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Accounting for the interplay of interpersonal and structural trauma in the treatment of chronic non-cancer pain, opioid use disorder, and mental health in urban safety-net primary care clinics

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Abstract

While the epidemiological literature recognizes associations between chronic non-cancer pain (CNCP), opioid use disorder (OUD), and interpersonal trauma stemming from physical, emotional, sexual abuse or neglect, the complex etiologies and interplay between interpersonal and structural traumas in CNCP populations are underexamined. Research has documented the relationship between experiencing multiple adverse childhood experiences (ACEs) and the likelihood of developing an OUD as an adult. However, the ACEs framework is criticized for failing to name the social and structural contexts that shape ACE vulnerabilities in families. Social scientific theory and ethnographic methods offer useful approaches to explore how interpersonally- and structurally-produced traumas inform the experiences of co-occurring CNCP, substance use, and mental health. We report findings from a qualitative and ethnographic longitudinal cohort study of patients with CNCP (n = 48) who received care in safety-net settings

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Stacy Castellanos: Project administration, Investigation, Formal analysis, Writing – original draft, Writing – review & editing. **Alexis Cooke:** Formal analysis, Writing – original draft, Writing – review & editing. **Sedona Koenders:** Writing – review & editing. **Neena Joshi:** Writing – review & editing. **Christine Miaskowski:** Writing – review & editing. **Margot Kushel:** Writing – review & editing. **Kelly Ray Knight:** Funding acquisition, Conceptualization, Methodology, Investigation, Supervision, Writing – review & editing.

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and their primary care providers (n = 23). We conducted semi-structured interviews and clinical and home-based participant observation from 2018 to 2020. Here we focus our analyses on how patients and providers explained and situated the role of patient trauma in the larger clinical context of reductions in opioid prescribing to highlight the political landscape of the United States opioid overdose crisis and its impact on clinical interactions. Findings reveal the disproportionate burden structurally-produced, racialized trauma places on CNCP, substance use and mental health symptoms that shapes patients' embodied experiences of pain and substance use, as well as their emotional experiences with their providers. Experiences of trauma impacted clinical care trajectories, yet providers and patients expressed limited options for redress. We argue for an adaptation of trauma-informed care approaches that contextualize the structural determinants of trauma and their interplay with interpersonal experiences to improve clinical care outcomes.

Keywords

Chronic non-cancer pain; Opioids; Primary care; Safety-net; Structural factors; Trauma

1. Introduction

An extensive epidemiological literature shows associations between chronic non-cancer pain (CNCP), opioid use disorder (OUD), and interpersonal trauma (Eilender et al., 2016; Fishbain et al., 2008; John and Wu, 2020). Interpersonal trauma results from "emotional, physical, and sexual abuse and experiencing emotional and physical neglect" (López-Martínez et al., 2018). Adverse childhood experiences (ACEs), defined as potentially traumatic events that occur in childhood (Violence Prevention Injury Center – Violence Prevention Injury Center - CDC, 2022), are a widely studied form of interpersonal trauma. Research on ACEs has demonstrated long-term, negative effects on health, including substance use disorders (SUDs) (Boullier and Blair, 2018). Early childhood trauma is linked to higher vulnerability for OUD associated with higher sensitivity to the effects of opioids and craving (Carlyle et al., 2021; Garland et al., 2019). Childhood abuse or neglect is associated with increased likelihood of experiencing chronic pain in adulthood (Davis et al., 2005; Taghian et al., 2021), and traumatic experiences in childhood are associated with increased odds of OUD diagnosis among patients with CNCP receiving opioid prescriptions (Santo et al., 2022).

Literature establishes that experiences and symptoms of CNCP, OUD, and trauma often co-occur, however, this research, specifically around ACEs, is critiqued for failing to account for the structural contexts that increase likelihood for interpersonal traumas (Kelly-Irving and Delpierre, 2019; Ortiz, 2021). Existing work offers little contextual information about different etiologies of these traumas, such as trauma mediated by structural factors and how structurally-produced and interpersonal forms of trauma interplay to impact clinical care trajectories. Structural trauma is defined as "a functional, organizational tool of violence worsening the impact of traumatic experience on specific vulnerable populations by design, creating inequities in care and treatment" (Chang et al., 2021). Examples of structural factors that can produce trauma include discriminatory policies and practices (e.g., denial of services, disproportionate surveillance and policing, and racial profiling in detainment

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and arrest); structural stigma (e.g., societal norms, laws, and institutional policies); and differential access to needed resources, including housing, transportation, and healthcare (Reskin, 2012; Tsai et al., 2019). Structural stigma is linked to increased vulnerability to opioid-associated morbidity and mortality, including fatal overdose (Tsai et al., 2019).

To reduce risks associated with opioid prescribing, the Centers for Disease Control and Prevention (CDC) released guidelines for prescribing opioids for chronic pain (Dowell et al., 2016). Care practices recommended by these previous guidelines included the use of prescription drug monitoring programs, controlled substance agreements, tapering opioids, and encouraging patients to try non-opioid and alternative pain management methods (Rhodes et al., 2019; Winhusen et al., 2020). These practices have since been shown to have inconsistent implementation and misapplication, which can harm patients with CNCP (Kroenke et al., 2019). Authors of the CDC guidelines later recognized the widespread misapplication (Dowell et al., 2019) and have released updated guidelines encouraging individualized pain management regimens (Dowell et al., 2022). Safety-net healthcare, defined as settings that " … offer care to patients regardless of their ability to pay for services, and [for which] a substantial share of their patients are uninsured, Medicaid, or other vulnerable patients" (Institute of Medicine et al., 2000), adapted to follow CDC guidelines and face their own challenges in reducing opioid-related risks. Due to resource scarcity in safety-net settings and barriers to accessing pain treatment, such as patients' medical complexity (e.g., comorbidity) and structural vulnerability (e. g., poverty, community violence), patients with CNCP are often unable to access alternative, non-opioid pain management or behavioral health services (Hurstak et al., 2019; Knight et al., 2017).

Recent epidemiological research has documented negative consequences associated with opioid tapering and discontinuation, including increased risk of mental health crisis, withdrawal symptoms, and overdose (Agnoli et al., 2021; Cheatle et al., 2023; Fenton et al., 2022). Urban safety-net clinics serve higher proportions patients who are racially and ethnically diverse, non-English speaking, and low-income or impoverished (Gaskin and Hadley, 1999), who are most likely to experience structural trauma (Fleming et al., 2017), and who report high prevalence of interpersonal trauma (Gillespie et al., 2009). There is a lack of published research addressing the social and structural factors impacting opioid tapering in the context of high trauma prevalence. In this paper, we qualitatively describe how intersecting interpersonal and structural trauma inform the personal and clinical care trajectories of patients with CNCP who experienced reductions in or discontinuation of opioid prescriptions in safety-net primary care settings and offer recommendations for more expansive trauma-informed care (TIC).

2. Methods

From February 2018 to August 2020, we conducted a longitudinal qualitative study to examine the impact of opioid prescribing reductions on CNCP management in safety-net primary care clinics.

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2.1. Recruitment and sample selection

We identified five urban safety-net primary care clinics across three counties in the San Francisco Bay Area using a purposeful sampling approach. We used convenience sampling to recruit and interview twenty-three primary care providers (PCPs). We defined a PCP as a physician, nurse practitioner, or physician assistant (all of whom can prescribe opioids in California) who provided longitudinal primary care. Among enrolled PCPs, 60.9% completed the X-waiver training required to prescribe buprenorphine for OUD. We used a purposeful sampling approach to recruit patients by having participating providers identify potential patient participants based on the eligibility criteria of having both CNCP (i.e., pain lasting three months or more) and a history of any substance use (i.e., past or current). We enrolled forty-eight patients and assessed their demographic characteristics (Appendix, Table 1), pain severity and interference, and prescribed pain medications using a screening questionnaire.

2.2. Data collection

The study team conducted twenty-three baseline and sixteen follow-up semi-structured, in-depth interviews with PCPs that focused on CNCP management and opioid prescribing. For patients, we completed forty-eight baseline and thirty-nine follow-up semi-structured, in-depth interviews which focused on their experiences with CNCP management and changes resulting from modifications in opioid prescriptions. Interviews averaged 60 min in duration. We also conducted sixty-nine clinical observations during primary care visits to assess dynamics between provider and patient dyads that affected clinical care delivery and patient care experiences.

Researchers completed twenty-four community-based participant observation ethnographic home visits to explore how social and environmental factors related to managing CNCP, OUD, and comorbidities. We audio-recorded data collection activities and transcribed them verbatim. We continued recruitment and data collection until we reached thematic saturation. Participants received a $50 gift card for baseline interviews; $25 for follow-up interviews and clinic observations; and $10 for ethnographic home visits. The University of California, San Francisco Institutional Review Board approved this study. All participants completed written informed consent.

2.3. Data analysis

We used a modified grounded theory approach (Charmaz, 2014; Corbin and Strauss, 2014) to code and analyze interview and clinical observation transcripts. After successive iterations of independently coding and discussing transcripts, we developed distinct codebooks for patient and provider interviews. Two researchers coded each transcript using Dedoose qualitative data management software (*Dedoose*, 2021). We resolved coding discrepancies through consensus. For this paper, we conducted a targeted content analysis of the full study dataset focused on queries for “mental health”, “trauma”, “clinic policies”, and “emotional pain” codes, with the goal of understanding the relationship between trauma, chronic non-cancer pain, and opioid tapering. We present data through a social science case study format (Nair et al., 2023) for four patient participants, that present summaries of individuals’ lived experiences rather than composite narratives, to exemplify the interplay between

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structural factors producing trauma, interpersonal trauma, and experiences of CNCP. Case study presentations draw from and summarize longitudinal data garnered from interviews, clinical observations, and home-based participant observation ethnography with patients. Case selection was an iterative process that involved two researchers reviewing patient interview memos and field notes to identify patients whose experiences aligned with overall themes.

2.4. Conceptual framework

The social ecological model (SEM) (Stokols, 1996) informed the overall study. SEM argues for a research approach that responds well to the multifactorial nature of the complex social problem of opioid prescribing for CNCP by addressing the individual, relationship, community, and policy factors affected by reductions in opioid prescribing and analyzing how these factors intersect. *Individual factors* for patients with CNCP include personal and behavioral factors related to physical and mental health and income generation. *Relationship factors* describe the interpersonal factors between patients with CNCP, their providers, and family members/social networks. *Community factors* focus on larger environmental, social, geographic, and resource issues that operate outside of clinical settings. *Policy factors* encompass the domain of local, state, and federal laws and regulations, factors that connect individual patients to providers, healthcare delivery systems, and guidelines that inform reductions in opioid prescribing.

Here we focus on provider and patient understanding of the role of interpersonal and structural forms of trauma in the everyday lives of patients with CNCP and their PCPs. This focus is informed by medical anthropological engagements and the SEM framework that theorize trauma as a personal experience stemming from interpersonal relationship factors that is informed by social and structural contexts (i.e., community and policy factors). We recognize that trauma can syndemically interact with other social conditions and chronic disease states (Mendenhall, 2019) and operate in relationship with specific institutional interactions, particularly for people who use drugs and experience structural marginality (Knight, 2015). In the context of the United States opioid overdose crisis and concurrent push for widespread reductions in opioid prescribing, we analyzed the role of the larger socio-political context as co-constructive of trauma and clinical care experience (Fassin and Rechtman, 2009).

3. Results

Patients and their PCPs both identified the prevalence of interpersonal trauma, which manifested from ACEs and intimate partner violence (IPV), among other experiences, in the patient population and complicated treatment of CNCP and comorbid conditions. Providers and patients described the role of structural forms of trauma such as police violence and homelessness as significant factors that affected pain severity, psychological well-being, and other chronic disease symptoms. Lastly, patients shared how stigma related to perceived substance use, arguably a form of institutionalized, structural trauma, may have interfered with their pain management and impacted their relationships with their PCPs and healthcare professionals.

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3.1. Provider perspectives on impacts of interpersonal and structural trauma on management of co-occurring CNCP and mental health conditions

Providers acknowledged how patients with CNCP experienced significant interpersonal traumatic events in early life (e.g., sexual abuse, namely sexual contact or behavior that occurred without consent) that continued into adulthood (e.g., IPV or physical, sexual, or psychological abuse by a partner or spouse). Further, providers indicated how structurally-produced traumatic events permeated patients' daily lives and were related to the etiologies of patients' pain or created barriers to patients' access to and retention in pain management. Providers recognized that many patients lived in locations with high prevalence of violence, continuing a cycle of trauma. One provider stated:

> [M]y patients here [at this safety-net clinic] have lived so much more trauma than the vast majority of my continuity of care patients [...] I think that there is a lot of second victimization and compounding factors that don't allow people to get out of that cycle. And I think some of it is just as simple as after that gunshot [...] they don't want to go to occupational therapy because it's in an unsafe neighborhood. It's like all these layers that I just didn't see the same level of trauma and violence [with my continuity of care patients].

Providers reported struggling to co-manage the physical symptoms and emotional toll that their patients experienced because of CNCP, in addition to the profound stressors they faced. Common sources of stress were rooted in the entanglement of interpersonal issues such as familial conflict and structural challenges like homelessness and poverty. One provider shared their challenge with this, stating:

> Homelessness. Other substance use. Not working. Bad family situations. History of trauma [...] just a lot of things that again don't have immediate fixes. And I think it is a hard thing for providers because you really feel for wanting to treat physical symptoms and things, especially when you have so little power over all the other social things [...] we just don't have that much to offer in terms of immediate help for that. [I]t's hard to tell people that you know a lot of these [health conditions] might arise from trauma or other things that have happened in the past and let's try to address those when they're in a lot of like physical pain in the moment.

Providers discussed their inability to address problems in patients' social environments that exposed them to forms of interpersonal trauma and reported how they lacked the resources to address structural barriers that impeded the ability to seek care, specifically non-opioid pain management.

Providers noted that opioid prescription tapers (i.e., lowering prescription doses over time to reduce potential risks and/or to avoid unpleasant side effects that can come with suddenly stopping a medication) could further complicate CNCP management in a patient population with a high prevalence of trauma. In response to CDC guidelines, participating clinics closely monitored opioid prescriptions; conducted routine urine toxicology screenings for patients who were prescribed opioids; and initiated tapers of opioid prescriptions. One provider described how treating trauma during opioid tapers was critical to a beneficial taper:

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> [A] lot of our [CNCP] patients […] I inherited had a lot of like comorbid psychiatric conditions and that was influencing their pain. [W]hen I first started, we didn't have any psychiatrists here at all so – how can you say, "okay, well your pain is partly related to your PTSD or your sexual trauma or your abuse or whatever, but I can't treat that". […] Whereas now we have somebody who can actually treat those [mental health] conditions [and] it makes it a lot easier for patients and for providers to be able to say, okay, well this [behavioral health therapy] is a good alternative [to opioids], this is a healthy alternative.

While many providers defined behavioral health services as vital in managing patients' PTSD while attempting an opioid taper and managing CNCP, access to these services differed across participating clinics. Even when behavioral health services were available, some providers struggled with linking patients to behavioral health specialists due to some patients' concerns that providers were minimizing the physical aspects of their pain by offering mental health treatment. One provider described frustration patients felt when offered behavioral therapy in lieu of opioids for pain, especially considering the recognition that interpersonal and structural traumas worsen physical pain symptoms:

> [P]eople are very focused on kind of physical causes or a specific thing. And it's a hard conversation to have about how that pain arises and how it's not always just localized. Even though you have a natural reason to have that pain, it's worse for a number of other reasons. And they often see that as […] "you just don't want me to take these medicines [opioids] that would help me". And [patients say] "Yes, my life outside of this is really hard so why can't I have this one thing". So, I don't know if they necessarily bring up the fact that we can't address those other [interpersonal and structural] things but I think they're aware of the fact that we could provide more immediate relief for something and like, why can't we do that.

This challenge added another layer of complexity to opioid tapers as providers wanted to offer behavioral health services to patients to support them during the taper and address psychological symptoms.

3.2. Patient experiences of trauma and its effect on CNCP, mental health, and healthcare experiences

In the following case study presentations, we describe four in-depth reports of how patients' CNCP, substance use, mental health, and chronic health problems were associated with interpersonal and structural trauma.

3.2.1. Gun violence and substance use stigma impacted depression and pain management—Caresha is a woman in her fifties who had diagnoses of depression, chronic obstructive pulmonary disease (COPD), and CNCP. Her early childhood was spent living with her mother, who used heroin, and in the foster care system, which exposed her to several ACEs, specifically being neglected and experiencing physical, emotional, and psychological abuse. As a young adult, Caresha said she used crack cocaine to cope with the emotional and mental weight of traumatic childhood experiences but stopped and remained abstinent for twenty-six years. She recalled that her opioid prescription successfully managed her pain for years before the murder of her son due to gun

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violence. Caresha lived in a subsidized apartment in a Bay Area neighborhood that is racially segregated because of historically discriminatory labor and housing practices that concentrated economic disadvantage. Gun violence is more likely to occur in areas where there is more segregation based on race and economic disadvantage (Cabrera and Kwon, 2018). Caresha, who identified as a Black woman, described how the structurally-mediated trauma of her son's murder seriously compromised her mental health, leading her to misuse her opioids. This led her PCP to discontinue her opioid treatment:

> I spent the better part of […] eighteen to twenty-four [years-old] using crack cocaine […] And then I had been clean for about twenty-six years. And then my son was killed in a double homicide in 2012 […] I relapsed and I'll call it what it is […] I had pain medication that was working for me you know because I've been in pain for many years. And I had the opportunity to have medication that worked for me. But then you know during the death of my son I guess I thought I was dealing with it pretty well, but I began to misuse my medication and test dirty, so then all my medication was taken from me.

Caresha was tapered off opioids and participated in a series of alternative pain treatments such as aquatic therapy, cannabidiol (CBD) oil massages, and acupuncture, which temporarily relieved her pain. She obtained methadone from a friend and reported spending approximately five years using methadone daily to treat her pain, help with cocaine cravings, and improve her mobility. She discussed her methadone use and her interest in exploring methadone as a pain treatment with her PCP, but they struggled with determining the appropriateness and safety of prescribing methadone to Caresha.

> Caresha: I'm ready to try MAT [medication-assisted treatment] […] It depresses me to be [taking methadone], but I'm also in pain. I'm still doing the [aquatic therapy] […] it helps but it doesn't last long […] I still do the CBD massages […] but I just can't do this by myself […] I'm a wreck (crying). It's embarrassing […] I have to communicate with you because you're my doctor but it's embarrassing that I take [methadone]. But it helps me.

> PCP: [I]t's a complicated discussion right and it's important because […] on the one hand […] you were describing using methadone to treat pain. On the other hand, you're saying you want medically-assisted treatment, which would usually mean for opioid dependence and abuse, right?

Caresha reported it had been years since her last relapse, and her current pain severely negatively impacted her life. However, her PCP remained reluctant because of concerns surrounding her acquiring and using methadone illicitly, and whether Caresha was using unprescribed methadone to treat CNCP or an OUD. Caresha felt shame about taking unprescribed medication and described how substance use stigma continued to overshadow her healthcare experiences and negatively affect her relationship with her PCP:

> [T]he emotional part I think I've come somewhere. I don't know where I'm at but I'm not where I used to be. But the physical pain is just ridiculous, it's enormous […] And I told them, look, I'm not – it's not about being high with the meds anymore. So, I had to show him, you know. And then I started finding myself in a

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> position where I'm trying to prove so much stuff to my doctor and it's affecting me emotionally again.

Ultimately, Caresha reported having uncontrolled CNCP due to opioid discontinuation. Like other patients with CNCP and a history of substance use, Caresha felt her encounters with her PCP were hampered by a drive to prove she needed opioids to manage her pain.

3.2.2. IPV and police violence negatively affected patient health and healthcare experiences—

Jazmine is a woman in her fifties who had diagnoses of arthritis, heart disease, COPD, diabetes, depression and CNCP, and was prescribed opioids (Norco and tramadol) during the study. Jazmine reported her pain stemmed from her rheumatoid arthritis, which affected her joints and created sharp, stabbing sensations throughout her body. Jazmine's pain often interfered with her ability to do activities of daily living such as cooking, cleaning, and running errands. She had a history of traumatic interpersonal experiences, including being sexually abused by a family member at an early age and many years of IPV by her ex-husband. She shared:

> [I was] molested as a child. Biggest family secret in a Black family. I still have pains behind it [the sexual abuse] in my head, but I'm dealing. […] I was smoking rock cocaine […] And my kid's father […] for twelve years in between the ass whoopins came the babies. I've always been a fighter […] I [got] myself clean off of coke […] And the abuse I put on my body with the drugs and the alcohol is my current situation now. Broke down, arthritis ruined me.

Like many patients, Jazmine described experiencing interpersonal traumatic events throughout her life, and detailed how experiences of sexual abuse contributed to her past drug use and still resonated with her in the form of psychological pain.

Jazmine's series of traumatic events continued with the murder of a son due to gun violence. This loss shaped how she viewed and avoided using emergency healthcare. For instance, her local emergency department (ED), where her son was taken after he was shot and where he eventually died, reminded her of this loss, which activated a fear of acute healthcare services. During her follow-up interview, she noted that because of the lingering trauma that marred her perception of the ED, she would do everything in her power to avoid going back, even when she had severe pain. Jazmine, and others, struggled with perceptions of medical institutions as deeply traumatizing spaces.

> My son was killed, murdered. He died at the emergency room. He used to walk the halls, he don't no more […] they shot him down in the street […] so I – I do everything I can to stay the hell out of the emergency [room]. Okay, I only go there if I have to.

As Jazmine struggled to cope with the death of one son, she reported concern for the safety of her other son who lived with her in their subsidized apartment. She shared that her living son had several psychiatric conditions and, while dealing with the grief of his brother's murder, was the target of structural forms of violence through persistent police violence. In an ethnographic check-in, Jazmine reported that this stress resulted in her hospitalization.

> Anyway [my other son] has a double diagnosis of bipolar and schizophrenia. He's a good dude until it comes around this time [of year that] his brother was murdered […] you gotta try to keep an eye on it because the motherf***** gets to reminiscing and flips the f*** out, the only thing is he's abusive verbally […] And then these motherf****** cops because they've known him all his life […] They already shot him up eleven times in the back and he didn't die. But the stress of it all every f***in' fifteen minutes somebody calls me […] So now he's in jail. […] And with my blood pressure so high that I ended up at motherf****** [hospital] anyway.

When Jazmine was not focused on the looming threat and act of police violence against her son, she battled with the stress of him being in and out of the carceral system and the consequences his imprisonment had on her health.

3.2.3. Substance use prejudice and re-traumatization in healthcare settings

—Jorja is a woman in her fifties with diagnoses of COPD, neuropathy, BPD, PTSD, and CNCP. To treat her CNCP, she was prescribed gabapentin and naproxen (non-opioid medications), and oxycodone and hydrocodone (opioid medications). After her longtime PCP retired, she received another provider who tapered down both opioid prescriptions. Jorja's interpersonal trauma involved years of IPV from her ex-husband who worked in law enforcement and subsequent psychological abuse from being cut off from her family and children after she left him. She fled to Northern California to escape her ex-husband and was homeless for a time. Eventually, she got a case manager, therapist, and supplemental security income (SSI). During her interview, Jorja reported experiencing pain in her hands, upper neck, and back that severely affected her mobility. Having experienced interpersonal trauma in the form of IPV, and other injuries throughout her life, she was not sure what caused her CNCP and felt there was a psychological aspect to her pain that it could be "triggered" by others.

> I think it's more psychological […] Now I can evaluate myself and know [my pain] can be triggered from something that has happened to me and I just ain't – like I have control issues. I don't want nobody to get too close in my space. I feel like they're controlling my life. And I should say something. I have issues, I have issues.

During interviews, Jorja disclosed having a positive relationship with her PCP, who spent as much time with her as needed, but was frustrated with having to complete a urine toxicology screening at nearly every visit. She felt the only clinical test results she received were from the urine toxicology screenings. Jorja, who identified as a Black woman, described an example of substance use stigma she experienced when she tried to seek help at a local ED. Instead of treating her, the ED attendants claimed that she was drug-seeking and refused to treat her pain.

> Before my surgery [if] I was in a lot of pain I'd go to the emergency [and] they'd walk me out the door and set me on [a] bench and said I was looking for drugs. And it offended me in a really big way. I felt like [they] degraded me. And so

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> therefore [my doctor] has in my records and she shared, "this woman still have no drug history and she don't even want to be on them. And she's been through a lot".

Jorja felt that people, including herself, were stereotyped, judged, denied treatment, and often accused of drug-seeking behavior while pain remained untreated, which she reported affected her significantly.

Jorja and her PCP continued discuss tapering her opioid prescriptions. During a clinic observation in the winter, her PCP brought up concerns about the sedative effects of opioids as they discussed how she nearly fell asleep while driving. This led her PCP to want to continue reducing her opioids and to transition to buprenorphine, offered through a community-based pain specialist. Conversely, Jorja advocated for an increase in her opioids because her pain was getting worse with the cold weather.

Jorja's experience illuminates conflicts that were commonly documented during the study when providers sought to address potential risks of opioid therapy (e.g., oversedation, accidental overdose) while patients experienced uncontrolled pain due to opioid reductions. The experiences of interpersonal trauma that separated Jorja from her family and led to temporary homelessness created a context in which she resisted others' control over her and experienced hypervigilance. Structural traumas instantiated through widespread discrimination in healthcare settings of patients who request opioid medications due to assumptions about the intent to misuse opioids (Benintendi et al., 2021), further magnified the complex dynamics of Jorja's opioid taper discussions and increased her frustration.

3.2.4. Homelessness complicated CNCP and disrupted medication management—

David was in his late forties who was unhoused throughout the data collection period. He identified as a white man and reported growing up in an abusive household and initially moving to the Bay Area for a job. He had lower back, knee and wrist pain. David reported having multiple chronic health conditions, including emphysema, asthma, obstructive sleep apnea, HIV infection, carpal tunnel, and a leaky aortic valve. Additionally, he had diagnoses of depression, anxiety, a psycho-affective disorder, PTSD, and OUD. Due to his extensive multi-morbidity, he used three inhalers and took up to seventeen pills per day, depending on his access to food since some medications needed to be taken with food. David received SSI disability and previously lived in supportive housing. However, he did not feel safe in that housing.

> [Supportive housing] was terrible […] And having to carry my dog over the entrance because there is all these syringes and crack wrappers […] And the guy I became best friends in the place ended up jumping off a building of theirs […] Yeah, so it was the last place I lived, and I think he jumped maybe three years ago, maybe two. He moved to another building. And that's why I didn't want to stay with them because I saw people getting worse and worse and worse and worse.

David explained that more than one of the tenants there committed suicide and that there was a lot of substance use, which contributed to him feeling unsafe in this environment. He eventually left supportive housing to become unsheltered once again.

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David was sleeping in a sleeping bag on cardboard and a cushion when he was unhoused, which worsened his back pain. Sleeping outside and carrying fifty pounds of belongings exacerbated his knee and back pain. He described how his lack of housing affected his ability to take his clonazepam (Klonopin) as prescribed for his PTSD because it would make him groggy, which he felt was unsafe for him as an unhoused person who needed to protect himself.

> Well, I have [taken Klonopin] before for PTSD but the problem is that I don't have a place to live anymore and with my other medication it kind of makes me groggy at night and I can't be too groggy at night in case I have to react and protect myself.

Because he was unhoused and feared medication theft or loss, he tried not to carry all his prescription medications with him, and usually stored them at a friend's house. This limited access to his medications and affected his ability to manage his health.

He was also prescribed buprenorphine for an OUD diagnosis and remained on it because he felt it helped with his pain. When approached by his PCP about a buprenorphine taper, David reported concerns around unanticipated and unnecessary challenges with managing side effects that could result from changes to his medication while dealing with the day-to-day struggles of experiencing homelessness.

> [G]oing through all this stress and on top of everything being homeless for five and a half years. [My PCP] would be talking about screwing with my [buprenorphine]. My therapist said that this is not the time to be doing this. You know I needed to stabilize [my] housing for months before we even attempt it […] And some people have like severe mental problems coming off of it. Severe physical problems. They die. And [my PCP] doesn't know what she's doing and that's what scares me.

David, like other patients who were unhoused, at times felt like providers' attempts to taper their opioid and related medications while they were unhoused was a sign that they did not understand the challenges associated with homelessness. In David's case, this situation diminished his trust in his provider and made him question whether they would treat his CNCP appropriately.

4. Discussion

The patients in our case studies discussed how racialized violence, stigma related to substance use, and housing instability made managing CNCP and OUD difficult. The framework of the social ecological model describes the complex interconnectedness of individual, relationship, community, and policy factors, and this interconnectedness is reflected in our study findings. The four cases presented in this paper describe interpersonal trauma experiences of IPV, sexual assault, and physical and emotional abuse. These individuals were heavily impacted by their experiences of larger policy factors and structural violence through, such as gun violence, law enforcement, medical surveillance, and negative interactions when attempting to access pain management in healthcare settings.

The comorbid conditions these individuals experienced were complicated by community factors, including social issues and stress associated with familial concerns and housing

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situations. Patients with complex, intersecting trauma experiences described chronic pain that was not well controlled or addressed by their providers. Both Jorja and David experienced structural trauma related to experiencing homelessness and challenges accessing care systems for the management of complex comorbid conditions and potentially sedating medications. The use of alternatives to full agonist opioids (buprenorphine in David's case) and clinical surveillance policies (frequent urine toxicology screenings for Jorja), practices that were commonly deployed to support opioid tapering, were impacted by each participant's history of interpersonal trauma, and worsened by the limited options for consistent housing and care continuity in the context of uncontrolled pain. Limited information exists on how patients' interpersonal and structural trauma may interact with and magnify pain severity, CNCP management, and OUD treatment, particularly in relationship to opioid tapering and associated consequences. Patient participants would have benefitted from ongoing social and material (e.g., stable housing) supports; robust treatments for trauma/PTSD; and improved communication and shared decision-making with their providers. Addressing structural and provider stigma related to mental health, substance use, and prescription opioid misuse would enhance pain management for these vulnerable patients.

Opioid tapering and increased opioid pharmacovigilance (Knight et al., 2017) manifested in Jazmine's experience as a continued reluctance of community pharmacists to fill her opioid prescriptions, which resulted in gaps in pain medication coverage. Jazmine repeatedly reported these issues to her provider during clinical observations and her provider struggled to advocate for consistent care for Jazmine without success. Consistent with the SEM, this example revealed how barriers to care continuity occurring at the community level (e.g., at pharmacies) are influenced by the broader policy climate of opioid tapering, resulting in further entrenchment of Jazmine's mistrust of healthcare institutions that originated from her experiences of structural trauma.

It is important to understand the social needs and structural barriers of patients who access care from safety-net clinics and provide frameworks for health professionals to address social determinants of health that disrupt healthcare utilization and serve as underlying causes of poor health (Robert Wood Johnson Foundation, 2011). Presently, biomedicine does not adequately account for the role of interpersonal trauma resulting from childhood and adult experiences, or structurally-produced trauma resulting from discriminatory institutional practices, social policies, and social hierarchies. For example, while existing assessments of trauma include interpersonal events, they exclude interactions within healthcare institutions and systemic discrimination (Carter et al., 2013). Our findings highlight the need to adopt an approach that addresses both structural and interpersonal factors, including socioeconomic deprivation in the context of ACEs to increase our understanding of associations between CNCP, OUD, and mental health, as well as resulting medical trauma (Baria et al., 2019; Davenport et al., 2020).

In *Renegade Dreams: Living Through Injury in Gangland Chicago*, Lawrence Ralph (2014) theorizes the relationship between structural neglect at the neighborhood level, gun violence, racist policing practices, and community cohesion to identify the wounds and strengths that extend from these intersections, with specific focus on young Black men. In the cases of

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both Caresha and of Jazmine we see these dynamics from the viewpoints of middle-aged, Black mothers who experienced interpersonal and structural traumas, specifically in relation to gun and police violence. Both women were seeking ways to manage their pain symptoms that they linked directly to historic and ongoing traumas, underscoring the precarity of their relationships with healthcare providers and institutions.

The racialized nature of structural trauma in our patient sample demands foregrounding. Racism and racialized violence affected patient trauma, pain, and substance use in the form of personal and familial encounters with police violence. Epidemiological studies have repeatedly identified pain care disparities among Black patients (Knoebel et al., 2021) and widespread racist misconceptions about biological differences in pain sensitivity (Hoffman et al., 2016). In our study, patients and their providers recognized the ubiquity of interpersonal and structural trauma, and its impact on pain management and substance use. Given the documentation of structural trauma associated with societal and institutional racism in our findings, it is critical to uplift clinical interventions aimed at improving pain care for Black patients that are structurally-informed, Black-led, and focused on the remediation of Anti-Blackness in healthcare (Nazione et al., 2019; REPAIR Project Steering Committee, 2022). For medical education and training, the structural competency framework could assist health professionals in both recognizing *and* responding to structural drivers of poor health and healthcare utilization for patients with co-occurring CNCP, OUD and mental health symptoms, with specific attention to the interrogation of policies that uphold structural racism (Sukhera et al., 2022).

In addition to patients' trauma histories, medical interventions and illnesses themselves can lead to *medical trauma* and post-traumatic stress symptoms (De Young et al., 2021). While providers and patients in our study did not speak directly about medical trauma, the experience of opioid tapering strained provider-patient relationships by introducing suspicion as to the intentions behind seeking opioid management of CNCP among patients and deciding a taper is necessary among providers, reinforcing patients' experiences of stigma related to substance use (suspected or actual). Lack of adequate pain management, the frequent need to prove pain was real in a way that biomedical institutions acknowledge, and the demand to repeatedly retell trauma histories are stigmatizing experiences that contribute medical trauma. TIC is an approach to working with patients who have experienced trauma to ensure that the role of trauma is appropriately highlighted and that healthcare interactions do not exacerbate traumas (Cuca et al., 2019). The key tenets of TIC include the "4 Rs": Realization that trauma exists and affects patients; Recognition of the signs of trauma; Response to trauma within the healthcare setting; and Resisting re-traumatization during healthcare interactions (Substance Abuse and Mental Health Services Administration, 2014). TIC has been assessed in a wide range of populations who experience structural oppression, including incarcerated women living with HIV (Bennett et al., 2022); people experiencing homelessness (Erickson et al., 2020); and indigenous people with SUDs (Han et al., 2021; Pride et al., 2021). However, TIC evaluations have not assessed structural trauma among patients with CNCP, OUD, and mental health comorbidities. A modification of the TIC approach that names and assesses forms of structural trauma and explores how they intersect with interpersonal trauma may

reduce the likelihood for enacted stigma in clinical settings and increase provider-patient communication.

While reforming TIC to examine structurally-produced trauma is crucial, recognizing and addressing systemic issues providers face that impact their ability to successfully manage CNCP and OUD is also necessary. Research shows that providers struggle with limited contact time with patients with CNCP (Barry et al., 2010; Krebs et al., 2014), which affects their ability to assess CNCP, co-occurring chronic conditions, functional status, and risks for opioid misuse (Satterwhite et al., 2019). Time scarcity leaves little opportunity to identify solutions that address the consequences of structural and interpersonal trauma within primary care settings. Additionally, providers are constrained by limited alternative, non-opioid pain management options available in safety-net systems that qualify for reimbursement by insurers. Studies report a lack of consistent coverage of these non-opioid treatments across public and private insurers (Heyward et al., 2018). Behavioral health treatments such as cognitive behavioral therapy are often not recognized as appropriate treatments for some chronic pain conditions (Bonakdar et al., 2019). Improving healthcare systems and reimbursement mechanisms at a structural level is essential in offering providers time and resources necessary to adequately assess structural harms that patients with CNCP experience.

This study had several limitations. Our patient sample was specific to safety-net primary care within the San Francisco Bay Area. Differences may exist between those individuals who did and did not participate in our study. Participating providers' selection of patients to refer for the study may represent a sampling bias. For this paper, we used a case study approach to present our findings, which makes our findings less generalizable. However, we believe this approach allowed us to provide a holistic picture of patients' experiences inside and outside the clinic setting.

As the opioid overdose crisis persists, patients and providers continue to make difficult decisions about treating CNCP, OUD, and mental health symptoms in complex social and clinical contexts, such as weighing concerns related to opioid overdose; treating patients experiencing family conflict; and providing clinical care with humility that centers on patients' dignity. Providers and patients must navigate complicated structural traumas that produce and perpetuate health disparities (e.g., living in poverty, experiencing racist violence) and create constraints that limit, challenge, or dictate treatment options in the urban safety-net (e.g., access to comprehensive, low-cost pain management alternatives). Therefore, our knowledge of trauma and TIC must evolve from exclusively examining the impact of interpersonal traumas to developing and evaluating care practices that dismantle structural barriers to successfully recognize and address the multiple layers of pain patients' experiences.

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Appendix

Table 1

Self-Reported Patient Participant Demographics (n = 48)

Age (avg. = 57.85 years)	
25–39	5
40–54	14
55+	29 (60.42%)
Sex Assigned at Birth [1]	
Male	25 (52.08%)
Female	23
Race and Ethnicity	
Black/African American	21 (43.75%)
White/European American	10
Latina/Latino/Latinx	6
Pacific Islander	1
Selected “Other”[2]	4
Selected multiple categories[3]	6
BPI Pain Interference	
Severe	32 (67%)
Moderate	8
Mild	7
No Report	1
BPI Pain Severity	
Severe	34 (71%)
Moderate	9
Mild	5

[1]One individual who was assigned male at birth identified as a trans woman/genderqueer/non-binary.

[2]Participants who selected “other” for Race/Ethnicity provided country or regional specifications which are not included here to keep data as unidentifiable as possible.

[3]Participants who selected multiple Race/Ethnicity categories selected a combination of: Asian American, Black/African American, Latina/Latino/Latinx, Native American/American Indian, Pacific Islander, and/or White/European American.

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