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Experiences of the changing illicit drug supply among racial and ethnic minoritized people in three US states: a qualitative study

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Abstract

Background Amidst a national surge in overdose deaths among racial and ethnic minoritized people and people who use stimulants (cocaine or methamphetamines), our objective was to understand how these groups are adapting to a rapidly changing illicit drug supply.

Methods We conducted semi-structured interviews with 64 people who use drugs and who self-identified as Black, Hispanic, Multiracial, or other Non-White race in three states (Michigan, New Jersey, and Wisconsin). Transcribed interviews were coded thematically.

Results Most respondents used stimulants alone or in combination with opioids. Respondents perceived that the drug supply had become more unpredictable and dangerous but differed in their personal perception of risk and their adaptations. For example, respondents had very mixed perceptions of their own risk of being harmed by fentanyl, and differing opinions about whether fentanyl test strips would be useful. Xylazine, a novel adulterant in the opioid drug supply that has received public health and media attention, was not well known within the sample.

Conclusion Our study highlights the challenges experienced by minoritized people who use drugs in responding to a changing drug supply, underscoring the limits of public health approaches focused solely on individual behavioral change.

Keywords Drug supply, Minoritized populations, Overdose

Over the last decade, the US illicit drug supply has undergone a rapid transformation. Fentanyl manufactured in clandestine labs is now dominant in the street drug market [1, 2]. Fentanyl is also the drug most commonly involved in overdose deaths. Overdose deaths have been rising sharply since the mid 2010s, further accelerated during the COVID-19 pandemic, and remain near historically high levels [3]. The pandemic disrupted routes of drug trafficking, thereby increasing the unpredictability of street drugs [4]. Fentanyl is now increasingly involved in overdose deaths in combination with cocaine and methamphetamine due to both intentional use as well as perva-

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sive adulteration of fentanyl in numerous other illicit drug preparations [5, 6]. Alongside fentanyl, novel adulterants have proliferated in the drug supply. Benzodiazepines have entered the opioid supply in a combination sometimes called "benzo dope" in the United States and Canada [7]. The mid-Atlantic region of the United States has also been the entry point for xylazine [8], a veterinary tranquilizer that can extend the euphoric effects of fentanyl. Xylazine is also associated with increased incidence of skin and soft tissue infections and potentially harmful respiratory effects [9, 10]. Due to the sparsity of public drug checking information, there is no systematic information about where xylazine is most concentrated by volume, but it has been detected in most US states. Anecdotally, the acute harms of xylazine were most intensely experienced in the Philadelphia region [8, 11, 12].

Epidemiological research indicates that racially minoritized communities are experiencing a disproportionate impact from these changes in the drug supply. This recent increase in overdose rates among minoritized groups has been described as a new development within an opioid crisis where the harms were initially more acutely experienced by Non-Hispanic White Americans. Specifically, after decades in which non-Hispanic White Americans had the highest average overdose death rates, national overdose death rates have risen more rapidly for Black and Native American populations in recent years, and in 2020 overtook the rate for Non-Hispanic White Americans [13]. Hispanic populations, who have significantly lower reported rates of opioid use in national data sources, also have experienced lower absolute overdose rates than other demographic groups. However, Hispanic groups have experienced higher rates of increase, which has been speculated to reflect the spread of fentanyl outside of the core opioid drug supply [14]. Recently documented racial and ethnic disparities are particularly wide within specific age and sex subgroups, for example, older Black men are at much greater risk of overdose death than older White men [15]. Rising mortality among minoritized populations are substantially driven by fentanyl combined with stimulants (cocaine or methamphetamines).

These epidemiological datapoints need to be more fully contextualized within the experiences of populations that are racially minoritized. Racial categories are not politically or socially neutral; they have always been bound with other structural inequalities and have been used to justify harmful narratives and policies toward minoritized people who use drugs (PWUD) [16]. Scholars have shown that the War on Drugs in the United States perpetuates the oppression of Black, Brown, and Indigenous people that are rooted in colonial forms of dominance [17]. For example, racially minoritized people have been subject to discriminatory policing and drug-related incarceration [18], and also have worse access to drug treatment and harm reduction programs to more safely manage the volatile drug supply [19]. These structural disadvantages predate the current opioid crisis and offer a wider historical framework for understanding overdose risk.

This paper focuses on how minoritized people who use drugs (PWUD) have adapted to changes in the drug supply drawing on a diverse multistate group of respondents. It situates their ability to navigate this unpredictable drug supply through the lens of social precarity. While racialized identities are not explicitly a topic in this paper, we consider them to be an important aspect of how individuals are able (or unable) to exercise their individual agency in an environment where information and resources are unequally distributed due to a legacy of systematic deprivation.

We situate these experiences within the existing literature on the changing drug supply. Qualitative literature has identified the process through which fentanyl became normalized among people who use opioids, and common behavioral adaptations in use. For example, a recent study of syringe services program (SSP) clients in New York City indicated changes in behavior such as less solitary use, greater naloxone carriage, and some interest in fentanyl test strips (FTS) [20], whereas another study of SSP clients from Philadelphia indicated more ambivalence toward FTS and greater acceptance of fentanyl as a normal part of the drug supply [21]. In Baltimore, where fentanyl was "saturated" in the market, some PWUD were using FTS creatively to increase their sense of personal agency (e.g., strategically timing their use or using FTS test results showing that fentanyl was present in drugs as a way to bargain for a lower price with dealers since the drugs were not as "pure" as advertised) [22].

Less studied has been the response to fentanyl among people who do not regularly seek opioids, a group that has less familiarity with, and physiological tolerance to, potent opioids. Given the rise of fentanyl-involved overdoses among people who use cocaine and among Black Americans, understanding this adaptation is particularly important. For xylazine, studies focused on sentinel communities underscore that it has been a largely unwelcome addition to the drug supply and is part of a broader contamination that includes other synthetic ("designer") drugs [23–25].

Data and methods

Study participants were adults with recent experience using opioids, cocaine, and/or methamphetamines. They were recruited from three geographic areas: Milwaukee, WI; Detroit and Flint, MI; and statewide in New Jersey (NJ) through community organizations. These areas were part of the Bloomberg Overdose Prevention Initiative,

a multiyear public health campaign focused on reducing overdose risk in seven states. Individuals were first recruited to participate in a closed-ended survey called VOICES that focused on drug use behaviors and experiences with services. VOICES was jointly conceived by Vital Strategies and the academic research partner in consultation with community advisors in Wisconsin and New Jersey. Survey methods and baseline results are further summarized elsewhere [26]. This research was reviewed and approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Qualitative interviews took place from July to August 2023. An initial list of 442 people who self-identified as a member of a minoritized group and provided information to be recontacted during the baseline survey was drawn for qualitative recruitment. The interview team attempted to contact individuals until approximately 20 people could be scheduled for interviews in each state resulting in 350 people called. For each, a call attempt was made followed by a text/email (if available). Of the 350 individuals, 233 had valid phone numbers or emails and 117 people were completely unreachable due to disconnected or invalid contact information.

The interview team completed interviews with 64 people. Overall, 44% of the sample recently engaged in both stimulant and opioid use, 25% only used stimulants, 30% only used opioids, and 2% had no drug use in the past 30 days. Two-thirds identified as Non-Hispanic Black (66%), one-fifth identified as Hispanic (20%), and the remaining individuals identified as Native American or Alaskan Native, Multirace, or another race (14%). Most respondents were over age 49 (55%) and identified as men (58%). Almost half reported using more than one type of substance in the 30 days prior to the interview (44%). Participants were from each of the study states (Michigan 27%; New Jersey 38%, and Wisconsin 36%). Half the participants reported using harm reduction services in the prior 30 days, a category that included programs distributing syringes and other safer use supplies, (50%), and most reported possessing naloxone at the time of the interview (61%). The majority (59%) reported receiving substance use treatment in the prior 30 days, including treatment with medications or counseling from a professional counselor. In many cases, services were provided by the same organizations from which individuals were recruited.

Interviews typically lasted 45–60 min. Domains included experiences and knowledge of the changing drug supply and engagement with harm reduction and treatment (see Appendix). Interviews were professionally transcribed. Interviews conducted in Spanish (N=6) were translated to English for analysis. A coding team analyzed all transcripts using a hybrid inductive-deductive coding approach [27]. The development of an initial codebook was informed by the previous literature and a priori knowledge, and a review of a subsample of transcripts. The codebook was developed iteratively and piloted by 6 study team members through double coding until themes were consistent across reviewers. The coding and identification of themes and subthemes was completed using Dedoose.

Results

Across sites, respondents perceived the drug supply as having worsened over time

Many people in the sample had been using drugs for a long period of time (in some cases decades) and saw the current drug supply as being transformed negatively over time. Several invoked a prior era when drugs had higher purity or more reliable quality, and saw the role of market forces as driving the shift toward synthetic drugs:

> *"It's not real drugs no more. It's synthetic drugs now, like fentanyl and stuff like that. So that substance is so cheap. So they're mixing it with everything now. You know what I'm saying? Just to make the money, just to make the money. And that's it." (877, Black Man, 60, Opioids only, NJ).*

Another respondent connected the financial incentive to shift to fentanyl to a changing of social norms, including less compassion from drug sellers:

> *"I believe the drug dealers in the past, even though they were selling drugs, they was more concerned about their customers. But now, the dealers are just concerned about the cash. So they don't care what they're giving their customers. They just want to just sell." (1246, Multiracial Woman, 59, Polysubstance, NJ).*

The worsening drug supply was a continual source of anxiety. Coping strategies varied. Several respondents described their faith in religious forces to protect them from harm:

> *"When I first heard about the fentanyl, I think it didn't stop me from using. But again, I said I had greater mercy on my life. That wasn't what God had intended for me." (1540, Black Woman, 57, Stimulants only, MI).*

Relatedly, some described their own rationalization, including wishful thinking or denial about the possibility of dying from overdose. One respondent characterized the desire to not know about what's in their drugs as an "*out of sight, out of mind type situation*," linking her reluctance to larger feelings of "*guilt and shame*" about letting

down friends and family by using drugs. (*1895, Black Woman, 35, Polysubstance, MI)* Another respondent admitted willful blindness about the drug supply, "*I'm a person that… has a brain a little blocked or bad, do you get me? That doesn't want to worry about my own health.*" (*462, Hispanic Man, 39, Polysubstance, Wisconsin*).

People varied in how much they perceived themselves to be exposed to fentanyl

Most respondents used cocaine on its own or in combination with opioids. Adulteration was seen as a common problem in the cocaine supply. As one respondent commented, the effects of using cocaine had changed:

> *"Cocaine is supposed to be up, but sometimes you smoke this stuff and you just get lethargic and sleepy, and I think that's the fentanyl. The euphoric effect is gone, and then sometimes it just makes you jittery, jittery, so jittery, man." (225, Hispanic Man, 69, Stimulants only, WI).*

Awareness of the adulteration issue extended to those who had not personally been affected. One respondent stated:

> *"I know for sure that I've never had an overdose from smoking crack laced with fentanyl… But I've known others that have. I've known others that have died from it and others that have overdosed from using crack that was laced or made with fentanyl added." (1540, Black Woman, 57, Stimulants only, MI).*

Some respondents described how they adapt drug use behaviors in response to the changing drug supply. One respondent who smoked crack and used prescription opioids believed that fentanyl and other adulterant fillers were in the crack supply. He perceived that adulteration of cocaine was increasingly occurring before the stage when it was cooked by local sellers to make crack: "*Nowadays, they put in a lot of bullshit in the powder before [his seller] even buy it. Because it used to be just 70 to 80% cocaine. Now, it's only maybe 40 to 50% cocaine and the rest, whatever bullshit they put on there. (299, Black Man, 57, Polysubstance, WI)*

As a protective measure, he had increasingly resorted to re-cooking the crack to detect and remove any fillers or adulterants such as fentanyl:

> *"I put it in a spoon of water and cook it over. That's part of making myself safe. I don't want to OD and I don't want to use the garbage that they put on the crack. … I just put a little bit on there just to see what it do. And when it do what it do, that lets me know whether I have to recook it or I can keep on going from there…" (299, Black Man, 57, Polysubstance, WI).*

Other respondents said that they tried to assess the purity of their drugs through taste, smell, and other sensory clues. Drawing a contrast between heroin and fentanyl, one respondent noted:

> *"Heroin had a taste. You kind of knew what you was getting when you sniffed that bag. It had a scent, it had a taste, and it had a drip because anything nasal, it drips from your nose down to your gut. So you can kind of tell what you had. And you can kind of tell what the effects is going to be, right? As opposed to fentanyl. It's odorless, tasteless, and it's so sneaky. People are like, 'Oh, you gave me some trash. This stuff ain't nothing.' Boom. Just sneak up and just punch you."(1143, Black Man, 51, Opioids only, NJ).*

Some respondents also adapted their route of administration based on the perceived potency of drugs. Paradoxically, one respondent said that they were less cautious about using pills versus heroin which led them to overdose more:

> *"I overdosed more on pills than I did heroin, because the pills were always the same – how can I say? It's always the same hit. With heroin, you didn't know if it was either going to be good or bad. Either you get some really good stuff or you get some bad stuff. So I was always careful. I would only snort it – and it's a lot harder to overdose than it is when you do the needles." (1734, Multiracial Man, 53, Polysubstance, MI).*

Perceptions of individual risk also shaped interest in opioid-related harm reduction tools

Among some people who regularly use opioids, FTS were considered not useful because they already assumed that fentanyl was present in the drugs based on their experiences:

> *"We were testing for a while there, but nowadays, it's very rare to find anything without it in it." (524, Hispanic Woman, 40, Opioids only, WI).*

Several respondents had a fatalistic attitude about fentanyl. One respondent said that they did not want to have to throw out drugs they had already spent money on:

> *"I just never felt the need to check what was in it. If it's got fentanyl, then it's got fentanyl and there's nothing you can do about it. What am I going to do,*

throw it away and waste the money that I just spent on it? So I don't even bother testing it." (68, Multiracial Woman, 44, Polysubstance, WI))

Some respondents described their trust and knowledge of drug dealers as a reason they did not need to use FTS:

"The best way is just to approach someone and say, 'Hey, who got the best out today?' And someone is going to be more than happy to tell you … It's like a brotherhood, to be honest with you, as crazy as it sounds. And no one is going to tell you to go to give you bad advice." (787, Multiracial Man, 46, Opioids only, NJ).

Others feared that harming the reputation of drug sellers might lead to retaliation:

"People also get scared of finding out who gave the bad stuff out because they don't want to go tell somebody else, and then they're a snitch. And I think it's just the culture, the street culture, the drug culture of fear of being a snitch and fear of getting bad shit." (1640, Multiracial Woman, 30, Polysubstance, MI).

Despite awareness of adulterants in the stimulant drug supply, some people who use cocaine believed that they remained protected from fentanyl exposure. As a person who used cocaine stated:

"I probably wouldn't use them [FTS] at all because I don't run across fentanyl like that because I don't do heroin." (741, Black Man, 53, Opioids only, NJ).

A similar perspective was expressed about the decision not to carry naloxone. One participant who used cocaine said that naloxone was not something he was interested in carrying because he felt like naloxone was something only for people who use opioids, stating:

"We do rock or powder or cocaine, and that's it. All the needles and the fentanyl and the heroin, I don't even be around people to shoot up or none of that." (506, Black Man, 56, Stimulants only, WI).

Most people did not know about xylazine, but those who did were fearful of its effects

In most of the interviews, respondents were probed for knowledge about xylazine. In the 57 interviews where it was asked, 29 respondents (n=51%) said that they had never heard of xylazine (or "tranq"). Awareness of xylazine was more common among respondents in New Jersey, given their proximity to the epicenter of reported xylazine harms. As one respondent said,

"I heard about it in the Philly area. I'm in Jersey, not too far, but I just didn't hear about it being on the streets in my area." (1029, Black Woman, 39, Opioids only, NJ).

Those that had heard of xylazine described some of its harmful properties, including the heavy sedative effects, the risk of skin infections, and the challenges related to overdose. One participant described how xylazine made it more difficult to provide assistance to people who used it regularly:

"You go down Allegheny Avenue in Kensington, and it looks like the walking dead out there. It's like everybody's standing up asleep. It's bad. I have people that I know that are out there stuck, but they just say they're not ready yet." (859, Hispanic Man, 35, Polysubstance, NJ).

Those respondents who knew about xylazine used graphic imagery to describe its effects on the body:

"People say they're losing limbs and walking differently and all type of stuff with the Tranq" (973, Black Woman, 66, Polysubstance, NJ).

Another respondent who had seen the effects of xylazine in Puerto Rico said:

"It hits you like cankers or if you're going to scratch yourself, they make holes and pus comes out. I've seen really nasty things, like the person's arm is rotting and all that. " (462, Hispanic Man, 39, Polysubstance, WI).

Perceptions about how to deal with xylazine were variable. One respondent volunteered that she did not know much about xylazine, but thought that naloxone was helpful to reversing a xylazine-involved overdose (naloxone does not reverse the effects of xylazine, but is recommended for all overdoses because it still helps with opioid-induced respiratory suppression):

"But all I know is that you can use Narcan to save your life on it." (1540, Black Woman, 57, Stimulants only, MI).

By contrast, others felt that naloxone was not effective in the current drug use environment: As one respondent stated:

"I hear what they call the Narcan stuff don't even work when they consume that. So it's like it's just causing the whole systematic situation to crash." (888, Hispanic Man, 27, Stimulants only, NJ).

Only one respondent had firsthand experience with xylazine. She said that "*technically*, *in a way*, *I liked it*" (*524*, *Hispanic*, *Woman*, *40*, *Opioids only*, *WI)* because it helped her go to sleep when she was experiencing insomnia due to body aches and pains. Over time her attitude changed. She learned more about its intended use as a veterinary tranquilizer and let others in her network know about it. Her group obtained xylazine test strips and shared them with their supplier who stopped getting drugs with xylazine added. She believes that the presence of xylazine has made her more cautious, for example, about using before bed which could increase overdose risk.

Fear of xylazine extended to those who were affected by it, and stigma was commonly reported. Reflecting on seeing a person who had sores from using xylazine, one respondent said,

"I don't like to be around people that got something like that. Or if you start breaking out in something, look, you need to be at a hospital, not coming near me." (1166, Black Woman, 63, Opioids only, NJ).

One respondent who lived near Philadelphia was emphatic about not wanting to ever use xylazine, but felt like the people who did were unwitting victims:

"People became dependent on it, and now it's too late for people to reverse because that's what they want. Which is a fucked up way of happening because that's the way the fentanyl slipped in. So it's like the same – it's just history repeating itself with a stronger [drug]. It's that chemical warfare, basically." (888, Hispanic Man, 27, Stimulants only, NJ).

The worsening drug supply motivated respondents to reduce or abstain from drug use

One woman was motivated to seek treatment when she discovered during a pregnancy that she was buying pressed fentanyl pills on the street instead of pure Percocet (pharmaceutical tablets that contain oxycodone):

"It scared the life out of me because I thought something was going to be wrong with my baby or I was going to lose my baby. So that scared me into my first treatment I ever been to." (313, Black Woman, 31, Opioids only, WI).

Even though she returned to use after seven months, the woman was abstinent again during the time of the interview and said that the rising toll of overdoses was a major motivator for her.

Several respondents related their desire to become abstinent to their firsthand experiences with overdose, including surviving an overdose themselves or losing friends and family members. One respondent related this to the unpredictable drug supply:

"But that's one of the main purposes why I quit and got clean because it was I was scared of having an overdose or something being in the drug and everything now under the kitchen table was being put in the drug." (159,Black Woman, 62, Stimulants only, WI).

Similarly, a respondent discussed unexpected feelings after using drugs that made her want to quit:

"I felt my heart racing a few times, didn't know what was going on, racing more than usual. It's sort of like that after smoking. So that was really a deterrent to stop using because the fentanyl is killing too many people." (1014, Black Man, 66, Stimulants only, NJ).

Another person who had become abstinent described a personal journey going from highly social drug use growing up, to increasing isolation, and seeing friends die of overdose:

"I was a real popular kid when I was young, and I had a lot of friends. When you're doing the wrong thing, it seems like you have so many friends, but when you try to do the right thing, you hardly have any left. Friends that I did have, they're not here no more. They passed away due to it." (859, Hispanic Man, 35, Polysubstance, NJ).

Discussion

As overdose deaths have spread rapidly among racially and ethnically minoritized people and those who use stimulants, equipping people in these communities with tools to protect themselves from an increasingly dangerous illicit drug supply has become a paramount public health priority. Within current policy and practice, some paradigms in harm reduction lean heavily on changing individual behaviors (such as encouraging the use of test strips and carrying naloxone). However, these individualized interventions do not always recognize how the broader risk environment itself is the principal driver of negative outcomes. In the current moment, the volatile drug supply is interacting with heightened social

stressors, including a rise in economic precarity. Analyzing this context requires a more structural perspective on harm reduction, one that connects to a long tradition of viewing drug user health as connected to the multifaceted harms of poverty, racism, and criminalization that disproportionately affect minoritized people who use drugs [28, 29].

Given this shifting risk environment, study findings complicate the simplistic "informed consumer" model of how PWUD might use harm reduction interventions to protect themselves from adulterants [30]. We found that while most respondents were very fearful of being harmed by adulterated drugs, they felt that they had limited practical options to increase their own safety. Fentanyl test strips provide an illustrative case-in-point. Many respondents in our study had complicated or avoidant attitudes toward fentanyl, but few were willing to use FTS. While some of this avoidance was due to an awareness gap which might be overcome through public health campaigns, there was a sense of inevitability among those who primarily used opioids, and there were complicated social norms around not wanting to "out" people who sell fentanyl and a feeling like test strips might detract from the experience of using drugs, which has also been documented in other studies (although in other studies attitudes are generally more receptive to FTS) [31]. People who use cocaine, arguably a group who would be particularly interested in avoiding fentanyl as a contaminant, were often unwilling to use FTS or felt that they were not going to be exposed to fentanyl.

Our study findings emphasize that in the absence of reliable sources of information, many people were taking harm reduction into their own hands. This included participants who were trying to cook their drugs to remove impurities, even if such practices may have dubious effectiveness. Participants also were unsure how to keep themselves safer with xylazine in the drug supply, as evidenced by their contradictory understanding of whether naloxone could be effective in reversing xylazine-involved overdose. In fact, current guidance advises to use naloxone when xylazine is involved in overdose because fentanyl is usually present with xylazine. Naloxone can reverse the effects of fentanyl, even though the respiratory effects of xylazine cannot be reversed with naloxone [32]. As policymakers seek credible messengers to minoritized communities they should consider engaging with established and trusted voices. In some communities this may include faith-based leaders who can provide culturally tailored messages [33].

Perhaps echoing the low awareness of fentanyl when it was spreading rapidly in the drug supply a decade ago, awareness of xylazine was very low in our sample. Recent estimates showed xylazine was identified in 6.9% of overdose decedents in New Jersey, 22% in Milwaukee County, Wisconsin, and 3.1% in Michigan [11, 34]. While it remains to be determined how widespread the harms of xylazine will ultimately be, it was declared an "emerging threat" by the federal government in 2023 [35]. Those who were aware of xylazine were fearful of its effects and expressed a mixture of sympathy and stigma toward those experiencing xylazine wounds. Existing stigma against PWUD with soft tissue wounds may be magnified in people exposed to xylazine, causing people with xylazine wounds to delay or avoid receiving care for soft tissue wounds [36, 37]. Delaying care could exacerbate wounds leading to eventual amputation.

Several limitations should be considered. First, while the study sample notably extends to populations not often covered in the literature, it is not a random sample and may overrepresent populations that respond to study requests (e.g., people with stable housing and participants in services). Second, although efforts were taken to reduce social desirability bias, individuals may be reticent to accurately describe their risk behaviors. Third, the study was focused on three geographic areas and may not generalize to other regions of the country. Fourth, the study did not collect data on certain health-related consequences of stimulant use, such as "overamping." Finally, while the study centers the experiences of minoritized groups, it did not include a comparison group of people who identify as non-Hispanic white nor did our study explicitly seek to identify the influence of cultural or racial identity, though these factors are likely to be implicit in respondent experiences. Examining the racial or culturally-specific experiences related to the drug market is an important objective for future research in order to understand the distinctive structural inequalities that are affecting minoritized groups in the current moment.

Conclusion

Our study provides a complicated portrait of how minoritized PWUD have responded to the evolving drug supply, showing both areas of adaptation and change in personal use, inconsistent use of tools like FTS, and high levels of anxiety and lack of awareness of emerging threats. Some of the misconceptions and knowledge gaps identified in the study can be addressed through better public health messaging and educational campaigns tailored to minoritized communities. At the same time, these responses must be understood in the context of broader systemic failures in most US communities, particularly for racial and ethnic minoritized groups, to provide high-quality services for people at greatest risk of overdose. This includes access to comprehensive primary care and substance use treatment, and the politicization of harm reduction approaches that are common in other countries with much less pervasive overdose crises such

as overdose prevention sites, drug checking programs, and safer supply interventions. Recalibrating policies and public health responses that center the experiences of minoritized PWUD is a critical starting point to meet the urgency of racial and ethnic overdose disparities.

Supplementary Information

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Supplementary Material 1

Author contributions

BS wrote the main text, all other authors provided critical revisions. Coding and analysis was conducted by BS, OS, LB, SH, MR, HS, SS, EK, and SB. Study supervision was provided by BS, LB, and SB. Administrative support was provided by EH, AH, LK, DK, and DH.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval

This research was reviewed and approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board.

Consent for publication

All authors granted consent for publication. The interview guide for this study can be found in the appendix. Drs. Sherman and Saloner serve as expert witnesses on behalf of Baltimore City in its litigation against opioid manufacturers and distributors. The authors received support from the Bloomberg Philanthropies as part of The Bloomberg Overdose Prevention Initiative, a collaborative partnership aimed at combating the nation's opioid epidemic.

Competing interests

Drs. Sherman and Saloner serve as expert witnesses on behalf of Baltimore City in its litigation against opioid manufacturers and distributors.

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