



Published in final edited form as:

Int J Drug Policy. 2022 September ; 107: 103791. doi:10.1016/j.drugpo.2022.103791.

The practice and embodiment of “goofballs”: a qualitative study exploring the co-injection of methamphetamines and opioids

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Abstract

Background: Polysubstance use is common among people who use drugs, including the co-use of stimulants and opioids. Research suggests the practice of simultaneous co-injection of methamphetamines and opioids, often referred to as “goofballs”, is increasing. As a relatively unique drug use practice, little qualitative research currently exists on goofball injecting. This study explores the practice and embodied experiences of goofball injecting.

Methods: This article draws on in-depth interviews conducted across two qualitative studies undertaken in Vancouver, Canada's Downtown Eastside neighbourhood examining changing dynamics in relation to stimulant use and experiences with an overdose prevention site-based safer supply intervention, respectively. Interviews containing discussions of goofball use (n=29) were extracted from each study and merged into a single qualitative dataset. Data were analysed thematically and focused on the practices and embodied experiences of goofball injection.

Results: Our analysis uncovered how goofball injection represented a complex drug use practice driven by the desire to achieve particular embodied experiences not attainable by using either drug individually. We identified three distinct practices of goofball use: 1) to alter or enhance the effects of opioids; 2) to alter or enhance the effects of methamphetamines; and 3) to balance out the effects of both drugs.

Author contributions

RM and TF designed the study. MM, TF, AB, RM and AI completed data collection. MM, TF, AB, RM, and AI analyzed the data. AI wrote the manuscript with input from all authors.

Conflict of interest: The authors declare that they have no conflict of interest.

Conclusion: Our study fills an important gap in the polysubstance use literature specifically exploring the co-injection of methamphetamines and opioids. Our findings highlight the need to implement and expand interventions and services attentive to polysubstance use and the role of pleasure in drug taking practices, including expanding non-medicalized opioid and stimulant safer supply initiatives across North America.

Keywords

stimulants; opioids; goofballs; polysubstance use; qualitative research

Introduction

Co-use of stimulants and opioids is common among people who use drugs (Chawarski et al., 2020; Daniulaityte et al., 2020; Palmer, Higgs, et al., 2020), including people on methadone treatment (McNeil et al., 2020). While there is a significant amount of research on polydrug use, including speedball use (mixing cocaine and heroin) (Judd et al., 2004; Leri et al., 2003; Rhodes et al., 2007), less is known about the specific practice of injecting a mixture of methamphetamine and opioids (commonly known as “goofballs”). Studies among people who inject drugs reporting prevalence of goofball use range from 32% in Washington State (Cedarbaum & Banta-Green, 2016), 14% in Los Angeles/San Francisco, California (Bluthenthal et al., 2015), 50% in Denver, Colorado (Al-Tayyib et al., 2017), and 54% in Melbourne, Australia (Palmer, Higgs, et al., 2020). While not a new drug use practice, a recent study in Seattle, Washington found that the proportion of study participants reporting goofballs as their main drug doubled between 2017 and 2019 (Glick et al., 2021). These studies suggest that the co-use of methamphetamines and opioids is common and may be increasing. This is concerning given that stimulant-involved polysubstance use is associated with poor physical and mental health status, increased hospitalizations for infectious complications, and increased overdose risk and mortality (Barocas et al., 2019; Sredl et al., 2020; Timko et al., 2018; Wurcel et al., 2016).

Two recent studies have focused on motivations for combined methamphetamine and opioid use (Lopez, 2019; Palmer, Scott, et al., 2020). Palmer et al. (2020) found that heroin was used to reduce the negative side effects of methamphetamines (e.g., anxiety), and that co-injection produced a more desirable effect than using either drug on its own. Methamphetamines could also prolong the effects of heroin (and the time before withdrawal) and provide a substitute for the high of heroin during opioid agonist treatment. Lopez (2019) found that methamphetamines were seen as safer than heroin, a way to detoxify from or titrate the effects of heroin, and a cheaper way to extend one’s high. This study also found that co-use of methamphetamines and opioids was influenced by ease of access to both drugs. While these studies have provided important insights into motivations for the co-use of methamphetamines and opioids, they do not focus exclusively on their co-injection (mixing together in the same syringe), and the practice of goofball injection remains largely understudied and poorly understood.

In this qualitative study, we draw on narratives of people who use drugs to explore the practice of goofball use (specifically, the co-injection of methamphetamines/”side” and

use amidst the rising prevalence of illicit stimulants (particularly methamphetamine) in the local context (Mansoor et al., 2022). The TiOAT study involved the evaluation of a low-barrier intervention providing hydromorphone tablets to people who use opioids at high overdose risk through an overdose prevention site (Ivsins, Boyd, Mayer, et al., 2020a, 2020b). Relevant data from the TiOAT study was integrated with data from the Stimulant Study for this analysis, as close to 30% of participants in the TiOAT study reported using goofballs and their interviews contained descriptions of goofball use. Data integration was facilitated by having similar sections in both interview guides (e.g., drug use practices, local context of drug use, overdose risk and experience) and study team members (AI and RM) involved in the data collection and analysis for both studies.

For the Stimulant Study, in-depth semi-structured interviews were conducted with 86 people who use stimulants to explore contextual influences on stimulant use, including changing drug use patterns in the context of drug supply transitions. Eligibility required participants to 1) be 14 years old or older and, 2) have current or past experience with stimulants. Participants were primarily recruited through outreach by peer research assistants (PRAs) - team members with lived experience with substance use and trained in research methods - in the Downtown Eastside in street-based and drop-in settings, including overdose prevention sites. PRAs would spend time in drop-in settings, and through social networks and word of mouth would identify potential participants, describe the study to those interested, and provide contact information for our research office to potential participants be screened for eligibility. Additionally, youth participants were recruited through a cohort-based study (At-Risk Youth Study; ARYS) operated by our research centre. As described elsewhere (Wood et al., 2006), ARYS cohort participants were required to be between 14 and 26 years of age, and have used drugs other than marijuana in the previous 30 days. The ARYS cohort was used only to recruit youth participants into the Stimulant Study, and no data from the ARYS study was used in the Stimulant Study or for our goofball analysis. Interviews were conducted at the research study offices operated by our research centre in the Downtown Eastside and Downtown South neighbourhoods. Interviews were facilitated with an interview guide that examined current experience with stimulant use (including goofball use), history of stimulant use, overdose risk and experience, and treatment experience. This interview guide contained specific questions (Do you use goofballs? Do you think there are any risks or benefits involved with using goofballs?) and probes/follow-up questions (Why, and how frequently do you use them? Are there certain situations you prefer to use them? What are the benefits/risk of using goofballs?) pertaining to goofball use. Interviews lasted 45–60 minutes in length and were audio recorded.

The TiOAT study involved in-depth interviews with 42 people enrolled in a hydromorphone tablet distribution program situated within an overdose prevention site in the Downtown Eastside neighbourhood. To be eligible, participants were required to be 14 years of age or older and enrolled in the tablet hydromorphone distribution program. Audio-recorded interviews were conducted on site and at a research study office, and were facilitated with an interview guide that examined experiences with the program, as well as drug use patterns and experiences, more generally. While this interview guide did not contain specific questions about goofball use, the guide contained a section on current drug use practices. Participant were asked to describe their drug use in the past month, with probes/follow-up

questions (Which drugs do you use? How often? How are you using them?) to elicit in-depth conversations around drug use practices. When it became evident early on during data collection that goofball use was common, questions around goofball use were elaborated on (e.g., Why/when do you use goofballs? How does it feel when using them?), when applicable, in subsequent interviews to capture distinct practices and experiences of goofball injection. Detailed descriptions of the TiOAT study have been previously published (Ivsins, Boyd, Mayer, et al., 2020a, 2020b). In both studies, participants provided written informed consent prior to commencing interviews, and received a \$30 CAD cash honorarium for their time. Both studies received ethical approval from the University of British Columbia and Providence Health Care Research Ethics Boards.

For both studies, interviews were transcribed verbatim by a professional transcription service and imported into NVivo, a qualitative data analysis program. Both studies were initially coded separately, and an initial coding framework was collaboratively developed by all team members after individually reviewing a selection of transcripts. These frameworks integrated *a priori* codes extracted from the interview guide (e.g., drug use practices, overdose risk), as well as emerging codes based on initial coding (e.g., polysubstance use, goofballs). The coding frameworks were revised over the course of the studies as new themes and subthemes emerged.

Data pertaining to goofball use (portions of transcripts that in any way referred to goofballs/goofball use) were extracted from each study and combined (N=29), including 17 from the Stimulant Study and 12 from the TiOAT study. We combined the two datasets to gain a broader understanding of goofballs by incorporating the perspectives and understandings of both people who primarily used stimulants (from the Stimulant Study) and people who primarily used illicit fentanyl (from the TiOAT study). In reality, and as demonstrated in our findings, polysubstance use is common among PWUD in the Downtown Eastside, supporting reliable cross-study comparison. In both studies, participants who reported using goofballs were then asked a number of follow up questions to elicit their experiences with goofball injection. Thematic analysis of the merged datasets focused on participant narratives around goofball use and experience. Additional analysis was conducted to compare and contrast experiences with goofball injection across the two studies. This analysis focused on the practices and embodied experiences of goofball injection, from which the three main themes in our results emerged.

Results

Altering or enhancing opioid effects

Participants variously described pleasurable embodied experiences when mixing methamphetamines with opioids/fentanyl. They commonly spoke about using methamphetamines to increase the intensity of opioids. For these participants, the desired effect of adding methamphetamines to opioids was to enhance the “*rush*” of opioids, referring generally to a desired and intense embodied effect experienced almost immediately after injecting the drug and then shortly subsiding. This was explained as a small burst of energy to complement the opioid euphoria by some, while others described a stronger or more pleasurable euphoric opioid effect. To achieve this rush, participants described mixing

“*jib/side*” (local slang referring to illegal methamphetamines) with their “*down*” (local slang referring to any illegal opioids). ‘Mark’, a 63-year-old white man, described how he added small amounts of methamphetamines to increase the “rush”:

Well, I think it’s...I think it’s...geez, it’s a lack of euphoria and, you know, you can jack up the rush off of whatever down you’re using by just a little bit of jib in there and away you go, right?

Similarly, when asked why she mixed methamphetamines with her opioids, ‘Kerri’, a 38-year-old white woman, replied:

It is a nice enhancement to the down, I would say. They do go good together...it complements the heroin. You just feel... you kind of feel the side and then you feel the down. It’s kind of like a... I don’t know, a little rush, like an opiate orgasm or something.

Mixing methamphetamine with opioids was also done by some participants to extend the opioid’s effects or to make their “high” last longer by giving it “*more legs*.” The illegal opioid supply in Vancouver, as in many other parts of North America, is dominated by illicitly manufactured fentanyl. Compared with heroin, the duration of the fentanyl “high” is much shorter (Mayer et al., 2018), leading to the quicker onset of withdrawal symptoms and thus requiring people to use fentanyl more frequently throughout the day. As methamphetamine is much cheaper than “down” in Vancouver, the practice of goofball injection not only extended the effects of down, but also reduced the overall cost of drug use – something critical given the challenges of managing drug use within the context of entrenched poverty. ‘Lesley’, a 51-year-old Indigenous woman, explained:

Like the fentanyl doesn’t last long. It’s like a really short lifespan and you have to use more, and you’re spending more money than you are when you’re doing heroin. When you’re doing heroin, it lasts like six to eight hours, or a while. And this stuff, you’re lucky if it’ll last for one or two. And then that’s why I’m doing the speed with it on top of it, because it’ll make it last a little... that little bit longer.

Participants also spoke about adding methamphetamine to their opioids to counteract the sedative effect of opioid use, commonly referred to as the “*nod*” (i.e., a trancelike somnolence after opioid consumption). For many participants, drug use was entangled with complex experiences of structural vulnerability (e.g., homelessness, lack of stable housing) which led to inadequate sleep and frequent exhaustion, exacerbated by the opioid’s tranquilizing effects. The practice of goofball use allows for the experience of opioid-related euphoria/relaxation while at the same time counteracting its sedative effects. Speaking about why she used goofballs, Tasha, a 59-year-old Indigenous woman, stated, “*Because it [methamphetamine] keeps your brain awake, but your body’s relaxed. Like the side keeps you like really alert and really like, you know, on top of things.*” Here we see multiple intersecting and contrasting embodied experiences – the relaxed body and awake brain, the alertness enmeshed with sedation – that the participant achieved through the unique practice of mixing stimulants and opioids. Further, participants explained that using opioids and potentially “*nodding off*” in public spaces put them at risk of robbery and violence. Goofball use helped prevent falling asleep in public, a significant risk when using opioids alone, thus

providing an element of safety. Trent, a 39-year-old white man, explained that when using opioids alone “*like I’ll nod off or I’ll pass out more*”, and that adding methamphetamine to his opioids “*gives you more, it keeps me awake.*”

Altering or enhancing methamphetamine effects

Most participants who spoke about altering or enhancing the effects of methamphetamine tended to be from Stimulant Study. For these participants, adding opioids to their methamphetamine reduced the intensity of the stimulant effects. Heidi, a 46-year-old Indigenous woman, described adding “*very, very little*” amounts of opioids to her methamphetamine because “*it’s a nicer more mellow high*” compared to other times when she’s “*bouncing off the walls.*” Similarly, Marvin, a 47-year-old white man, stated, “*for the last couple of years I had started adding it [opioids] to my side, and it just relaxed me when I started adding [opioids].*” Here, the practice of goofball injection is utilized as a means to transform the typical experience of stimulation associated with methamphetamine use in a novel and unique way – to reduce the intensity of methamphetamines, or incorporate an element of relaxation into a purely stimulating experience.

Participants who regularly used stimulants over extended periods of time often recounted experiences of heightened anxiety during intense periods of use. Prolonged methamphetamine use is often associated with auditory and visual hallucinations, paranoia, anxiety, and even psychosis (McKetin et al., 2006; Yoosefi Lebni et al., 2020). Many described “*tweaking*”, or feeling “*crazy*”, “*sketchy*”, or “*nervous*” after taking too much methamphetamine, and explained that adding opioids to their methamphetamine dampened these dysphoric or undesirable sensations. Here the practice of goofball injection was used almost as a safety mechanism to ensure an enjoyable rather than anxiety-inducing experience. As Lizzie, a 52-year-old Indigenous woman, described:

It’s got a different high. It doesn’t get you all hyped up where you think you see things, like that’s when you know there is jib in it, because you think you see bugs or little ants or something.

Similarly, Sonia, a 24-year-old white woman, explained why she started using goofballs, and how adding opioids reduced her anxiety when using methamphetamines:

Well I started that because like, well obviously meth can make you go crazy. Like you know. So like I found that if I mixed it, it makes me feel less crazy, if that makes sense... Just because if you do too much then I get all like sketchy and then like nervous, anxious, and I already have anxiety so I don’t need to be more anxious. So if I do the heroin with it like, calms me down a little bit.

In these examples, participants enjoyed using methamphetamines but struggled with some of its potential negative side effects and were engaging in a unique drug taking practice to shape a specific desired embodied experience, refining their use to achieve the stimulation associated with methamphetamine use combined with opioids to counteract any possible negative side effects.

A balancing effect

For some participants, goofballs were used to achieve a balance between the stimulating effects of methamphetamines and the depressant effects of opioids. Rather than attempting to alter or enhance the effects of one or other of the drugs, for these participants it was about an embodied experience capturing the most desirable effects, and limiting any negative effects, of both opioids and methamphetamines. Participants described a synergistic blending of energy and relaxation, a balance of both without experiencing too much of either. Selena, a 21-year-old white woman, explained that using goofballs reduced the potential negative outcomes of methamphetamine and opioid use: *“like I mix it so it’s like I don’t get like too high on the down, like where I’m like nodding off. But I don’t get too high on the jib so I’m like tweaking out.”*

Other participants discussed how combining methamphetamine and opioids resulted in a stability whereby neither drug overpowered the other, but rather complemented each other in desirable ways. For some participants, this was articulated as being mentally relaxed while physically energized, while others described a mental alertness combined with physical relaxation. Marvin, a 47-year-old white man, described:

It gives me the energy, but it helps my mind relax. It gives me the physical energy to do what I... you know, to get up and get moving and whatever. But the fentanyl, I guess, takes away the pain and slows me down so I can think calmer. But it’s sort of weird and I don’t know how to explain that. It’s, I’ve got the energy to do whatever I want, but I’m calm enough because of the other. Like I don’t know, but the way it balances out in my body, just suddenly it agreed with me.

This achieved equilibrium of stimulant and depressant was elaborated on by Osvald, a 31-year-old white man, in his desire to experience the euphoria of both methamphetamines and opioids:

Well, I use them together because I like the euphoric feeling of the crystal meth, and also the euphoric feeling of the down. The crystal meth to keep me going mentally, and the down just to keep me relaxed and mellow, instead of being super hyper. And like I can stay focused and stay awake for long periods of time. And the down just keeps me in a mellow balance... balance, equal medium.

Discussion

In summary, our findings demonstrate a number of unique motivations for the practice of co-injecting methamphetamines and opioids, driven by the desire to achieve particular embodied experiences that cannot be attained by using either drug individually. Participants discussed using goofballs to enhance or alter the effects of opioids or methamphetamines, or to achieve a desirable balance of the two drugs’ effects while limiting potential negative experiences (i.e., “nodding out” or “tweaking”). Our study is unique in that it specifically explores the co-injection (mixing together in the same syringe) of methamphetamines and opioids, filling an important gap in the polysubstance use literature.

Participant narratives demonstrate that goofball injection is a complex drug taking practice - mixing two diametrically opposed substances (one a stimulant, one a depressant) to achieve very unique effects. Study participants described an array of corporeal experiences that were shaped not only by the interaction of drugs and bodies, but by the desire for distinct and specific experiences requiring the skillful blending of two drugs. Too much of one or the other drug in the mixture could result in undesirable outcomes such as “tweaking” or “nodding off”.

In highlighting the embodied experience of goofball injection, our study adds to the growing body of literature recognizing that drug use is a rational practice shaped by a multitude of forces such as pleasure, desire, pain, social contexts, and experiences of structural vulnerability (Brookfield et al., 2021; Duff, 2008b; Duncan et al., 2017b; Ivsins & Yake, 2018; Palmer, Scott, et al., 2020). While pleasure has been the subject of research among certain populations (e.g., young adults, men who have sex with men, club goers) (Ahmed et al., 2016; Dennermalm et al., 2021; Farrugia, 2015), pleasure among structurally vulnerable populations has historically been overlooked in the drug research field, although this is slowly changing (Dennis & Farrugia, 2017). Such a shift is necessary considering that achieving pleasurable experiences were clearly important for many of the study participants. By engaging in the practice of goofball injection, participants were able to exert a level of control over the interaction of bodies and drugs, producing a sensory experience that could not be attained when taking either drug individually. A burst of energy to complement the euphoric sedative effect of opioids cannot be achieved by taking opioids alone. Acknowledging that these practices are purposeful and rational, and shaped by sought-after embodied experiences, may inform new harm reduction initiatives for people who engage in complex drug taking practices like goofball injection. For example, increasing knowledge and communication around safer polysubstance use practices could improve responses to complex overdoses and infectious complications. Crucially, such endeavours must be led by people with experience with polysubstance use to be truly effective, and to adequately understand the meaning and utility of drug use practices like goofball injection.

The drug use of many participants was entangled with experiences of structural vulnerability that shaped how and why they used goofballs. Poverty, lack of income, inadequate/unstable housing, and homelessness are enmeshed in a complex relationship whereby people who use drugs in public settings (outdoors or in supervised consumption sites) fear being robbed if they fall asleep or overdose. Public drug use is common in the Downtown Eastside, and associated with heightened risk of violence, robbery, sexual assault, and interactions with law enforcement (Hunter et al., 2018; McNeil et al., 2015; Small et al., 2006). Overdose or sedation in public settings places women in particular at risk of predatory physical and sexual violence (Boyd et al., 2018). Mixing small amounts of methamphetamines with their opioids allowed some participants to enjoy the euphoric experience of opioids without the risk of “*nodding off*” and thereby putting them at risk of violence or theft. This is especially important in the current context of a highly volatile drug supply, and in particular the adulteration of the opioid/fentanyl supply with benzodiazepines being seen in jurisdictions across North America which is characterized by abnormal overdose presentations (including blackouts and extended periods of unconsciousness) (Ti & Tobias, 2021; Toronto Drug Checking Services Report, 2021). Our findings thus highlight the important role of safer

environment interventions to be responsive to the structural vulnerabilities of people who use drugs by providing access to social, health, and material resources that enable health and wellbeing (Ivsins et al., 2019; McNeil & Small, 2014; Rhodes et al., 2006). Expanding safer environment interventions, including supervised consumption/overdose prevention sites and other safe spaces for people who use drugs, is critical in limiting exposure to harms stemming from drug use and socio-structural inequity including potentially fatal interactions with law enforcement.

Within the context of a highly toxic drug supply and prevalent polysubstance use, our findings underscore the importance of expanding access to critical life-saving harm reduction interventions such as supervised consumption/overdose prevention sites, and offering people who use drugs safer alternatives to the illicit market through both opioid and stimulant safer supply programs (Fleming et al., 2020; Ivsins, Boyd, Beletsky, et al., 2020). While opioid safer supply programs have been expanding across Canada, they have generally adopted a medicalized model oriented towards withdrawal management. These programs do no account for pleasure, constraining the capacity for desired embodied experiences (whether this be a rush, euphoria, or the nod) among program participants (McNeil et al., 2022). Furthermore, most stimulant safer supply initiatives have completely stalled. This is concerning given recent reports showing an increase in stimulant-involved overdose deaths, and in particular those involving methamphetamines alone (Al-Tayyib et al., 2017; Cano et al., 2020; Han et al., 2021; Jones et al., 2022; Vivolo-Kantor et al., 2020). In British Columbia, cocaine was involved in 45% of overdose deaths in 2020, while methamphetamine-involved deaths rose from 14% in 2012 to 45% in 2020 (British Columbia Coroners Service, 2021), implying high prevalence of polysubstance use. Indeed, studies in the United States suggest that opioids may be driving the recent increase in stimulant-related overdose deaths (McCall Jones et al., 2017; Nolan et al., 2019; Schneider et al., 2019). While research on safer supply programs is currently limited, existing research on opioid safer supply programs has found positive outcomes including improved quality of life and reduced illicit street drug use (Ivsins, Boyd, Mayer, et al., 2020b). Increasing access to these and similar programs, and expanding available medications to include stimulants, represents a promising intervention to address the overdose crisis. It is clear, however, that policy makers and service providers, in consultation with people with people who use drugs, need to consider the important role of pleasure/desire in drug taking practices to improve program enrollment and uptake, for example with dosing regimens that allow for desired embodied experiences, and increasing user agency (e.g., permitting carries/non-witnessed use).

The study has several limitations. First, it was undertaken in the Downtown Eastside neighbourhood, an urban area characterized by poverty, homelessness, an open drug market and high prevalence of drug use, and therefore may not be generalizable to other settings. Second, our study only included people who used goofballs by injection, and their experiences may not be representative of people who use drugs by other methods. Further, our analysis was limited to people who specifically used goofballs. Other combinations of stimulants and opioids (cocaine and heroin, for example) are common among people who engage in polysubstance use, and as such our findings may not be representative of other people with polysubstance use. Finally, given the high drug market variability and rapidly-

changing drug supply in our study setting, our findings may not reflect the experiences of people who use drugs in other settings (for example, where methamphetamines or illicit fentanyl are not prevalent in the drug supply).

Our study demonstrates that goofball injection is a rational drug taking practice shaped by the desire to achieve specific embodied experiences. These experiences were attained by mixing varying amounts of methamphetamines and opioids to either alter or enhance the effects of opioids, to alter or enhance the effects of methamphetamines, or to balance out the effects of both drugs. Our study makes an important contribution to the polysubstance use literature by broadening our understanding of the unique practice of goofball injection. While this study emphasized the embodied pleasurable and desirable experiences of goofball use without focusing on its risks and harms, polysubstance use-related risks should not be overlooked, especially within the current context of a highly toxic drug supply. Our study highlights the critical need to design, implement, and expand interventions and services attentive to polysubstance use and the role of pleasure in drug taking practices, including expanding non-medicalized opioid and stimulant safer supply initiatives across North America.

Acknowledgements

The authors thank the study participants for their contribution to this research, as well as current and past staff. This work was supported by the Canadian Institute of Health Research (CBF – 362965) and National Institutes of Health (R01DA044181). The sponsors had no role in the design and conduct of this research study or preparation of this manuscript. RM is supported by Michael Smith Foundation for Health Research Scholar Awards. RM is also supported by a Canadian Institutes of Health Research New Investigator Award. TF is supported by a Frederick Banting and Charles Best Canada Graduate Scholarship from Canadian Institute of Health Research. AI is supported by a Canadian Institutes of Health Research Postdoctoral Fellowship.

References

- Ahmed A-K, Weatherburn P, Reid D, Hickson F, Torres-Rueda S, Steinberg P, & Bourne A (2016). Social norms related to combining drugs and sex (“chemsex”) among gay men in South London. *International Journal of Drug Policy*, 38, 29–35. 10.1016/j.drugpo.2016.10.007 [PubMed: 27842251]
- Al-Tayyib A, Koester S, Langedger S, & Raville L (2017). Heroin and Methamphetamine Injection: An Emerging Drug Use Pattern. *Substance Use & Misuse*, 52(8), 1051–1058. 10.1080/10826084.2016.1271432 [PubMed: 28323507]
- Askew R (2016). Functional fun: Legitimising adult recreational drug use. *International Journal of Drug Policy*, 36, 112–119. 10.1016/j.drugpo.2016.04.018 [PubMed: 27462012]
- Barocas JA, Wang J, Marshall BDL, LaRochelle MR, Bettano A, Bernson D, Beckwith CG, Linas BP, & Walley AY (2019). Sociodemographic factors and social determinants associated with toxicology confirmed polysubstance opioid-related deaths. *Drug and Alcohol Dependence*, 200, 59–63. 10.1016/j.drugalcdep.2019.03.014 [PubMed: 31100636]
- Bluthenthal RN, Wenger L, Chu D, Lorvick J, Quinn B, Thing JP, & Kral AH (2015). Factors associated with being asked to initiate someone into injection drug use. *Drug and Alcohol Dependence*, 149, 252–258. 10.1016/j.drugalcdep.2015.02.011 [PubMed: 25735468]
- Boyd J, Collins AB, Mayer S, Maher L, Kerr T, & McNeil R (2018). Gendered violence and overdose prevention sites: A rapid ethnographic study during an overdose epidemic in Vancouver, Canada. *Addiction*, 113(12), 2261–2270. 10.1111/add.14417 [PubMed: 30211453]
- British Columbia Coroners Service. (2021). Illicit Drug Toxicity Deaths in BC January 1, 2011 – February 28, 2022. <https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/statistical/illicit-drug.pdf>

- Brookfield SJ, Selvey L, Maher L, & Fitzgerald L (2021). “It Just Kind of Cascades”: A critical ethnography of methamphetamine-related pleasure among people in recovery. *International Journal of Drug Policy*, 98, 103427. 10.1016/j.drugpo.2021.103427 [PubMed: 34455175]
- Cano M, Oh S, Salas-Wright CP, & Vaughn MG (2020). Cocaine use and overdose mortality in the United States: Evidence from two national data sources, 2002–2018. *Drug and Alcohol Dependence*, 214, 108148. 10.1016/j.drugalcdep.2020.108148 [PubMed: 32702620]
- Cedarbaum ER, & Banta-Green CJ (2016). Health behaviors of young adult heroin injectors in the Seattle area. *Drug and Alcohol Dependence*, 158, 102–109. 10.1016/j.drugalcdep.2015.11.011 [PubMed: 26651427]
- Chawarski MC, Hawk K, Edelman EJ, O’Connor P, Owens P, Martel S, Coupet E, Whiteside L, Tsui JI, Rothman R, Cowan E, Richardson L, Lyons MS, Fiellin DA, & D’Onofrio G (2020). Use of Amphetamine-Type Stimulants Among Emergency Department Patients With Untreated Opioid Use Disorder. *Annals of Emergency Medicine*. 10.1016/j.annemergmed.2020.06.046
- Crouch D (2000). Places around us: Embodied lay geographies in leisure and tourism. *Leisure Studies*, 19(2), 63–76. 10.1080/026143600374752
- Daniulaityte R, Silverstein SM, Crawford TN, Martins SS, Zule W, Zaragoza AJ, & Carlson RG (2020). Methamphetamine Use and Its Correlates among Individuals with Opioid Use Disorder in a Midwestern U.S. City. *Substance Use & Misuse*, 0(0), 1–9. 10.1080/10826084.2020.1765805
- Dennermalm N, Scarlett J, Thomsen S, Persson KI, & Alvesson HM (2021). Sex, drugs and techno —A qualitative study on finding the balance between risk, safety and pleasure among men who have sex with men engaging in recreational and sexualised drug use. *BMC Public Health*, 21(1), NA–NA. 10.1186/s12889-021-10906-6
- Dennis F, & Farrugia A (2017). Materialising drugged pleasures: Practice, politics, care. *International Journal of Drug Policy*, 49, 86–91. 10.1016/j.drugpo.2017.10.001 [PubMed: 29126519]
- Duff C (2007). Towards a theory of drug use contexts: Space, embodiment and practice. *Addiction Research & Theory*, 15(5), 503–519. 10.1080/16066350601165448
- Duff C (2008a). The pleasure in context. *The International Journal on Drug Policy*, 19(5), 384–392. 10.1016/j.drugpo.2007.07.003 [PubMed: 17768037]
- Duff C (2008b). The pleasure in context. *International Journal of Drug Policy*, 19(5), 384–392. 10.1016/j.drugpo.2007.07.003 [PubMed: 17768037]
- Duncan T, Duff C, Sebar B, & Lee J (2017a). ‘Enjoying the kick’: Locating pleasure within the drug consumption room. *International Journal of Drug Policy*, 49, 92–101. 10.1016/j.drugpo.2017.07.005 [PubMed: 28893455]
- Duncan T, Duff C, Sebar B, & Lee J (2017b). ‘Enjoying the kick’: Locating pleasure within the drug consumption room. *International Journal of Drug Policy*, 49, 92–101. 10.1016/j.drugpo.2017.07.005 [PubMed: 28893455]
- Farrugia A (2015). “You Can’t Just Give Your Best Mate a Massive Hug Every Day”: Young Men, Play and MDMA. *Contemporary Drug Problems*, 42(3), 240–256. 10.1177/0091450915601520
- Fleming T, Barker A, Ivsins A, Vakharia S, & McNeil R (2020). Stimulant safe supply: A potential opportunity to respond to the overdose epidemic. *Harm Reduction Journal*, 17(1), 6. 10.1186/s12954-019-0351-1 [PubMed: 31924209]
- Glick SN, Klein KS, Tinsley J, & Golden MR (2021). Increasing Heroin-Methamphetamine (Goofball) Use and Related Morbidity Among Seattle Area People Who Inject Drugs. *The American Journal on Addictions*, 30(2), 183–191. 10.1111/ajad.13115 [PubMed: 33301230]
- Gomart E (2002). Methadone: Six Effects in Search of a Substance. *Social Studies of Science*, 32(1), 93–135. [PubMed: 12051261]
- Han B, Compton WM, Jones CM, Einstein EB, & Volkow ND (2021). Methamphetamine Use, Methamphetamine Use Disorder, and Associated Overdose Deaths Among US Adults. *JAMA Psychiatry*, 78(12), 1329–1342. 10.1001/jamapsychiatry.2021.2588 [PubMed: 34550301]
- Hunter K, Park JN, Allen ST, Chaulk P, Frost T, Weir BW, & Sherman SG (2018). Safe and unsafe spaces: Non-fatal overdose, arrest, and receptive syringe sharing among people who inject drugs in public and semi-public spaces in Baltimore City. *International Journal of Drug Policy*, 57, 25–31. 10.1016/j.drugpo.2018.03.026 [PubMed: 29660732]

- Ivsins A, Boyd J, Beletsky L, & McNeil R (2020). Tackling the overdose crisis: The role of safe supply. *International Journal of Drug Policy*, 80, 102769. 10.1016/j.drugpo.2020.102769 [PubMed: 32446183]
- Ivsins A, Boyd J, Mayer S, Collins A, Sutherland C, Kerr T, & McNeil R (2020a). Barriers and facilitators to a novel low-barrier hydromorphone distribution program in Vancouver, Canada: A qualitative study. *Drug and Alcohol Dependence*, 108202. 10.1016/j.drugalcdep.2020.108202 [PubMed: 32948372]
- Ivsins A, Boyd J, Mayer S, Collins A, Sutherland C, Kerr T, & McNeil R (2020b). “It’s Helped Me a Lot, Just Like to Stay Alive”: A Qualitative Analysis of Outcomes of a Novel Hydromorphone Tablet Distribution Program in Vancouver, Canada. *Journal of Urban Health*. 10.1007/s11524-020-00489-9
- Ivsins A, & Marsh S (2018). Exploring what shapes injection and non-injection among a sample of marginalized people who use drugs. *International Journal of Drug Policy*, 57, 72–78. 10.1016/j.drugpo.2018.04.006 [PubMed: 29702394]
- Ivsins A, Vancouver Area Network of Drug Users, Benoit, C., Kobayashi K, & Boyd S (2019). From risky places to safe spaces: Re-assembling spaces and places in Vancouver’s Downtown Eastside. *Health & Place*, 59, 102164. 10.1016/j.healthplace.2019.102164 [PubMed: 31382220]
- Ivsins A, & Yake K (2018). Looking beyond harm: Meaning and purpose of substance use in the lives of marginalized people who use drugs. *Drugs: Education, Prevention and Policy*, 0(0), 1–10. 10.1080/09687637.2018.1497145
- Jones CM, Houry D, Han B, Baldwin G, Vivolo-Kantor A, & Compton WM (2022). Methamphetamine use in the United States: Epidemiological update and implications for prevention, treatment, and harm reduction. *Annals of the New York Academy of Sciences*, 1508(1), 3–22. 10.1111/nyas.14688 [PubMed: 34561865]
- Judd A, Hickman M, Jones S, McDonald T, Parry JV, Stimson GV, & Hall AJ (2004). Incidence of hepatitis C virus and HIV among new injecting drug users in London: Prospective cohort study. *BMJ*, 330(7481), 24–25. 10.1136/bmj.38286.841227.7C [PubMed: 15533854]
- Leri F, Bruneau J, & Stewart J (2003). Understanding polydrug use: Review of heroin and cocaine co-use. *Addiction*, 98(1), 7–22. 10.1046/j.1360-0443.2003.00236.x [PubMed: 12492751]
- Lopez AM (2019). The Co-Use of Methamphetamine and Opioids Among Patients in Treatment in Oregon, USA. National Institute on Drug Abuse.
- MacLean S (2005). “It Might Be a Scummy-Arsed Drug but it’s a Sick Buzz”: Chroming and Pleasure. *Contemporary Drug Problems*, 32(2), 295–318. 10.1177/009145090503200206
- MacLean S (2008). Volatile bodies: Stories of corporeal pleasure and damage in marginalised young people’s drug use. *International Journal of Drug Policy*, 19(5), 375–383. 10.1016/j.drugpo.2007.08.005 [PubMed: 17900889]
- Mansoor M, McNeil R, Fleming T, Barker A, Vakharia S, Sue K, & Ivsins A (2022). Characterizing stimulant overdose: A qualitative study on perceptions and experiences of “overamping.” *International Journal of Drug Policy*, 102, 103592. 10.1016/j.drugpo.2022.103592 [PubMed: 35114520]
- Mayer S, Boyd J, Collins A, Kennedy MC, Fairbairn N, & McNeil R (2018). Characterizing fentanyl-related overdoses and implications for overdose response: Findings from a rapid ethnographic study in Vancouver, Canada. *Drug and Alcohol Dependence*, 193, 69–74. 10.1016/j.drugalcdep.2018.09.006 [PubMed: 30343236]
- McCall Jones C, Baldwin GT, & Compton WM (2017). Recent Increases in Cocaine-Related Overdose Deaths and the Role of Opioids. *American Journal of Public Health*, 107(3), 430–432. 10.2105/AJPH.2016.303627 [PubMed: 28177817]
- McKetin R, McLaren J, Lubman DI, & Hides L (2006). The prevalence of psychotic symptoms among methamphetamine users. *Addiction (Abingdon, England)*, 101(10), 1473–1478. 10.1111/j.1360-0443.2006.01496.x [PubMed: 16968349]
- McNeil R, Fleming T, Mayer S, Barker A, Mansoor M, Betsos A, Austin T, Parusel S, Ivsins A, & Boyd J (2022). Implementation of Safe Supply Alternatives During Intersecting COVID-19 and Overdose Health Emergencies in British Columbia, Canada, 2021. *American Journal of Public Health*, e1–e8. 10.2105/AJPH.2021.306692

- McNeil R, Kerr T, Lampkin H, & Small W (2015). “We need somewhere to smoke crack”: An ethnographic study of an unsanctioned safer smoking room in Vancouver, Canada. *International Journal of Drug Policy*, 26(7), 645–652. 10.1016/j.drugpo.2015.01.015 [PubMed: 25683138]
- McNeil R, Puri N, Boyd J, Mayer S, Hayashi K, & Small W (2020). Understanding concurrent stimulant use among people on methadone: A qualitative study. *Drug and Alcohol Review*, 39(3), 209–215. 10.1111/dar.13049 [PubMed: 32202009]
- McNeil R, & Small W (2014). ‘Safer environment interventions’: A qualitative synthesis of the experiences and perceptions of people who inject drugs. *Social Science & Medicine*, 106, 151–158. 10.1016/j.socscimed.2014.01.051 [PubMed: 24561777]
- Nolan ML, Shamasunder S, Colon-Berezin C, Kunins HV, & Paone D (2019). Increased Presence of Fentanyl in Cocaine-Involved Fatal Overdoses: Implications for Prevention. *Journal of Urban Health*, 96(1), 49–54. 10.1007/s11524-018-00343-z [PubMed: 30635841]
- O’Gorman A (2016). Chillin, buzzin, getting mangled, and coming down: Doing differentiated normalisation in risk environments. *Drugs: Education, Prevention and Policy*, 23(3), 247–254. 10.1080/09687637.2016.1176991
- O’Malley P, & Valverde M (2004). Pleasure, Freedom and Drugs: The Uses of ‘Pleasure’ in Liberal Governance of Drug and Alcohol Consumption. *Sociology*, 38(1), 25–42. 10.1177/0038038504039359
- Palmer A, Higgs P, Scott N, Agius P, Maher L, & Dietze P (2020). Prevalence and correlates of simultaneous, multiple substance injection (co-injection) among people who inject drugs in Melbourne, Australia. *Addiction*, n/a(n/a). 10.1111/add.15217
- Palmer A, Scott N, Dietze P, & Higgs P (2020). Motivations for crystal methamphetamine-opioid co-injection/co-use amongst community-recruited people who inject drugs: A qualitative study. *Harm Reduction Journal*, 17(1), 14. 10.1186/s12954-020-00360-9 [PubMed: 32106854]
- Rhodes T, Briggs D, Kimber J, Jones S, & Holloway G (2007). Crack–heroin speedball injection and its implications for vein care: Qualitative study. *Addiction*, 102(11), 1782–1790. 10.1111/j.1360-0443.2007.01969.x [PubMed: 17784900]
- Rhodes T, Kimber J, Small W, Fitzgerald J, Kerr T, Hickman M, & Holloway G (2006). Public injecting and the need for ‘safer environment interventions’ in the reduction of drug-related harm. *Addiction*, 101(10), 1384–1393. 10.1111/j.1360-0443.2006.01556.x [PubMed: 16968336]
- Schneider KE, Park JN, Allen ST, Weir BW, & Sherman SG (2019). Patterns of polysubstance use and overdose among people who inject drugs in Baltimore, Maryland: A latent class analysis. *Drug and Alcohol Dependence*, 201, 71–77. 10.1016/j.drugalcdep.2019.03.026 [PubMed: 31195347]
- Small W, Kerr T, Charette J, Schechter MT, & Spittal PM (2006). Impacts of intensified police activity on injection drug users: Evidence from an ethnographic investigation. *International Journal of Drug Policy*, 17(2), 85–95. 10.1016/j.drugpo.2005.12.005
- Sredl M, Fleischauer AT, Moore Z, Rosen DL, & Schranz AJ (2020). Not Just Endocarditis: Hospitalizations for Selected Invasive Infections Among Persons With Opioid and Stimulant Use Diagnoses—North Carolina, 2010–2018. *The Journal of Infectious Diseases*, 222(Supplement_5), S458–S464. 10.1093/infdis/jiaa129 [PubMed: 32877536]
- Ti L, & Tobias S (2021). ‘Benzo-dope’ may be replacing fentanyl: Dangerous substance turning up in unregulated opioids. *The Conversation*. <http://theconversation.com/benzo-dope-may-be-replacing-fentanyl-dangerous-substance-turning-up-in-unregulated-opioids-164286>
- Timko C, Han X, Woodhead E, Shelley A, & Cucciare MA (2018). Polysubstance Use by Stimulant Users: Health Outcomes Over Three Years. *Journal of Studies on Alcohol and Drugs*, 79(5), 799–807. 10.15288/jsad.2018.79.799 [PubMed: 30422794]
- Toronto Drug Checking Services Report. (2021). What’s in Toronto’s Drug Supply? Results from Samples Checked by Toronto’s Drug Checking Service, January 1—December 31, 2020. Toronto’s Drug Checking Service. <https://drugchecking.cdpe.org/>
- Vivolo-Kantor AM, Hoots BE, Seth P, & Jones CM (2020). Recent trends and associated factors of amphetamine-type stimulant overdoses in emergency departments. *Drug and Alcohol Dependence*, 216, 108323. 10.1016/j.drugalcdep.2020.108323 [PubMed: 33032064]

- Wood E, Stoltz J-A, Montaner JS, & Kerr T (2006). Evaluating methamphetamine use and risks of injection initiation among street youth: The ARYS study. *Harm Reduction Journal*, 3(1), 18. 10.1186/1477-7517-3-18 [PubMed: 16723029]
- Wurcel AG, Anderson JE, Chui KKH, Skinner S, Knox TA, Snyderman DR, & Stopka TJ (2016). Increasing Infectious Endocarditis Admissions Among Young People Who Inject Drugs. *Open Forum Infectious Diseases*, 3(3), ofw157. 10.1093/ofid/ofw157
- Yoosefi Lebni J, Ziapour A, Qorbani M, Baygi F, Mirzaei A, Safari O, Rastegarimehr B, Khosravi B, & Mansourian M (2020). The consequences of regular methamphetamine use in Tehran: Qualitative content analysis. *Substance Abuse Treatment, Prevention, and Policy*, 15, 33. 10.1186/s13011-020-00277-3 [PubMed: 32410695]