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Intersectional Structural Vulnerability to Abusive Policing Among People Who Inject Drugs: A Mixed Methods Assessment in California's Central Valley

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Abstract

Background: Abusive and violent policing is an important determinant of health for people who inject drugs (PWID), which has been linked to structural vulnerability. However, further exploration of the intersectional nature of this vulnerability is warranted. California's Central Valley is a largely rural/suburban and politically conservative area, with high rates of injection drug use and overdose mortality, where rates of abusive policing of PWID have not been characterized.

Methods: We assessed self-reported experiences of abusive policing using a sequential mixed-methods approach, consisting of n=54 in-depth qualitative interviews followed by a respondent driven survey of n=494 PWID. Qualitative conclusions were used to guide the development a novel quantitative framework to explore intersectional structural vulnerability, drawing on UpSet visualization and multivariable logistic regression.

Results: Qualitative analysis suggests that abusive policing is not random or isolated; instead it can be understood in the context of routinized police harassment of PWID, which can escalate into physical or other forms of violence. These cycles are mediated by various forms of social

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disadvantage—often articulated through the frame of “looking like a drug user”—with deep connections to markers of race, class, gender, occupation and other elements of personal identity. Quantitative results confirm high frequency of abusive encounters with police, including physical violence (42%), verbal abuse (62%), sexual violence (9%), and the confiscation of new/unused syringes (39%). Females report higher rates of sexual violence and exploitation (aOR= 4.2; 95% CI: 2.1–9.0) and males report higher rates of physical violence (aOR=3.6; 95% CI: 2.4–5.6) and all other outcomes. Experiencing homelessness, having traded sex, and living in a rural zip code, are independently associated with numerous forms of police abuse. Intersectional analysis reveals clusters of individuals with highly elevated vulnerability, and in general, having a greater number of vulnerability factors was associated with increased odds of police abuse.

Conclusions: We find that structural vulnerability is linked—in a highly intersectional manner—with experiencing abusive police encounters among PWID in California’s Central Valley. Monitoring, prevention, and response to deleterious law enforcement practices must be integrated into structural interventions to protect vulnerable groups. Reform is especially urgent in rural/suburban areas that are increasingly important focal points to reduce social and health harms associated with injection drug use.

Keywords

Policing; Police Violence; People who Inject Drugs; Intersectionality; Structural Vulnerability; Mixed Methods

Introduction

Encounters with police have been identified as a key structural determinant of health for people who inject drugs (PWID) (Beletsky et al., 2015; Rhodes et al., 2012). Increased policing has been the dominant response to substance use and addiction in the United States over the past half-century. In material terms, spending on policing and incarceration consumes the vast majority of drug policy expenditures globally (Hughes et al., 2018). Nevertheless, evidence suggests that much of this spending on policing does not have positive public health impact (Baker et al., 2019). Rather, police contact has been associated in numerous settings with increased risky injection practices, a greater burden of infectious disease, and risk of overdose death for PWID (Bourgois, 1998; Flath et al., 2017; S. R. Friedman et al., 2006; Hughes et al., 2018; Kerr et al., 2005; Otiashvili et al., 2016; Small et al., 2006; West et al., 2020). In some cases, these health harms stem from legislative frameworks that conflict with evidence-based practices to minimize health risk. For example, policies that criminalize the possession, and disincentivize the use of sterile syringes (Bourgois, 1998; Rhodes et al., 2012). However, extrajudicial police actions—such as unauthorized confiscation of unused syringes, routine harassment, or physical or sexual violence—have increasingly been identified as factors driving infectious disease risk and other health harms for PWID (Burriss et al., 2004; H. Cooper et al., 2004; Miller et al., 2008).

Police misconduct involving PWID has been reported widely across numerous contexts within the United States and globally (H. Cooper et al., 2004; H. L. Cooper, 2015; Fehrenbacher et al., 2020; Gaines et al., 2015; Hayashi et al., 2013; Johnson & Fernquest, 2018; Kutsa et al., 2016; Landsberg et al., 2016; Nelson & Brown, 2020; Sarang et al.,

2010). In one study using data from New York City in the year 2000, 65% of PWID reported ever experiencing or directly witnessing physical violence, and 33% experienced or directly witnessed sexual violence from police (H. Cooper et al., 2004). In the same study, 63% of PWID reported psychological violence such as name-calling, unprompted physical threats, forced strip-searches in public, or being forced to remain in uncomfortable positions for long periods of time. In Bangkok, Thailand a study in 2010 found that 38% of PWID reporting ever being beaten by police (Hayashi et al., 2013). A similar 2012 study in Tijuana, Mexico found that 21% of PWID had been physically assaulted by police in the past six months (Gaines et al., 2015). Data from five cities in Ukraine in 2015 showed that 64% of PWID had been physically assaulted by police (Kutsa et al., 2016). In the Philippines, police murder has become an officially endorsed part of state sponsored violence against PWID, and is also linked to corruption in the police force (Jensen & Hapal, 2018; Johnson & Fernquest, 2018). Research from Baltimore, New York, Mexico, Nigeria, and elsewhere indicate that police may frequently confiscate or destroy injection equipment, often with no associated arrest, regardless of if it is justified by the prevailing legislative framework (Beletsky et al., 2013, 2015; H. Cooper et al., 2004; Nelson & Brown, 2020). Nevertheless, high rates of police violence and victimization have not been observed universally. For example, a cohort-based study in Vancouver, Canada, found that the percent of PWID reporting direct police violence in 2014 was only 3%, though this had fallen substantially from 14% in 2004 (Landsberg et al., 2016). Rates of abusive policing, therefore, seem to vary locally, and are likely linked to the historical factors, legislative frameworks, and local police cultures of each area (Lafer, 2020; Lancaster, 2020).

In this article we assess how PWID experiences with abusive or violent policing relate to *intersectional structural vulnerability*. The framework of structural vulnerability highlights how each individual's risk of a deleterious health outcome—such as experiencing police brutality—is related to their position in the wider social and economic hierarchies of their local environment (Bourgois et al., 2017; J. Friedman, Karandinos, et al., 2019). Indeed, numerous studies have identified that abusive policing more commonly affects people with specific structural vulnerabilities. For example, people of color widely report higher rates of violent police encounters across the United States, among the general population, and PWID (Bowleg et al., 2020; H. L. Cooper, 2015). It has also been reported in numerous contexts globally that women, especially those who have ever traded sex for money or drugs, are at much higher risk of sexual violence or coercion from police (Fehrenbacher et al., 2020; Kutsa et al., 2016; Odinkova et al., 2014; Sherman et al., 2015). In Tijuana, Mexico, deported status is a predictor of experiencing police bribery or extortion compared to PWID who have not been deported (Pinedo et al., 2017). Less is known, however, about the *intersectional* nature of these vulnerabilities. Intersectional theory proposes that numerous, overlapping and inter-related vulnerabilities intersect to place certain groups at a higher risk of health harm (Calderon-Villarreal et al., 2020; Crenshaw, 1991; Disadvantage, 2013). We therefore bring the framework of *structural vulnerability*—developed by public health/clinical researchers working in the social sciences—together with *intersectionality theory*, developed in Critical Legal Studies in dialogue with Cultural, Ethnic, Sexuality and Gender Studies (Bourgois et al., 2017; Grabham et al., 2008; Rhodes et al., 2012).

Our mixed methods approach of *intersectional structural vulnerability* allows for the detection of clusters of high-risk individuals and highlights how structural factors can drive health harms in a differential, complex, and nonlinear fashion for different groups based on their particular constellation of vulnerabilities. Although intersectional theory has proven relevant to numerous contexts and health outcomes, it has not, to our knowledge, been assessed in detail for its relation to abusive or violent policing among PWID. In this study, we therefore develop a mixed methods framework for operationalizing intersectionality, and bring it into discourse with current understanding of how structural vulnerability drives rates of police violence and misconduct towards PWID. This approach of intersectional structural vulnerability is oriented towards assessing how multiple overlapping and interrelated demographic, personal identity, occupational and social prestige characteristics interface in nonlinear ways. Ultimately this can help us identify specific upstream policies and local interventions to ameliorate the negative health outcomes experienced by the most vulnerable clusters of individuals.

Additionally, there is a notable lack of data describing experiences with abusive policing among PWID in rural/suburban areas of the United States, despite their increasing importance for the mitigation of the growing overdose crisis. In the past decade, the demographic composition of the population that injects opioids and other drugs in the United States has shifted increasingly towards rural and suburban areas (Cicero et al., 2014; Mars et al., 2014; Rigg et al., 2018; Thomas et al., 2019). Overdose mortality has followed, and is now concentrated in low-income, majority-white, and rural areas (J. Friedman, Kim, et al., 2019; Jenkins & Hagan, 2019; Netherland & Hansen, 2017). Rural and suburban areas, therefore, represent the front lines for preventing health harms related to injection drug use, including those influenced by policing. Nevertheless, data describing the policing practices of PWID is almost exclusively drawn from large metropolitan areas, where most research about injection drug use has been focused (Jenkins & Hagan, 2019).

As a largely rural/suburban and more politically conservative part of California, with high rates of injection drug use and overdose, the Central Valley can offer unique insight into the role of policing as a structural determinant of health for PWID. Nevertheless, to our knowledge no other data exist describing rates of abusive policing among PWID in the Central Valley. The region is a large, mostly agriculturally oriented section of inland California. Fresno and Bakersfield, the two metropolitan areas highlighted in this study, are main urban hubs, and have historically had among the highest rates of injection drug use in the country (Brady et al., 2008). In 2015, the age-adjusted overall overdose death rate for Kern and Fresno counties, home to Fresno and Bakersfield, respectively were 24.9 and 14.9, significantly higher than the 11.0 seen for California as a whole (Anderson et al., 2019; CA Department of Public Health, n.d.). Furthermore, the Central Valley represents an apt location to study the importance of intersectional structural vulnerability, as a highly ethnically and socioeconomically diverse areas with substantial social disparities (Thebault, 2018).

Methods

This exploratory, sequential (Ozawa & Pongpirul, 2014), mixed methods analysis (Anguera et al., 2018; Creswell & Clark, 2011) was part of a wider data study among PWID in the Central Valley, focusing on injection drug use, and related health harm (Syvertsen et al., 2017; Syvertsen & Pollini, 2020). It began with ethnographic fieldwork in Fresno and Kern counties. Fieldwork was targeted to harm reduction spaces as well as other organizations that were attempting to address similar issues, such as churches and health clinics. These experiences led to interviews with PWID, as well as people who provide health or harm reduction services, within which policing, and police-related abuse, emerged as a key factor affecting the health and wellbeing of PWID. A subsequent survey of PWID therefore included a module focused on policing, which was designed and implemented based on insights gleaned from analysis of the qualitative data. Quantitative and qualitative findings were placed into dialogue and jointly considered to yield final conclusions.

Documenting abusive policing of PWID presents numerous methodological challenges (Footer et al., 2020). Reliably measuring extralegal or abusive practices by law enforcement officers using administrative databases or official statistics is often impossible (Feldman et al., 2017). Here we draw on self-reported experiences among PWID and employed several methods that have been shown to work well for documenting social and medical phenomena among difficult-to-reach populations: interviews driven by targeted and snowball sampling, and quantitative surveys collected using respondent driven sampling (RDS). The study was approved by the ethics review committee at the Pacific Institute for Research and Evaluation. Informed consent was obtained for all interview and survey interactions.

Qualitative Interviews

The processes used to generate the qualitative interview data used in this study have been described more extensively elsewhere (Syvertsen et al., 2017; Syvertsen & Pollini, 2020). Through ethnographic fieldwork we recruited n=8 key informants who offer health or harm reduction services to PWID in Kern or Fresno counties. We also used targeted and snowball sampling to recruit n=46 people age 18 or older who reported injection drug use in the past year. Recruitment was initiated through contacts at harm reduction and other health programs, as well as on the street in areas known to be frequented by PWID, and sustained through snowball sampling. We purposefully designed a sample that was diverse in gender, heroin vs methamphetamine use, and urban vs rural residency to capture a range of experiences. Interviews were conducted between March and December 2015, and typically lasted 60–90 minutes. Interviews were digitally recorded, summarized, and coded for numerous themes, including interactions with police. Findings from the coded interviews were used to guide the construction of a quantitative survey instrument, with diverse domains including questions related to police encounters.

Quantitative Survey

Given that research about PWID in the Central Valley has been limited, and injection drug use remains highly stigmatized, we drew on RDS, a chain referral sampling method well-adapted to reaching “hidden populations” (Heckathorn, 1997). We recruited participants who

were at least 18 years old and who reported injecting drugs at least twice within the previous 30-day period. They were offered dual incentives: \$30 USD for completing the survey and \$5 USD for recruiting eligible peers, for up to 3 referrals. We strategically selected 11 ‘seed’ individuals to initiate the chain referral process to promote sample diversity. As emergent themes between Fresno and Kern counties were judged to be suitably similar, survey sampling consolidated was consolidated to Fresno and the surrounding area, and occurred from April to September 2016.

Outcome measures of interest included lifetime risk of self-reported physical assault by police, verbal abuse by police, sexual violence or exploitation by police (including attempted or completed sexual assault or sexual proposition), the confiscation of unused syringes, the confiscation of any syringes (used or unused), and the number of times stopped but not arrested (a marker of routine police harassment (Beletsky et al., 2015)). These variables were identified as relevant dimensions of abusive policing through analysis of the qualitative interview data. Some of these outcomes are unequivocally extrajudicial and health-damaging, such as sexual assault. However, others exist in legal grey areas, and have health harms that are more contextually dependent, such as routinized harassment or the confiscation of unused syringes.

Vulnerability factors (used as explanatory/independent variables) were chosen on the basis of the initial qualitative analysis, and included: gender, race, level of educational attainment, current housing status, currently residing in a rural location, and having ever engaged in sex work. Most outcome variables were modeled as binary outcomes using logistic regression. Regression coefficients were exponentiated to yield adjusted odds ratios. Number of times stopped but not arrested was modeled as a continuous outcome (as nearly all participants had at least one encounter, it could not be modeled as dichotomous), using a quasi-Poisson model, and exponentiated coefficients yielded adjusted odds ratios. All explanatory variables were measured as dichotomous exposures. Race was dichotomized as non-Hispanic white vs. person of color. Educational attainment was dichotomized as having successfully completing secondary education, not including a GED. Rurality was defined as residing in a zip code with less than 2,000 people per square mile, according to American Community Survey 2018 5-year estimates (American FactFinder, 2020).

Intersectional Quantitative Analysis

We first assessed the independent effects of each predictor on each outcome, using bivariate and multivariate regression analysis. One regression was run per outcome using all predictors. Unweighted regression analysis was used given recent findings that it has better performance in a respondent driven sample context (Avery et al., 2019). We also used exploratory, descriptive data visualization to search for clusters of intersectional vulnerability. We visualized the overlapping distributions of the six vulnerability factors using a modified UpSet plot framework, a tool from intersectional set theory (Lex et al., 2014). In the UpSet plot, each observed constellation of vulnerability factors is assessed as one cluster, or analytic group. For each cluster, we visualized the magnitude of each of the six outcome measures, rescaled as a 0 to 100 scale of intensity. A composite score was also created for each cluster as the average intensity across all six outcomes.

Results

The respondent-driven survey sample consisted of 494 PWID, 60.5% of whom were male, with a mean age of 44.2 years (Table 1). 87.0% of the sample had injected heroin and 76.6% injected methamphetamine in the past month. Sociodemographic data, vulnerability factors, and police interaction outcomes are provided in Table 1. The qualitative sample consisted of 8 key informants, and 46 PWID, with a demographic composition relatively similar to the survey data; these interview participants had an average age of 38.7 years (range 20–65 years), 65% were male, and 37% Hispanic (see prior publications for more details) (Syvertsen et al., 2017; Syvertsen & Pollini, 2020).

“Looking Like a Drug User” – Cycles of Police Harassment Mediated by Vulnerability

“It’s like you feel caged. They always pull up on you, you know, it could be 4 or 5 of us standing there, and they’d pull up on you and say, “Is any of y’all on probation, parole or got a warrant? And doesn’t matter what you say, they want to run your name just to see. That ain’t cool. And, because they might see 3 Blacks, or 2 Mexicans in a group, they automatically assume that of the 5 cats on that corner, at least one or two of them are on probation or parole. And they’re going to run everyone’s name. And if they see you’ve got any warrants, or if they see anything, they are taking you away. And you were just sitting there minding your business, haven’t done anything. It’s just like a witch hunt type thing.”

- Eddy, M, 55, Black, Non-Hispanic, Fresno County

This account highlights the most prevalent theme emerging from interviews with PWID about their interactions with the police in the Central Valley—nearly every respondent felt that police attention towards PWID reached the level of harassment and could be highly disruptive to the daily life of the people who were its target. Participants describe how police routinely pass through so-called “known drug use areas”—which are generally low-income neighborhoods—and summarily stop any individual or group that was deemed to be “suspicious.” During these encounters, the “running of names”—checking individual names against a database of active warrants for arrest—was a central theme. Survey results confirmed a high density of no-arrest police stops among PWID. The average person in our sample reported being stopped but not arrested 24.4 times and 96.1% of participants had been stopped at least once (Table 1).

Social presentation, identity, and vulnerability were described as mediating these cycles. Numerous participants discussed strategies they employed to escape this kind of police attention. Nevertheless, in many instances these tactics could only work for so long. One interview participant recounted her experience becoming a “known entity” to the police:

“For the longest time I had the police fooled that I was not an IV drug user. I usually don’t look that raggedy. Normally I’m pretty well put together. I’m educated. I’m not stupid. I can communicate. I’m articulate. I can pull it off, you know, I cover my tracks. So when I first started going to jail the cops would be like, “You just don’t seem like you should be here,” and I’d be like, “I know I shouldn’t.” It took me being involved in a lot of shit...but then the cops saw me

around a lot of ‘the wrong’ places, and then they were just like, ‘Bitch you’re not fooling us anymore.’ And after that, it sucked, you know, it was plain ass harassment. And anybody that would be with me would get it too. People would be walking with me, people that don’t use drugs, that the cops had never even seen before, and they would run them. They’d run their name, just to see what they had. The reason they gave was because of ‘the company they’re keeping’. And they were referring to me. It was harassment.”

-Karla, 35, F, Mexican American, Kern County

This informant identified her educational background and social presence as protective factors that buffered her from negative police attention for some time. Ultimately, though, she was “marked” by police for targeted attention.

These cycles of police attention were often intimately linked to the probation system. In many instances, as described above, police would summarily ask individuals if they were on probation, in order to increase their powers to conduct legal searches. Furthermore, many participants described receiving targeted police attention once they were in the probation system. Often these encounters were described as even more disruptive to their lives, because they would occur not only in the street, but in their homes and places of work, which were known to probation officers and police:

“Whenever I was stopped by a police officer or a probation officer, I mean these people literally had so much control over me that no matter where I was or who I was with, they had a right to stop me, search through my purse, read through my journals. They could strip me down naked and put their hands on my body. They could even stick a mirror up my ass crack if they wanted to and I had to let them because if I didn’t then I was going to go to jail and I was going to risk police brutality and that sort of thing. I couldn’t stand it anymore. I was tired of that and literally living in a small town, the probation and parole officers, they are very, very into their jobs over there. They are real go-getters. I was literally being stopped by law enforcement at least twice a week, and sitting on the sidewalk while some asshole with a badge poured my purse out all over the sidewalk. It was constant. They were coming to my job. They would come to my friends’ houses looking for me. I mean it was like borderline harassment. My boss actually asked me to talk to them about showing up at my job like that, because a lot of our clients were elderly people, and we’ve got these probation officers with guns and tasers and pepper spray and bulletproof vests on. They’re coming in and they’re pulling out an employee, and it was bad for business.”

-Rebecca, 25, F, Native American, Non-Hispanic, Kern County

This passage highlights how police attention, and harassment, can extend far beyond criminal justice implications, and affect housing, finances, transportation, work, and other dimensions of life. Additionally, this woman identified living in a rural area as a risk factor for negative police attention, because it increased the degree of familiarity with the police, as compared to more anonymous, larger metropolitan areas. She also recounted that in her case,

the “small town” police she encountered were much more aggressive than their counterparts in big cities.

In each of the three passages above, specific elements of personal identity or appearance were identified as vulnerability factors, which could increase or mediate police harassment in contextually variable ways. There was wide consensus that this burden of police attention was not experienced equally. Race, ethnicity, gender, homelessness, personal grooming, level of education, intelligence, and living in a rural area were all identified by participants as factors that could influence police interaction frequency or intensity. These factors were often collectively articulated through the frame of “looking like a drug user,” i.e., to what degree the person in question resemble the stereotypical presentation of what a PWID “should look like” in the minds of police. Although many factors—especially race, class, and housing status—were linked clearly by interview participants to their ability to avoid “looking like a drug user”, it was described as an overall complicated and emergent phenomenon. Furthermore, interview participants conveyed the general sense that individual social capital or charisma could supersede the importance of these factors in specific cases. For instance, one participant explained that she was able to avoid many negative effects of police attention, despite her status as someone experiencing homelessness:

“Once they talk to me, and see that I am educated, and that I don’t look like I’m on drugs, they’re a lot nicer. Unfortunately, the people that are in trans-generational poverty, or whatever it may be, they’re not so lucky. The cops aren’t so kind. I was getting, I don’t want to say harassed, but “hey you’re sleeping here, what are you doing? We’re curious, why are you here?” The rangers at the park, they pretty much all got to know me, and I had them stop and say, “hey, we just want to know your story, why are you here? You kind of don’t fit in with all these people, you don’t look like you’re on drugs, and you’re clean, and you’re homeless, so what’s the deal?” But if you are in active addiction, and you look the part, then yeah, you’re going to be treated differently.”

-Sarah, 40, F, White, Non-Hispanic, Kern County

In this case, the participant identified her education and appearance as factors protecting her from police harassment, despite her status as homeless and injecting drugs. She compared her social capita to that of individuals experiencing transgenerational poverty to explain her relative state of privilege.

Physical Violence

Physical violence by police was also commonly reported by PWID (42.2% of survey respondents). Most typically, violence from police was described as stemming from larger rituals of harassment, in cases where the officer perceived a transgression against their authority, or threat to their safety:

I was on my way to court, ‘cuz I had a Prop 36 [drug possession] case to deal with. I had stopped and got something to eat. I did a shot. I’d kicked my shoes off because it was summer, I was driving with socks. Traffic was bumper to bumper, and this lady stopped right in front of me and I wanted to hit my brakes and it slipped off and I swerved and I just barely bumped her car. She called 911 and this

older sheriff came, and he told me that my license had been suspended for a possession of weed ticket, a \$50 fine, that I hadn't taken care of. I told him I had to be at court, and he said, "Well, we'll see if we can get this cleared up with her insurance first, and then I'll let you off with just a warning for having your driver's license suspended. I'll let you park your car, and somebody can pick you up to take you to court." He was okay with it, the older sheriff guy. But then, as I'm sitting there waiting for my information to come back, this Bakersfield PD cruiser pulls up, and some youngster right out of academy hops out. He took one look at me and he stereotyped me, and he started pushing my buttons, disrespecting me by the way he was talking to me, and I'm looking at my watch thinking, "Well, I got about 20 minutes before I'm going to get a failure to appear, and there goes my bail. I'm going back to jail," and he just kept on me, and kept on harassing me. I told him, "You know, I gave you no reason to talk to me that way. I asked you not to disrespect me like that," and he just kept on. Finally, he tells me, "Get up, stupid. Put your hands behind your back and stand up against the car," and I looked at him and I said, "Excuse me?" and he slammed me into the car and cuffed me up. I spit in his face, so he beat me up. When he arrested me, he didn't call an ambulance or anything. He dragged me. I couldn't walk, and he dragged me to the car. Then they hog-tied me, put me in the cold tank, kicked me four or five more times, cut the zip ties off me, and I stayed in there for about 22 hours before they even booked me in. I got failure to appear, so I went back to jail for 22 days. I lost everything after that. They impounded my car. I lost the place where I was living.

-Kevin, M, 55, White, Non-Hispanic, Kern County

This incident highlights the discretionary power held by individual officers, who can often unilaterally escalate cycles of harassment and violence, in cases where other officers may not have elected to do so. In this case, the younger officer was described as initiating the aggression by "slamming" the participant into his car. This kind of routine physicality was commonly reported to be used in conducting searches or arrests. It was understood, however, that any perceived response of physicality, or lack of respect for absolute police authority, could be met with numerous methods of retaliation, including physical violence or pre-booking incarceration for an extended period.

The most commonly discussed inciting event that would trigger police violence towards PWID was the discovery of a syringe while conducting a search, especially if police feared a needle stick incident:

"A cop does not want to find a syringe on you. I've had it happen, and it got me beat up, I had a syringe in my pocket. They wake me up while I'm sleeping in my truck, and he asked me if I have anything on me, and I don't, I don't even know what's going on. So I'm telling him "No man. What's the ..." You know? And he reaches into my pocket, and what does he find? Right, the syringe. So he thinks he's getting stuck, so what's he want to do? He wants to hit on me for a little bit. You know? I think I've been beat up by the cops more than I've been beat up by anybody else out here."

-Tom, 30, M, White, Non-Hispanic, Fresno County

“If you do you have a syringe you better tell them because they don’t want to get poked on. And let’s say you think they’re not going to get poked, but if they find it on you, that’s when the shit starts. They don’t like that.”

-Enrique, 60, M, Mexican American, Kern County

Although, at the time of data collection, syringe possession was a legal grey area in California, the possession of unused syringes obtained from an “authorized source” was generally legal (Syvertsen & Pollini, 2020). Nevertheless, fear of conflict with police over syringes was a commonly discussed theme in regard to why people preferred not to carry syringes with them, opting to leave them “stashed” in various spots around their neighborhood, or to borrow them from friends when not at home. Syringe confiscation was also common among survey respondents, with 38.5% of PWID reporting the confiscation of new/unused syringes (table 1).

Although there was a general consensus that most of the violence police enacted against PWID was not legal or justified, there was also a widespread impression that offending officers would be all but sure to be treated with impunity:

“See Fresno police got a bad reputation man, as they’re vigilantes. They’re not police, you know what I mean. They’ll gun you down. They don’t take no chances, because of the gang problems that’s reaching out here. You got a lot of shootings. So, there’s this mentality that Dwyer the chief of police, he puts in their head. Shoot first ask questions later. That’s why they always getting in trouble. That’s why every time when you here Dyer say, “Well my officer, he felt threatened. And he had no choice but to use excessive force.” I call him King Damage Control because every time they get in trouble or do something, he comes in there and makes it right. And it’s not always right. The police ain’t always right. But he’s going to make them right every time.”

-Robert, M, 55, Black, Non-Hispanic, Fresno County

Sexual Violence and Exploitation

Sexual violence or exploitation were reported by 9.1% of survey respondents. During qualitative interviews, these forms of violence were discussed most frequently by men and women who had traded sex for drugs or money. Victimization by police was described as an occupational hazard of engaging in sex work, associated with specific officers who displayed patterns of repeated predatory behavior:

Most of ‘em, when they know you, they know you, and they’ll mess with you. But they’re just doing their job. There’s some out there, though, that come on to the girls. Just recently my friend told me, “Girl, that cop was asking about you.” You know, ‘cause he passes his number out. I actually even had it before, and I tossed it. Cuz he always passes it out, ‘cause he likes us, he wants to date us. You know what I’m saying? He wants to date us, so ...He’s married. There’s a lot of them out there like that though. Now that I think about it, there’s more than what the system knows about. They’re supposed to be doing their job. I had one the last place I worked, this was like 7 years ago, everybody knew him, knew what he was about.

He would take you out to the country in the car, and you would have to pay him to get out. Like to break you out, you would have to break him off, and if you didn't, he was forcing himself on females. Lots of the male cops used to go after prostitutes so they could fuck them and stuff. I had one pick me up, and he'd talk dirty all the times he took me in. And I was also trying to talk dirty back to him, hoping that maybe he'd stop and let me out. So, you'll do whatever, you know what I'm saying? But that one didn't ever let me out, he just wanted to talk dirty to me.

--Alejandra, 40, F, Hispanic, Fresno County

Quantitative Findings - Intersectional Vulnerability to Abusive Policing

The above qualitative analysis suggests that abusive policing is not random or isolated. Instead, violence can be understood as largely stemming from routinized cycles of police harassment of PWID, which frequently escalate into overt violence or other forms of abuse. These cycles were described to be mediated by vulnerability; a finding confirmed in the quantitative data. Figure 1 summarizes the main multivariable associations between personal vulnerability factors, and police interaction outcomes. In multivariate regression, higher odds ratios of no-arrest stops—a marker of police harassment—were reported by males (aRR=1.63; 95% CI: 0.99–2.80), individuals who had traded sex (aRR=2.18; 95% CI: 1.31–3.56), or people who were experiencing homelessness (aRR=2.13; 95% CI: 1.31–3.45). Intersectional analysis reveals that the number of no-arrest stops varied over tenfold between groups—from an average of 16.8 stops for females with no vulnerability factors, to 182.2 for men who were experiencing homelessness, had traded sex, and lived in a rural zip code (Figures 2 and 4).

Gender emerged as a key factor driving the kinds of abuse PWID were most likely to experience. Females reported higher odds of sexual violence and exploitation (aOR= 4.2; 95% CI: 2.1–9.0) and males reported higher odds of physical violence (aOR=3.6; 95% CI: 2.4–5.6) and all other outcomes. Additionally, experiencing homelessness, having traded sex, and living in a rural zip code, were all factors independently associated with numerous forms of police abuse or harassment.

Independent positive correlations were seen between experiencing sexual violence or exploitation and being female (aOR=4.2; 95% CI: 2.1–9.0), having traded sex (aOR=1.9; 95% CI: 0.9–3.8), experiencing homelessness (aOR=1.7; 95% CI: 0.8–3.3), and being a person of color (aOR=1.6; 95% CI: 0.8–3.4), although some did not achieve statistical significance (Figure 1). Male PWID with no other vulnerability factors had a total prevalence of sexual violence or exploitation by police of 1.7%. Females with no other factor had a prevalence of 16.1%, which increased to 42.9% for women who had traded sex, were not white, and were experiencing homelessness (Figure 4).

Given that qualitative interview data suggested that intersectional vulnerability is a strong driver of police abuse, we developed an exploratory framework to assess this quantitatively using survey data. A visualization of the intersectional distribution of vulnerability factors in the survey data sample is provided in Figure 2. The largest cluster (as defined by a particular set of vulnerability factors) were nonwhite males who dropped out of high school (n=55)

and males with no other vulnerability factor ($n=44$). In general, clusters of women had lower outcome scores—reflecting a lower level of abusive experiences with police—than clusters of men, due to women’s reduced risk for all outcomes except sexual violence or exploitation (Figure 1). The male clusters with the highest scores included men who were experiencing homelessness, from rural areas, ever traded sex, and dropped out of high school (average score of 88%) followed by men who were experiencing homelessness (80%). The female clusters with the highest scores were women from rural areas (65%) followed by women who were experiencing homelessness, non-white, and dropped out of high school (58%).

There was an overall positive relationship between the number of vulnerability factors and the average police interaction score (Figure 3), which was statistically significant (bivariate linear model $p = .0248$). One manner of visualizing the intersectional risk to police interaction outcomes associated with increasing numbers of personal vulnerability factors is shown in Figure 4. In general, the risk of negative police interactions increased among groups with progressively greater numbers of vulnerability factors.

Discussion

In this mixed methods study among PWID in California’s Central Valley, respondents reported high rates of negative police attention, abuse, and violence. In our survey, 42.2% of PWID reported physical violence by police, 62.3% experienced verbal abuse, 9.1% reported sexual violence, and 38.5% reported the confiscation of new/unused syringes. To our knowledge, this represents the first characterization of abusive police practices towards PWID in the Central Valley. Furthermore, this study helps address the paucity of research describing experiences with abusive policing among PWID in rural/suburban areas of the United States. We find that rates of police violence are high in the Central Valley, and comparable to the highest rates observed previously reported in New York (H. Cooper et al., 2004), and other international large metropolitan areas (Hayashi et al., 2013; Kutsa et al., 2016), though differences in methodology (e.g. recall window duration, outcome definition) make exact comparisons difficult.

Our study concurs with prior research indicating that specific vulnerability factors are strongly associated with negative police attention, harassment, and physical and sexual violence (Bowleg et al., 2020; H. L. Cooper, 2015), and extends the importance of these findings to the Central Valley. Gender plays a strong role in shaping the risk environment for negative police encounters among PWID; women were over fourfold more likely to experience sexual assault, while men were at similarly elevated risk for physical violence. Experiencing homelessness was positively associated with a host of negative police experiences, as was having traded sex for money or drugs—findings that have been reported in large metropolitan contexts, yet have been understudied in areas like the Central Valley (Fehrenbacher et al., 2020; Kutsa et al., 2016; Odnokova et al., 2014; Sherman et al., 2015).

We also developed and implemented a mixed methods framework to assess the importance of intersectional structural vulnerability to this topic. Through intersectional data visualization we identified pockets of extreme vulnerability. For example, rates of police-perpetrated sexual violence and exploitation varied nearly thirtyfold, from 1.7% among men

with no other vulnerability factors to 42.9% of women of color who were experiencing homelessness and had traded sex. The number of no-arrest stops—a marker of police harassment—varied over tenfold between groups, from an average of 16.8 stops for females with no vulnerability factors, to 182.2 for men who were experiencing homelessness, had traded sex, and lived in a rural zip code. Myriad other examples can be observed in the intersectional descriptive figures presented here. Although we are not aware of other studies employing an intersectional framework of this nature to study police violence among PWID, we expect that similar results would be observed in other contexts. The framework developed here can be easily adapted for comparative work elsewhere, which could provide useful insight into the generalizability of these results.

The way that intersectional structural vulnerability mediates and potentiates police abuse is complex and non-linear – a finding reflected in both the quantitative survey data and qualitative interview findings. Nevertheless, amid the complexity of intersectional dynamics, a clear signal emerges reflecting the overall relationship between intersectional vulnerability and police abuse. The qualitative data help contextualize the mechanisms by which intersectional vulnerability may lead to higher rates of deleterious police interactions. Incidents of police violence are not random or isolated occurrences. Instead, they occur within a wider context of cycles of negative police attention and harassment of PWID. These cycles are mediated by numerous social factors, which can either help PWID avoid attention, or render them more vulnerable to it. These same cycles can often escalate into violence or other harmful forms of police attention, and therefore contribute to the macro-level disparities observed in the quantitative data. Understanding these cycles of police harassment is also key for implementing policy changes to ameliorate them.

This exploratory mixed methods study does have limitations that should be taken into account. The history of police violence is inextricable from structural racism in the United States, and Black Americans have generally received the most abuse (Bowleg et al., 2020; H. L. Cooper, 2015). Due to sample size limitations and the low percentage of the total sample who identified as Black, we were not able to assess rates of police violence specifically for this group of PWID. Instead, we were only able to assess racial disparities in a binary white/non-white scale which fails to capture the nuances of racism as a key mediator. This remains a highly important area for future study. Additionally, RDS methodologies are still under refinement, and there is disagreement about the best way to adjust for biases introduced by the sampling method. We chose to use unweighted regression analysis following recent evidence demonstrating that it has better performance (Avery et al., 2019), however, other methods could be used. Still, given the magnitude of the disparities we report here, they are unlikely to be affected greatly by biases introduced from RDS. Furthermore, RDS represents an extremely useful tool to reach a population such as PWID, who face high levels of stigma and legal risk in the Central Valley. Our sample was large compared to other studies of a similar nature, nevertheless, sample size did still place limitations on the methodologies employed. Extensive interaction terms in regression analysis, for example, was not a viable option in this case. Instead we opted for a descriptive approach to visualizing the intersectional distributions of vulnerability factors and associated outcomes. To have absolute confidence in results for any given small group, however, follow-up research with oversampling for that subpopulation would be required. Furthermore, the intersectional

structural vulnerability to police abuse and misconduct that we describe here is specific to PWID in the Central Valley. Although our results are likely to have relevance to other similar social contexts, further research applying this framework to other locations would provide helpful insight into the generalizability of the trends noted here.

Overall, the high levels of police-perpetrated abuse and violence, and deep links to the structural vulnerability of PWID, suggest that structural solutions are required to protect vulnerable individuals in the Central Valley. In the short term, as a harm reduction measure, monitoring, prevention, and response to deleterious law enforcement practices can be integrated into policy interventions to protect vulnerable groups. This may include working to train police, equipping them with alternative approaches to handling drug-related encounters, or creating deflection and diversion programs. Furthermore, routinely collecting and analyzing data from PWID, through street-level outreach or service provision organizations, can help to monitor trends in deleterious police practices (Silverman et al., 2012). Centering the perspectives of PWID in discourse with the government is an essential step in implementing effective reform. In most of the world, the police overwhelmingly represent the branch of the government that interacts most with PWID in a face-to-face manner. Police are inherently ill-equipped to address the concerns of PWID, and much less when they are related to police brutality. In limited contexts, organized groups of PWID, such as drug users' unions, have had success in decreasing human rights abuses and implementing new policies, which may represent a key strategy for reducing police violence towards PWID (Ankjærgaard et al., 2015; Chiu & Burris, 2012; Gershon, 500; Johansson et al., 2015; Urban Survivors Union, 2020).

More fundamentally, interventions to reduce abusive policing must take a more structural lens. This invokes the mounting, national calls for shrinking the footprint of police and other carceral. The movement to tackle racist police brutality as a public health issue has made a case for reassigning resources away from police. (Kaba, 2020). Nevertheless, even now, rural/suburban areas continue to receive less consideration. We argue that understanding and ameliorating the role of policing as a deleterious structural determinant of health for PWID in rural/suburban areas may be of special importance, as such contexts increasingly represent the front lines of the US overdose crisis (Cicero et al., 2014; J. Friedman, Kim, et al., 2019; Jenkins & Hagan, 2019; Mars et al., 2014; Rigg et al., 2018; Thomas et al., 2019). These areas represent an important focal point to reduce the social and health harms associated with injection drug use, and addressing police-related violence should be a central consideration.

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References

- American FactFinder. (2020). <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
- Anderson JA, Demeter N, Pasquiers M, & Wirtz S. (2019). Using the CA Opioid Overdose Surveillance Dashboard to track opioid overdose deaths. *Online Journal of Public Health Informatics*, 11(1). 10.5210/ojphi.v11i1.9938
- Anguera MT, Blanco-Villaseñor A, Losada JL, Sánchez-Algarra P, & Onwuegbuzie AJ (2018). Revisiting the difference between mixed methods and multimethods: Is it all in the name? *Quality & Quantity*, 52(6), 2757–2770. 10.1007/s11135-018-0700-2
- Ankjærgaard SK, Christensen I, Ege PP, Gotfredsen NW, Kjær J, Olsen ML, & Majlund KL (2015). From civil disobedience to drug users' well-being: grass-roots activity and the establishment of drug consumption rooms in Denmark. *Drugs and Alcohol Today*, 15(3), 141–148. 10.1108/DAT-03-2015-0007
- Avery L, Rotondi N, McKnight C, Firestone M, Smylie J, & Rotondi M. (2019). Unweighted regression models perform better than weighted regression techniques for respondent-driven sampling data: results from a simulation study. *BMC Medical Research Methodology*, 19(1), 202. 10.1186/s12874-019-0842-5 [PubMed: 31664912]
- Baker P, Beletsky L, Avalos L, Venegas C, Rivera C, Strathdee SA, & Cepeda J. (2019). Policing Practices and HIV Risk Among People Who Inject Drugs - A Systematic Literature Review (SSRN Scholarly Paper ID 3401985). Social Science Research Network. <https://papers.ssrn.com/abstract=3401985>
- Beletsky L, Cochrane J, Sawyer AL, Serio-Chapman C, Smelyanskaya M, Han J, Robinowitz N, & Sherman SG (2015). Police Encounters Among Needle Exchange Clients in Baltimore: Drug Law Enforcement as a Structural Determinant of Health. *American Journal of Public Health*, 105(9), 1872–1879. 10.2105/AJPH.2015.302681 [PubMed: 26180948]
- Beletsky L, Lozada R, Gaines T, Abramovitz D, Staines H, Vera A, Rangel G, Arredondo J, & Strathdee SA (2013). Syringe Confiscation as an HIV Risk Factor: The Public Health Implications of Arbitrary Policing in Tijuana and Ciudad Juarez, Mexico. *Journal of Urban Health*, 90(2), 284–298. 10.1007/s11524-012-9741-3 [PubMed: 22806453]
- Bourgeois P. (1998). The Moral Economies of Homeless Heroin Addicts: Confronting Ethnography, HIV Risk, and Everyday Violence in San Francisco Shooting Encampments. *Substance Use & Misuse*, 33(11), 2323–2351. 10.3109/10826089809056260 [PubMed: 9758016]
- Bourgeois P, Holmes SM, Sue K, & Quesada J. (2017). Structural Vulnerability: Operationalizing the Concept to Address Health Disparities in Clinical Care. *Academic Medicine : Journal of the Association of American Medical Colleges*, 92(3), 299–307. 10.1097/ACM.0000000000001294 [PubMed: 27415443]
- Bowleg L, Maria del Río-González A, Mbaba M, Boone CA, & Holt SL (2020). Negative Police Encounters and Police Avoidance as Pathways to Depressive Symptoms Among US Black Men, 2015–2016. *American Journal of Public Health*, 110(S1), S160–S166. 10.2105/AJPH.2019.305460 [PubMed: 31967888]
- Brady JE, Friedman SR, Cooper HLF, Flom PL, Tempalski B, & Gostnell K. (2008). Estimating the Prevalence of Injection Drug Users in the U.S. and in Large U.S. Metropolitan Areas from 1992 to 2002. *Journal of Urban Health*, 85(3), 323–351. 10.1007/s11524-007-9248-5 [PubMed: 18344002]
- Burris S, Blankenship KM, Donoghoe M, Sherman S, Vernick JS, Case P, Lazzarini Z, & Koester S. (2004). Addressing the “Risk Environment” for Injection Drug Users: The Mysterious Case of the Missing Cop. *The Milbank Quarterly*, 82(1), 125–156. 10.1111/j.0887-378X.2004.00304.x [PubMed: 15016246]
- CA Department of Public Health. (n.d.). CA Opioid Dashboard. Retrieved May 13, 2018, from https://pdop.shinyapps.io/ODdash_v1/
- Calderon-Villarreal A, Mujica OJ, & Bojorquez I. (2020). Social inequalities and prevalence of depressive symptoms: a cross-sectional study of women in a Mexican border city, 2014. *Revista Panamericana de Salud Pública*, 44. 10.26633/RPSP.2020.9

- Chiu JV, & Burrell S. (2012). Punitive Drug Law and the Risk Environment for Injecting Drug Users: Understanding the Connections (SSRN Scholarly Paper ID 2102841). Social Science Research Network. 10.2139/ssrn.2102841
- Cicero TJ, Ellis MS, Surratt HL, & Kurtz SP (2014). The Changing Face of Heroin Use in the United States: A Retrospective Analysis of the Past 50 Years. *JAMA Psychiatry*, 71(7), 821–826. 10.1001/jamapsychiatry.2014.366 [PubMed: 24871348]
- Cooper HL (2015). War on Drugs Policing and Police Brutality. *Substance Use & Misuse*, 50(8–9), 1188–1194. 10.3109/10826084.2015.1007669 [PubMed: 25775311]
- Cooper H, Moore L, Gruskin S, & Krieger N. (2004). Characterizing Perceived Police Violence: Implications for Public Health. *American Journal of Public Health*, 94(7), 1109–1118. 10.2105/AJPH.94.7.1109 [PubMed: 15226128]
- Crenshaw K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, 43(6), 1241–1299. JSTOR. 10.2307/1229039
- Creswell JW, & Clark VLP (2011). *Designing and Conducting Mixed Methods Research*. SAGE Publications.
- Disadvantage (Reprint edition). (2013). Oxford University Press.
- Fehrenbacher AE, Park JN, Footer KHA, Silberzahn BE, Allen ST, & Sherman SG (2020). Exposure to Police and Client Violence Among Incarcerated Female Sex Workers in Baltimore City, Maryland. *American Journal of Public Health*, 110(S1), S152–S159. 10.2105/AJPH.2019.305451 [PubMed: 31967867]
- Feldman JM, Gruskin S, Coull BA, & Krieger N. (2017). Quantifying underreporting of law-enforcement-related deaths in United States vital statistics and news-media-based data sources: A capture–recapture analysis. *PLOS Medicine*, 14(10), e1002399. 10.1371/journal.pmed.1002399 [PubMed: 29016598]
- Flath N, Tobin K, King K, Lee A, & Latkin C. (2017). Enduring Consequences From the War on Drugs: How Policing Practices Impact HIV Risk Among People Who Inject Drugs in Baltimore City. *Substance Use & Misuse*, 52(8), 1003–1010. 10.1080/10826084.2016.1268630 [PubMed: 28318343]
- Footer KHA, Park JN, Rouhani S, Galai N, Silberzahn BE, Huettner S, Allen ST, & Sherman SG (2020). The development of the Police Practices Scale: Understanding policing approaches towards street-based female sex workers in a U.S. City. *PLOS ONE*, 15(1), e0227809. 10.1371/journal.pone.0227809 [PubMed: 31978164]
- Friedman J, Karandinos G, Hart LK, Castrillo FM, Graetz N, & Bourgois P. (2019). Structural vulnerability to narcotics-driven firearm violence: An ethnographic and epidemiological study of Philadelphia’s Puerto Rican inner-city. *PLOS ONE*, 14(11), e0225376. 10.1371/journal.pone.0225376 [PubMed: 31751394]
- Friedman J, Kim D, Schneberk T, Bourgois P, Shin M, Celious A, & Schriger DL (2019). Assessment of Racial/Ethnic and Income Disparities in the Prescription of Opioids and Other Controlled Medications in California. *JAMA Internal Medicine*.
- Friedman SR, Cooper HL, Tempalski B, Keem M, Friedman R, Flom PL, & Des Jarlais DC (2006). Relationships of deterrence and law enforcement to drug-related harms among drug injectors in US metropolitan areas. *AIDS*, 20(1), 93–99. 10.1097/01.aids.0000196176.65551.a3 [PubMed: 16327324]
- Gaines TL, Beletsky L, Arredondo J, Werb D, Rangel G, Vera A, & Brouwer K. (2015). Examining the Spatial Distribution of Law Enforcement Encounters among People Who Inject Drugs after Implementation of Mexico’s Drug Policy Reform. *Journal of Urban Health*, 92(2), 338–351. 10.1007/s11524-014-9907-2 [PubMed: 25300503]
- Gershon L. (500, 46:03). Drug Users Are Forming Unions To Protect Their Rights And Safety. *HuffPost*. https://www.huffpost.com/entry/drug-user-unions_n_5a257c26e4b03350e0b86c00
- Grabham E, Cooper D, Krishnadas J, & Herman D. (2008). *Intersectionality and Beyond: Law, Power and the Politics of Location*. Routledge.
- Hayashi K, Ti L, Cssete J, Kaplan K, Suwannawong P, Wood E, & Kerr T. (2013). Reports of police beating and associated harms among people who inject drugs in Bangkok, Thailand: a serial cross-sectional study. *BMC Public Health*, 13, 733. 10.1186/1471-2458-13-733 [PubMed: 23924324]

- Heckathorn DD (1997). Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations. *Social Problems*, 44(2), 174–199. 10.2307/3096941
- Hughes CE, Barratt MJ, Ferris JA, Maier LJ, & Winstock AR (2018). Drug-related police encounters across the globe: How do they compare? *International Journal of Drug Policy*, 56, 197–207. 10.1016/j.drugpo.2018.03.005 [PubMed: 29699837]
- Jenkins RA, & Hagan H. (2019). What is a rural opioid risk and policy environment? *International Journal of Drug Policy*, 102606. 10.1016/j.drugpo.2019.11.014 [PubMed: 31791630]
- Jensen S, & Hapal K. (2018). Police Violence and Corruption in the Philippines: Violent Exchange and the War on Drugs. *Journal of Current Southeast Asian Affairs*, 37(2), 39–62. 10.1177/186810341803700202
- Johansson M, Kjør J, & Stothard B. (2015). Smørrebrød or Smörgåsbord: the Danish and Swedish drug users unions: contexts, aims, activities, achievements. *Drugs and Alcohol Today*, 15(1), 38–48. 10.1108/DAT-01-2015-0002
- Johnson DT, & Fernquest J. (2018). Governing through Killing: The War on Drugs in the Philippines. *Asian Journal of Law and Society*, 5(2), 359–390. 10.1017/als.2018.12
- Kaba M. (2020, 6 12). Opinion | Yes, We Mean Literally Abolish the Police. *The New York Times*. <https://www.nytimes.com/2020/06/12/opinion/sunday/floyd-abolish-defund-police.html>
- Kerr T, Small W, & Wood E. (2005). The public health and social impacts of drug market enforcement: A review of the evidence. *International Journal of Drug Policy*, 16(4), 210–220. 10.1016/j.drugpo.2005.04.005
- Kutsa O, Marcus R, Bojko MJ, Zelenev A, Mazhnaya A, Dvoriak S, Filippovych S, & Altice FL (2016). Factors associated with physical and sexual violence by police among people who inject drugs in Ukraine: implications for retention on opioid agonist therapy. *Journal of the International AIDS Society*, 19(4 Suppl 3), 20897. 10.7448/IAS.19.4.20897 [PubMed: 27435717]
- Lafer G. (2020). ARE UNIONS THE PRIME DETERMINANTS OF POLICE BEHAVIOR? 3.
- Lancaster R. (2020, 7 9). The Policing Crisis. NONSITE.
- Landsberg A, Kerr T, Milloy M-J, Dong H, Nguyen P, Wood E, & Hayashi K. (2016). Declining trends in exposures to harmful policing among people who inject drugs in Vancouver, Canada. *Journal of the International AIDS Society*, 19, 20729. 10.7448/IAS.19.4.20729 [PubMed: 27435707]
- Lex A, Gehlenborg N, Strobel H, Vuillemot R, & Pfister H. (2014). UpSet: Visualization of Intersecting Sets. *IEEE Transactions on Visualization and Computer Graphics*, 20(12), 1983–1992. 10.1109/TVCG.2014.2346248 [PubMed: 26356912]
- Mars SG, Bourgeois P, Karandinos G, Montero F, & Ciccarone D. (2014). “Every ‘never’ I ever said came true”: transitions from opioid pills to heroin injecting. *The International Journal on Drug Policy*, 25(2), 257–266. 10.1016/j.drugpo.2013.10.004 [PubMed: 24238956]
- Miller CL, Firestone M, Ramos R, Burris S, Ramos ME, Case P, Brouwer KC, Fraga MA, & Strathdee SA (2008). Injecting drug users’ experiences of policing practices in two Mexican–U.S. border cities: Public health perspectives. *International Journal of Drug Policy*, 19(4), 324–331. 10.1016/j.drugpo.2007.06.002 [PubMed: 17997089]
- Nelson E-UE, & Brown AS (2020). Extra-legal policing strategies and HIV risk environment: accounts of people who inject drugs in Nigeria. *Drugs: Education, Prevention and Policy*, 27(4), 312–319. 10.1080/09687637.2019.1684446
- Netherland J, & Hansen H. (2017). White opioids: Pharmaceutical race and the war on drugs that wasn’t. *BioSocieties*, 12(2), 217–238. 10.1057/biosoc.2015.46 [PubMed: 28690668]
- Odinokova V, Rusakova M, Urada LA, Silverman JG, & Raj A. (2014). Police sexual coercion and its association with risky sex work and substance use behaviors among female sex workers in St. Petersburg and Orenburg, Russia. *International Journal of Drug Policy*, 25(1), 96–104. 10.1016/j.drugpo.2013.06.008 [PubMed: 23916802]
- Otiashvili D, Tabatadze M, Balanchivadze N, & Kirtadze I. (2016). Policing, massive street drug testing and poly-substance use chaos in Georgia – a policy case study. *Substance Abuse Treatment, Prevention, and Policy*, 11(1), 1–12. 10.1186/s13011-016-0049-2
- Ozawa S, & Pongpirul K. (2014). 10 best resources on ... mixed methods research in health systems. *Health Policy and Planning*, 29(3), 323–327. 10.1093/heapol/czt019 [PubMed: 23564372]

- Pinedo M, Beletsky L, Alamillo N, & Ojeda VD (2017). Health-damaging policing practices among persons who inject drugs in Mexico: Are deported migrants at greater risk? *International Journal of Drug Policy*, 46, 41–46. 10.1016/j.drugpo.2017.05.028 [PubMed: 28601020]
- Rhodes T, Wagner K, Strathdee SA, Shannon K, Davidson P, & Bourgois P. (2012). Structural Violence and Structural Vulnerability Within the Risk Environment: Theoretical and Methodological Perspectives for a Social Epidemiology of HIV Risk Among Injection Drug Users and Sex Workers. In O'Campo P. & Dunn JR (Eds.), *Rethinking Social Epidemiology: Towards a Science of Change* (pp. 205–230). Springer Netherlands. 10.1007/978-94-007-2138-8_10
- Rigg KK, Monnat SM, & Chavez MN (2018). Opioid-related mortality in rural America: Geographic heterogeneity and intervention strategies. *International Journal of Drug Policy*, 57, 119–129. 10.1016/j.drugpo.2018.04.011 [PubMed: 29754032]
- Sarang A, Rhodes T, Sheon N, & Page K. (2010). Policing Drug Users in Russia: Risk, Fear, and Structural Violence. *Substance Use & Misuse*, 45(6), 813–864. 10.3109/10826081003590938 [PubMed: 20397872]
- Sherman SG, Footer K, Illangasekare S, Clark E, Pearson E, & Decker MR (2015). “What makes you think you have special privileges because you are a police officer?” A qualitative exploration of police’s role in the risk environment of female sex workers. *AIDS Care*, 27(4), 473–480. 10.1080/09540121.2014.970504 [PubMed: 25360822]
- Silverman B, Davis CS, Graff J, Bhatti U, Santos M, & Beletsky L. (2012). Harmonizing disease prevention and police practice in the implementation of HIV prevention programs: Up-stream strategies from Wilmington, Delaware. *Harm Reduction Journal*, 9, 17. 10.1186/1477-7517-9-17 [PubMed: 22591836]
- 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
- Syvertsen JL, Paquette CE, & Pollini RA (2017). Down in the valley: Trajectories of injection initiation among young injectors in California’s Central Valley. *International Journal of Drug Policy*, 44, 41–49. 10.1016/j.drugpo.2017.03.003 [PubMed: 28458170]
- Syvertsen JL, & Pollini RA (2020). Syringe access and health harms: Characterizing “landscapes of antagonism” in California’s Central Valley. *International Journal of Drug Policy*, 75, 102594. 10.1016/j.drugpo.2019.10.018 [PubMed: 31775079]
- Thebault R. (2018, 8 20). Fresno’s Mason-Dixon Line. *The Atlantic*. <https://www.theatlantic.com/politics/archive/2018/08/fresnos-segregation/567299/>
- Thomas N, van de Ven K, & Mulrooney KJD (2019). The impact of rurality on opioid-related harms: A systematic review of qualitative research. *International Journal of Drug Policy*, 102607. 10.1016/j.drugpo.2019.11.015 [PubMed: 31864787]
- Urban Survivors Union. (2020). Drug User Unions. USU. <https://ncurbansurvivorunion.org/greensborourban-survivors-union/drug-user-unions/>
- West BS, Abramovitz DA, Gonzalez-Zuniga P, Rangel G, Werb D, Cepeda J, Beletsky L, & Strathdee SA (2020). Drugs, discipline and death: Causes and predictors of mortality among people who inject drugs in Tijuana, 2011–2018. *The International Journal on Drug Policy*, 75, 102601. 10.1016/j.drugpo.2019.11.009 [PubMed: 31775080]

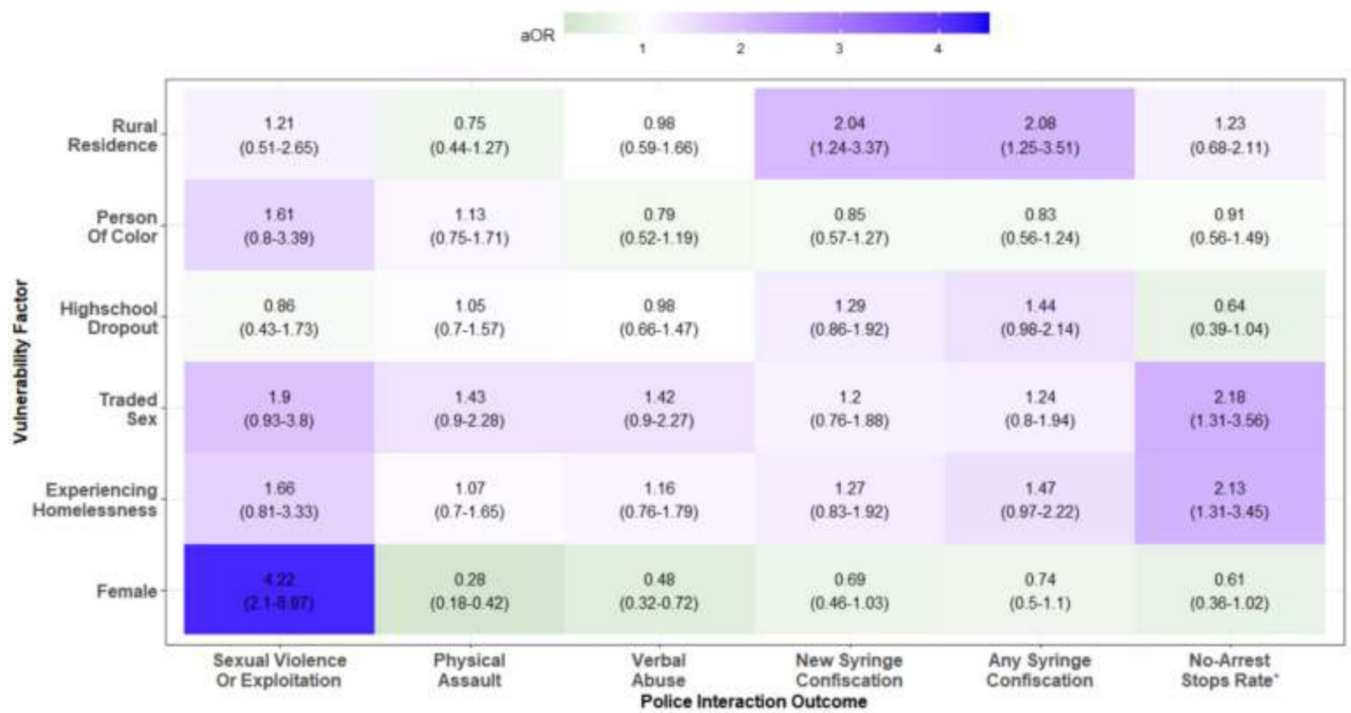


Figure 1. Multivariate Associations between Vulnerability Factors and Police Interaction Outcomes

Each column represents one multivariable regression between a police interaction outcome and 6 vulnerability factors. The adjusted odds-ratio for each vulnerability factor is shown in text, as well as the associated 95% confidence interval in parentheses. The color scale indicates the direction of the association, where green is protective, and purple indicates heightened risk.

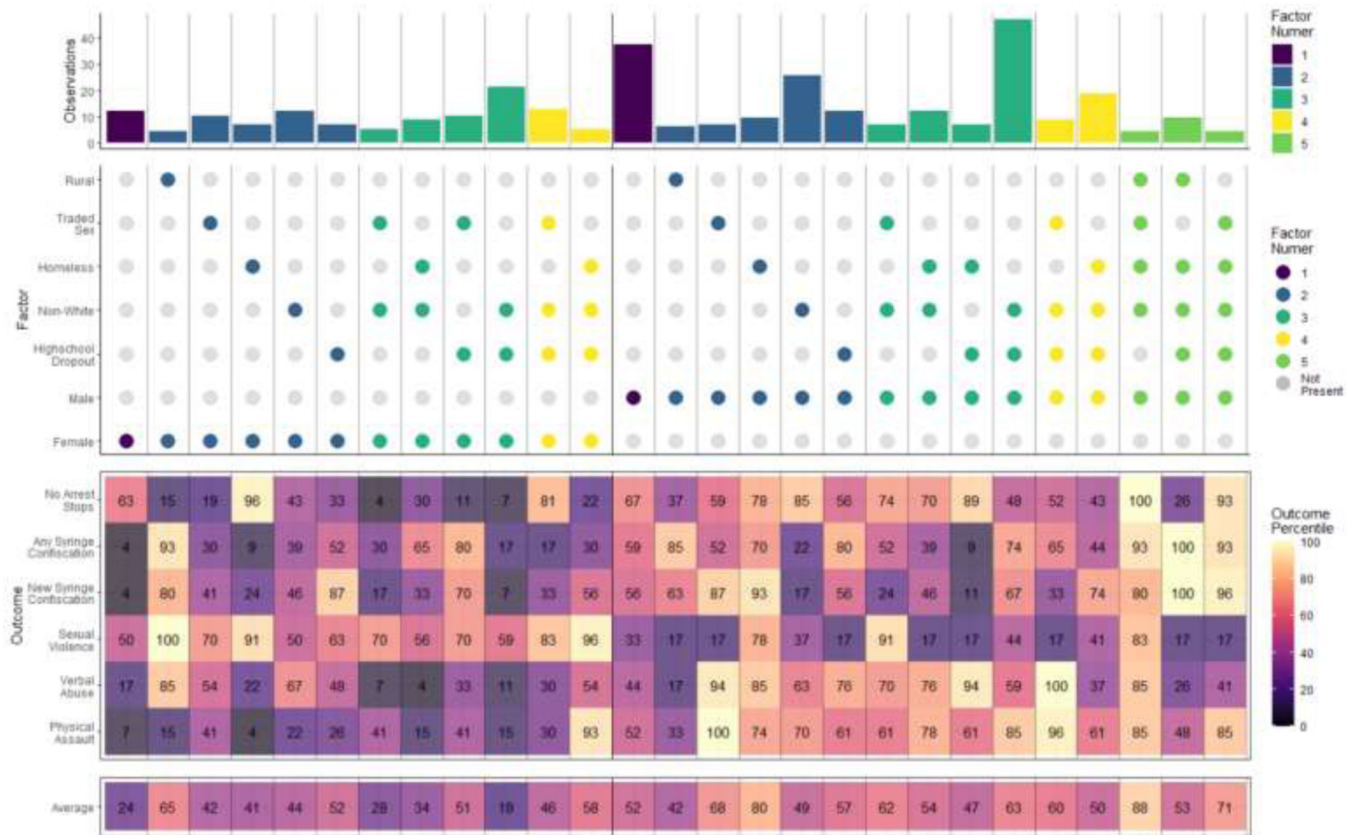


Figure 2. The Intersectional Distribution of Vulnerability Factors with Associated Police Outcome Scores

Each column represents one cluster of vulnerability factors; the same column represents the same cluster of individuals across all 4 panels. The top panel shows the number of individuals in each cluster. The second panel shows the particular vulnerability factors present in the cluster. The color used in the top two panels shows the total number of vulnerability factors present. The third panel shows the outcome score for each police interaction outcome, which represents the value in each group rescaled to a 0 to 100 scale across clusters. The bottom panel shows the average outcome score across the six outcomes for each cluster. A vertical black line separates clusters of males from clusters of females. Clusters are organized on the x-axis first by gender, and then by number of vulnerability factors.

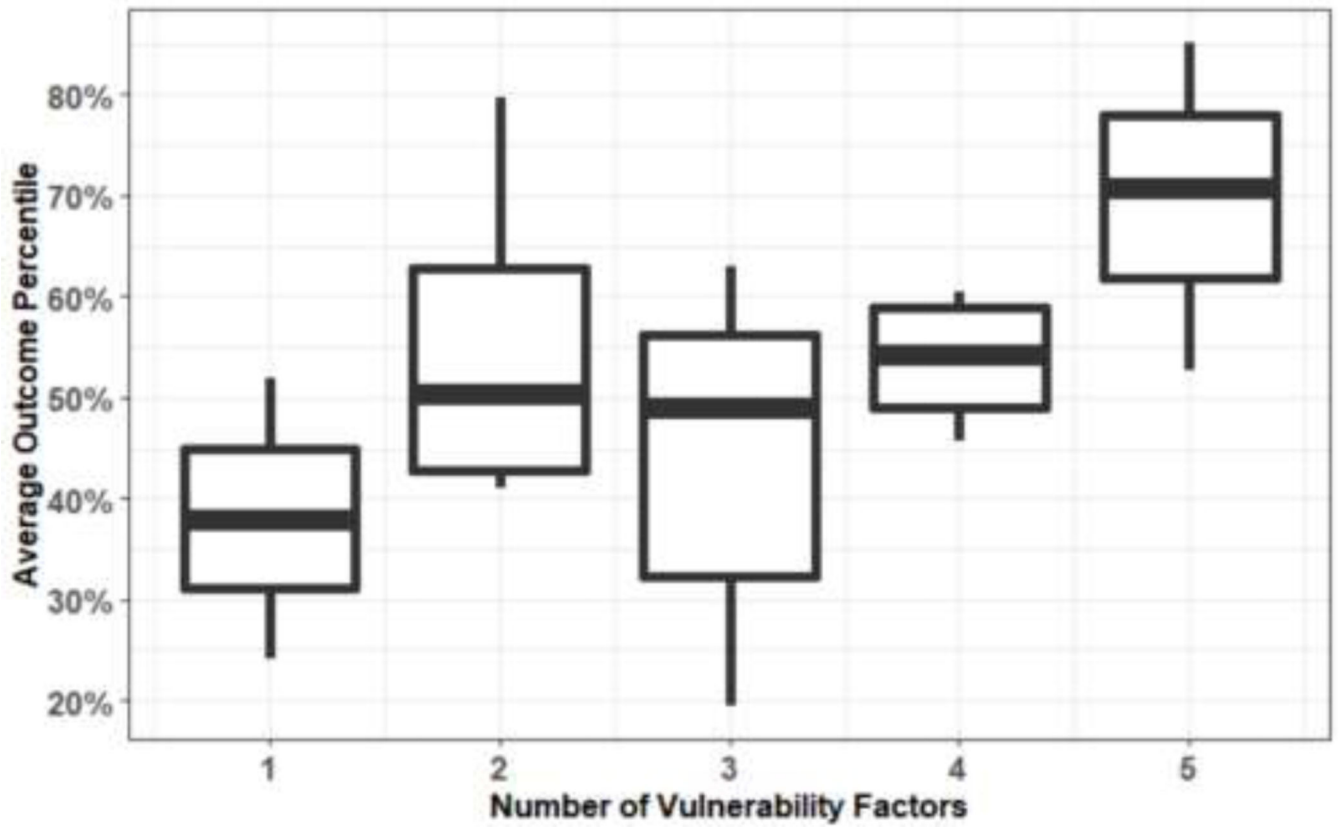


Figure 3. The Average Police Outcome Score by Number of Vulnerability Scores

The distribution of average outcome scores across all police interaction outcomes is shown as a boxplot, separate by number of vulnerability factors. This represents the distribution of values shown in the bottom panel of Figure 2, organized by the number of vulnerability factors (represented by color in the top two panels of Figure 2).

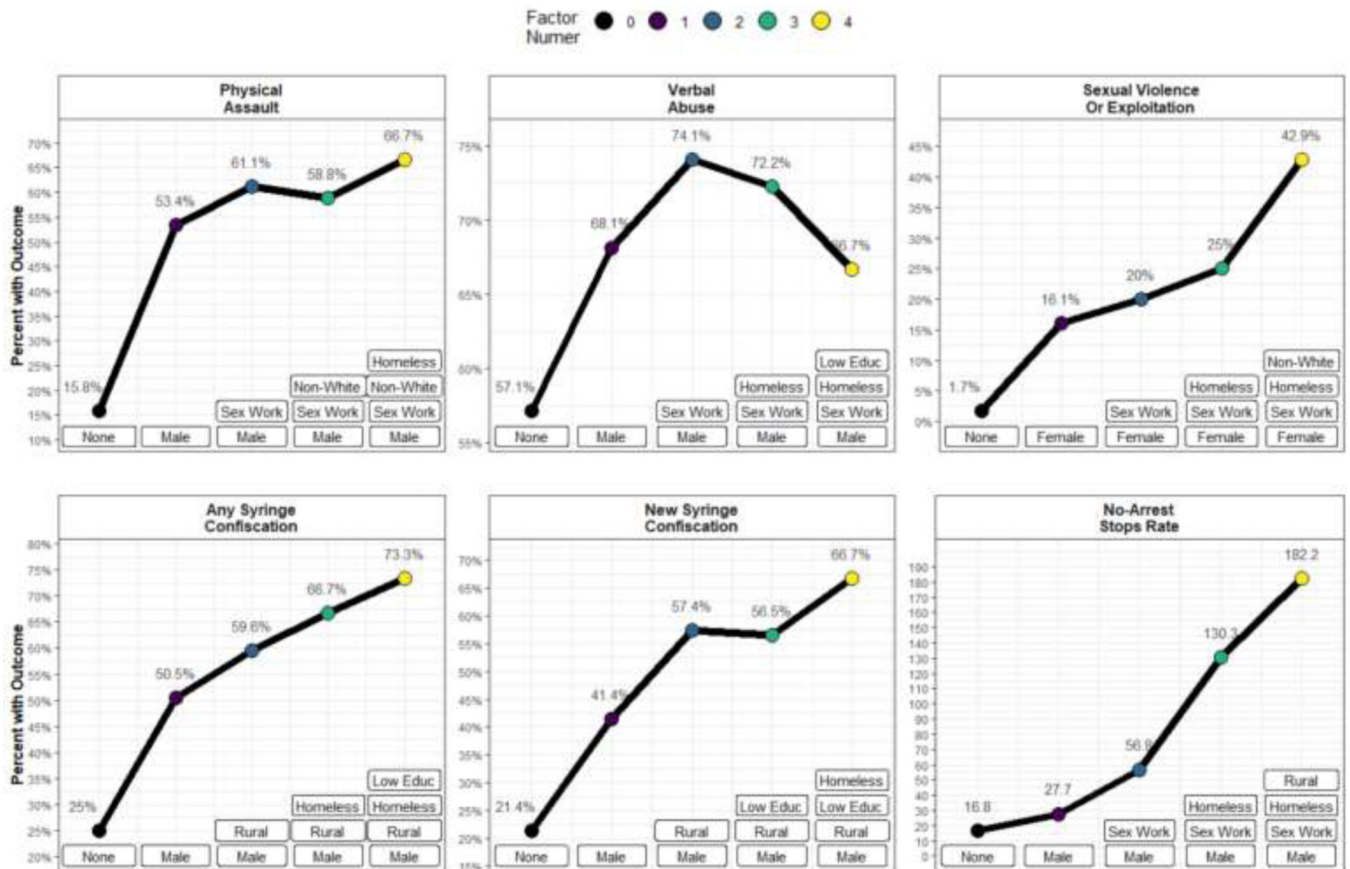


Figure 4. Risk of Police Interaction Outcomes with Increasing Numbers of Vulnerability Factors

This figure represents one manner of visualizing the intersectional risk to police interaction outcomes associated with increasing numbers of personal vulnerability factors. One panel is shown for each outcome. The baseline group, which has zero vulnerability factors, is represented on the far left. Vulnerability factors are introduced in a stepwise fashion according to the magnitude of positive association observed in adjusted odds ratios, as shown in Figure 1.

Table 1.
Descriptive Characteristics of Survey Respondents

All self-reported experiences reflect lifetime incidence, except experiencing homelessness and residing in a rural zip code, which were assessed at the time of the survey.

	Female (N=186)	Male (N=292)	Overall (N=483)
Sample Characteristics			
Age Mean (SD)	42.8 (11.6)	45.0 (12.9)	44.2 (12.4)
Injected Heroin N (%)	157 (84.4%)	259 (88.7%)	420 (87.0%)
Injected Methamphetamine N (%)	136 (73.1%)	229 (78.4%)	370 (76.6%)
Injected Amphetamine N (%)	47 (25.3%)	81 (27.7%)	129 (26.7%)
Injected Heroin and Methamphetamine N (%)	104 (55.9%)	178 (61.0%)	284 (58.8%)
Injected Cocaine N (%)	91 (48.9%)	170 (58.2%)	263 (54.5%)
Injected Crack N (%)	25 (13.4%)	45 (15.4%)	70 (14.5%)
Injected Heroin and Coke N (%)	93 (50.0%)	185 (63.4%)	281 (58.2%)
Injected Heroin and Crack Cocaine N (%)	17 (9.1%)	44 (15.1%)	61 (12.6%)
Injected Prescription Opioids N (%)	54 (29.0%)	108 (37.0%)	163 (33.7%)
Injected Prescription Benzodiazepines N (%)	19 (10.2%)	35 (12.0%)	54 (11.2%)
Completed Less than Highschool N (%)	99 (53.2%)	148 (50.7%)	251 (52.0%)
Person of Color N (%)	102 (54.8%)	179 (61.3%)	285 (59.0%)
Currently Experiencing Homelessness N (%)	56 (30.1%)	95 (32.5%)	154 (31.9%)
Traded Sex N (%)	70 (37.6%)	50 (17.1%)	124 (25.7%)
Currently Resides in Rural zip code N (%)	34 (18.3%)	46 (15.8%)	81 (16.8%)
Police Interaction Outcomes			
Verbal Abuse N (%)	100 (53.8%)	196 (67.1%)	301 (62.3%)
Physical Violence N (%)	46 (24.7%)	155 (53.1%)	204 (42.2%)
Sexual Violence or Coercion N (%)	30 (16.1%)	12 (4.1%)	44 (9.1%)
Times Stopped but Not Arrested Mean (SD)	19.0 (74.2)	27.6 (74.0)	24.4 (73.8)
Confiscation of New/Unused Syringes N (%)	63 (33.9%)	122 (41.8%)	186 (38.5%)
Confiscation of Any Syringes N (%)	84 (45.2%)	149 (51.0%)	234 (48.4%)