OD? Like what was different that time than other times?

R: It was just stronger. It was different stuff. Same thing as his [using partner]. It was just... I don’t know. That’s the only thing I can think of, which is...it’s the luck of the draw.

By alluding to “luck”, this participant highlights the unpredictability and irregularity of heroin strength. Change in drug strength, however, is perhaps not always a mystery. In fact, Participant C, a mixed-raced female in her mid-30s, indicated that she was warned about the strength of the batch, but dismissed the warning due to ongoing overstatements about good drug quality:

I: What was different about that circumstance that led to an overdose? What do you think was the circumstances? Like what was different than the other time?

R: I didn’t... I didn’t realize how strong the heroin was.

I: That’s what it was. Okay.

R: That’s it, and all it was... I wasn’t trying to OD or anything.

I: Okay. So looking about it aside from not knowing how strong it was, was there anything else that contributed to the overdose?

R: No.

I: Okay. Was it new, a new source, so you didn’t know that the dope was that strong?

R: No, no. It was... They were saying, “Oh, it’s really strong.” But like, you know, everybody says that.

A change in strength could be attributed to either a change in batch, as noted in the examples above, or a change in source, as noted by Participant D, a Hispanic female in her mid-40s:

I: Was it – you know, was there anything different about that time than other times?

R: No.

I: So, what do you think contributed to your own overdose?

R: The person who sold me the dope.

While the overdose mentioned above could have been due to an unfamiliar batch, Participant D, specifically notes that the source, e.g. the dealer, contributed to her overdose.

Finally, Participant E, a white male in his mid-30s, outlined a series of evidence-based precautions he took to reduce overdose risk, yet was still unable to prevent his overdose event:

I: Let’s switch gears. Talk to me about your experience of overdosing.

R: It only happened once.

I: Okay.

R: I was with a friend, so I wasn't by myself, and I wasn't drinking. I wasn't... I didn't take any benzos or anything like that. I just did, I guess, a stronger batch of dope.

While the situations varied, these participants all identified drug volatility – an external factor – as being the primary contributor to their overdose event.

Ascribing blame to others

Some participants cited other individuals as contributing to their most recent overdose event, with explanations ranging from innocent error to malicious intent.

A white female in her late-50s (Participant F) noted that low tolerance due to a period of abstinence contributed to her overdose. Yet when describing the situation, she also noted her friend's role in the event:

I: What else do you think contributed to that overdose?

R: Just the strength. It was just...I hate to say this but my friend, like fixed it [prepared the injection] for me.

I: Okay.

R: So, and I kept saying, you know, "Just a tiny, tiny bit." But that probably meant something different to him.

Here, the participant identified herself as taking protective action against an overdose by asking her friend to use only a small amount. However Participant F ceded at least some control of the overdose experience by stating that her friend's interpretation of a small amount may have varied from her definition, thereby also linking attribution of blame to her friend.

Another participant (G), a white male in his mid-50s, described a situation in which he believed others acted with malice. He describes being given a "hot shot" – an impure shot of heroin, either intentionally or unintentionally cut with other substances:

R: We were shooting the same damned dope all day long, and that's what was weird. That one got me, you know, and they don't... I think I was set up. I think I was set up with a hot shot.

I: Had someone made your shot?

R: Well, they handed me a chunk.

I: Uh... hum.

R: It was different than what we were doing.

The examples above, demonstrating participants' tendency to attribute all or partial blame to external forces, supports the first component of the actor observer bias which states that

individuals have a tendency to ascribe responsibility for suboptimal events to external/environmental factors.

Witnessed Overdoses-Contributing Factors

When discussing the factors that contributed to witnessed overdoses, many participants cited evidence-based overdose risk factors such as polysubstance use and fluctuations in tolerance. However, in addition to these risk factors, and in contrast to personal overdose descriptions, participants also cited dispositional factors such as personal shortcomings as contributing to witnessed overdose events. These factors fell into two primary categories: (1) greed and (2) inexperience/foolishness. The use of personal characteristics in this section may also represent an expression of intragroup stigma among our participant population.

Greed—Greed was the most commonly cited personal shortcoming that participants used to describe contributions to witnessed overdoses. By referencing “greed”, participants seemed to imply a situation in which someone may have willfully overused, often despite warnings or potential negative consequences. Greed was often not the sole contributor, but rather, was mentioned in conjunction with other high-risk behaviors, as demonstrated by Participant H, a white female in her mid-40s:

I: So you mentioned this a little bit but tell me, what do you think was S’s...? Like what caused the overdose?

R: It was the heroin he had (O/V)...

I: Just it was a lot, it was strong? What was that?

R: It was a strong heroin and he did more than he should’ve. He just got out of jail two days before. He thought he could do as much as I can.

I: Okay.

R: And look at him... He’s just... He’s a greedy little fucker. That’s what’s wrong with him.

By mentioning greed in addition to traditional risk factors such as drug strength and reduced tolerance, the participant suggests that personal shortcomings also contributed to this overdose event. Similarly, when Participant J, a mixed-race male in his late-50s, was asked what led to the overdose he witnessed, he explained: “He just used too much. He had been greedy...That’s the thing; he was being greedy.” Yet another participant (K), a white female in her early-60s, shared a similar description:

I: Let me ask you; what do you think were the factors that caused her overdose?

R: Fresh out of jail, fresh out of drugs...

I: Got you...

R: And greed.

I: Explain that. What do you mean?

R: [Imitating person who overdosed] I'm not gonna do half the bag; I'm doing the whole God damned thing.

These examples illustrate participants' ability to identify evidence-based risk factors (e.g. using after periods of abstinence), yet nonetheless these examples all still include greed as a contributing factor.

Inexperience/Foolishness—Participants also identified inexperience and foolishness as primary contributors in many witnessed overdose events. A white male in his late-20s (Participant L) explained how inexperience could contribute to an overdose:

I: Okay... And so, looking back on that event, what... what do you think contributed to this person's OD?

R: Just the lack of experience, I guess...Lack of tolerance...Kind of silly now that I look at it...Because it's... 'Cause it's just that how silly the person was that hadn't... you know, that that [overdose] happens to...'Cause... I guess they didn't have any experience with what they were doing or something.

Similar to the descriptions of greed in the section above, this participant successfully identified an evidence-based risk factor (reduced tolerance) yet also included a personal shortcoming (inexperience) in his description of the event.

Some participants expressed more overt labels of personal shortcomings, such as foolishness, as noted here by Participant M, a white male in his mid-40s:

I: What do you think led to that incident?

R: Him being stupid and not paying attention to his habit.

Participant N, a mixed-race male in his mid-20s, articulated a similar sentiment when describing an overdose he witnessed:

R: This was before I would ever think I would ever shoot up, you know, so I just like, "What a dumb girl" like "Why would she do that?" you know. Like I don't know; it was kind of like... it was kind of messed up but like me and a friend were like laughing at her like, "Oh, who's this dumb girl," like, you know, like I don't know. I was young. I was like 18 or 17 or 19; I don't know, somewhere around there. But I just found it kind of like not like funny but like, you know, "What is this girl thinking?" you know.

In these examples, participants described the overdose victims as acting carelessly and thus place at least partial blame on their personal shortcomings. The negativity expressed in these quotes can be viewed as an articulation of the intra-group stigma apparent throughout many of the participants' narratives.

Discussion

All study participants had experienced at least one overdose, making this a particularly high-risk population. In San Francisco, take-home naloxone is supplied through syringe exchanges and community-based organizations through the DOPE Project which provides basic overdose safety education with naloxone distribution. Because all study participants had received take-home naloxone in San Francisco, they represent a population that is likely well-educated on overdose risk factors. Thus, it is not surprising that participants often cited evidence-based risk factors when describing both personal and witnessed overdose events. The difference in the explanatory models, therefore, is based on the additional, non-evidence based factors that were frequently included in the descriptions of overdose experiences, which was particularly salient in the descriptions of witnessed overdose events.

Participants described the differences between personal and witnessed overdose events in a manner consistent with intragroup stigma and/or the actor-observer bias. The presence of the AOB and intragroup stigma create an environment whereby PWID may negatively judge other PWID for experiencing an overdose, even when they, themselves, have also experienced an overdose. This could lead to negative health consequences that practitioners should consider addressing in counseling interventions with PWIDs. Below we present two potential theoretical explanations for our findings and suggest how these findings could be incorporated into risk reduction interventions.

First, we identified persistent actor observer bias. PWID often share situational factors (e.g. individuals often buy and use drugs together), thus the actor and observer may have shared insight into the joint external factors present at the time of an overdose event. If someone overdoses in this context, the observer may attribute causation to dispositional/personal factors because the external circumstances are seemingly equivalent for both users, yet only one experienced an overdose. In this case, we found that the observer may discount external, situational factors, and instead focus on the internal characteristics of the individual who overdosed.

Furthermore, the AOB may relate to a self-protection bias, particularly in a time of drug market volatility, heightened overdose risk, and nationwide stigma related to injection drug use. The belief that personal shortcomings contribute to witnessed overdoses may engender a sense of greater agency over one's own overdose risk and may provide a false sense of security.

The AOB helps explain why individuals may be more likely to discount their own overdose risk factors by distinguishing themselves from the persons whose overdoses they witness. This is useful to inform public health interventions. To address this issue, an interventionist could point out the differences between the causal factors noted for personal and witnessed overdose events, suggesting that the witnessed overdose may have actually occurred for similar, difficult to control, reasons as well. Such an exercise could (a) help PWIDs develop a more nuanced explanation of their own overdose events, (b) validate witnessed overdoses by suggesting they may also be influenced by external factors, and (c) promote the universal use of evidence-based safety precautions during episodes of substance use (e.g. "tester

shots” to ensure the dose is not too strong, using in the presence of others, and staggered use to ensure someone is not high when each person uses, etc.).

Second, intragroup stigma may also play an important role in shaping PWID’s overdose narratives. When participants attribute the cause of witnessed overdoses to personal shortcomings not only do they employ the AOB, but they also propagate intragroup stigma among their peers. When our study participants use negative, emotionally-charged language such as “greed” and “foolishness” to refer to people who have overdosed, they are harnessing the very stigma often cast on them by the general public and redirecting it to those deemed lower in the PWID hierarchy. While this is a common, often subconscious, occurrence among stigmatized groups (Jones, 1990), it can have harmful effects on relationships, social structures, and drug using practices. Similar to the AOB, this may also produce a false sense of security among PWID who believe they do not embody the negative characteristics of those they stigmatize.

Practitioners should consider integrating the concept of intragroup stigma into counseling interventions. For instance, it is well established that stigma is associated with social isolation (Audet, McGowan, Wallston, & Kipp, 2013; Kelly, 1999; Nachege et al., 2012), and social isolation is a recognized risk factor for fatal overdose (S Darke & Zador, 1996; Davidson et al., 2003; Sporer, 2003). Thus, casting stigma onto this subpopulation of PWID may further exacerbate their already high risk for overdose. Working with PWID to improve peer and social support and reduce intragroup stigma may be an important tool for promoting safer drug using behavior, such as avoiding drug use in isolated settings.

Limitations

Our study has several limitations. First, trial eligibility criteria required that participants had experienced at least one overdose in the past 5 years and had received naloxone, thus making this a particularly high-risk population, but also a population with some baseline knowledge about risk factors and overdose, which may not be generalizable. Second, these data were collected via self-report during in-person interviews, which may lead to social-desirability or recall biases. Finally, our analysis was based on information captured during the initial section of a counseling session and was not based on a traditional semi-structured qualitative interview guide. The narratives analyzed in this paper occurred prior to counseling, however this context could exacerbate social-desirability bias.

Conclusion

Among people who inject opioids and are at high-risk for overdose, differences in perceived causes of personal versus witnessed overdose align with the actor observer bias and intragroup stigma. Leveraging these theories in counseling interventions may help to improve peer-based support programs and encourage PWIDs to employ evidence-based safety precautions when using opioids.

Acknowledgments

Funding Details

This work was supported by the National Institutes of Health under Grant R34DA037194

Reference

1. Overdose Death Rates. National Institute on Drug Abuse (NIDA). <https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates>. Accessed March 4, 2016.
2. O'Donnell JK, Halpin J, Mattson CL, Goldberger BA, Gladden RM. Deaths Involving Fentanyl, Fentanyl Analogs, and U-47700 — 10 States, July–December 2016. *MMWR Morb Mortal Wkly Rep*. 2017;66(43):1197–1202. doi:10.15585/mmwr.mm6643e1 [PubMed: 29095804]
3. Darke S, Williamson A, Ross J, Teesson M. Non-fatal heroin overdose, treatment exposure and client characteristics: Findings from the Australian treatment outcome study (ATOS). *Drug Alcohol Rev*. 2005;24(5):425–432. doi:10.1080/09595230500286005 [PubMed: 16298837]
4. Coffin PO, Tracy M, Bucciarelli A, Ompad D, Vlahov D, Galea S. Identifying injection drug users at risk of nonfatal overdose. *Acad Emerg Med*. 2007;14(7):616–623. doi:10.1197/j.aem.2007.04.005 [PubMed: 17554010]
5. Sun E, Dixit A, Humphreys K, Darnall B, Baker L, Mackey S. Association between concurrent use of prescription opioids and benzodiazepines and overdose: retrospective analysis. *BMJ*. 2017;356:j760. [PubMed: 28292769]
6. Webster LR, Cochella S, Dasgupta N, et al. An Analysis of the Root Causes for Opioid-Related Overdose Deaths in the United States. *Pain Med*. 2011;12(2):S26–S35. [PubMed: 21668754]
7. Binswanger IA, Blatchford PJ, Mueller SR, Stern MF. Mortality after prison release: opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Ann Intern Med*. 2013;159(9):592–600. doi:10.7326/0003-4819-159-9-201311050-00005 [PubMed: 24189594]
8. Ochoa KC, Davidson P, Evans JL, Hahn J, Page-Shafer K, Moss AR. Heroin overdose among young injection drug users in San Francisco. *Drug Alcohol Depend*. 2005;80(3):297–302. [PubMed: 15961257]
9. Jenkins LM, Banta-Green CJ, Maynard C, et al. Risk factors for nonfatal overdose at Seattle-area syringe exchanges. *J Urban Heal*. 2011;88(1):118–128.
10. Brugal MT, Barrio G, De La Fuente L, Regidor E, Royuela L, Suelves JM. Factors associated with non-fatal heroin overdose: assessing the effect of frequency and route of heroin administration. *Addiction*. 2002;97(3):319–327. [PubMed: 11964108]
11. Behar E, Santos G-M, Wheeler E, Rowe C, Coffin PO. Brief overdose education is sufficient for naloxone distribution to opioid users. *Drug Alcohol Depend*. 2015;148. doi:10.1016/j.drugalcdep.2014.12.009
12. Bennett T, Holloway K. The impact of take-home naloxone distribution and training on opiate overdose knowledge and response: An evaluation of the THN Project in Wales. *Drugs Educ Prev Policy*. 2012;19(4):320–328. doi:10.3109/09687637.2012.658104
13. McGregor C, Ali R, Christie P, Darke S. Overdose Among Heroin Users: Evaluation of an Intervention in South Australia. *Addict Res Theory*. 2001;9(5):481–501. doi:10.3109/16066350109141766
14. Strang J, Manning V, Mayet S, et al. Overdose training and take-home naloxone for opiate users: prospective cohort study of impact on knowledge and attitudes and subsequent management of overdoses. *Addiction*. 2008;103(10):1648–1657. doi:10.1111/j.1360-0443.2008.02314.x [PubMed: 18821875]
15. Rowe C, Santos G-M, Behar E, Coffin PO. Correlates of overdose risk perception among illicit opioid users. *Drug Alcohol Depend*. 2016;159. doi:10.1016/j.drugalcdep.2015.12.018
16. Behar E, Rowe C, Santos G-M, MG-M, Murphy S, Coffin PO. Primary Care Patient Experience with Naloxone Prescription. *Ann Fam Med*. 2016;14(5). doi:10.1370/afm.1972
17. McGregor C, Darke S, Ali R, Christie P. Experience of non-fatal overdose among heroin users in Adelaide, Australia: circumstances and risk perceptions. *Addiction*. 1998;93(5):701–711. doi:10.1046/j.1360-0443.1998.9357016.x [PubMed: 9692269]
18. Link B, Phelan JC. Stigma and its public health implications. *Lancet*. 2006;367:528–529. [PubMed: 16473129]

19. Link B, Struening E, Rahav M, Phelan JC, Nuttbrock L. On Stigma and Its Consequences: Evidence from a Longitudinal Study of Men with Dual Diagnoses of Mental Illness and Substance Abuse. *J Health Soc Behav.* 1997;38(2):177–190. [PubMed: 9212538]
20. Smith LR, Earnshaw VA, Copenhaver MM, Cunningham C. Substance use stigma: Reliability and validity of a theory-based scale for substance-using populations. *Drug Alcohol Depend.* 2016;162:34–43. [PubMed: 26972790]
21. Kulesza M, Matsuda M, Ramirez J, Werntz A, Teachman B, Lindgren K. Towards greater understanding of addiction stigma: Intersectionality with race/ethnicity and gender. *Drug Alcohol Depend.* 2016;169:85–91. [PubMed: 27792911]
22. Can G, Tanriverdi D. Social Functioning and Internalized Stigma in Individuals Diagnosed with Substance Use Disorder. *Arch Psychiatr Nurs.* 2015;29:441–446. [PubMed: 26577560]
23. Ahern J, Stuber J, Galea S. Stigma, Discrimination and the Health of Illicit Drug Users. *Drug Alcohol Depend.* 2007;88(2–3):188–196. [PubMed: 17118578]
24. Stigma Goffman E.. New York: Simon & Shuster; 1963.
25. Goldenberg T, Vansia D, Stephenson R. Intragroup Stigma Among Men Who Have Sex with Men: Data Extraction from Craigslist Ads in 11 Cities in the United States. *JMIR Public Heal Surveill.* 2016;2(1):e4. doi:10.2196/publichealth.4742
26. Furst RT, Evans DN. An Exploration of Stigma in the Lives of Sex Offenders and Heroin Abusers. *Deviant Behav.* 2015;36(2):130–145. doi:10.1080/01639625.2014.915673
27. Fitzgerald T, Purington T, Davis K, Ferguson F, Lundgren L. Utilization of Needle Exchange Programs and Substance Abuse Treatment Services by Injection Drug Users: Social Work Practice Implications of a Harm Reduction Model. *Pract Issues HIV/AIDS Serv Empower Model Progr Appl.* 2004;10.
28. Gunn AJ, Canada KE. Intra-group Stigma: Examining Peer Relationships Among Women in Recovery for Addictions. *Drugs (Abingdon Engl).* 2015;22(3):281–292. [PubMed: 26617439]
29. Jones EE, Nisbett RE. The Actor and the Observer: Divergent Perceptions of the Causes of Behavior. Morristown, NJ: General Learning Press; 1971 <http://psycnet.apa.org/record/1987-97459-005>. Accessed March 5, 2018.
30. Fiske ST. Social Beings: A Core Motives Approach to Social Psychology. Hoboken, NJ: Wiley; 2004.
31. Aronson E. The Social Animal. 8th ed (Worth, ed.). New York; 2002.
32. Baron RA, Byrne Branscombe N. Social Psychology. 11th ed Boston: Pearson; 2006.
33. Malle BF, Knobe JM, Nelson SE. Actor–Observer Asymmetries in Explanations of Behavior: New Answers to an Old Question. *J Pers Soc Psychol.* 2007;93(4):491–514. doi:10.1037/0022-3514.93.4.491 [PubMed: 17892328]
34. Wolfson MR, Salancik GR. Observer orientation and actor-observer differences in attributions for failure. *J Exp Soc Psychol.* 1977;13(5):441–451. doi:10.1016/0022-1031(77)90029-4
35. Jones EE. Interpersonal perception In: A Series of Books in Psychology. New York: W H Freeman/ Times Books/Henry Holt & Co; 1990.
36. Charmaz K. Constructing Grounded Theory (Introducing Qualitative Methods Series). 2nd Edition; 2014.
37. Audet C, McGowan C, Wallston K, Kipp A. Relationship between HIV Stigma and Self-Isolation among People Living with HIV in Tennessee. *PLoS One.* 2013;8(8):e69564.
38. Kelly P. Isolation and Stigma: The Experience of Patients With Active Tuberculosis. *J Community Health Nurs.* 1999;16(4):233–241. doi:10.1207/S15327655JCHN1604_3 [PubMed: 10628114]
39. Nachega JB, Morroni C, Zuniga JM, et al. HIV-Related Stigma, Isolation, Discrimination, and Serostatus Disclosure. *J Int Assoc Physicians AIDS Care.* 2012;11(3):172–178. doi:10.1177/1545109712436723
40. Darke S, Zador D. Fatal heroin “overdose”: a review. *Addiction.* 1996;91(12):1765–1772. <http://www.ncbi.nlm.nih.gov/pubmed/8997759>. Accessed January 28, 2019. [PubMed: 8997759]
41. Sporer KA. Strategies for preventing heroin overdose. *BMJ.* 2003;326(7386):442–444. doi:10.1136/bmj.326.7386.442 [PubMed: 12595388]

42. Davidson PJ, McLean RL, Kral AH, Gleghorn AA, Edlin BR, Moss AR. Fatal Heroin-Related Overdose in San Francisco, 1997–2000: a Case for Targeted Intervention. *J Urban Heal Bull New York Acad Med.* 2003;80(2):261–273. doi:10.1093/jurban/jtg029

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1.

Demographics, substance use and overdose history (N=40)

Characteristics	N	%
Gender, female	29	73%
Race		
White	25	63%
African American	6	15%
Hispanic	8	20%
Mixed or other	1	3%
Age, mean (SD, range, IQR)	43 (11.5, 21–60, 34–52)	
HIV status, positive	4	10%
HCV status, positive	33	83%
Ever homeless	39	98%
Years of illicit opioid use, lifetime, mean (SD, range, IQR)	24.5 (11.7, 4–52, 17–33.5)	
Heroin use, prior 4 months	39	98%
Ever enrolled in substance use treatment program	35	88%
Personal ODs, lifetime, mean (SD, range, IQR)	6.4 (15.9, 1–100, 1–4)	
Personal ODs prior 12 months		
Zero	19	48%
One	14	35%
Two	7	18%
Witnessed ODs, lifetime, mean (SD, range, IQR)	14.6 (22.6, 1–100, 3.5–14)	
Witnessed ODs, prior 12 months		
Zero	11	28%
1–5	22	55%
>5	7	18%
Somewhat/very likely to witness an OD in next 4 months	25	63%
Somewhat/very likely to experience an OD in next 4 months	14	35%