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Methodological Lessons Learned From a Longitudinal Study of Overdose Vulnerability Among People Experiencing Homelessness Who Co-use Fentanyl and Stimulants in San Francisco, CA, USA

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Abstract

The U.S. overdose crisis is now driven by polysubstance use involving fentanyl and stimulants. We received funding through the National Institutes on Drug Abuse's Helping to End Addiction Long-Term (HEAL) initiative to conduct longitudinal qualitative research on polysubstance use among people experiencing homelessness (PEH) in San Francisco, California. An Intersectional Risk Environment Framework was used to examine the interaction between social, structural, and environmental factors and overdose vulnerability. During the data collection period, San Francisco implemented multiple policies that increased the criminalization of PEH, and several service organizations closed or had limited services, necessitating a combination of methods to capture structural and community shifts in real-time. We recruited participants from community partner sites in four San Francisco neighborhoods to obtain a diverse study sample, enrolling 66 participants. We conducted semi-structured qualitative interviews, starting with baseline and life history interviews, and six-month follow-up. We recruited a subset of participants to take part in photovoice and ethnographic activities. All study visits were compensated. Our study approach centered participant autonomy and expertise throughout the research process. We employed a combination of multiple intentional and innovative methods designed to build trust at the community and participant levels, improve data quality, and enhance study retention including: (1) meaningful long-term reciprocal community engagements with stakeholders and service delivery organizations; (2) diverse, intersectional recruitment and equitable compensation to promote autonomy; (3) conducting life history interviews that addressed intersectional trauma histories after the first baseline interview; (4) addressing follow-up challenges with compensated check-ins, establishing a study community-based location, and hiring a community consultant; and (5) facilitating deep phenomenological data collection through photovoice and ethnography. This paper discusses the rationale for these combined approaches and lessons learned from conducting longitudinal qualitative research with a community in real-time during enhanced risk for criminalization and overdose fatality.

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Background

Mortality data from 2024 show a decrease in drug-related overdose deaths, dropping under 100,000/year for the first time since 2020 (Ahmad et al., 2025). While this is a positive shift, a staggering 80,000+ people still died from overdose in the United States (U.S.) in 2024 (Ahmad et al., 2025). The overdose death rate has been on an upward trend for the last decade as fentanyl became more prevalent in the drug supply and more people who use stimulants were exposed to fentanyl (Mattson, 2021; Spencer et al., 2022). This polydrug era has been deemed the "Fourth Wave" of the opioid overdose crisis in the U.S. (Diekhans et al., 2025; Rawson et al., 2023). In response, the National Institutes of Health (NIH) released a specific research funding program, the Helping to End Addiction Long-Term (HEAL) initiative (NIH HEAL Initiative Research Plan, 2019). The study whose methods we describe here was funded as part of the HEAL initiative, with a specific focus on fentanyl and stimulant polysubstance use. Polysubstance use, particularly fentanyl and stimulant use among people experiencing homelessness (PEH), directly contributes to overdose death (Booth et al., 2024). Racial disparities in overdose death have worsened nationally with a 249.3% increase from 2015-2022 (Smith et al., 2025). In San Francisco (SF), California, where this study took place, Black San Franciscans are 5x more vulnerable to overdose death than other people who use drugs in the city (Unintentional Drug Overdose Death Rate by Race/Ethnicity, 2025). Homelessness, housing instability, and higher rates of overdose death due to fentanyl and polysubstance use are essential components of the intersectional risk environment for multiply marginalized populations (Barocas et al., 2019; Bradford & Lozano-Rojas, 2024; Fine et al., 2022; Yamamoto et al., 2019).

Alongside the overdose crisis, there have been growing rates of homelessness throughout the U.S., particularly among families, children, and those with disabilities (de Sousa et al., 2023; de Sousa & Henry, 2024; Thurman et al., 2023). Publicly visible drug use, overdose, and homelessness have been prominent in local and national media coverage on cities such as SF (Cassidy & Lurie, 2023; Kiniry, 2023; Lopez, 2024; Mayer, 2023; Miracle, 2023; Said, 2023). In 2024, SF reported having 8,323 PEH, with over half experiencing unsheltered homelessness (Applied Survey Research, 2024). Recently, SF has attempted to address public outcry regarding drug use and homelessness through a variety of programs and policies that increased policing and criminalization of PEH. For example, in 2021, Mayor London Breed declared a State of Emergency focused specifically on fentanyl use and overdose. Two years later, California Governor Gavin Newsom deployed the National Guard and Highway Patrol to supplement the local policing efforts to address public drug use and disrupt the drug supply in SF (Governor Newsom Announces Public Safety Partnership to Disrupt Fentanyl Trafficking in San Francisco, 2023). In 2025, Mayor Daniel Lurie declared a "war on fentanyl" which entailed signing an official fentanyl state of emergency ordinance to allow for expedited implementation of city-led efforts such as establishing a "24/7 police-friendly stabilization center" and less restrictions on funding used for policing the city (i.e., ability to solicit private funds for city efforts) (Mayor Lurie Signs Fentanyl State of Emergency Ordinance, Announces Plan for 24/7 Police Friendly Stabilization Center, 2025).

After the U.S. Supreme Court issued its ruling in the Grants Pass v. Johnson case, states gained legal precedent to cite, sanction, arrest, and forcibly remove and relocate PEH and their belongings (City of Grants Pass et al., 2024). Policy responses at the State and federal levels have emphasized greater displacement of unsheltered PEH and increasing punitive practices to address homelessness (Kpeebi & Evans, 2025). Following the Grants Pass decision, SF immediately prepared for widespread implementation of homeless camp sweeps and the removal of homelessness from public view. The internal SF Police Department (SFPD) notice dated July 31, 2024 (Department Notice, 2024) outlined various criminal and civil laws and penal codes that police officers can use to force PEH and others using public spaces to move from where they are sitting or sleeping, or potentially subject them to arrest. The SFPD document references the Grants Pass decision, emphasizing that it allows them to enforce the removal of PEH without having made shelter available.

Our team began the POLY HOME Study with PEH who co-use fentanyl and stimulants in SF in February 2024. The study's timing allowed us to collect data during a period of the intersection of several critical factors: the highest annual national overdose death rate (Ahmad et al., 2025); pre- and post- Grants Pass v. Johnson ruling; and, the 2024 local and national U.S. elections, which led to widespread changes in discourse, policy, and local practices to address homelessness and drug use. Here, we present the methods we strategically utilized for a comprehensive approach during a particularly volatile period in the lives of PEH who use drugs to capture their intersectional risk environments.

Methodological Approach

POLY HOME was originally conceived as a multi-site study with distinct projects led by two PIs in two cities (SF and New

York). Both study sites were approved by the Yale University Institutional Review Board, which served as the single IRB (sIRB) for the study, as per the Revised Common Rule (Menikoff et al., 2017). This paper reports on methodological approaches and results from the SF site only.

The SF research team consisted of three medical anthropologists (AML, KRK, SLK), one criminologist (DA), one emergency department nurse who is also a PhD student in health policy (MG), and three ethnographers (GT, TJ, ZKC). All team members were trained in qualitative research methods. We also hired a community member (SR) with lived experience to be part of our team; they did not conduct data collection or analysis but participated in each step of the research process to provide subject matter expertise and help facilitate longitudinal data collection. RB served as a co-investigator and is a sociologist who provided scientific input throughout all phases of the study, but did not conduct data collection or analysis. In terms of racial positionality, five team members identify as white (DA, GT, KRK, SLK, SR), three as Black (MG, RB, TJ), one as Latina/Chicana (AML), and one as Latina/South Asian (ZKC). One team member (ZKC) speaks and reads Spanish fluently, and therefore, conducted any data collection with participants who preferred to speak or read in Spanish.

To mitigate potential influences on data collection and interpretation, we implemented team-based reflection and training activities prior to and during the early stages of data collection. As other qualitative researchers have highlighted, team training, reflection, and discussion are essential throughout the research process to maintain ethical practices, address any potential bias, and consider the best way to address problems or other concerns that arise (Druedahl & Kalvemark Sporrong, 2024; Kendall & Halliday, 2014; Scheytt & Pflüger, 2024; Taquette & Borges da Matta Souza, 2022). We held periodic dedicated reflection weeks and made self-reflexivity part of our weekly check-in meetings. These meetings would focus on concerns about bias during data collection (e.g., making assumptions instead of engaging in open-ended query), challenges that researchers and participants experience emotionally when conducting interviews on sensitive and difficult topics (e.g., trauma, abuse), and self-identified needs for content-related trainings (e.g., updates on current local housing interventions and substance use treatment accessibility; special considerations for data collection with Spanish-speaking participants; how to probe effectively on challenging topics). For the data analysis phase, our coding process involved both primary and secondary coders to help account for any discrepancies in coding and interpretation. We discussed all coding discrepancies as a group during our team-based data analysis meetings to ensure a consensus understanding of codes and their systematic application.

POLY HOME Aims and Conceptual Framework

The study's specific aims are.

(1) To characterize fentanyl-stimulant polysubstance use patterns among PEH and examine how these patterns evolve over time due to changes to housing status and engagement with overdose prevention and substance use disorder (SUD) treatment interventions.
(2) To explore how fentanyl-stimulant polysubstance use patterns shape overdose vulnerability over time among PEH.
(3) To implement an integrated stakeholder engagement process to translate qualitative findings to inform overdose prevention, SUD treatment, and housing strategies and future research targeting fentanyl-stimulant use.

For POLY HOME, we used the Intersectional Risk Environment Framework (see Figure 1) to examine the interaction between social, structural, and environmental factors and fentanyl-stimulant substance use patterns over time (Collins et al., 2019). This framework enabled us to assess social, structural, and environmental factors, with a specific focus on how they are amplified by race/racialization, gender, and other social categories that contribute to marginalization. Applying this approach enabled us to delineate how structural factors influence differential outcomes (e.g., overdose vulnerability, treatment utilization, access to services, changes in housing status). We had not initially planned to focus on policing and community supervision experiences among our study population. When it became clear that criminalization (an environmental factor) was intensifying during the study period, we applied for and were granted an Administrative Supplement from NIDA to conduct a sub-study on community supervision (i.e., probation and parole) led by a trained criminologist who served on the data collection team as an ethnographer (DA). Data analysis for the study is ongoing, and we are utilizing the Intersectional Risk Environment Framework to inform our interpretation of the study findings and to develop equity-focused research, policy, and practice recommendations.

Innovations

Meaningful Community Engagement

Stakeholder Engagement Across Study Phases (Aim 3). Before starting data collection with PEH, we conducted interviews (n = 14) with local stakeholders from diverse backgrounds to better understand the current social, service, and political landscape for PEH who co-use fentanyl and stimulants. To address a variety of environmental contexts (see Figure 1) and their impacts, stakeholders included local experts who work in harm reduction, policy, criminal legal systems, healthcare, housing and homelessness programs, public health, and other related services. Interview questions focused on local patterns of polysubstance use, the local drug supply, service provision, overdose, treatment programs, and policy changes.

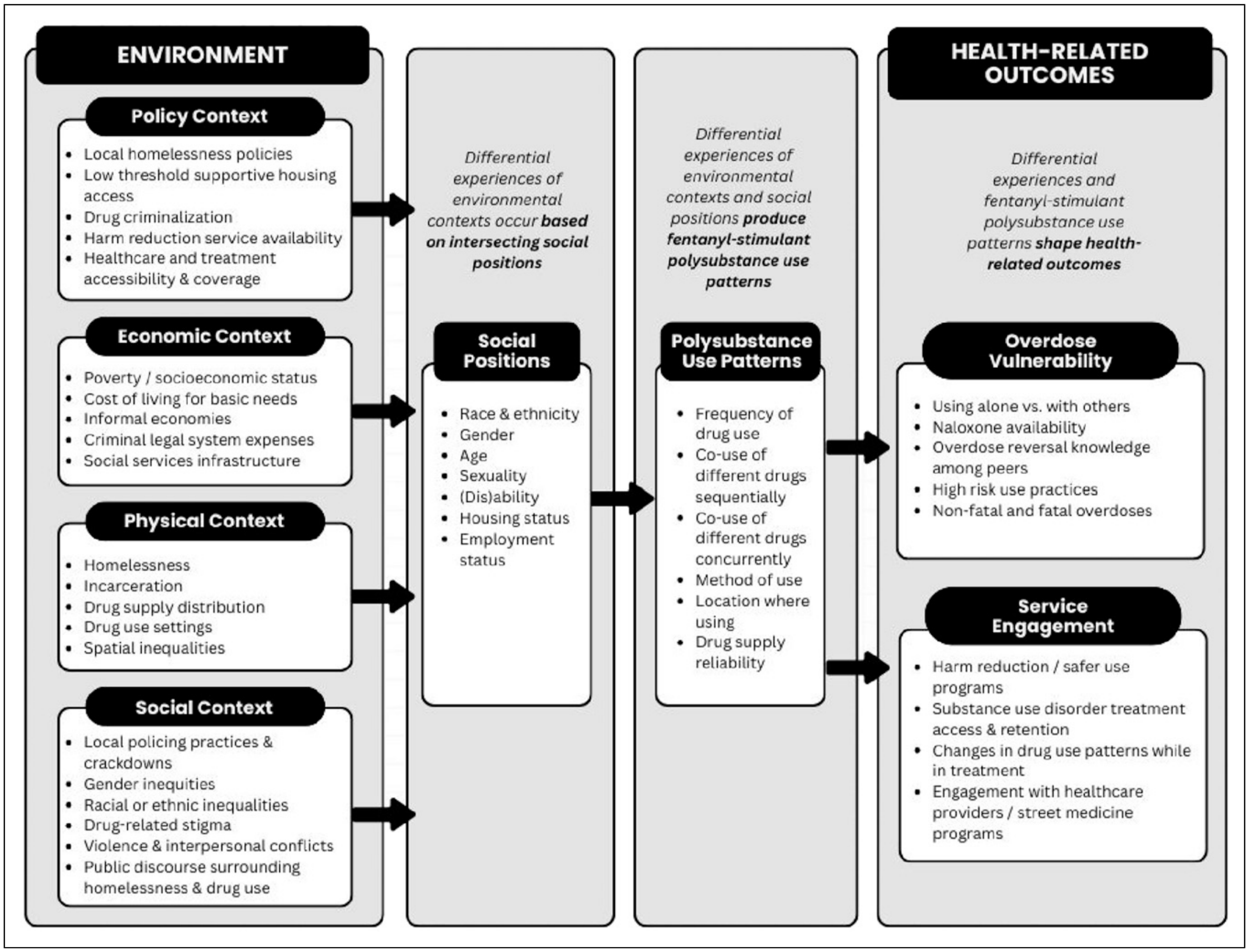

Figure 1. Intersectional risk environment framework (adapted from Collins et al., 2019)

Approximately one year after initiating participant data collection, we conducted additional stakeholder interviews (n = 6) to fill gaps in perspectives and capture changes longitudinally. Interviews were audio-recorded with the participants' permission. We obtained verbal consent for all interviews. Interview audio was transcribed verbatim and de-identified to the extent possible. Stakeholder participants were offered a $50 gift card for their time.

We implemented an integrated stakeholder engagement process by forming a community working group consisting of local and national experts on drug use and homelessness policy, service provision, treatment, research, and people with lived and living experience. We were intentional in our development of the working group to ensure we had representation from individuals with diverse social positions and expertise in varying policy, economic, physical, and social contexts that make up the "Environment" component of our framework. This allowed for collaborative and iterative development of study materials such as interview guides, laying the foundation for community-driven research. The use of "community advisory boards (CABs)" in public health research has increasingly been integrated into research to elicit feedback on research materials and dissemination products (Cramer et al., 2018). However, our working group expanded the traditional scope of CABs in two ways. First, from the outset, the working group functioned as a bidirectional collaboration. Members were able to utilize the group as a mechanism for sharing their own work and building a national network of support among people working on similar issues. Second, during our analysis, we are utilizing the working group to ensure translation of qualitative findings for dissemination efforts across disciplinary domains to inform overdose prevention, SUD treatment, housing strategies, and future research targeting fentanyl-stimulant use.

Community working group meetings were held virtually three times a year to provide updates on study activities, solicit feedback, and offer opportunities for working group members to share progress on their work and discuss potential opportunities for collaboration. After each working group meeting, members were offered a $300 honorarium to compensate them for their time and expertise.

Building on Existing Service Delivery Organizations that Participants Used and Trusted. Building on the knowledge gained from stakeholder interviews and prior to participant recruitment, we contacted community organizations and service providers to establish partnerships that would enable low-threshold study participation. These organizations align with our overall framework, as they provided service engagements that linked participants to health and harm reduction services, which in turn influenced health-related outcomes. We budgeted for these partnerships so that we could provide compensation in the form of a stipend to the organizations that supported our work and/or provided space for interviews. To screen and recruit participants, we utilized five community organizations in four neighborhoods of SF that provide services to people who use drugs and/or are experiencing homelessness. These organizations included harm reduction programs (syringe service programs), a homeless shelter/navigation center, a sobering center, community outreach programs, and places that provide food and daytime sanctuary for PEH. By spending time at these locations, we were able to make ethnographic observations and participate in community-based activities, including outreach efforts and community-led events. To recruit participants who were on community supervision for our supplemental study, we also collaborated with a program that provided case management services for individuals on probation or parole.

Recruitment & Compensation

Diverse Community Recruitment. Study participants were adults experiencing homelessness with fentanyl-stimulant polysubstance use in the past seven days who speak English or Spanish. We defined homelessness according to the federal Department of Housing and Urban Development, "an individual who has a primary nighttime residence that is a public or private place not meant for human habitation; or is living in a publicly or privately operated shelter designated to provide temporary living arrangements, including congregate shelters, transitional housing, and hotels and motels paid for by charitable organizations or by federal, state and local government programs" (Henry et al., 2021). We conducted recruitment at specific community sites identified in advance (see above). We posted study flyers at these sites and additional community locations, including shelters and healthcare clinics. Individuals who completed the eligibility screener also referred peers, facilitating snowball sampling. Prior to and throughout recruitment and data collection, the team regularly assessed the study sample to ensure diversity of social positions being represented. This enabled us to refine our recruitment strategies to enhance diversity and incorporate a more inclusive community experience.

Equitable Compensation & Participant Autonomy. All participants completed an initial screener to determine their eligibility status and received $5 in cash, regardless of their eligibility. We screened 160 individuals, 76 of whom were eligible. The screener contained a variety of questions about demographics, personal history, and their current situation. The variety of questions helped us gather a wide range of information while simultaneously masking eligibility criteria. We attempted to screen anyone interested, and we did not systemically skip or deny people from completing the screener to avoid internally making assumptions about individuals' housing and/or drug use status and externally creating ill will among the community. Paying everyone for completing a screener potentially made it more likely that people would want to complete a screener with us and refer others for screening. Compared to our overall participant compensation budget for interviews and other activities, the cost of compensating everyone for screener completion was well worth it, as we were able to engage with a very diverse group of individuals, which was important to our study design. In addition to aiding our recruitment, we also felt strongly that it was essential to compensate everyone for their time spent answering our questions and sharing sensitive information about themselves and their history.

After each interview, participants received $50 cash. It was imperative that we compensate participants in cash for several reasons: (1) while gift cards are commonly used in research, they put a limitation on what someone can use their compensation for, rather than what they may actually need; (2) some gift cards may be difficult to use if someone cannot reasonably access the specified store; (3) gift cards for online stores require internet access and for the participant to have an account as well as a shipping address (which an unhoused individual may not be able to provide); and (4) providing cash respects the participant's autonomy to make their own decisions as to what they spend their money on.

Interview Timeline Considerations – When to Conduct Life History Interviews?

To address Aims 2 & 3, we chose to conduct a longitudinal qualitative ethnographic study with data collection occurring in community-based settings over the course of three years. This allowed us to follow a cohort of participants over time, documenting and assessing the impact of housing and service use transitions. This approach enabled us to observe how individual circumstances are influenced by various factors over time, as well as how people respond and adapt to access necessary services and mitigate harm. Qualitative interviews were conducted longitudinally, approximately every six months, using a semi-structured interview guide. Interviews were recorded with a digital audio recorder and transcribed verbatim.

Eligible participants completed informed consent followed by a baseline interview with a member of the study team. The baseline interview covered the previous six months to allow us to understand what was going on in the participant's life at that moment in time and what context recently led them to their current housing and drug use status. Approximately one week later, participants completed a life history interview that had a separate semi-structured interview guide. We intentionally chose to conduct the life history interview after the baseline, as we anticipated the life history would potentially be more deeply personal and bring up early childhood and past traumatic experiences.

By starting with the baseline interview, we hoped to build trust and some familiarity with the research team before asking about an entire lifetime of experience. Although not every participant completed their life history a week after baseline due to scheduling challenges, the strategy of breaking up the first two interviews in this way was crucial in addressing the emotional drain for both the participant and the interviewer. Our team consistently worked to maintain a trauma-informed and intersectional approach, centering participant autonomy throughout the research process. As researchers, it was imperative that we not perpetuate harm and think carefully about how our work impacts both our participants and our research team. Working with a study population that is highly stigmatized, criminalized, and scapegoated for publicly visible undesirable conditions required mindful consideration of how we conduct our research. We took special care not to re-enact the trauma and exploitation that so often occurs when our participants interact with institutions and those who work there.

Addressing Follow-up Challenges

As anticipated with any longitudinal study, maintaining follow-up was difficult, and conducting research with PEH who use drugs has historically had additional challenges with retention. However, we were not able to anticipate the extent of enhanced policing, stigma, and criminalization of both PEH and drug use that occurred in the middle of our data collection. For example, an SF Board of Supervisors Member called for a quota of at least 100 arrests per day at the start of 2025 (while we were conducting six-month follow-ups) due to visible drug use and homelessness (News Release, 2025). The following month, the Sheriff's Office announced it would re-open an annex at a local jail to account for the 35% increase in arrests from 2023 to 2025, and in anticipation of continuing increases in arrests (Media Release, 2025). These efforts followed the enhanced arrests of PEH in 2024, after the Grants Pass decision, as well as an increase in arrests and particularly misdemeanor criminal cases overall in SF that began in 2024 and continued into 2025 (Criminal Case Data Dashboards, 2025).

As we collected data with participants during this time of heightened volatility and significant environmental context change, our ability to find and maintain contact with them was extremely difficult. Not only were people trying to stay out of sight to avoid arrest generally, but they were also moving around constantly, making our information on their potential location obsolete regularly. A third of our participants were also actively on probation or parole, putting them at even higher risk of not only being arrested if they interacted with law enforcement, but also making it more likely they would be in county jail longer or experience heightened punishment (i.e., being sent to federal prison or being convicted of more severe criminal charges). We periodically searched online incarceration systems for our local and surrounding counties to assess whether any participants had been arrested. For those whom we located in searches, we attempted to follow updates in the local and state systems. We are aware of five participants who were arrested at least once during the data collection period.

Offering Compensated Check-Ins Between Interviews. To maintain contact and our ability to follow up with participants longitudinally, we collected contact information (when available) and continuously updated it as participants lost or had their cellphones stolen, got new phone numbers, relocated to a new place, etc. As contact information was typically inconsistent or unavailable, we also obtained consent from participants to inquire about or leave messages for them with friends/family and at various community locations where they received services (e.g., meals, shelter, harm reduction supplies). However, despite attempts to establish a wide range of contact methods, we consistently found it difficult to maintain contact with the majority of participants over time.

The first adjustment we made to maintain contact with participants was to implement optional, brief community-based check-ins. Participants could stop by our community site at any time during the set hours to provide updates since their last conversation with us. They received $5 compensation for such check-ins approximately every two months, or about six times a year, in addition to follow-up interviews. We had twelve participants attend our check-ins, with nine completing six-month follow-ups and four completing twelve-month follow-ups. Approximately half of those who completed follow-up interviews also completed at least one check-in between interviews. Fieldnotes were completed after each interview and check-in.

Utilizing a Community Site for Consistency. After one of our primary community partner organizations closed, we formally established dedicated hours twice a week at a site convenient to many of our participants, allowing us to establish a consistent location to facilitate follow-up interviews. This helped participants find us through word of mouth or simply by chance, as the site was located in an area people were familiar with and often passed by. Without this, we would likely have had many fewer follow-ups. Even with a regular schedule at the site, we nonetheless experienced difficulty following up with participants, particularly for the six-month follow-up, which in turn impacted the twelve-month follow-up rates. In addition to the previously mentioned approaches, we decided to be more flexible with our original data collection timeline for follow-ups, taking advantage of opportunities as they arose. For example, if we encountered a participant who was not yet due for a follow-up, we took the opportunity to complete their following interview, as we increasingly found it to be more difficult to locate people over time, making it all too likely that we might not be able to find them again. This is not unusual when conducting research with people who use drugs and/or are experiencing homelessness; however, given trends in enhanced criminalization and marginalization, these patterns were more apparent, and we adjusted our approach accordingly.

Hiring a Community Consultant With Lived Experience to Assist With Retention. To further enhance our ability to recruit participants, we hired a community consultant with lived experience who is a trusted member of the community to join our team. We provided them with practical and formal training on conducting human subjects research. As they were embedded within the community, they were able to inform people that we were looking for them and that they could visit the community location to see us. Those who came to our community site for follow-up consistently reported that our consultant team member informed them that we wanted to conduct a follow-up with them or that we had additional study opportunities available.

The community consultant helped keep the study team informed as community conditions changed rapidly, allowing us to adapt in real-time. For example, if there was a significant shift in the drug supply or policing efforts (e.g., a raid on a particular street or the initiation of arrests at a specific time), they communicated the possibility that participants might be subject to an elevated risk or arrest. We were then able to tailor our follow-up and outreach efforts to try to find our participants, while also making ethnographic observations during street outreach. As we were working with a population that was constantly displaced and at risk of arrest and overdose, their knowledge was essential to fill in gaps and allow us to reconnect with people when possible.

Maintaining a Whole Person View Among the Cohort

Photovoice Activities. As part of the informed consent form, we asked everyone if they would be interested in additional study activities, such as Photovoice and ethnographic visits. Thus far, we have invited a subset (n = 6) of participants to participate in Photovoice activities and ethnographic visits. While not our primary form of data collection, this part of the study was essential to expanding our understanding of how our participants lived on a daily basis, especially from their perspective, as they were in control of the photos and could make autonomous decisions on what they wanted to capture. In combination with the experiences and stories participants shared in their interviews, taking photos and explaining why a photo is significant to them and what they were trying to convey with the image provides a perspective that we cannot capture in the same way with standard interview methods. Photo elicitation further supported our ability to respond to and document the emergent enhanced criminalization that PEH who use drugs experience in their daily lives. This prompted both the researcher and participant to think about their experiences in a different way. The photos are not only invaluable to us as researchers but also provide the participants with a powerful tool to communicate how they live in the world. Many found it enjoyable to take and share the photos, which we printed with a photo printer and gave back to them to keep. This research study naturally brought up many discussions about traumatic experiences, which could often be very difficult to discuss, making it easy to lose sight of the good things in people's lives. Photovoice served as a tool to facilitate something that people enjoy and can utilize to show both the good and the bad. A photo documentation approach combined with ethnography, interviews, and other methods produced a more thorough and diverse collection of data that can be triangulated to elicit findings and clarifications that could not be identified with any single method (Lopez, 2024).

We invited eligible participants with whom we had established consistent communication to participate in the Photovoice project. Our goal was to recruit a diverse subset of the overall cohort to capture the range of experiences that comprise the Intersectional Risk Environment. Photovoice activities consisted of providing participants with a digital camera to take pictures in their day-to-day lives, following a general set of guidelines. They typically kept the camera for one to two weeks. Participants received $50 in cash for their first Photovoice visit with study staff, during which they reviewed guidelines and received their camera. Upon return of the camera to the research team, participants reviewed their photos with an ethnographer to select twenty to thirty of the photos they felt best represented their experiences and received $150 cash (the approximate cost of the camera). We printed the photos the participant selected and then used them during a subsequent Photovoice interview to provide context for the images, utilizing a semi-structured interview guide. Participants received $50 cash following the interview and were able to keep the printed photos for themselves. We blurred out any potentially identifiable portions of the photos prior to printing, and participants completed a photo release with their personal specifications for how their photos could be used.

Ethnographic Visits, Fieldnotes, and Memos. Those who were part of the Photovoice group were also invited to participate in ethnographic visits, during which study team members spent time with them in the community or at a location deemed important by the participant. This type of ethnographic observation reduces the formality that is typically part of the interview process. In addition to data collection conducted directly with participants, we conducted ethnography more broadly in the community to provide an enhanced environmental context and better understand the local context related to drug use, homelessness, housing, harm reduction, policing, public health efforts, and the development and implementation of new policies and legislation. Ethnographic data collection efforts included walking through different neighborhoods, visiting community organizations, connecting with outreach programs, observing scheduled homeless camp sweeps (also known as “clearings”), and attending public meetings (e.g., town halls). The team compiled fieldnotes to document these experiences, as well as publicly available documents such as agendas, reports, flyers, public notices, and media releases, among others, that were related to these activities or events.

For documentation and data collection, ethnographers completed fieldnotes after all interviews, including the Photovoice interview, and after each ethnographic visit. Post-interview fieldnotes provided a summary of key information from the interview but also highlighted contextual and setting information that may not have been conveyed in the interview recording. All team members had a fieldnotes template to facilitate documentation of similar types of information, including: site/location, date/time, ethnographer name, participant ID (if applicable), description of the setting (physical setting and mood/emotions), changes to drug use patterns, changes in the community, housing transitions, criminal-legal experiences, personal and broader community relationships, and anything else that was notable or that should be followed up on later. This data added key context and insight throughout the study process.

It is best practice in ethnographic research to center the phenomenological and embodied experiences of participants. Therefore, it was essential that during our analysis, we not only identify patterns in the data but also ensure that we do not lose sight of each participant as an individual, each of whom has a complex history, social positionality, and lived experience. We maintained a practice of centering each participant and their experience as experts in their own lives, rather than just subjects providing specific data points that we, as outside researchers, thought might be important. We formalized this in our data documentation by creating a longitudinal memo that provided a brief overview of each participant, which we updated each time we saw and/or spoke with them. Memos are an important analytic tool that facilitates researchers’ ongoing contact with the data and what is happening over time. This allows us to see emerging trends as we collect data, so that we can identify what we should be probing on more. In addition, memos serve as an essential tool to ground our findings in participant data when we conduct analysis utilizing a modified Grounded Theory approach (Charmaz, 2014). Throughout the study, we held weekly team meetings to discuss the data collection for the week and update each other on the participants we had interacted with. Through these conversations, we were able to strategically adapt and respond to shifting structural and community conditions in real-time.

Lessons Learned

All the methodologies we described above are needed to address the complexity of research that focuses on transitions in housing status and their impact on polysubstance use patterns, overdose, and other health-related outcomes because of the complex Intersectional Risk Environments involved, including.

(1) Interaction of the Physical Context of the Environment with Polysubstance Use Patterns seen in the unpredictability and volatility of fentanyl availability and quality; and
(2) Interactions of the Physical and Social Context of the Environment based on intersecting Social Positions and resulting in Polysubstance Use Patterns, as seen in how PEH who use drugs are highly stigmatized and ostracized.

In addition, building trust with research participants takes time and can be broken easily. All these factors are exacerbated in the context of intensified criminalization.

Overall, we found our framework and the comprehensiveness of the multiple methods we deployed to be incredibly beneficial. However, it remains very challenging to meet the needs of this population and conduct research. To improve upon our methods and overall approach, there are a variety of strategies we would have considered utilizing, if we had the resources, including developing a safe, feasible, and effective way to work at night in spaces frequented by participants; increasing time in the field (more days/week) to facilitate more accessibility for participants; expanding the outreach component early on and maintaining it over time to reach and recruit participants; offering more frequent, but shorter interviews and greater flexibility in data collection schedules; expanding and strengthening partnerships with service providers; and, hiring more community members onto the team to assist in outreach and follow-up. In future studies, we plan to build in some of these additional strategies, if budgeting permits.

Discussion

In this paper, we describe innovations and lessons learned from conducting longitudinal qualitative research using a multimodal approach with a community at risk for criminalization and overdose fatality. Through thoughtful consideration and an iterative methodology, we conducted this study in a manner that centered on participant autonomy. We employed a comprehensive combination of multiple intentional, and innovative methods designed to build trust at the community and participant levels, improve data quality, and enhance study retention including: (1) meaningful long-term reciprocal community engagements with stakeholders and service delivery organizations; (2) diverse, intersectional recruitment and equitable compensation to promote autonomy; (3) conducting life history interviews that addressed intersectional trauma histories after the first baseline interview; (4) addressing follow-up challenges with compensated check-ins, establishing a study community-based site, and hiring a community consultant; and (5) facilitating deep phenomenological data collection through photovoice and ethnography. Implementing these practices in combination enabled meaningful community-based and community-driven research that examined the complex intersectional risk environments (Collins et al., 2019) influencing polysubstance use patterns and producing health outcomes, including overdose vulnerability and service engagement.

Over the last fifteen to twenty years, we have witnessed the expansion of community-based participatory research (CBPR) in public health research (Collins et al., 2018; Israel et al., 2010; Page-Reeves, 2019). Researchers have also emphasized the importance of more meaningful collaboration with the community (Kumpf et al., 2024; Mattingly et al., 2024). A common mechanism for establishing community member involvement has been through Community Advisory Boards (Cramer et al., 2018; Machado et al., 2023). Gregg et al. (2010) emphasize the importance of engaging community partners to elicit input for interpreting data, a common approach researchers use with advisory boards. Those conducting qualitative public health research have identified ways to expand upon the foundational tenets of CBPR by placing greater emphasis on the importance of community involvement in the research itself. One way this has been done is by formally including community members or patients belonging to the study population as members of the research team (Crocker et al., 2024; Manzo et al., 2023) and providing them with fair compensation for their contribution to the work (Price & Richards, 2025). In our study, we implemented meaningful community engagement through stakeholder interviews, the formation of a community working group, spending time in the community and at specific sites, and by hiring a community member with lived experience to join our research team. It is also important to highlight that researchers and community members have identified challenges with CBPR as it does not remove the inherent power imbalances and structural factors that place more value on the perspectives and desires of academic researchers (Simon et al., 2021).

Brothers et al. (2025) have highlighted in their work the benefits of using community-driven research among marginalized populations, such as people who use drugs and PEH, who may not trust researchers. We fully recognize the harmful history of researchers exploiting, mistreating, and perpetuating harm among research participants. It was for this reason that we ultimately decided to complete the life history interview after an initial baseline interview. During interviews, qualitative researchers can unknowingly and unintentionally reproduce trauma among study participants. Implementing a thoughtful, trauma-informed research practice is essential to minimizing any potential harm that may result from not being mindful of how we conduct research (Alessi & Kahn, 2023; Johnson-Lawrence et al., 2014). This is especially important when conducting research with populations with a high prevalence of traumatic experiences, such as our study population of PEH who use drugs and are highly criminalized. Taking it a step further, Edelman (2023) advocates for a combined trauma- and resilience-informed research approach, grounded in Resilience for Social Justice, to not only prevent re-traumatization but also facilitate empowerment among participants.

Considerations around participant compensation are a fundamental component of ethical and respectful research that centers participant empowerment and autonomy. Abadie et al. (2025) identify the lack of evidence to support the long-standing argument that providing research participants with compensation (also known as incentives) is unethical and raises concerns about potential undue influence on those participating; they instead highlight the significant benefits of proper compensation. The research community has begun to explore participant perspectives on compensation, confirming the importance of providing adequate payment, with an emphasis on not only the dollar amount but the payment method (Abadie et al., 2019; Collins et al., 2017). Studies show that research participants view their participation as reciprocal and that the role of payment offers an incentive to participate (but not the only reason for participation), while highlighting the way compensation is provided and whether or not researchers can establish trust is also important for successful research efforts (Abadie et al., 2019; Collins et al., 2017; Slomka et al., 2007). The stigma and moral relativity consistently applied to PEH and people who use drugs have also extended to how institutions allow these individuals to participate in research to be compensated. For example, institutions may allow for gift card compensation but not cash due to the fact that the participant could decide to use the cash to purchase drugs or something else deemed unseemly by those with the power to decide how someone can be paid. Taking such an approach may be perceived as the researcher placing judgment on the participants' decisions, eliciting a sense of distrust and lack of respect or value. Cash payments offer the most flexibility, allowing individuals to decide how they want to use the compensation they are given, which is essential for participant autonomy. This is why we made an intentional effort to provide cash. This may seem like a minor choice, but it is far from standard research practice, both historically and currently. More researchers have begun advocating for and implementing cash payment for research participation in recent years after surpassing extensive bureaucratic policies within academia that limited or prevented entirely the use of cash.

Building upon the concepts of CBPR, participant autonomy, and empowerment, Photovoice provides participants with an alternative method to communicate their perspective and personal reflection on their lived experience (Hergenrather et al., 2009; Liebenberg, 2022). The Photovoice methodology allows participants to take the lead as decision-makers, as they alone determine what should be captured in a photo, and provides researchers with a unique type of access to spaces (Kile, 2022). Art-based ethnography (which may include Photovoice) also offers a method that can help prevent re-traumatization as individuals attempt to communicate their experiences (McMahon et al., 2024). In our study, we employed Photovoice as an alternative means for participants to communicate their lived experiences. Furthermore, we did not typically have the opportunity to personally observe where people lived and what their environmental context was like at that moment. We may have been generally familiar with the area or the building where they stayed, but we did not have access to those spaces ourselves. Photos showed us what these environments were like and facilitated conversations about the context of the photos or what the participants were trying to convey. An additional example of how visual art can be utilized is seen in how Febres-Cordero et al. (2021) collaboratively developed a graphic novel with the community to communicate the experiences of encountering an opioid overdose. This collaborative community-based project also facilitated the emotional processing and obtaining a sense of closure surrounding these experiences as overdose rates rose locally (Febres-Cordero et al., 2021).

The research community has gained considerable knowledge on how to conduct more effective research that benefits both the community and the researcher. Meaningful community engagement is essential, especially for community-based research with those who have historically been exploited by institutions. To avoid causing undue harm and potentially re-traumatizing participants, we must center participant autonomy, trauma-informed practices, and put in the time and effort needed to establish trust. Combining qualitative interviews with other data collection methods, such as photo-documentation and ethnography, over the course of a study facilitates an approach that is responsive to the situational needs and emerging themes or questions, yielding more robust data collection that would not be possible otherwise (Lopez, 2024). We have described here in detail the flexibility required for our longitudinal qualitative and ethnographic study with PEH who use drugs as they experienced enhanced criminalization and overdose vulnerability. For this work, it was essential to develop meaningful stakeholder and community engagement, place an emphasis on participant autonomy and equitable compensation, implement a trauma-informed approach to data collection, and utilize alternative, flexible forms of data collection to provide participants with a different, and perhaps more comfortable, way of communicating their experiences.

Conducting ethnography to research medical conditions and healthcare originally arose with the formation of medical anthropology as a branch of anthropology (Rashid et al., 2015); however, best practices have come a long way in the last seventy-five years when it comes to ethnography, medical anthropology (and social sciences more generally), and community-based qualitative research methods. The scientific literature on thoughtful methodological considerations and lessons learned among anthropologists is growing but still lacking, as academia and scholarly journals do not typically focus on communicating detailed methods (Nelson et al., 2024). Disseminating knowledge that will improve research practices, especially with historically vulnerable communities that are actively experiencing increased criminalization and marginalization—such as PEH, people who use drugs, those who are incarcerated, indigenous and people of color, gender minorities, and immigrants—is necessary to produce research that is effective while also attentive to the participant experience.

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Ethical Considerations

This study was approved by the Yale University Institutional Review Board, which served as sIRB for the study (#2000035608).

Consent to Participate

All participants completed written informed consent.

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The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

Data generated from this study are not publicly available.

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