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Contested geographies of health: A mixed methods examination into the health consequences of anti-homeless practices on the unhoused community in Los Angeles

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Contested geographies of health:

A mixed methods examination into the health consequences of

anti-homeless practices on the unhoused community in Los Angeles

A dissertation submitted in partial satisfaction of the requirements for the

degree of Doctor of Philosophy in Community Health Sciences

by

Jessie Chien

2025

ABSTRACT OF THE DISSERTATION

Contested geographies of health:

A mixed methods examination into the health consequences of

anti-homeless practices on the unhoused community in Los Angeles

by

Jessie Chien

Doctor of Philosophy in Community Health Sciences

University of California, Los Angeles, 2025

Professor Gilbert Gee, Co-Chair

Professor Randall Kuhn, Co-Chair

Anti-homeless laws and policing may influence the spatial behaviors and harm the health of unhoused persons. Using the reintroduction of camping ordinances in Los Angeles (LA) County as a case study, this mixed methods dissertation explored the impacts of anti-homeless practices on the geographic patterns, daily routines and spatial movement, and health trajectories of LA's unsheltered population. My first dissertation aim described the spatiotemporal patterns of unsheltered homelessness across census tracts in LA County (N=2,163) prior to and following the implementation of a camping law using longitudinal ecological analysis and a difference-in-differences approach. I then explored narratives of the impact of anti-homeless laws, policing, and related displacement on their activity spaces, perception of place, and health through a qualitative interview study with 13 unhoused Angelenos for my second aim. My third aim examined the longitudinal associations between exposure to and perceptions of camping laws,

policing, physical displacement, and health among a prospective cohort of unsheltered persons in LA County (N=731) using hierarchical generalized linear modeling.

Aim 1 revealed changes in the geographic distribution of unsheltered homelessness after the implementation of the City of LA's camping ordinance—showing broader movement patterns of the unsheltered population into more concealed areas, areas with a lower probability of encountering police and hostile residents, and areas with greater tolerance for visible homelessness. However, the adoption of zones of camping law enforcement in certain areas was not associated with significant decreases in the surrounding unsheltered population. Aim 2 highlighted how anti-homeless policing increases anxiety, erodes social connections, and disrupts the daily routines of unsheltered people to exacerbate their sense of insecurity and mental and physical health conditions. Aim 3 found that exposure to various types of anti-homeless policing interactions, chiefly encounters with police and experiences with sweeps, along with being concerned about the consequences of camping bans on their livelihood generally resulted in poorer physical health, increased psychological distress, and greater social isolation. Dissertation findings can inform future research on the spatial and health impacts of criminalization and advance advocacy efforts calling for comprehensive and compassionate solutions that prioritize housing and support services over punitive measures.

The dissertation of Jessie Chien is approved.

Sean Darling-Hammond

Anastasia Loukaitou-Sideris

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Randall Kuhn, Committee Co-Chair

University of California, Los Angeles

2025

DEDICATION

To my mother, Yi Wang, my father, James Chien, and my sister, Michelle Chien—my greatest

sources of love and strength. I could not have completed this journey without you.

This dissertation is my love letter to Los Angeles, the place that raised me and the place where I

will continue to fight for the liberation and wellbeing of all members of our community.

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LIST OF ACRONYMS

Abbreviation	Definition
CD	Council District
CoC	Continuum of Care
DID	Difference-in-Differences
HGLM	Hierarchical Generalized Linear Modeling
GEE	Generalized Estimating Equations
LA	Los Angeles
LAHSA	Los Angeles Homeless Services Authority
LAMC	Los Angeles Municipal Code
NH	non-Hispanic
PATHS	Periodic Assessment of Trajectories of Housing, Homelessness and Health Study
PEH	People experiencing homelessness
PIT	Point-In-Time
TWFE	Two-way Fixed Effects
US	United States

ACKNOWLEDGEMENTS

As I reflect on my journey to where I am today, I am reminded of the phrase, "it takes a village." This has never felt truer than in the context of my academic path. I feel incredibly fortunate to have received so much love, guidance, and support from so many people. The following are just a small sample of those who have been integral to my doctoral studies.

First, I dedicate this work to my parents, Yi Wang and James Chien. You both have made immeasurable sacrifices over the years to give me the freedom to pursue my dreams. This dissertation is a testament to the love you've always given me, and words cannot describe the deep, profound appreciation that I have for you. I will cherish you forever, and it's now my turn to be there for you, as you have always been for me.

My growth as a scholar would not have been possible without tremendous guidance from my doctoral committee members, Drs. Anastasia Loukaitou-Sideris, Sean Darling-Hammond, and my co-chairs, Drs. Gilbert Gee and Randall Kuhn. Gil, it has been an incredible privilege to learn from you. I chose to attend UCLA specifically to become a stronger critical thinker under your mentorship, which I believe I have done. Your insightful feedback over the years has helped me refine my theoretical understanding and the real-world applications of my work, and your constant reassurance has helped me get to the finish line, and for that I am eternally grateful. Randall, from the bottom of my heart, I feel so lucky to have had you by my side. I still can't believe that it all began with a simple email in my first year, asking if you would be my mentor for the Graduate Research Mentorship program. That small step has shaped the trajectory of my research career in ways I never imagined. Since then, you have been my biggest advocate and cheerleader, teaching me not only how to be a more rigorous researcher but also encouraging me to stay true to my values. I've enjoyed our long check-ins, where we'd geek out over data and get candid about the challenges of doing policy-oriented research, with you inspiring me to keep pushing forward. Thank you for always being there to lend a listening ear and for hyping me up—I hope

you know how instrumental you've been to both my academic success and personal well-being. Anastasia, your class in my early years sparked my interest in spatial justice, and I owe much of my dissertation's focus to your teachings and body of work. Sean, thank you for stepping in as my methodological guide when you started your own academic position, and for your enthusiasm in brainstorming methods with me. Your advice has not only helped me feel more confident as a researcher but has also allowed me to see the broader impact of my work.

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0   INTRODUCTION

"A geographic imperative lies at the heart of every struggle for social justice; if justice is embodied, it is then therefore always spatial, which is to say, part of a process of making a place." (Gilmore, 2002)

The overarching edict of "where you live affects your life chances" has guided much of the epidemiological studies on the role of place in shaping health (Slater, 2013). Although this approach has been pivotal in identifying the contextual factors that contribute to wellbeing, it offers only a partial rendition of the ways health is produced in and through space. There have been increased calls in the public health field to incorporate a more relational view in place-health research—seeing place as dynamic, with conflicts over territorial control and meanings (re)defined by relations of power and systems of oppression (Cummins et al., 2007). Such an orientation to place situates the spatial sorting of health risks and opportunities in broader discourses of how "place" is made, perceived, and contested.

For the approximately 257,000 unhoused individuals[1] across the US who are living unsheltered outdoors, the struggle over the use of public space is a central feature dictating their health experiences (de Sousa et al., 2023). Laws and practices criminalizing the existence of the unhoused in public space have proliferated in the past three decades, as municipalities attempt to control the rising visibility of homelessness (Giamarino & Loukaitou-Sideris, 2023; National Law Center on Homelessness & Poverty, 2019a, 2019b). Therefore, characterizing the health

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[1] *A note on wording:* I primarily use the term "unhoused" to refer to the community of people who are living without stable shelter. Occasionally, I use the term "people experiencing homelessness" (PEH) to match the official language of the US Department of Housing and Urban Development to denote to the same population. However, I use the term "unsheltered" to refer to the subpopulation of unhoused individuals who specifically live in an unsheltered situation, such as on the street, in vehicles, or in encampments. I also use the term "anti-homeless" to describe legislation and practices that restrict the behaviors of unhoused individuals, a term that aligns with the framing used by policy and advocacy groups.

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conditions associated with homelessness requires an investigation into the policies and sociopolitical dynamics that govern the everyday spatial contexts of unhoused individuals.

The objective of this dissertation is to draw attention to the structural forces and power relations that impact the geographic patterns, daily routines and movement, and wellbeing of the unhoused population. I theorize racialized property relations as the way power is organized, in that social hierarchies are constructed based on proximity to property ownership and control, which is fundamentally shaped by racial hierarchies rooted in proximity to Whiteness. I also characterize anti-homeless[a] practices, including camping laws, encampment sweeps, and policing, as the mechanisms through which power inequities are inscribed, translated, and legitimized in space. These sociopolitical forces determine the spatial reality of unhoused individuals' daily health experiences—where they move, how they survive, and how they navigate health risks and opportunities. This conceptualization will better elucidate unhoused people's lived geographies of place and health and render visible the historic and contemporary processes that maintain health inequities in space.

Literature Review

Unsheltered homelessness as a growing social and public health crisis

Homelessness is an enduring, ever-growing crisis in multiple cities across the United States (US) (de Sousa et al., 2023). Though the drivers of homelessness are multi-faceted and unique to each local context, they are rooted in interrelated policies of economic and social marginalization, including a lack of affordable housing and tenant protections, wealth inequality, mass incarceration, and the deterioration of the social safety net (Byrne et al., 2021; Chew & Flegal, 2020; Colburn & Aldern, 2022; Shinn, 2010). Furthermore, the inhumane conditions in shelters (e.g., overcrowding, poor sanitation, lack of privacy and safety) shortage of transitional housing options, and insufficient investment in housing assistance have compelled many

unhoused individuals to live outdoors in public spaces (U.S. Department of Housing and Urban Development, 2021). Consequently, the number of people enduring unsheltered homelessness (i.e., sleeping on the street, in tents, in vehicles, or in dwellings not meant for human habitation) has risen in recent years. Between 2015 to 2023, the unsheltered population grew 48% from 173,000 to 257,000, representing a 9% increase in the share of the overall unhoused population (de Sousa et al., 2023). The surge in unsheltered homelessness is especially stark among people who identify as Black or Latinx, reflecting ongoing legacies of systemic racism in housing and employment policies that disproportionately affect racialized communities (de Sousa et al., 2023; Fowle, 2022).

The conditions associated with the lived experience of homelessness expose unhoused individuals to various health harms and limit their ability to engage in individual health promotion, resulting in an increased risk for premature mortality (Funk et al., 2022; Richards & Kuhn, 2022). Prior studies show that the unhoused population faces elevated rates of chronic disease and comorbidities, serious mental illness, drug use and overdose, and unmet health care needs relative to the general population, with those living unsheltered bearing the most significant health risks (Fazel et al., 2014; Funk et al., 2022; A. Montgomery et al., 2016; Richards & Kuhn, 2022; Roncarati et al., 2020). However, rather than receiving timely and regular assistance, unhoused individuals must contend with a fragmentation or complete absence of preventative and follow-up care; as a result, they routinely resort to using emergency services and suffer from extended hospitalizations, worsening chronic conditions, and earlier onset of disability (Funk et al., 2022; Richards & Kuhn, 2022). Additionally, due to their stigmatized status and visibility, people living in unsheltered situations often encounter harassment from police and hostile housed residents (Herring, 2019b; Herring et al., 2019), which can undermine feelings of safety and mental wellbeing. The fact that unsheltered individuals are also more likely to

experience homelessness for longer periods than their sheltered counterparts suggests that they may experience greater chronic stress and weathering effects (Batko et al., 2020).

The link between place, homelessness, and health

Among the literature on the myriad health risks of unsheltered homelessness, a common theme has emerged: **that place matters for homeless survival and wellbeing**. The geographic distribution, subsistence patterns, and health experiences of unhoused people are place-contingent, in that features of the surrounding locale structure their daily routines, adaptive behaviors, and contact with health hazards (Marr et al., 2009). Several investigations have pointed to an array of place-related elements that help people endure life on the street: safe spaces to sleep; opportunities to scavenge for food or other necessities; nearby shelter and homeless services; and areas that can be used for privacy or to avoid police violence (Marr et al., 2009; Šimon et al., 2020; R. Smith & Hall, 2018; Snow & Mulcahy, 2001; Wolch et al., 1993). Furthermore, a range of environmental factors have been posited to shape the health of unhoused individuals as they live unsheltered, such as proximity to health care services, exposure to adverse weather, and poor sanitation (Anderson et al., 2021b; Richards & Kuhn, 2022). For survival and health protection, unsheltered people repeatedly adjust their daily routines and mobility patterns to follow the geographic configurations of service provision and health opportunities (Chan et al., 2014; Marr et al., 2009). Crucially then, the formation of "favorable place–survival nexuses" of homelessness stems from the social and material characteristics of place as well as the agency of unhoused individuals to adapt to the circumstances in their surrounding environment (Marr et al., 2009; Snow & Mulcahy, 2001).

Unhoused people must navigate various geographies to meet their daily needs of shelter, work, and sociability, yet their right to exist and remain in place is continually challenged by policies and practices meant to spatially surveil, control, and banish the

unhoused (Beckett & Herbert, 2010; Giamarino & Loukaitou-Sideris, 2023; National Law Center on Homelessness & Poverty, 2019b). Accordingly, as Marr et al. note, "the place–survival nexus must necessarily be framed within a larger political-economic context" (Marr et al., 2009)—in this case, in the increasing reliance on carceral interventions to govern homelessness. The spatial conditions that affect the geographic distribution, agency, and health of unhoused individuals are not random but "are irrigated, curated, and litigated material and symbolic productions of spatialized power…[and] what ultimately lands upon [their] bodies is a map of power" (R. J. Petteway, 2022a). Thus, efforts to unpack the ways unhoused people's daily experiences with and within various spatial settings become "biologically embedded" must account for the sociopolitical mechanisms that interfere with their ability to protect their health.

The rise of anti-homeless legislation

In response to the explosive surge of people visibly experiencing homelessness, several municipalities have resorted to more punitive, spatial approaches to manage the unsheltered crisis—**implementing a range of anti-homeless ordinances that effectively expel unhoused people from public view** (Beckett & Herbert, 2010; Fisher et al., 2015; Giamarino & Loukaitou-Sideris, 2023; National Law Center on Homelessness & Poverty, 2019a, 2019b; Stuart, 2015). These include bans on loitering, sitting, resting, sleeping, and camping in public spaces; limitations on vehicular dwelling; and restrictions on panhandling and requesting and receiving food in public (Giamarino & Loukaitou-Sideris, 2023). The enforcement of anti-homeless ordinances often involves "move-along" orders and homeless encampment "sweeps," where law enforcement forcibly removes people and their belongings from designated locations; if people refuse to relocate, they are subject to citation and potential arrest (National Law Center on Homelessness & Poverty, 2019b). Prior legal examinations indicate that most cities in the US have ordinances on the books that penalize the life-sustaining spatial behaviors of unhoused

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people. A 2019 analysis conducted by the National Law Center on Homelessness and Poverty discovered that more than half of the 187 cities examined had implemented bans on camping, sitting, or lying in public, while over two-thirds had restrictions on loitering or begging in public places (National Law Center on Homelessness & Poverty, 2019b). Such laws, and the various systems and processes that enforce them, have made the existence of unhoused individuals a crime in most public spaces.

Anti-homeless laws have historically been framed as "quality-of-life" measures intended to enhance the appearance of public areas and safety of the broader population of city residents (Giamarino & Loukaitou-Sideris, 2023; Herbert & Beckett, 2010; National Law Center on Homelessness & Poverty, 2019b). More recently, amid ongoing debates on the constitutionality of such laws (Mitchell, 1998; Stuart, 2015), municipalities have adopted various political tactics and rhetoric to recast anti-homeless ordinances and encampment abatements as a "necessary" means to improve the wellbeing of the very people that it targets (the unhoused community). For example, city officials have claimed that homeless "sweeps" can serve as an opportunity for service connection and "housing placement outreach"—while downplaying the scarcity of humane shelter and stable housing resources—and often use "public health risk management" language to reposition the displacement of the unhoused community as a compassionate and humanitarian response (Lachapelle et al., 2022; Roy et al., 2022). Yet, enforcement of these ordinances is frequently accompanied by "coercive care" practices (Herring et al., 2019), where "officers use the threat of arrest to try to compel individuals to avail themselves of various social services that might alleviate their poverty" (Herbert et al., 2018). The common perception that people sleeping outside are "shelter-resistant" (Herring, 2021)—placing blame on the unhoused for their own stigmatization—has also scaffolded the use of carceral tactics to move people off the street into substandard shelters and absolved city agencies from the responsibility of offering more dignified housing options.

Despite the supposed promises of the recent iterations of spatial approaches to homeless management, **a nascent evidence base indicates that the collective experience of move-along orders, encampment sweeps, coercive care, and displacement enacted as part of these strategies deepens poverty, instability, and suffering among the unhoused population** (J. S. Chang et al., 2022; Herring et al., 2019; Oleson et al., 2022; T. Robinson, 2019). In the short term, anti-homeless practices subject unhoused people to harassment, fines, and dispossession of property (Darrah-Okike et al., 2018; Herring et al., 2019; T. Robinson, 2019). In the long term, frequent enforcement interactions erode a sense of security among the unhoused while nurturing mistrust of police and city services, create barriers to access services, intensify their risk for violence and trauma, and force them to live in perpetual precarity (Darrah-Okike et al., 2018; Herring et al., 2019, 2019). Furthermore, the claims that long-term housing placements for unhoused individuals would follow enforcement have also been proven to be a "ruse." Roy et al.'s investigation into the aftermath of a massive eviction of an encampment community in Los Angeles disclosed that most of the city's offers of housing were temporary placements (Roy et al., 2022). Though city officials stated that displaced residents would be placed in stable, permanent housing, only around 10% (17 of 183) were living in stable housing a year after the sweep. Therefore, anti-homeless strategies may exact long-lasting psychological harm on unhoused people by reproducing their hyper-marginalization (J. S. Chang et al., 2022; Darrah-Okike et al., 2018; Herring et al., 2019)—effects diametrically opposed to their alleged intent of "helping" unhoused people achieve greater stability.

The consequences of criminalization of homelessness are inherently spatial, in that anti-homeless ordinances control the daily mobility patterns of unhoused people primarily through practices of spatial exclusion and banishment (D. Kaufman, 2022; Langegger & Koester, 2016; Mitchell, 1997; T. Robinson, 2019). A recent study of enforcement interventions in San Francisco revealed that very few unsheltered people encountered during move-along

orders moved indoors into shelters; those that did reported only being able to stay in the available drop-centers for a limited time, returning to living on the street soon after (Herring et al., 2019). Instead, the majority of those encountered stayed unsheltered on the streets or in parks, only relocating to a different outdoor spot. Langegger and Koester documented similar outcomes among unsheltered people in Denver subjected to homeless "sweeps," showing that the enactment of a recent camping ban in the city necessitated unhoused people to repeatedly find new locations to rest and develop new routines for health and survival (Langegger & Koester, 2016). Furthermore, Herring et al.'s investigation found that unhoused people from racialized communities experienced disproportionate policing compared to their white counterparts (Herring et al., 2019; National Law Center on Homelessness & Poverty, 2019b), highlighting the growing role of anti-homeless ordinances in widening racial inequities. Thus, the expansion of anti-homeless ordinances signifies the coordination of government resources and reliance on (racialized) police violence to surveil and displace unhoused people, with potentially dramatic consequences for their wellbeing.

Health consequences from the criminalization of homelessness

Jurisdictions often rationalize anti-homeless legislation and the eviction of encampments as necessary to "protect public health" (Lachapelle et al., 2022). Yet, this rationale begs the question of *whose health is prioritized* through this mode of spatial governance. Although literature on the direct health impacts of anti-homeless strategies is limited to a few qualitative studies (J. S. Chang et al., 2022; López, 2020; Westbrook & Robinson, 2021), we can draw from broader epidemiolocal evidence base on the health consequences of criminalization practices against people with stigmatized identities (e.g., people who sell sex, people who use drugs, or undocumented immigrants). This body of work suggests that **the growing intensity of policing and criminalization efforts can increase unhoused people's health vulnerability by**

provoking displacement and subsequently shifting their place-based health context
(Amram et al., 2021; Blankenship & Koester, 2002; J. S. Chang et al., 2022; Park et al., 2019;
Saadi et al., 2020; van Draanen et al., 2023; S. P. Wallace et al., 2019; Young et al., 2022)**.** For
example, criminalization practices often dislocate people from familiar environments that offered
a sense of constancy and rupture existing social networks that previously provided social support
protective of health (J. S. Chang et al., 2022; Lachapelle et al., 2022; Langegger & Koester, 2016;
Young et al., 2022). Recurring experiences of police interactions and forced relocation also
threaten the stability of daily routines and mobility patterns for health, such as traveling for health
care visits and taking medications (J. S. Chang et al., 2022; Langegger & Koester, 2016;
Owczarzak et al., 2022; Wagner et al., 2013). Notably, qualitative accounts of the effects of
encampment abatements indicate that unhoused people undergo extreme lengths to find new
places to sleep and survive after being swept and displaced, often resorting to inaccessible
spaces at the margins of the city and far away from health and homeless services (J. S. Chang
et al., 2022; Westbrook & Robinson, 2021). Lastly, experiences of displacement can lead to
psychological distress stemming from "root shock," in which people are uprooted psychologically,
socially, and physically (Fullilove, 2001). Indeed, unhoused people have often portrayed sweeps
and evictions themselves as traumatic (Darrah-Okike et al., 2018; Herring et al., 2019; López,
2020; Roy et al., 2022), consequently compounding psychosocial health processes, such as fear,
stress, and healthcare decision-making. Taken together, strategies that criminalize homelessness
can worsen a range of physical and mental health issues among the unhoused population,
including chronic disease, sleep deprivation, social isolation, and mental distress.

Significance

The legal landscape surrounding anti-homeless legislation has undergone substantial
shifts over the past decade, determined by several pivotal court cases debating their

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constitutionality. A landmark case in this evolution was *Martin v. City of Boise*, in which the Ninth Circuit Court ruled that enforcing camping ordinances amounted to "cruel and unusual punishment" when the number of unhoused individuals in a jurisdiction surpassed their shelter capacity (*Martin v. City of Boise*, 2017). Yet, rather than foregoing criminalization altogether, to avoid legal liability, some municipalities amended their existing laws to place restrictions only in specific areas and pair enforcement with outreach. However, in 2024, the US Supreme Court effectively reversed the legal precedent set by *Martin* in *City of Grants Pass v. Johnson*, ruling in favor of criminalization (*City of Grants Pass, Oregon v. Johnson*, 2024). The Court reasoned that the penalties for violating anti-homeless ordinances (such as fines, temporary bans, and up to 30 days in jail) were not intended to cause undue cruelty or suffering, nor were they unusual, as such punishments are routinely used for other criminal offenses. This decision essentially granted municipalities legal authorization to regulate behaviors deemed detrimental to public health and safety—paving the way for the expansion of efforts to criminalize visible homelessness.

As the contestation over public space has become a sustained presence in unhoused people's day-to-day lives, **it is critical to interrogate the varied ways anti-homeless practices influence their patterns of movement and pathways to health to inform the re-distribution of resources for this population.** However, the role of anti-homeless laws in configuring the spatial movement and health of unhoused individuals remains understudied, partly due to the difficulty in collecting data on this highly mobile population (Kuhn et al., 2022).

The annual mortality rate of the unhoused population Los Angeles—deemed the "homeless capital" of the US—doubled from 1,596 to 3,183 per 100,000 persons between 2014 to 2022 (Los Angeles County Department of Public Health, 2023)—a stark indication of deteriorating health in this population. Yet, the mounting dependence on carceral, spatial interventions to curb the unsheltered crisis undermines the goals of public health practice, creating logistical burdens to street medicine programs for unhoused people that require ongoing

contact for trust-building and follow-up care (J. S. Chang et al., 2022). Los Angeles and other localities across the US continue to proclaim, often in the wake of considerable pressure from housed citizens, that "quality-of-life" policing and "coercive care" approaches are necessary intermediary interventions to long-term investments in permanent, stable housing (Giamarino & Loukaitou-Sideris, 2023; National Law Center on Homelessness & Poverty, 2019b; Roy et al., 2022). Given the recent wave of critical reports exposing the extensive suffering that anti-homeless practices impose on the unhoused, the appropriateness and humaneness of such approaches must be reevaluated. In particular, **inquiries into the *health harms* of anti-homeless practices are warranted to ascertain the full range of their effects on wellbeing and inform alternative policy responses that protect the health, autonomy, and dignity of the unhoused**.

Remediating health inequities for the unhoused population through policy solutions and evidence-based interventions requires examinations into the structural barriers undermining their livelihood. Since unhoused people's health experiences are engrained in place (Semborski et al., 2022), it is critical to expand knowledge beyond proximal health mechanisms and into the policies that affirm property rights over and above countervailing claims to a "right to the city" and a "right to remain" for the unhoused (Mitchell, 1998; Przybylinski, 2021, 2022; Rudin, 2018).

Theoretical Framework

The theoretical framework motivating this dissertation showcases the power relations and sociopolitical mechanisms structuring the lived and embodied experiences of place and health among the unhoused population. Applying the central tenets from Petteway's "Placescapes" approach (R. J. Petteway, 2022c), I adopt a multidimensional conceptualization of "place experiences" and position the spatial consequences and ensuing health risks from anti-homeless practices in relation to social power. I theorize that power is

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organized through settler colonial logics, propertied citizenship, and "Whiteness as property" (Harris, 1993; Roy, 2003) to produce a cycle of displaceability among the unhoused. Lastly, I frame psychosocial and behavioral processes as the pathways through which daily spatial experiences of unhoused individuals become embodied to affect their physical, mental, and social wellbeing.

In this section, I first provide an overview of the core principles of the "placescape" approach. Informed by these principles, I then outline a theoretical framework and describe its core concepts to situate the place-health geographies of unhoused people within historical and current practices that criminalize homelessness. Finally, I explain how each proposed dissertation aim maps on to the framework and contributes to a multi-faceted investigation into the place-based processes that construct the day-to-day health context of the unhoused population.

The placescape approach for place-health research

The "Placescape" approach, developed by social epidemiologist Ryan Petteway, is a vision for a decolonized, epistemically just orientation to place-health research (R. J. Petteway, 2022c). The approach aims to capture the lived reality of place more holistically and center examinations of power in defining the social and material character of place. According to Petteway, an individual's "placescape" encompasses six dimensions of how "place" is conceived and operationalized: relational place, opportunity structures, needs-driven place, spatial polygamy, activity space, and space-time constraints. These spatial concepts frame health experiences as "spatially and temporally dynamic" and dependent on "placemaking mechanisms," i.e., the various processes that fundamentally influence how "place" comes to be (R. J. Petteway, 2022c).

Drawing from critical theory, geography, and social epidemiology literatures, Petteway outlines six core placescape tenets for comprehensive inquiries into the relationships between place and health. The first is "Needs and Opportunities," which states that the opportunities within

each place direct the daily paths people take to obtain their health needs. The second tenet, "Mobility and Bounds," indicates that sociopolitical factors control access to certain places to enable or constrain an individual's mobility patterns. "Multinodal place" suggests that "place" is not a singular physical site, but rather an arrangement of nodes forming a person's lived spatiotemporal network. The fourth tenet of "Power in place" asserts that place is "both made and re-made, both consumed and produced, and both includes and excludes" (R. J. Petteway, 2022c) by power relations, and that power underlies the spatial sorting of health opportunity and risks. "Lifecourse in place" proposes place-related health effects as products of the space- and time-dependent exposures people face in their daily lives and over their life course. Lastly, "Agency in place" affirms that all individuals, no matter their level of knowledge and power, contribute to either the preservation or challenge to the existing conditions of place; therefore, communities with lived experience should be uplifted and proactively engaged in the research process. Altogether, the Placescape approach encourages relational approaches to place-health research that integrates multiple, interconnected depictions of peoples' place-health experiences.

Overview

Guided by the tenets of the Placescape approach, I advance a theoretical framework that calls attention to the ways socio-spatial histories of settler colonial logics and property (power) relations are legally and spatially embedded to produce adverse health among the unhoused. **It establishes anti-homeless practices as essential mechanisms through which racialized property regimes (i.e., systems of property ownership structured by racial hierarchies) reproduce the condition of "displaceability" within the placescapes of unsheltered people, which then becomes embodied in health through psychosocial and behavioral pathways.**

Figure 0-1 is a visual schematic of my framework that historicizes and contextualizes what preserves "place" as a site and source of health inequities for the unhoused population. Each

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concept is grouped into larger domains derived from the Placescape approach, that is, *Relations of Power, Technologies of Biopower, Placescapes,* and *Pathways of Embodiment.* The framework begins with the orientation that **settler colonial logics** organize power through notions of **propertied citizenship** and **Whiteness as property**. **Anti-homeless practices**—as a technology of biopower and an expression of racialized propertied citizenship—produce a **cycle of displaceability,** making and remaking unsheltered people's individual and collective lived **placescapes**. Placescape experiences (e.g., opportunities structures; activity spaces; relational place-making) becomes embodied through **psychosocial and behavioral** pathways to give rise to individual health outcomes. Thus, the unsheltered people's placescapes mediate the link between anti-homeless practices and the physiological embodiment of place at the individual level. Lastly, the intersecting structures of oppressions that give rise to racialized and gender-based violence shape the spatial and health experiences of homelessness, making race and gender identity key moderators in the relationships between placespaces and the health pathways.

Figure 0-1. A Placescape framework of unsheltered health amid ongoing criminalization

RELATIONS OF POWER

Settler Colonial Logics

Propertied Citizenship

Whiteness As Property

TECHNOLOGIES OF BIOPOWER

Anti-homeless Practices

PLACESCAPES

Cycle of Displaceability

Opportunity Structures
Activity Spaces
Relational Place-making

Racialized & gender-based violence

PATHWAYS OF EMBODIMENT

Other health pathways

Psychosocial Factors
Ontological security
Social support networks

Behavioral Factors
Health care engagement

Health Outcomes
Social isolation
Adverse mental health
Physical chronic conditions

Cycle of displaceability

This framework focuses on the placescapes experienced while living unsheltered, as well as the ways in which **placescapes are continuously *disrupted* due to escalating anti-homeless practices and threats of displacement**. Definitions of "displacement" vary depending on focus and field, but I use the definition as proposed by Brickell, who describes displacement

as the emotional and physical rupturing of ties to place through involuntary eviction (Brickell et al., 2017).

Although unhoused individuals already live in constant precarity, I (applying the arguments of Roy et al.) assert that **anti-homeless practices not only intensify acts of displacement against the unhoused, but also force them into a *cycle of displaceability*** (Roy et al., 2022). Displaceability refers to the state of being susceptible to displacement, deprived of the full range of city services and resources, and denied of the "right to the city" (Yiftachel, 2020). In foregrounding displaceability, Yiftachel broadens the scope of displacement from merely "a policy act to a systemic condition through which spatial power is exerted by policy, legalities, and violence" (Yiftachel, 2020). As part of engendering displaceability, government officials enact anti-homeless practices to expel unhoused people from public spaces, coerce them to more surveillant, carceral spaces, and entangle them in the endless bureaucracy of homeless management (Giamarino & Loukaitou-Sideris, 2023). Accordingly, the lived experience of criminalization is not defined by a single event of displacement; rather, it encompasses multiple layers of exclusion that induce permanent insecurity and displaceability among the unhoused, as they try to survive amid ongoing threats of banishment while struggling to obtain permanent, stable housing.

Ultimately, the condition of displaceability denies the unhoused the right to remain and dispossesses them of their personhood (of "self" as self-ownership) (Roy, 2017). Cacho explains that criminalization "justifies people's ineligibility to personhood because it takes away the right to have rights" (Cacho, 2012). A focus on historical and contemporary processes of spatial exclusion and carceral management of homelessness positions anti-homeless practices not as aberrations of policymaking but as a designed outcome of a system of dispossession built under settler colonial logics.

Relations of power

   Settler colonial logics represents the rationalization of power hierarchies within ongoing structures of settler colonialism that preserve white settler domination over land and resources (Cavanagh & Veracini, 2017; Glenn, 2015; King, 2020; Lloyd & Wolfe, 2016; Moreton-Robinson, 2015). This ideology originated when white European settlers framed already-inhabited native lands, such as the US, Canada, and Australia, as being available for the taking within a "doctrine of discovery" and deployed dehumanizing narratives on Indigenous populations to defend their extermination and expropriation (Cavanagh & Veracini, 2017; King, 2020; Morgensen, 2011). The goal of settler colonialism to seize land, institute private property rights, and accrue capital became inextricably tied to the spatial containment, removal, and erasure of Indigenous bodies—deemed as the non-normative, non-white "other"—through law and militarized violence (King, 2020; Lloyd & Wolfe, 2016; Morgensen, 2011) .

   Over time, emergent settler-colonial states sustained control over space, resources, and people not only through the dis- and re-possession of land but also through the mobilization of exclusionary private property regimes alongside exploitative labor systems, such as chattel slavery (King, 2020; Moreton-Robinson, 2015). Property ownership—or specifically, the control of land (and racialized people)—was and continues to be the primary means to accumulate wealth and political dominion, realized in constitutionally established rights as well as notions of citizenship and personhood (Dorries et al., 2019; Lloyd & Wolfe, 2016; Vimalassery, 2013). As Moreton-Robinson argues in her analysis of patriarchal white sovereignty, from the 16th century onward, enduring settler colonial logics—in tandem with cultural scripts of hegemonic whiteness—initiated the division of people into three categories: owning property, becoming propertyless, and being property (Moreton-Robinson, 2015). Thus, property relations function to control, differentiate, and exclude, entangling people in interdependencies of relative privilege, precarity, and persecution.

Viewing property relations as a central mechanism of power upholding the settler colonial agenda provides a basis for understanding why and how unhoused people are continuously targeted for spatial banishment. In particular, an examination of "property defin[ing] citizenship" can foreground the criminalization of homelessness in the discourses and colonial logics that mark the unhoused as "propertyless" and outside the realms of citizenship rights (Roy, 2003), thereby condoning their eviction from space.

Propertied citizenship, as described by Roy, is the notion that the American "paradigm of citizenship has come to be tied to property ownership" (Roy, 2003). In other words, property relations mediate the recognition of citizenship rights (e.g., safety, protection, privacy)—and subsequently of personhood—so that "social groups that do not meet [the model's] propertied mandates are therefore rendered marginal in the discourses and practices of citizenship" (Roy, 2003). As a settler colonial apparatus, the US enshrines propertied citizenship in laws and practices to reify social separateness based on people's claims and relations to property. Dantzler indicates this is evident in housing policy, which has historically been designed to offer more material and political benefits to property owners over renters. For example, homeownership is treated as an investment that appreciates in value over time, and assets gained through real estate transactions are favored in the tax code, making them worth more than other types of income (Dantzler, 2021).

Propertied citizenship symbolizes the relations between property and personhood, arranging people in hierarchical relations that communicate powerful messages about who belongs in space, which claims to home are legitimate, and what ways of living are worthy of legal protection (Bonds, 2019; Brøgger, 2019; Gordon & Byron, 2021; Lund, 2016; Sikor & Lund, 2009). The criminalization of homelessness, and discourses thereof, can be understood as a product of these tiered relations of belonging. Measured against the norms of propertied citizenship, unhoused people are seen as being at the "edges of exclusion" (Przybylinski, 2021; Roy, 2003),

triggering narratives of "deviance" to rationalize their spatial discipline (Lachapelle et al., 2022).

Several scholars have theorized the constitutive relationship between the spatial control of unhoused bodies, tropes of homeless aberration, and practices of citizenship rights within the settler colonial imagination (Gordon & Byron, 2021; Herring, 2019a; Przybylinski, 2021, 2022; Rose, 2017; Sparks, 2010, 2017; Speer, 2018). Lachapelle et al. propose that unhoused people are "understood as almost-but-not-quite-citizens…considered deviant because they appropriate public space in a society grounded in the ownership and accumulation of private property" (Lachapelle et al., 2022). These dialogues not only serve to underpin private property regimes but also authorize violence against the unhoused to reclaim space for legitimate (propertied) citizens—and does so by fostering apathy and hostility towards the unhoused (Lachapelle et al., 2022). The spatial techniques of surveillance and eviction used to manage unhoused people seek to propagate disputes about order and civility in public spaces (Gordon & Byron, 2021), all while obfuscating discussion over solutions to the root causes of homelessness.

Contestations over space play out through structures of property relations that organize spaces in line with dominant interests (Neely & Samura, 2011); whether its "private interests looking for development opportunities to accumulate more wealth or middle-class communities calling for more policing to…protect their property values," propertied citizens exercise their power over resources to "remake urban spaces for their own heart's desire" (Dantzler, 2021), staking claims to place in exclusionary ways. For example, people who are property-less are often regarded as "risks" to the assets of propertied citizens, contributing to the "Not In My Back Yard" (NIMBY) arguments that property owners (e.g., homeowners, business owners, neighborhood councils) wield to oppose building homeless shelters or affordable housing in their neighborhoods (Dantzler, 2021; Goetz et al., 2020; Herring, 2019a; Lachapelle et al., 2022; Marr et al., 2009). Moreover, the removal of homeless encampments is often codified and executed based on concerns about quality of life and pressures from owners—making community "complaint-

oriented policing," as Herring coins, a significant producer of anti-homeless space (Herring, 2019b). Thus, **propertied citizenship is an effective mechanism of power that transforms the investments and emotions of propertied citizens into an absolute right for owners to exclude—a right that government must prioritize and defend through the state-led displacement of unhoused bodies.**

The maintenance of a propertied citizenship regime and sense of entitlement to place cannot be divorced from the legacy of systemic dispossession and subjugation of Indigenous and Black people in the service of white supremacy (Dorries et al., 2019; King, 2020; Moreton-Robinson, 2015; Morgensen, 2011). Propertied citizenship is inherently racialized, in that property relations and citizenship rights have been and continue to be defined and privileged according to proximity to whiteness (Dantzler, 2021; King, 2020; Moreton-Robinson, 2015). Therefore, the negotiation of citizenship rights and right to space for the unhoused—who are disproportionately from racialized communities—must be interrogated in recognition of the interrelated systems of property rights and racialized privilege that bind property relations *to* whiteness.

Whiteness as property is Harris' seminal proposition that whiteness is valorized "as treasured property in a society structured on racial caste," so much so that "American law has recognized a property interest in whiteness that, although unacknowledged, now forms the background against which legal disputes are framed, argued, and adjudicated" (Harris, 1993). Importantly, she positions the origins of Whiteness as property in the appropriation of Native American lands—under the belief that only white possession of land is valid—and in the enslavement of Black people as "objects of property." The period following slavery and conquest saw the progression of whiteness from a privileged identity to a vested property interest*,* supported by legal entitlements that entrench white privilege as the unspoken status quo (e.g., de facto segregation). Morenton-Robinson similarly posits in her thesis on the "White possessive" that "whiteness operates to define and construct itself as the pinnacle of its own racial hierarchy"

through the "expansion of self through property" (Moreton-Robinson, 2015). As a result, whiteness has sustained power by evolving into a "highly valued and exclusive form of property" itself that, under colonial logics, must be protected at all costs (Harris, 1993).

The transformation of whiteness into property perpetuates racial injustice by legitimizing and normalizing acts of racial exclusion practiced in the name of securing property rights. As Harris writes, "whiteness and property share a common premise—a conceptual nucleus—of a right to exclude" (Harris, 1993). Likewise, Roy asserts that "the possessive investment in whiteness" (Lipsitz, 1995) is necessarily contingent on the banishment of racialized bodies and communities, manifested in state-instituted forced displacement and illegalized presence (Roy, 2019). Additionally, the interdependent politics of whiteness and property rights make it so that, although all whites may experience advantages of their identity, returns to whiteness are greatest for those who have additional or stronger claims to and investments in property (Lipsitz, 2011). Accordingly, racial schemas and propertied status serve as bases for contemporary valuations of people (and places); those who do not conform to the standards of white ownership and control are deemed as unfit to claim property and thus are ripe for dispossession (Goetz et al., 2020; Inwood & Yarbrough, 2010; Nethercote, 2022; Roy, 2017). This type of white exclusionism gives rise to what Lipsitz coins a "white spatial imaginary," expressed in racialized spatial patterns, politics, and processes, such as concentrated areas of white affluence, hostile privatism, and gentrification (Lipsitz, 2007, 2011).

The durability of Whiteness as property requires an understanding of how both institutions and people continue to support and operate in ways that protect white property rights in space by denying non-white existence (Harris, 1993). Lipsitz suggests a white spatial imaginary in the American landscape produces white racial politics by naturalizing exclusion, with white spaces serving as the canvas against which the dysfunction of non-white space and people are seen and judged (Lipsitz, 2011). Indeed, the defense of high-end white space manifests in techniques that

on the surface may convey different values but has always been loaded with racial meaning (e.g., defensive localism, overpolicing) to gatekeep space from people who do not embody the "proper civil subject" (Goetz et al., 2020). Such exclusionary politics uphold the privileges of and claims to property rights of whiteness while obscuring the violence that is enacted on the racialized other.

Debates over the expulsion of unhoused individuals in public space have re-emerged at a critical moment when the demographics of the unhoused population have become predominantly non-white across the US. In 2022, Black, Native American, Asian, Pacific Islander, and mixed race PEH represent half of all PEH, despite them comprising less than a quarter of the total US population (de Sousa et al., 2023). Although the language used to support the criminalization of homelessness is seemingly race-neutral—using arguments related to public safety and public health—it engages with racialized narratives about the "undeserving poor" and scripts of white exclusion that elicits racial banishment as a response (Beckett & Herbert, 2010; Herbert & Beckett, 2010; Roy, 2019). As Roy et al. states, the consequent displacement is "racialized not only in terms of disproportionate impact, but also in terms of their purpose— i.e., the de facto goal is to dismantle the rights of people whose mere presence threatens white-dominated property relations" (Roy et al., 2020). Thus, **practices prohibiting the presence of unhoused population–in which racialized communities are overrepresented—have become another instrument for racial banishment to preserve the value white spaces, white property, and white identity, under the guise of law and order.**

Technologies of biopower

Biopower, as conceptualized by Foucault, refers to the state-led regulation of people as individual bodies and as a populace to ensure economic productivity and maintain state power (Foucault et al., 2008) *Technologies* of biopower are thus the myriad of laws, policies, and practices sanctioned in the name of biopower. Petteway argues that technologies of biopower are

"a primary mechanism through which bodies are socially and spatially organized and controlled as relevant to health risks/exposures" (R. J. Petteway, 2022c). I **posit *anti-homeless practices* as technologies of biopower that legitimize racialized propertied citizenship and subjugate unhoused bodies to state-sanctioned surveillance and violence,** with important implications for their spatial mobility patterns and place-based health experiences.

Anti-homeless practices include legislation (e.g., camping ordinances, sit-sleep-lie laws) or approaches (e.g., state-enacted policing, community policing, hostile architecture) that discourage or prohibit loitering or sleeping in public areas that, altogether, construct a context of homeless criminalization (Giamarino & Loukaitou-Sideris, 2023; Herring, 2019b; Herring et al., 2019; Loukaitou-Sideris et al., 2023; Mitchell, 1997; National Law Center on Homelessness & Poverty, 2019b). As technologies of biopower, anti-homeless practices routinely subject unhoused people to spatial banishment without providing any substantial permanent housing alternatives, contributing to the problematic carceral management of unhoused communities that heighten their precarity. While a broad range of strategies exists to target visible homelessness, **I focus on three interrelated practices that work together to forge a cycle of displaceability among unhoused individuals: anti-homeless legislation, anti-homeless policing, and anti-homeless community complaints.**

Anti-homeless legislation encompasses the range of municipal ordinances that restrict different categories of conduct often performed by unhoused individuals to survive, such as standing, sitting, sleeping, camping, resting, and panhandling in public spaces (Giamarino & Loukaitou-Sideris, 2023). Each law, when considered individually, may appear narrow in its strictures and does not explicitly target specific groups of people outright, but collectively, they constrain the life-sustaining spatial behaviors of the unhoused (Herring et al., 2019). It is the work of anti-homeless laws in codifying property's relationality and power; the genealogy of such laws originates in private property regimes that evoke criminal law to limit the social use of space to

certain people. Although the enactment of anti-homeless laws is not necessarily followed by enforcement, I posit that they produce a fear of enforcement that influences how unhoused individuals can use and move across space. Langegger and Koester's study of camping ban in Denver portrays anti-homeless policy as both a physical and mental barrier unhoused people must contend with on a daily basis, often with limited knowledge of the scope of the very laws shaping their lived geographies (Langegger & Koester, 2016). As a result, unhoused individuals become hyperaware of their vulnerability in space, create spatial schemas of areas regarded as safe or unsafe, and navigate these invisible borders by modifying their spatial patterns.

State-sanctioned policing is central to the operation of anti-homeless laws and formation of carceral spaces for the unhoused. Since the 1980s, homeless "sweeps" and other "broken windows" measures designed to evict unhoused residents off the streets proliferated, as surveillance technologies increased and social and homeless services funding diminished (Blasi, 2007; Goldfischer, 2020; Herbert et al., 2018). Today, the overreliance on law enforcement constitutes, as it did in many key junctures in history, the ready-at-hand solution for municipalities to spatially control unhoused communities (Stuart, 2015). City government agents, such as police officers and sanitation workers, work in tandem to facilitate "sweeps," move-along orders, seizure of belongings, citations, and arrest of unhoused individuals—packaged as "order maintenance"— that ultimately result in their compulsory mobility (Herring et al., 2019). For unhoused people, the threat of police interactions, actual confrontations with police, and ensuing displacement represent daily experiences of spatial and institutional exclusion which, interwoven together, force them to endure endless uncertainty and "pervasive penality" (Herring et al., 2019). Their exchanges with police define what it means to be "unhoused"—spending considerable time searching for safe places to sleep while evading police, who in turn dedicate significant amount of their time ordering them to move. Additionally, the use of police powers to regulate unhoused bodies is both a space- and race-making project, given the continuing legacy of racially

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discriminatory policing (Browne, 2015; Byfield, 2019). Indeed, Herring's analysis of move-along orders in San Francisco found that unhoused people of color were more likely to be searched, be cited, or had their property taken by police than unhoused whites. Consequently, systemic racism structures both the experience of homelessness and the experience of anti-homeless police violence and dispossession, deepening the roots of racial inequality in cities (Fowle, 2022; Herring et al., 2019).

The implementation of anti-homeless laws and policing is situated within broader political struggles over how to define and use space in the evolving "revanchist" city operating under settler colonial property regimes (Clarke & Parsell, 2020; Giamarino & Loukaitou-Sideris, 2023; N. Smith, 1996). In this setting, groups who have access to power and control over resources (i.e., housed, propertied citizens) utilize reactionary politics and police powers to reclaim territorial domination from the poor, racialized, and undesired "other" (Neely & Samura, 2011; N. Smith, 1996). In the context of homelessness, discourses framing unhoused people as "risks" to public health and safety cast anti-homeless laws and "quality-of-life" policing as public interests (Lachapelle et al., 2022). Such affective rhetoric rationalizes the violent dispossession of unhoused people as a measured state response—responses that propertied citizens often rely on to reclaim space (Rose, 2017). For example, a series of case studies in New York City and San Francisco observed that business owners and neighborhood residents actively contribute to the policing and spatial banishment of unhoused individuals in their area through homelessness-related complaints (i.e., 311 calls) (Corinth & Finley, 2020; Herring, 2019b). Furthermore, community complaints and enforcement of anti-homeless ordinances occurred most regularly in affluent or gentrifying areas, regardless of an actual large presence of unsheltered people (Beck, 2020; Goldfischer, 2020). For example, a recent analysis of unsheltered hotspots in Los Angeles demonstrated that "complaint calls" (in the form of service requests) to the city about homeless encampments were more likely to come from wealthier areas, despite the higher prevalence of encampments in

poorer neighborhoods (Chien et al., 2024). Another study conducted in New York found that neighborhoods where residents made service request calls about unhoused individuals were significantly more affluent than the city-wide average, with higher median incomes, lower poverty rates, and a higher percentage of white residents—a pattern that persisted even after accounting for factors like proximity to services (Corinth & Finley, 2020). Additionally, this study also showed that police responded more quickly to complaints and service requests about unhoused individuals in these wealthier districts. These findings reveal how tensions between the comfort of the affluently housed (particularly from white spaces) and insecurity of the unhoused are translated through law and space. That is, those who are "propertied" who feel threatened by those who are "property-less" have the means and legal justification to call on the police to further the displaceability of unhoused individuals. Thus, against the power of propertied citizenship rights, the rights of the unhoused are sidelined—marking them as legitimate targets for spatial banishment and uprooting their lives indefinitely.

Placescapes of unsheltered homelessness

The spatial mobility patterns of unsheltered individuals—particularly in the context of displaceability from homeless criminalization—are necessarily dynamic, temporally specific, and inevitably dependent on the sociopolitical characteristics of place (Snow & Mulcahy, 2001). In this framework, **I operationalize the multimodal, socially contingent place experiences of unsheltered individuals in three interrelated concepts: *opportunity structures, activity spaces, and relational place-making***. This conceptualization engages with the multidimensional ways the effects of anti-homeless practices and subsequent displacement are spatialized to reshape the sociospatial arrangements of health exposures and opportunities for unsheltered people.

Opportunity structures reflect the "socially patterned features of the physical and social environment which may promote or damage health either directly, or indirectly through the possibilities they provide for people to live healthy lives" (Ellaway & Macintyre, 2009). A variety of sociopolitical processes come together in places to create opportunities (or constraints) for health, with certain places assuming more power than others to restrict spatial access to health-related resources. Furthermore, opportunity structures are not stagnant—they are actively made and remade, and thus can be modified over time, with consequent effects on people's lived place-based health experiences (R. J. Petteway, 2022c).

For unhoused individuals, spatially embedded health opportunities exist in the form of secure shelter, proximity to nearby food and health services, social networks, and safety from violence and harassment. An extensive evidence base has linked opportunity structures for homeless health and sustenance—or as Marr et al. coins, the "place-homeless survival nexus"— to the sociopolitical dynamics within varying types of urban space (DeVerteuil et al., 2009; Marr et al., 2009; Šimon et al., 2020; R. Smith & Hall, 2018; Snow & Mulcahy, 2001; Wolch et al., 1993). For example, Snow and Mulcahy's formative work on the politics of homeless space suggest that urban areas deemed as of little political, symbolic, and economic value to affluent residents, political agents, and entrepreneurs are ceded to the "powerless and propertyless" (Snow & Mulcahy, 2001). Accordingly, these "marginal" areas (e.g., skid rows) are purposely sited to have the place-based features conducive to homeless survival, such as shelters, cheap hotels, and soup kitchens, drawing in large clusters of unhoused people. Additionally, Marr et al. note that marginal areas tend to be the only spaces in the city that have services for unhoused people— reflecting the power of affluent community opposition to segregate homeless resources into undesirable spaces (Marr et al., 2009). Conversely, mainstream, "prime" spaces used by socio-economically well-off populations for commercial or residential uses (e.g., business districts, affluent neighborhoods) tend to be less hospitable to the unhoused, subjecting them to frequent

police surveillance and spatial discipline. Nevertheless, unhoused people periodically venture into prime areas to panhandle and scavenge for necessities, and some even choose to stay longer and rely on more makeshift strategies for survival. Lastly, "transitional" areas, or places whose value sits between prime and marginal spaces, are populated both by low-income, housed residents and unhoused individuals and have a mix of features beneficial to homeless subsistence. However, transitional (and occasionally marginal) spaces are often the object of urban "reclamation" efforts—becoming prime spaces through processes of gentrification and thereby shifting the availability of place-based conditions for homeless health. Thus, opportunity structures for the unhoused population are deeply ingrained in the sociopolitical context of places, significantly shaping the lived health geographies of homelessness.

Contestations over space regularly define the opportunity structures of unsheltered individuals, yet the growing severity of homeless criminalization has caused the existing structures to become more unstable and uncertain (Finnigan, 2021; Langegger & Koester, 2016; Lee & Price-Spratlen, 2004). Although unsheltered individuals regularly exhibit incredible ingenuity when confronting barriers in their environment, they often rely on the constancy of opportunity structures to be able to establish reliable routines for health protection. Anti-homeless practices, as an evolving spatial constraint, can disrupt existing spatial schemas of opportunity by making areas previously conducive for health and survival less so. For example, some unhoused people chose to seek refuge in "transitional" areas because they offer more privacy than marginal spaces and a lower probability of police interference than prime spaces (Marr et al., 2009). But many transitional areas in cities across the US are currently undergoing gentrification (see Koreatown or Echo Park in Los Angeles) (Goldfischer, 2020); mounting pressures from housed residents to banish the existing unhoused population in these gentrifying neighborhoods decrease opportunities for survival and expose the unhoused to risk-exacerbating situations, such as barring them from obtaining safe shelter, exposing them to greater police violence, and

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dispossessing them from personal belongings and resources needed to survive (Giamarino & Loukaitou-Sideris, 2023; T. Robinson, 2019; Roy et al., 2022). As a result, unhoused people may be compelled into more remote, marginal areas to escape harassment stemming from anti-homeless practices, signifying the destabilization of opportunity structures of unsheltered homelessness.

Activity space is defined as "the geographic and social spaces people move within, to, and through as a part of their routines, and the spatiotemporal patterns and interrelations of places therein" (R. J. Petteway, 2022b). Activity spaces encompass both spatial (geographic locations and routes to/from places encountered) and temporal (e.g., frequency, regularity, duration, sequencing, and timing of place encounters) characteristics (Cagney et al., 2020). A certain place only offers some of the necessary "opportunity structures" to promote health, so people must navigate to and through numerous places. Therefore, an individual's activity space is "less about a specific fixed location and more about a specific person's actual daily *action space*" (R. J. Petteway, 2022a). With roots in feminist geography, activity spaces contextualize people's spatial behaviors and mobility patterns in relation to systems of power, existing opportunity structures, space-time constraints, and their individual daily needs and experiences (Szanton et al., 2024).

The daily paths unhoused people follow to obtain their health needs are governed by the opportunity structures and social, economic, and political constraints in places they encounter in their daily lives. Over the course of a day, unhoused individuals may move throughout the landscape and interact with various people and places to access core anchor points, or "nodes," in their daily health routines, including finding places to sleep, obtaining health care, acquiring food, and socializing (Šimon et al., 2020; Snow & Mulcahy, 2001; Wolch et al., 1993). While unhoused people share similar practices for health and survival, their activity spaces may diverge depending on how they respond to circumstances in their surrounding environment (i.e., proximity to resources, access to transportation, and presence of police) (Marr et al., 2009).

Institutions and individuals that restrict access to space at various times of the day hinder unhoused people's capacity to move across space freely and navigate the ecological conditions they encounter (Snow & Mulcahy, 2001). **Thus, acts of spatialized social exclusion, including anti-homeless laws and policing, can be conceptualized as space-time constraints that threaten displacement and limit unhoused people's ability to access to necessary, health-related resources.** Langegger and Koester revealed a variety of disruptions to everyday activity spaces of unhoused people in Denver that were specifically triggered by a camping law, describing the ways in which "the ban destroys not only homes but anarchic property rights and compels the undomiciled to lives of perpetual motion" (Langegger & Koester, 2016), while continually incapacitating their efforts to establish new health regimens. By scattering unhoused people further from places with known health opportunities, anti-homeless practices turn "the microgeographies of a stable home space into ever widening macrogeographies"(Langegger & Koester, 2016) that require substantial effort to readjust to.

Relational place-making is "the set of social, political and material processes by which people iteratively create and recreate the experienced geographies in which they live" (Pierce et al., 2011). The act of making "place" occurs when people independently and jointly imbue meaning and value to a particular physical or social landscape (Tuan, 1979). Pierce goes further to suggest that all places are relational, hence meanings of place are produced and renegotiated through networked politics, or "via socially, politically and economically interconnected interactions among people, institutions and systems" (Pierce et al., 2011). Consequently, a "place", whether it is a building, street, neighborhood, or city, holds multiple meanings for various people, and contestations over place-making occur within social relations to influence the use of places and to assert the right to use them (Neely & Samura, 2011).

Individual and collective experiences of place-making can contribute to a sense of place (i.e., affective bonds to place), rootedness, and belonging in the world, as it draws on recognition

of citizenship rights and solidarities (Pierce et al., 2011), while the denial of participation in place-making can exacerbate social exclusion and disconnection from place (E. E. Toolis, 2017). Scholars in human geography have long emphasized the role of place in shaping identity—theorizing that the self is an ongoing project fundamentally interwoven with their physical and social environment (Manzo, 2003; Tuan, 1979; Whaley, 2018). Feelings of belonging and rootedness are co-constructed through interactions between individuals and the social and spatial contexts in which they are and can change over time, space, and situation (Manzo, 2003; Whaley, 2018). Therefore, the emotional relationships people have with places—and the extent to which this relationship is one of belonging and inclusion, or isolation and exclusion—are rooted in the sociopolitical process in which meanings of place are negotiated.

For individuals who are struggling with the marginalization of living unhoused, being able to use space, negotiate spaces as places of homeless refuge, and maintain connection to place is essential to their survival. In their daily lives, unhoused people interact with the concrete, material dimensions of place affectively and cognitively as they develop tactics to adapt to life on the street (D. Hodgetts et al., 2007)—"occupy[ing] the world as embodied beings whose social practices give meaning to places and situations" (D. J. Hodgetts et al., 2010). Place-making also foregrounds the efforts of the unhoused community to make spaces more nurturing for themselves and for others in similar circumstances, evident in the community-stewarding that frequently occurs in "tent cities" (Roy et al., 2022; E. E. Toolis & Hammack, 2015). Amid extreme stigmatization, residents of congregate encampments often characterize their communities as tight-knight and the safest option available to them, with their own cultures and support systems for surviving (Sparks, 2017; E. E. Toolis & Hammack, 2015)—showcasing the resilience of unhoused individuals to transform places into communities of protection and acceptance in the absence of alternatives for secure shelter.

Social power governs claims to place-making, thus the rise in anti-homeless practices challenges unhoused people's right to use place to shape place understandings, and to sustain their relationships to place (Pierce et al., 2011)**.** As experiences of displacement sever ties to place (however strong) each and every time, the condition of displaceability becomes a constant experience of place loss that deteriorates a sense of rootedness and belonging over time (D. J. Hodgetts et al., 2010). Unhoused people must reestablish "a sense of place wherever they land or, more saliently, wherever they can temporarily rest" (Vandemark, 2007). This is not to say that new connections to place cannot be formed in the context of displacement (Vandemark, 2007); however, power relations punctuate processes of place-making, facilitating "internalization of otherness and oppression" for the unhoused.

Pathways of embodiment

To link the structural forces that (re)create place to health outcomes, Petteway integrates the concept of "pathways of embodiment" from Krieger's Ecosocial theory into the Placescapes approach (Fields, 2011; Krieger, 2005; R. J. Petteway, 2022c). Embodiment refers to how "we, like any living organism, literally incorporate, biologically, the world in which live, including our societal and ecological circumstances" (Krieger, 2005). Hence, *pathways* of embodiment are the avenues through which societal arrangements of power and opportunities transform bodily characteristics and physiologic functioning to shape health (R. Petteway et al., 2019).

For unhoused people, health protection necessitates a sense of familiarity, rootedness, and sociability in the spaces they occupy, along with reliable access to resources to help them cope with life on the street (D. Hodgetts et al., 2007). However, anti-homeless practices can disrupt previous connections to health-protective resources (e.g., safe shelter, health care, social support) and make chaotic the daily routines that unhoused individuals engage in to promote health, all of which can diminish a sense of security in place (J. S. Chang et al., 2022; D. Hodgetts

et al., 2007; Šimon et al., 2020). As places become less suitable for homeless survival, unhoused individuals are pushed even further to the margins of urban space, where exposure to unsafe, health-adverse situations is more likely (e.g., violence, harassment, traffic accidents) and accessibility to reliable health care is more precarious (J. S. Chang et al., 2022). **Thus, I posit** *psychosocial* **(i.e., ontological security, social support networks) and** *behavioral* **(i.e., health care engagement) processes as two proximal health mechanisms that connect place-based experiences (i.e., placescapes) from anti-homeless practices to health outcomes among the unhoused population.**

  Ontological security denotes the need of individuals "to experience oneself as a whole, continuous person in time"—a necessary condition to "realize a sense of agency" and lead stable and healthy lives (Mitzen, 2006). The concept was pioneered by psychiatrist Laing and further developed by sociologist Giddens and suggests that in addition to physical security, people also seek security of the self (Giddens, 1991). Within the public health literature, ontological security is theorized as an important foundation for a sense of rootedness and belonging in the world that can transfer into psychological benefits (Henwood et al., 2020; Padgett, 2007; Rosenberg et al., 2021). As outlined by Dupuis and Thorns (1998), circumstances that foster ontological security include constancy in the material and social environment; ability to perform day-to-day routines; sense of control free from surveillance; and sense of security for identity construction (Dupuis & Thorns, 1998). **I propose that anti-homeless practices and related displacement worsen ontological** *insecurity* **by dispossessing the unhoused of their connection to place (and right to make space), unsettling their daily routines, and shifting opportunity structures for shelter to more health-adverse situations.**

  Displacement is essentially an experience of trauma that can undermine ontological security (Fullilove, 2001; Wadsworth et al., 2009). When relations to familiar surroundings are severed and ties to community are uprooted, these projected parts of the self are experienced as

lost (Vandemark, 2007). The compulsory mobility that unhoused people endure from anti-homeless practices threatens the continuity of their daily routines and their spatial context, which can translate into a state of disorientation and an overall weakened sense of constancy. At a basic level, the condition of displaceability that anti-homeless practices incite prevent unhoused people from making space into lasting places for refuge and rest. Rest is bound to a sense of rootedness (Vandemark, 2007), and "a regular sleeping spot gives a modicum of stability and self-regulation" (Herring et al., 2019). Therefore, the dwindling opportunities for unhoused individuals to construct stable "homes" for themselves in public space can worsen anxiety and erode a sense of control over their living situation. The eviction of "tent cities"—sites that unhoused residents have spent substantial time and effort in cultivating as sources of community protection and belonging—also destabilizes their social environment and reduces feelings of security (J. S. Chang et al., 2022). Furthermore, unhoused people are frequent targets of aggressive surveillance and hostile encounters with housed residents or law enforcement (Herring, 2019b; Herring et al., 2019; T. Robinson, 2019). These demeaning interactions reinforce meanings of urban spaces as "off-limits" to unhoused people due to their unpropertied status, thereby challenging their claims of place and sense of belonging. Forced into a state of hypervigilance (Darrah-Okike et al., 2018; Westbrook & Robinson, 2021), unhoused people may feel less tethered to and in control of their environment, unable to let their guard down for fear of harassment. Altogether, the dispossession of place and layers of spatial exclusion that unhoused people experience underpins their identity as people whose right to space is unrecognized, undermining their feelings of ontological security.

Anti-homeless practices modify existing opportunity structures for homeless survival, creating new geographies of hidden homelessness that expose unhoused individuals to acute health risks and additional psychological harm (J. S. Chang et al., 2022; Finnigan, 2021; Westbrook & Robinson, 2021). Following enforcement (and amid ongoing shortages of clean and dignified shelter options), unhoused people often move to more isolated, secluded areas less

likely to be accessed and seen by police and housed residents, such as areas along train tracks, along or under freeways, behind industrial buildings, on construction sites or empty lots, and deep in forested creeks and hills (J. S. Chang et al., 2022; Westbrook & Robinson, 2021). Notably, previous studies have noted that these more hidden places are also more hazardous and unsustainable for maintaining health and safety, subjecting unhoused people to limited access to daily necessities (e.g., water, bathrooms, cell service, electricity), numerous environmental health harms (e.g., smog and noise pollution from cars), and potential mortal injury (e.g., traffic accidents, train collisions) (J. S. Chang et al., 2022; Westbrook & Robinson, 2021). Additionally, unhoused individuals often report heightened tensions, conflicts, and violent attacks occurring after being forced to relocate (J. S. Chang et al., 2022; Westbrook & Robinson, 2021). Although protected from surveillance and sweeps, unhoused people pushed into living in these remote areas may still end up feeling unsafe and insecure in their surroundings. Therefore, anti-homeless practices shift the problem of homelessness in a cycle of legally imposed exclusion and seclusion, threatening perceptions of constancy and ontological security among the unhoused.

Social support networks are crucial resources for coping with the strain and adversity of homelessness, as many unhoused individuals rely on such support systems for emotional, tangible, and financial help (J. S. Chang et al., 2022; Roy et al., 2022; E. E. Toolis & Hammack, 2015; Westbrook & Robinson, 2021). **As social relationships are formed and embedded in place** (Pierce et al., 2011)**, the spatial consequences of increasing criminalization efforts can break down support networks and community ties protective of health**. For instance, unhoused individuals often depend on each other to share information on places to obtain material resources and health-related necessities (J. S. Chang et al., 2022); however, the spatiotemporal irregularity of unhoused people's daily routines primed by anti-homeless practices can inhibit their ability to reliably tap into their network for support. Moreover, the encampment sites that unhoused communities have cautiously cultivated over time are regularly regarded as sources of mutual aid

(Lachapelle et al., 2022; Roy et al., 2022; E. E. Toolis & Hammack, 2015). Encampment residents often report watching out for one another's property, gathering for meals, and checking in on each other regularly (J. S. Chang et al., 2022; Lachapelle et al., 2022). Yet, sweeps rupture the security and cohesion within existing encampment communities by evicting its residents and scattering them across various areas (J. S. Chang et al., 2022; Langegger & Koester, 2016; Westbrook & Robinson, 2021). As unhoused people are forced to find new areas for safe shelter in accordance with changing opportunity structures, their previous networks become dispersed into a wide range of territories, hindering their ability to reestablish the support systems that sustain health.

Health care engagement encompasses acts of individual health promotion and access to health care services. **Disruptions to daily activity spaces make it difficult for unhoused individuals to maintain necessary practices for health promotion**, such as traveling for health care visits, enrolling in health treatment, and taking medications (J. S. Chang et al., 2022; López, 2020). Furthermore, displacement from anti-homeless practices aggravate unhoused people's unmet health care needs by dislocating them into marginal areas farther away from health care services. Importantly, when unhoused people move to remote areas to become "invisible" to law enforcement, they also become invisible to health outreach workers, cutting off a vital lifeline for regular health care engagement. For instance, Chang's study on the health harms of encampment abatements in the Bay Area described how providers of a local street medicine program had difficulty maintaining contact and providing following-up care after sweeps, since many of their unhoused clients had moved to more secluded, inaccessible locations (J. S. Chang et al., 2022). More broadly, displacement can sever unhoused people's ties to social service agencies that provide essential support in daily living and health management, such as food assistance and financial aid. As a result, the delayed or complete lack of access to health care and social services impairs unhoused individuals' ability to regularly engage in routines for health promotion, which in turn can exacerbate a range of chronic physical and mental health issues.

The systems of power that enable the criminalization of homelessness do not operate in isolation from other forms of structural violence; rather, they intersect to shape the placescapes of unsheltered homelessness differently across axes of social relations (Bowleg, 2012). For instance, Black and Indigenous individuals are disproportionately affected by racialized policing practices, which increase their exposure to surveillance, limits their activity spaces and opportunity structures for survival, and deepens their ontological insecurity (Welsh Carroll et al., 2023). Furthermore, unhoused people of color regularly confront barriers—rooted in both overt and systemic racism—when trying to obtain forms of assistance (Jones, 2016; Olivet et al., 2021), heightening the degree to which criminalization comprises their ability to secure resources needed to develop stable routines for health management. Similarly, gender-based violence and discrimination permeate the spatial context of health and safety for women and gender non-conforming individuals (McCann & Brown, 2021; Watson, 2016), determining how they negotiate a sense of security and belonging while living unsheltered as well as their access to vital, health-protective resources. As a result, race and gender are key dimensions of social marginalization that contribute to a cyclical pattern of disenfranchisement, exacerbating the health challenges linked to criminalization.

Health outcomes

Policies and practices that criminalize homelessness generate a cycle of displaceability within unhoused people's placescapes in which they must contend with multiple psychosocial and behavioral stressors, including barriers to health care engagement, ontological security, and social support. Through these processes, relations of power, organized by settler colonial property regimes, become "embodied." **The totalizing experience of spatial exclusion and banishment can lead to a variety of health "insults" manifested in mental, physical, and social health problems among the unhoused population, such as worsening chronic physical health**

conditions, sleep deprivation, psychological distress, and social isolation (J. S. Chang et al., 2022; López, 2020; Westbrook & Robinson, 2021). For example, the mental burdens from being displaced and having to endure dehumanizing situations, such as police violence, fosters ontological insecurity that can result in poorer sleep quality and increase the severity of depressive or anxiety symptoms (Darrah-Okike et al., 2018; Herring et al., 2019; López, 2020). Ontological insecurity, along with diminished health care access from living at the margins of urban space (Westbrook & Robinson, 2021), can also reduce the psychological and social functioning needed to manage chronic physical health conditions, like diabetes and cardiovascular disease. The destruction of unhoused people's social support system can also heighten adverse mental health and social isolation (J. S. Chang et al., 2022). Thus, anti-homeless strategies—enacted under interrelated systems of settler colonialism, property rights, and white privilege—may be a structural driver of prevailing health inequities among the unhoused.

Specific Aims

This mixed methods study applies the Placescape framework for unsheltered health to investigate the ramifications of anti-homeless laws and policing on the geographic patterns, daily routines and spatial movement, and health trajectories of the unsheltered population in Los Angeles (LA) County. Given the region's renewed surge in unsheltered homelessness and mounting political pressure to enforce camping laws and conduct encampment sweeps, LA County serves as an ideal setting to study the health impacts of and politics surrounding the criminalization of homelessness. Despite comprising only 1% of the US population, the region is home to 7% of the nation's unhoused population (de Sousa et al., 2023). In a single night in 2024, there were an estimated 75,132 people experiencing homelessness in the county, with the majority (70%) living on the streets, in tents, or in vehicles rather than in shelters or interim housing (Los Angeles Homeless Services Authority, 2024).

My first dissertation aim examines the effects of a camping law implemented in the City of LA in 2021 on the spatial distribution of unsheltered homelessness across LA County. My second aim conducts qualitative interviews with unsheltered Angelenos to explore narratives of the impact of anti-homeless laws, policing, and related displacement on their activity spaces and health experiences for my second aim. My third aim assesses the associations between exposure to and perceptions of camping laws, negative police interactions, physical displacement, and health outcomes among a prospective cohort of unsheltered persons in LA County.

Aim 1: To describe the spatial and temporal patterns of unsheltered homelessness in LA County prior to and following the recent expansion of a camping law (Los Angeles Municipal Code 41.18). Aim 1 is an examination into the *opportunity structures* of homeless survival, represented in the geographic distribution unsheltered homelessness. I examine this geography in relation to sociospatial power dynamics of *racialized propertied citizenship*, captured

in neighborhood housing and social characteristics (e.g., concentrated areas of white affluence, gentrification, property ownership), and *anti-homeless practices* (i.e., camping laws, 311 calls of community complaints). I conceptualize the camping law as an emerging spatial constraint in unsheltered people's lived geographies that contributes to a cycle of displaceability, disrupts existing opportunity structures, and reconstructs new landscapes of homeless survival. Thus, changes in opportunity structures provoked by the camping ban could materialize in changes in the spatial patterns of unsheltered homelessness as people adapt to evolving ecological circumstances. This aim illustrates the ways power relations are spatially expressed to (re)produce the spatial sorting of unsheltered people and subsequently (re)shape their exposure to place-based health risks. The sub-aims are to:

1a) Describe the neighborhood conditions associated with levels of and changes in unsheltered homelessness, both prior to (2017-2020) and following (2022-2023) the implementation of the camping law.

1b) Assess whether the implementation of a camping law is associated with a greater decrease in the unsheltered population in areas of potential enforcement compared to areas without potential enforcement in 2022-2023.

To complete this aim, I conducted a longitudinal, ecological analysis and employed a difference-in-differences approach using census tract-level data of unsheltered homelessness between 2017-2023 obtained from Los Angeles Homeless Services Authority Point-In-Time Count. This data was linked to census tract-level data on the presence of zones of potential enforcement of the City of LA's camping law, social and housing conditions, built environment, policing activity, and accessibility to services from various administrative sources.

Aim 2: To explore narratives among unsheltered people about the influence of anti-homeless practices on their daily spatial mobility patterns, perceptions of place, and health-related experiences. Aim 2 is a study into the *activity spaces* and *relational place-making processes* of unsheltered individuals amidst the escalation of *anti-homeless practices* that induce displacement. This qualitative investigation also elucidates the *pathways of embodiment* that link physical, mental, and social health outcomes among unsheltered individuals to the routines and experiences of place within the course of their daily lives. The subaims are to:

2a) Elicit narratives on the daily paths of unsheltered persons to seek shelter and daily necessities, with a focus on the sociospatial conditions that influence their movement and ontological security.

2b) Examine the ways unsheltered people describe changes to their activity spaces, meanings and experience of place, and health experiences due to increased policing, enforcement of anti-homeless ordinances, and related displacement.

2c) Explore the varied strategies unsheltered people are taking to resist or adapt to their circumstances and reclaim wellbeing.

To complete this aim, I applied qualitative activity space methods and narrative approaches and conducted 13 semi-structured interviews with people who currently are or recently have been unsheltered in LA County. Activity space approaches assist with a deeper understanding of the patterns of movement and social interactions, heterogeneity of contexts, and individual space-time conditions affecting health experiences. Additionally, the narrative study of lives has become an important mode of inquiry for examining the relational dynamics of life experience and identity embedded in time and place. As Clandinin and Connelly note, "narrative inquiry is a way of understanding experience ... over time, in a place or series of places, and in social interaction with milieus" (Clandinin & Connelly, 2000). Therefore, a focus on how unhoused individuals narrate stories of their lived experience of place over time can provide greater insight

into the ways they interact with, interpret, and construct meanings of their surrounding spatial and sociopolitical context. As part of a mixed methods investigation, Aim 2 offers lived experience accounts of displacement that expand on findings from Aim 1.

Aim 3: To examine the associations between exposure to and perceptions of camping laws, policing, physical displacement, and social, physical, and mental health outcomes among a prospective cohort of unsheltered persons in LA County. This aim is a quantitative examination into the pathways from perceptions of and exposure to *anti-homeless practices* (e.g., camping laws, policing, move-along orders) to *health outcomes* (e.g., self-rated physical health, adverse mental health, poor sleep quality, and social isolation). This aim posits that experiences of *physical displacement* connate a cycle of displaceability and changes to unsheltered people's *placescapes* and serve as a mediator in the relationship between perceptions and exposure to anti-homeless practices and health outcomes. Furthermore, I explore the processes of *racialized propertied citizenship* and *gender-based violence* that give rise to disproportionate impacts of anti-homeless practices on racialized communities, women, and gender minorities by conceptualizing *race and gender* as moderators in the relationship between perceptions of and exposure to anti-homeless practices and health outcomes. The sub-aims (and corresponding hypotheses) are to:

3a) Examine the effects of policing interactions and camping law experiences on physical, mental, and social health outcomes.

H1: Within-person increases in policing interactions, camping law exposure, and concern about camping laws result in within-person increases in poor self-rated physical health, mental health, and sleep quality and social isolation (within-person effect).

H2: Individuals who were more often exposed to camping laws and policing interactions and more often concerned about camping laws during the study period have poorer self-

rated physical health, mental health, and sleep quality and greater social isolation compared to individuals less often exposed/concerned (between-person effect).

3b) Examine whether physical displacement mediates the between- and within-person effects of policing interactions and camping law experiences on social, physical, and mental health outcomes.

H1: Increased policing interactions, camping law exposure, and concern about camping laws result in poorer self-rated physical health, mental health, and sleep quality and social isolation through increased instances of physical displacement (indirect effect)

3c) Examine whether the between- and within-person effects of policing interactions and camping law experiences on social, physical, and mental health outcomes vary by race and gender.

To complete this aim, I conducted hierarchical modeling of monthly time-series data from a prospective cohort of unsheltered individuals in LA County (N=731). Aim 3 was an exploratory investigation into an emerging phenomenon in unsheltered health; therefore, I relied on findings from the qualitative study (Aim 2) to guide the specific hypotheses and selection of study constructs and measures.

Table 0-1. Overview of Dissertation

	Aim 1	Aim 2	Aim 3
Aims	**To describe the spatial and temporal patterns of unsheltered homelessness in LA County prior to and following the recent expansion of a camping law (Los Angeles Municipal Code 41.18).**	**To explore narratives among unsheltered people about the influence of anti-homeless practices on their daily spatial mobility patterns, perceptions of place, and health-related experiences.**	**To examine the associations between exposure to and perceptions of camping laws, policing, physical displacement, and social, physical, and mental health outcomes among a prospective cohort of unsheltered persons in LA County.**
Sample	Census tracts in the LA Continuum of Care (N=2163**)**	People experiencing unsheltered homelessness in Los Angeles County (N=13)	A prospective cohort of unsheltered people in Los Angeles County (N=731)
Data	Los Angeles Homeless Services Authority (LAHSA) Point-In-Time (PIT) Counts of unsheltered persons Los Angeles Department of City Planning Los Angeles Municipal Code 41,18 enforcement zones Administrative data on neighborhood physical, housing, and social conditions from various sources	Semi-structured interviews	Monthly observations from the Periodic Assessment of Trajectories in Housing, Homelessness, and Health Study (PATHS)
Design & Methods	Ecological analysis using multivariate longitudinal GEE Poisson models for count data Quasi-experimental design using a difference-in-differences approach	Qualitative activity space approaches and narrative analysis	Hierarchical Generalized Linear Modeling

1   AIM 1: ASSESSING THE IMPACTS OF ANTI-HOMELESS LEGISLATION ON THE GEOGRAPHIC DISTRIBUTION OF UNSHELTERED HOMELESSNESS IN LOS ANGELES

Abstract

Background: To address rising unsheltered homelessness, several US municipalities have reintroduced anti-homeless laws that criminalize visible homelessness in public spaces. While qualitative research on their impacts is emerging, quantitative examinations into their spatial consequences remains limited. **Objective:** This study explores the effects of anti-homeless legislation on the spatial movement of Los Angeles' unsheltered population by describing the geographic patterns of unsheltered homelessness prior to and following the recent reintroduction of a camping law in the City of Los Angeles, Los Angeles Municipal Code (LAMC) 41.18. **Methods:** Using Point-In-Time (PIT) Count data and neighborhood-level data, I analyzed trends in unsheltered homelessness in tracts in Los Angeles County (N=2163) between 2017-2023 with longitudinal GEE Poisson models and a difference-in-difference design to assess the impact of law enforcement zones. **Results:** After the LAMC 41.18 was implemented, there were broad shifts in the spatial distribution of visible unsheltered homelessness, moving away from residential areas and places with more policing activity into more hidden areas, particularly near rail tracks, bridge overpasses, and shelters, with significant growth in parks and non-gentrifying areas. Although there was a 16% decline in visible homelessness in areas with potential enforcement of LAMC 41.18, the effect was not statistically significant (p=0.09). **Conclusions:** Anti-homeless laws may be a spatial constraint in the daily lives of the unsheltered population that influence the overall spatial dynamics of unsheltered homelessness, pushing them towards areas that may offer more tolerance or concealment from law enforcement. **Implications:** Characterizing the settings of where unsheltered population increased during increased criminalization can help policymakers and service providers deploy supportive services for unsheltered individuals to the areas that need them most.

Introduction

The unsheltered crisis in cities across the United States (US) remains unabated despite greater investments into homelessness interventions, including efforts to expand temporary shelter and interim housing (US Department of Housing and Urban Development, 2023). A remarkably high number of unsheltered persons remain chronically homeless and suffer augmented health challenges because services fail to reach them in a consistent and timely manner (Wasserman & Clair, 2016). The need to distribute homelessness system resources promptly has placed mapping the evolving spatial trends of the unsheltered population at the forefront of recent research and policy efforts (Semborski et al., 2022).

The body of literature examining the spatial and mobility patterns of the unsheltered population is vast and cuts across multiple disciplines, ranging from human geography, sociology, demography, urban planning, and public health (Alexander-Eitzman et al., 2013; Chien et al., 2024; Fiedler et al., 2006; Finnigan, 2021; Goldfischer, 2020; Lee & Price-Spratlen, 2004; Muniz, 2021; Speer, 2023). This has led to a growing understanding of the many ecological conditions determining the formation, proliferation, and diffusion of "homeless hotspots." However, current research on the topic has mostly been cross-sectional, focused on a small subsample of the unsheltered population, or uncovered trends at a large geographic level, due to the lack of data of unsheltered rates at a finer spatial scale. Even fewer studies have investigated the temporal variations in the patterns of homelessness and the social and political drivers of these changes. In particular, as cities become more reliant on camping bans and other similar anti-homeless ordinances to regulate unsheltered individuals in space (Giamarino & Loukaitou-Sideris, 2023), understanding the ways this form of geographic exclusion changes the spatial arrangement of unsheltered homelessness is crucial for effective service delivery. Depicting the settings of where unsheltered population increased during increased criminalization can offer valuable insights for

policymakers and planners, helping them allocate limited resources and deploy supportive services to the areas that need them most.

This study examines how anti-homeless policies transforms the spatial distribution of the broader unsheltered population. I assess whether the enactment of anti-homeless laws is associated with general shifts in the geography of unsheltered homelessness, conceptualizing these changes as an aggregate representation of changes to the landscape of homeless survival. To achieve this aim, I conduct a longitudinal and ecological analysis to characterize the sociopolitical conditions associated with the spatial distribution of the unsheltered population in census tracts across Los Angeles (LA) County prior to and following the implementation of a camping law (i.e., LAMC 41.18). I also leverage a quasi-experimental design to explicitly test if the implementation led to significant decreases in the unsheltered population in areas of enforcement compared to areas without enforcement to ultimately reshape the opportunity structures of unsheltered homelessness.

Background

The geographic context of unsheltered homelessness

Unsheltered homelessness is widely recognized as a spatial phenomenon shaped by intersecting characteristics and dynamics of the immediate environment (Marr et al., 2009; Snow & Mulcahy, 2001). A large literature base has revealed the different place-based features associated with high rates of unsheltered homelessness in the surrounding area (Corinth & Finley, 2020; Lee & Price-Spratlen, 2004; Shin, 2021; Snow & Mulcahy, 2001). Studies based in New York and Los Angeles' demonstrate that access to homeless and social services, cheap hotels, shelters, and soup kitchens are significant determinants of the clustering of the unsheltered in certain regions. (Corinth & Finley, 2020; Marr et al., 2009). Resources used by unhoused individuals in their daily lives are often purposively sited in specific portions of the city, mostly

inner-city neighborhoods with relatively high concentrations of poverty (Muniz, 2021)—giving rise to the terms "zones of dependence" and "service ghettoes" to describe these areas (Wolch, 1987).

Several other investigations have highlighted the importance of specific built environment and land use features in providing safe places to sleep for people living outside on the street. For example, unsheltered people often stay underneath bridges or highways to escape unfavorable weather such as storms or extreme heat and hide out in vacant/abandoned building and housing units to avoid being seen (Anderson et al., 2021a; Shin, 2021). Furthermore, Snow and Mulcahy elucidated that unhoused people historically have preferred to congregate in commercial areas or areas with greater number of businesses because they can easily scavenge for recyclables, food, clothing, and other necessities. Conversely, regions with more residential land use, especially those with high property-ownership, frequently engage in forms of community policing and surveillance, making these places less hospitable to the unhoused (Herring, 2019b; Schor et al., 2003; Snow & Mulcahy, 2001). Rather, urban parks and other open green areas that contain hidden, less traveled pockets of land have become pivotal spaces for homeless refuge. These secluded areas offer a measure of safety and privacy, allowing individuals to remain relatively unseen and thus evade both the direct scrutiny of law enforcement and the social hostility often directed toward visible homeless populations by residents (Rose, 2019).

The mobility patterns of the unsheltered population are likewise linked to the sociopolitical forces dictating the organization of urban space (Marr et al., 2009; Snow & Mulcahy, 2001; Wolch, 1987). The geography of unsheltered homelessness in US cities commonly parallels the neighborhood distribution of concentrated disadvantage, which itself is intertwined with pervasive structural dynamics of racial residential segregation (Ellis et al., 2018; Goetz et al., 2019; Muniz, 2021). Past studies have emphasized the ways the unsheltered population are "physically warehoused" in areas of racialized poverty, with the same environmental conditions producing race and class inequities in health, such as low access to clean air, nutritious foods, and health

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care, similarly exacerbating the wellbeing of unhoused individuals (Larrabee Sonderlund et al., 2022; Muniz, 2021; Riley, 2018; Wolch, 1987). The spatial logics of White and class privilege that spatializes racial and economic disadvantage also govern the arrangement of unhoused bodies in space (Beckett & Herbert, 2010; Bonds, 2019; Ellis et al., 2018; Graziani et al., 2021). For example, research suggests that neighborhoods with wealthier and Whiter residents often leverage their power and resources in local politics to keep the unsheltered population away from their districts (DeVerteuil et al., 2009; Marr et al., 2009; Snow & Mulcahy, 2001). The power of affluent communities is also reflected in the segregation of homeless resources in places like skid rows, that tend to be only spaces in the city with services for unhoused people (Muniz, 2021; Snow & Mulcahy, 2001). Accordingly, opportunities for homeless survival are situated in broader structures of racism and classism, significantly shaping the lived geographies of unsheltered homelessness.

The spatial manifestation of homeless survival is not static but frequently changes over time in response to ongoing urban policy initiatives. As an illustration, policies of poverty deconcentration of the 1990s forced the unsheltered population clustered in areas like skid rows and other "service ghettoes" into an everchanging patchwork of society-tolerated spaces throughout the city (Lee & Price-Spratlen, 2004). Furthermore, although many unsheltered people historically have chosen (or been forced) to reside in public spaces in lower-income neighborhoods—communities from which homeless episodes disproportionately originate—redevelopment initiatives and gentrification pressures have intensified the precarity of unhoused existence in these areas (Culhane et al., 1996; Dozier, 2019; Marr et al., 2009; Muniz, 2021; Rukmana, 2020). Redevelopment efforts have drastically converted some downtown, inner-city areas and other historically disinvested neighborhood—that once offered some reprieve from overpolicing—into desired real estate (Lee & Price-Spratlen, 2004). The presence of unhoused persons in such settings is often regarded as a "nuisance" or "risk" to the quality of life of "higher-

status" constituents (Lee & Price-Spratlen, 2004). These perceptions are partly fueled by the stigma associated with homelessness as well as concerns about public health, as the lack of accessible sanitation facilities for unhoused individuals can result in unsanitary conditions and health hazards in public spaces (Lachapelle et al., 2022). Regardless of the underlying reasons, the antagonism towards people experiencing visible homelessness has led to a range of strategies designed to remove them from public view.

The rise in anti-homeless legislation and its spatial consequences

Though not a new phenomenon, ordinances that criminalize the visible manifestations of homelessness (e.g., camping bans, site-sleep-lie laws, etc.) and associated move-along orders and encampments sweeps are slowly becoming the primary means to control unhoused people in space across many metropolitan areas (Bevan, 2021; Hennigan & Speer, 2019; Mitchell, 1997; T. Robinson, 2019; Rudin, 2018). At their core, anti-homeless policies and practices give rise a legal regime where most public spaces are deemed unavailable to and inhospitable for the unhoused, thereby compelling their mobility between various locations (Margier, 2023; Mitchell, 1998; Rudin, 2018). The shortage of suitable, indoor shelter in many municipalities leaves the majority of the unsheltered population with few options but to rely on more precarious and dangerous sleeping arrangements, such as those near railroad tracks and freeways, under bridges, in abandoned buildings with poor structural integrity, or in isolated areas of parks, forests, or other public streets. These locations expose individuals to significant safety and health risks, including physical injury, violence, theft, harsh weather conditions, and limited access to food, sanitation, and other resources. (Langegger & Koester, 2016; Margier, 2023). While the specific mechanisms guiding the execution of these laws vary by municipality, with some purporting to offer shelter/housing and/or supportive services during enforcement (Hennigan & Speer, 2019; Margier, 2023; Meehan et al., 2024), their very use as a homelessness management strategy

presents a substantial threat to the established spatial and survival patterns of the unsheltered population.

Evidence on the impacts of criminalization on the spatial behaviors of the unsheltered community is nascent, but the few existing studies demonstrate that unsheltered people are either directly forced out of places imposing anti-homeless laws or choose to relocate due to fears of enforcement (D. Kaufman, 2022; Langegger & Koester, 2016). Recent studies of enforcement interventions in San Francisco and Los Angeles revealed that most of the unsheltered people encountered during move-along orders and sweeps stayed unsheltered on the streets or in parks, only relocating to a different outdoor area (Herring et al., 2019; Kuhn et al., 2023). Notably, qualitative accounts of the effects of encampment abatements illustrate how under criminalization, many unhoused individuals are unaware of outdoor areas where they can safely and legally rest (Langegger & Koester, 2016). As a result, they undergo extreme lengths to find new places to sleep after being swept and displaced, (J. S. Chang et al., 2022; Langegger & Koester, 2016), seeking refuge in more "hidden" places that have lower probability of police interference but are potentially more hazardous (e.g., near train tracks or forest areas) or farther away from resources needed to maintain health and safety (e.g., clinics, food banks) (J. S. Chang et al., 2022).

Examinations into community complaint-oriented policing of homelessness showcase how anti-homeless ordinances may be more selectively enforced in more white, affluent, and gentrifying neighborhoods, where the visible homelessness is seen as a threat to property values and public order. Residents in these areas have been shown to be more likely to report homelessness, regardless of whether there is an actual large presence of unsheltered people in their vicinity (Beck, 2020; Goldfischer, 2020; Herring, 2019b). For example, Corinth and Finley found that in New York, neighborhoods with residents making service request calls about unhoused individuals were significantly more affluent than the city-wide average, with higher median incomes ($97,000 vs. $58,000), lower poverty rates (9.6% vs. 18%), and a higher

percentage of white residents (57% vs. 43%) (Corinth & Finley, 2020). This pattern persisted even after accounting for factors like proximity to services, suggesting that such calls are more likely to come from wealthier, predominantly white areas. In another analysis of unsheltered hotspots in Los Angeles, although neighborhoods of low socioeconomic status had greater concentrations of unsheltered homelessness, complaint calls to the city about homeless encampments only predicted unsheltered hotspots in high socioeconomic status neighborhoods (Chien et al., 2024). This suggests that complaints about unsheltered homelessness are more likely to come from wealthier areas, even though the actual prevalence of homelessness may be higher in poorer areas; in other words, perceptions of homelessness, rather than its actual concentration, may drive reporting patterns in more affluent communities. Additionally, a series of case studies in cities across the US established that homelessness-related complaint calls from residents actively contributed to the policing of unhoused individuals in their neighborhoods (Corinth & Finley, 2020; Herring, 2019b). Corinth and Finley's analysis revealed that police respond more quickly to complaints and service requests about unhoused individuals in affluent districts in New York (Corinth & Finley, 2020), a finding consistent with Stuart's ethnographic research in Los Angeles, which shows a stronger police presence in wealthier areas and a more robust social service response in less affluent ones (Stuart, 2014). These policies and practices are often accompanied by hostile design architecture, like anti-sleep benches and security cameras, that implicitly communicates to unhoused individuals to leave and exist elsewhere (Beckett & Herbert, 2010; Snow & Anderson, 1993). Anti-homeless measures often push them out from all but the most disenfranchised communities, which often contain both perceived and real health hazards (Muniz, 2021). Thus, the implementation and execution of anti-homeless policies are an extension of prevailing spatial politics of (white) exclusionism that can produce new spatial trends in (and threats to) unsheltered homelessness.

Study objectives

Although the potential impacts of anti-homeless legislation have been extensively discussed in legal analyses, the lived consequences of these laws, particularly on the residential patterns of the unsheltered population, remains understudied. A motivating factor for this study is the rapidly changing policy environment of homelessness management in Los Angeles (LA) County (Giamarino & Loukaitou-Sideris, 2023), which has seen more and more cities reintroducing camping bans and conducting sweeps in the last five years—even before the 2024 US Supreme Court ruling that essentially upheld ordinances criminalizing homelessness (*City of Grants Pass, Oregon v. Johnson*, 2024)

This study explores the geographic distribution of LA's unsheltered population prior to and following the implementation of a camping law in the City of LA (Los Angeles Municipal Code (LAMC) 41.18). I examine whether there is a shift in the spatial arrangements of unsheltered homelessness before and after the expansion of a camping ban and then examine whether this shift can be attributed to the ban. I conceptualize the camping law as an emerging spatial constraint in unsheltered people's daily routines that contributes to displacement and reconstructs new landscapes of homeless survival, which will be reflected in changes in the spatial dynamics of unsheltered homelessness. The subaims are to:

1a) Describe the neighborhood conditions associated with levels of and changes in unsheltered homelessness in LA County, both prior to (2017-2020) and following (2022-2023) the implementation of the camping law.

1b) Assess whether the implementation of a camping law is associated with a greater decrease in the unsheltered population in areas of potential enforcement compared to areas without potential enforcement in 2022-2023 in the City of LA.

Understanding how the spatial patterns of unsheltered homelessness shift in response to criminalization can help form hypotheses about the real-world impacts of anti-homeless

measures. This insight can also guide policymakers and service providers in creating more targeted, location-specific service networks.

Methods

Study design

This was a longitudinal and ecological study of unsheltered homelessness in the Los Angeles (LA) region, covering a time period from 2017 to 2023. The unit of analysis was census tracts (defined using the 2010 US Decennial Census geographic boundaries), and the sample encompassed the tracts in the LA Continuum of Care (CoC) covered by LA's official count of people experiencing homelessness during the study period (N=2,163 tracts). The LA CoC has the largest unsheltered population in the country and includes 85 of the 88 cities in LA County as well as unincorporated areas (Henwood et al., 2022). The three cities in LA County excluded from the LA CoC's PIT Count—Glendale, Pasadena, and Long Beach—conduct their own counts within their jurisdictions using different methodologies and do not provide data at the tract-level, so they are not included in this analysis (Appendix 1-1 for their unhoused population breakdown).

Implementation of Los Angeles Municipal Code (LAMC) 41.18

The camping law under examination was Section 41.18 of the Los Angeles Municipal Code (LAMC), an ordinance in the City of LA banning any person from sitting, lying, or sleeping in or upon any street, sidewalk, or other public way (Sitting, Lying, or Sleeping or Storing, Using, Maintaining, or Placing Personal Property in the Public Right-of-Way., 2021). Prior to 2021 (but before April 2024), enforcement of LAMC 41.18 had essentially been prohibited by the 2019 Martin v. Boise ruling of the Ninth Circuit Court of Appeals (*Martin v. City of Boise*, 2017) which stated that jurisdictions could not legally cite and arrest people from sleeping on public property so long as they could not provide adequate shelter options. In response, the City Council of LA

revised LAMC 41.18 in July 2021 to include provisions for specific zones where camping enforcement could occur after 14 days of signs being posted and shelter being offered to all residents. The amendment requires City Council to pass a resolution to designate specific, "sensitive" locations for enforcement. Locations eligible to be considered a 41.18 enforcement zone include areas within 500 feet of overpasses, underpasses, freeway ramps, tunnels, bridges, pedestrian bridges, transit stations, railroad tracks, schools, day care facilities, parks, libraries, and any place considered to be a threat to public health or safety, as well as areas within 1,000 feet of any place opened since 2018 that provides shelter, safe parking, or navigation centers for unhoused people.

Once a resolution passes, the City must post signage in the newly, designated 41.18 zones that gives notice of the date after which no "camping" will be allowed. Prior to a sweep or enforcement in the affected zone, the City must show that outreach teams from the Los Angeles Homeless Services Authority (LAHSA) had offered services and placement in shelter or housing to all persons in the area as part of their "street engagement" strategy. Any person who remains in the 41.18 enforcement zone at the time of a sweep after street

LAMC 41.18 Enforcement Zone Signage. Source: LA Times

engagement can legally be forced to move by law enforcement and/or LA Sanitation, have their belongings confiscated, and be cited or arrested for violating the terms of the ordinance. After a sweep is conducted, LAHSA is required to file a report that documents how many people were encountered and proves that the people cited were previously offered a suitable housing option.

September 2021 marked the beginning of when Councilmembers could introduce resolutions at City Council meetings to deem specific areas in their council district as 41.18 enforcement zones, and enforcement zones were introduced in waves depending on when their corresponding resolutions were passed at City Council meetings. However, on August 9, 2022, the City Council voted to extend LAMC 41.18 once again to automatically deem areas within 500 feet of all schools and daycare centers in the city as enforcement zones, effective September 18, 2022—dramatically changing the scope of the camping law. Appendix 1-2 lists the number of active enforcement zones in each Council District by early 2022 and 2023. Furthermore, around the same time the City of LA re-instated LAMC 41.18, several other municipalities in LA County also authorized similar ordinances banning public camping in their jurisdiction (listed in Appendix 1-3).

Outcome: Annual count of the unsheltered population

For both subaims, the primary outcome variable was a count measure of the number of unsheltered persons living on the street or in tents/makeshift shelters per census tract[2], using data from the Los Angeles Homeless Services Authority's (LAHSA) annual Point-In-Time (PIT) Count of homelessness for the years 2017-2023 (excluding 2021, when the PIT Count was cancelled due to the COVID-19 pandemic). For LA's PIT Count, volunteer teams conduct a street count over three nights at the end of January each year, where they visually enumerate the number of individuals residing on the streets and the number of dwellings—vehicles, tents, and makeshift shelters—suspected to have persons experiencing homelessness (PEH). Then, LAHSA weighs this visual tally with data on the average number of people living in each dwelling collected from their survey of approximately 6,000 PEH, to obtain separate estimates of the

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[2] This count includes only adults aged 25 and above or individuals of all ages in family households. Unaccompanied minors and youth aged 18-24 are excluded, as the enumeration procedure for this subpopulation is different and separate from the general PIT count.

number of individuals living unsheltered on the street, in vehicles, or in tents/makeshift shelters (i.e., encampments) for each tract on a single night that year (Henwood et al., 2022). For analysis, I focused specifically on the population of unsheltered individuals living on the street or in encampments (hereinafter referred to as the "visible unsheltered population"), since camping laws target these individuals specifically, as opposed to unsheltered individuals living in vehicles. The visible unsheltered population accounted for approximately 54-59% of the total unsheltered population each year from 2017 to 2023 (Figure 1-1).

Figure 1-1. Trends in the makeup of the Los Angeles' unsheltered population, 2017-2023
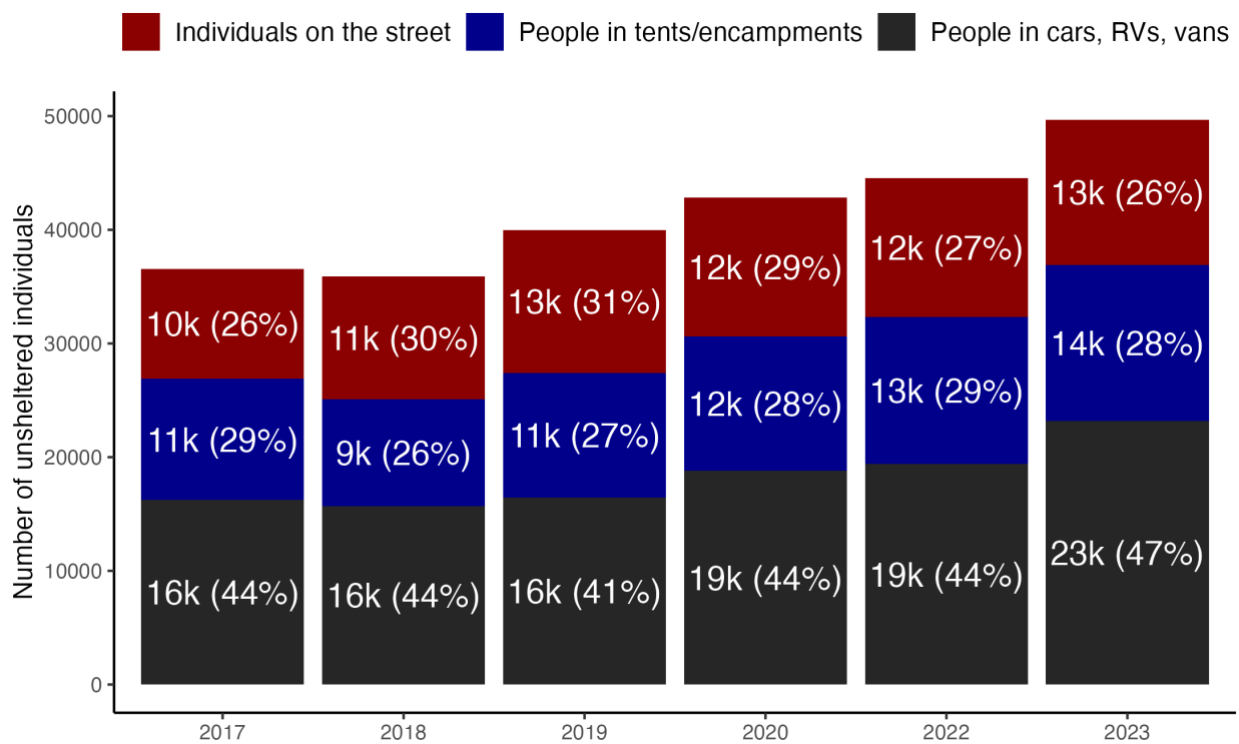
LA's PIT Counts from 2017-2022 used the census tract boundaries from the 2010 US Decennial Census, while the 2023 PIT Count switched to the 2020 boundaries. To make the sample spatially consistent across study years, I applied geographic crosswalks that employs an

area-based approach (i.e., computing the share of the land area in 2010 tracts nested in the 2020 tracts) to reproportion the 2023 PIT Count data to correspond to the 2010 tract boundaries (Logan et al., 2014). This approach assumes that the population is homogenously distributed across the geographic unit. 758 (35%) tracts experienced a change in tract boundaries in the 2023 count from prior years. Appendix 1-4 overlays the 2020 and 2010 census tract boundaries to visualize the difference, with most of the changes occurring in Antelope Valley, San Fernando Valley, and San Gabriel Valley.

Subaim 1a: Describing neighborhood characteristics associated tract-level trends in unsheltered homelessness prior to and following the expansion of LAMC 41.18
Data and measures

Definitions and data sources of all study measures are summarized in Table 1-1.

Building on previous studies reporting the factors associated with spatial concentrations of homelessness in urban areas, I assessed trends in unsheltered homelessness in the City and County of LA in relation to neighborhood characteristics falling into the following five domains: (1) social conditions; (2) housing conditions; (3) access to support services; (4) built environment features; and (5) policing activity. To construct the neighborhood measures, I drew from the US Census Bureau, 2019 American Community Survey (ACS) 5-Year Estimates, LA Assessor Parcels Data, UCLA Urban Displacement Project, and County of LA Open Data website to obtain county-wide data on population characteristics, land use type, locations of social services and facilities, and infrastructure. Policing data corresponding to the study period were publicly available only for the City of LA, so these measures were not included in the county-wide models. All measures other than the policing measures were incorporated as time-invariant variables (measured in 2019, the study mid-point and before the changes to tract boundaries for the 2020

Decennial Census), as these environmental characteristics generally did not change drastically over the study period.

Neighborhood social conditions included measures of gentrification and racial and economic segregation. I posited that dynamics of gentrification may push the existing unsheltered population out as more affluent residents and businesses move in, while the political power of concentrated areas of white affluence has largely excluded the unsheltered population from such communities. The gentrification measure was a binary variable created by UCLA's Urban Displacement Project, a measure previously used in studies on neighborhood change (Chapple, 2017; Eckerd et al., 2018; Gao et al., 2023), that defines a gentrifying/gentrified tract as one where the change in percent college-educated residents, percent non-Hispanic white residents, median household income, and median gross rent are greater than the average change across the county. I operationalized racial and economic segregation as a categorical variable of racially and ethnically concentrated areas of relative affluence (RECArA) or poverty (RECArP) to focus on both the sociospatial processes of (white) privilege and racialized disadvantage. This measure, developed by Shelton, is based on the official US Department of Housing and Urban Development (HUD) measure for racially and ethnically concentrated areas of poverty (Shelton, 2018). In line with the HUD definition and previous studies using this measure (Goetz et al., 2019; Lally, 2022; Shelton, 2018), tracts with percentage of non-Hispanic white residents that is greater than the countywide average and either had a poverty rate less than 5% or median household income greater than 150% of the countywide median were considered as RECArA, while tracts that are majority non-white and whose poverty rate is greater than 20% or median household income is less than 50% of citywide median were designated as RECArP; all other tracts were defined as "neither/none." For analysis, I used RECArP as the reference category to compare levels of and changes in visible unsheltered homelessness between the most socially marginalized areas to the most affluent.

Neighborhood housing conditions comprised of the share of owner-occupied housing, residential land use, and vacant units. I hypothesized that places with greater proportions of occupied housing (specifically owner-occupied housing) or residential land may be more likely to have people complain about and report unhoused people in the vicinity, thereby forcing them away from these areas. Furthermore, as anti-homeless practices become more widespread, some unhoused people may opt to reside in units that are vacant and/or abandoned to stay hidden.

The third set of variables encompassed *access to support services*, such as homeless shelters, organizations that provide food assistance, public libraries that often provide homeless outreach programs and where unhoused individuals congregate during the day, and health clinics and hospitals. Because the sizes of census tracts vary within the study area, I followed Shin's analysis on area-level predictors of unsheltered homelessness and calculated the number of support facilities within a half-mile radius of a census tract centroid, a commonly used cut-off distance that people are willing to walk to attain services (Shin, 2021).

Built environment features included variables denoting the amount of coverage of types of places that unsheltered people frequently use as encampment locations, like parks/open spaces, areas near rail tracks and freeways/highways, and bridges/overpasses.

Lastly, I examined *policing activity* from both law enforcement and housed residents as potential forces influencing the mobility patterns of the unsheltered population as they try to avoid enforcement. I operationalized policing activity with two time-varying measures: (1) number of police arrests in the previous year per 100,000 people and (2) number of 311 service requests from residents about homeless encampments in the previous year per 100,000 people. I log transformed both policing measures due to concerns about violations of linearity assumption from initial residual analysis.

Table 1-1. Summary of census tract-level study variables

Construct/Domain	Operationalization	Data Source
Outcome		

Levels of the visible unsheltered population	Count variable of the number of unsheltered persons sleeping on the street or in tents/ makeshift shelters per tract	Los Angeles Homeless Services Authority (LAHSA) Point-In-Time Count (PIT) of Homelessness, 2017-2023

Exposure

Threat of camping law enforcement	Binary variable of whether a tract overlaps at least one Los Angeles Municipal Code (LAMC) 41.18 enforcement zone	LA City Department of Planning

Neighborhood factors[+]

Social conditions

Gentrification	Binary variable of whether a tract has gentrified or is gentrifying, where its change in percent college-educated residents, percent non-Hispanic white residents, median household income, and median gross rent is greater than the average change across LA County	UCLA Urban Displacement Project, 2018
Racially concentrated areas of relative affluence and of poverty	Categorical variable of Shelton's typologies, created from information on percentage of non-Hispanic white residents, poverty rate, and median household income relative to the city-wide average	American Community Survey, 2019 5-year estimates

Housing conditions

Land use type	Continuous variables of percentage of residential land use	LA Assessor Parcels Data, 2019
Property/housing type	Continuous variables of percentage of owner-occupied housing	American Community Survey, 2019 5-year estimates
	Continuous variable of percentage of vacant housing unit	American Community Survey, 2019 5-year estimates

Access to support services

Access to shelters	Continuous variable of number of homeless shelters within a half-mile of a tract centroid	LA Continuum of Care Housing Inventory Data, 2019
Access to food assistance	Continuous variable of number of food banks and other food assistance programs within a half-mile of a tract centroid	LA Geohub Open Data, 2019

Access to public libraries	Continuous variable of number of public libraries within a half-mile of a tract centroid	LA Geohub Open Data, 2019
Access to health services	Continuous variable of number of health clinics and hospitals within a half-mile of a tract centroid	LA Geohub Open Data, 2019
Built environment features		
Percent parks and open space	Continuous variable of percentage of land classified as parks and open space	LA Geohub Open Data, 2019
Bridge overpass coverage	Continuous variable of number of bridges that are located within each census tract or follow the boundaries of the tract	LA Geohub Open Data, 2019
Railway coverage	Continuous variable of length of railways that are located within each census tract or follow the boundaries of the tract	LA Geohub Open Data, 2019
Freeway coverage	Continuous variable of lengths of highways and freeways that are located within each census tract or follow the boundaries of the tract	US Primary Roads National Shapefile, 2019
Policing activity		
Rate of 311 calls of homelessness complaints	Continuous variable of number of 311 service requests about homeless encampments made per 100,000 people in a year per tract, log transformed and lagged by one year	LA Police Department Open Data, 2016-2022
Rate of police arrests	Continuous variable of number of arrests made by city law enforcement per 100,000 people in a year per tract, log transformed and lagged by one year	LA Geohub Open Data, 2016-2022
Controls		
Census tract boundary change in 2023 PIT Count Data	Binary variable of whether a census tract experienced a boundary change in the 2023 PIT Count from previous years	

[+]All neighborhood factor variables are time-invariant, except for the variables for the rate of 311 calls and rate of police arrests.

Analytic strategy

I first conducted exploratory data analysis, where I examined the distribution of the study measures across time through univariate statistics and visualized variation through histograms and maps. I also assessed the level of global spatial autocorrelation in unsheltered homelessness

across years by calculating Global Moran's I statistic using a spatial weight matrix with a neighbor definition of contiguity. I then ran Clifford Richardson tests to assess bivariate correlations between the neighborhood explanatory variables and unsheltered count in the presence of spatial autocorrelation.

Following exploratory analysis, I estimated a series of longitudinal models to examine the neighborhood conditions associated tract-level trends in unsheltered homelessness in the context of camping law implementation. I used generalized estimating equations (GEEs) to model the balanced, panel data on unsheltered homelessness nested within census tracts. The GEE approach extends generalized linear models to accommodate clustered data and is often used for inference on population-averaged effects with non-normal response variables (Ballinger, 2004; Zeger et al., 1988). GEE is a semi-parametric method since it does not require specifying a likelihood function in its entirety, and it accounts for correlations within clusters through a parameterized correlation matrix (Zeger et al., 1988). Regression coefficient estimates from GEE describe changes in the population mean given changes in covariates, while accounting for within-unit nonindependence. I chose GEE models over mixed effects models since they are more efficient and because my objective was to uncover population-averaged effects of the neighborhood covariates, rather than tract subject-specific effects (Hubbard et al., 2010).

Because the outcome was a count measure, I fit Poisson GEE models with a log link and robust standard errors. With count data, overdispersion is often an issue that can be accounted for by specifying models with a quasi-Poisson or negative binomial distributions. Since GEE models are already an extension of the quasi-likelihood approach, the use of the Poisson family and variance estimation in the GEE model can adjust for overdispersion (Kruppa & Hothorn, 2021). To select the proper working correlation structure, I first fit models with different specifications for the correlation matrix and compared their Quasi Information Criterion (QIC) values, with lower values indicating better fit (Ballinger, 2004). I chose to model the variance using a first-order

autoregressive (AR1) correlation matrix, which assumes that measurements taken closer together to be higher than those taken farther apart. Prior to multivariable regression analysis, I checked for multicollinearity of the neighborhood explanatory factors by calculating variance inflation factors (VIFs); all were less than 3 and thus included in subsequent analyses.

Steps for model building were conducted to answer the following questions:

i. What neighborhood characteristics are associated with levels of and changes in unsheltered homelessness across the study period (2017-2023)?

To identify the predictors of levels of unsheltered homelessness, I first fit a multivariable regression model with all the neighborhood variables of interest and continuous time variable as a covariate, with 2017 observations set as time=0 (Model 1). I then included interactions between time and the neighborhood variables to characterize the factors associated with year-to-year changes in unsheltered homelessness (Model 2).

Model 1:
$$\log(Y_{i,j}) = \beta_0 + \beta_t \cdot Time_{i,j} + \beta_n \cdot X_n + \cdots + u_{i,j}$$
where,
$Y_{ij} \sim Poisson(\lambda_{i,j})$ = Count of unsheltered individuals for tract i at time j
X_n = Neighborhood characteristics
$Time_{i,j}$ = linear time term, with 2017=0 & 2023=6
β_n = population-average change in log count for a one-unit increase in the neighborhood covariate
$u_{i,j}$ = error term

Model 2:
$$\log(Y_{i,j}) = \beta_0 + \beta_t \cdot Time_{ij} + \beta_n \cdot X_n + \beta_{n,t} \cdot X_n \cdot Time_{i,j} + \cdots + u_{i,j}$$
where,
$\beta_{n,t}$ = change in the slope of year-to-year change in log count for a one-unit increase in the neighborhood covariate

ii. Where do we see differences in the levels of and changes in unsheltered homelessness after the implementation of LAMC 41.18 in 2021 compared to before?

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To test if there were any differences in the associations between the neighborhood

characteristics and unsheltered homelessness before and after policy implementation,

I fit a multivariable model with interaction terms between the neighborhood explanatory

variables and an indicator variable for the policy period [0= pre-policy years (2017-

2020), 1=post-policy years (2022-2023)] (Model 3). I then added three-way interaction

terms between period-specific linear time term, the policy period indicator, and the

neighborhood explanatory factors (Model 4) to assess the variation in temporal trends

in unsheltered homelessness before and after policy implementation.

Model 3:
$$\log(Y_{i,j}) = \beta_0 + \beta_p \cdot Period_{i,j} + \beta_n \cdot X_n + \beta_{n,p} \cdot X_n \cdot Period_{i,j} + \cdots + u_{i,j}$$
where,
$$Period_{i,j} = \text{indicator for policy period (pre-policy=0, post-policy=1)}$$
$\beta_{p,t}$ = difference in the population-average slope of the neighborhood covariate on log count between the post-policy period versus the pre-policy period

Model 4:

$$\log(Y_{i,j}) = \beta_0 + \beta_t \cdot Time_{i,j} + \beta_p \cdot Period_{i,j} + \beta_n \cdot X_n + \beta_{n,t} \cdot X_n \cdot Time_{i,j} + \beta_{n,p} \cdot X_n \cdot Period_{i,j} + \beta_{n,t,p} \cdot X_n \cdot Time_{i,j} \cdot Period_{ij} + \cdots + u_{i,j}$$
where,
$Time_{i,j}$=period-specific linear time term (e.g., time=0 for years 2017 & 2022, etc.)
$\beta_{n,p,t}$ = difference between the post-policy period versus the pre-policy period in the change in the population-average slope of year-to-year change in log count for a one-unit increase in the neighborhood covariate

I standardized all continuous covariates prior to model building and report standardized

coefficients in the main results to compare effect sizes of the neighborhood characteristics of

interest. I first ran the regression models with all tracts in the LA CoC in the analytic sample and

then with a subset of tracts in the City of LA only. To minimize any effect resulting from using

crosswalked PIT count data, I controlled for whether a tract experienced a change in the

boundaries used in the 2023 PIT count from prior years in all models. 28 (1.3%) tracts were

missing data on at least one of the neighborhood covariates; these tracts were dropped from

analysis using listwise deletion. Additionally, I excluded one tract in Venice in the analysis due to

a known error in its PIT estimate in 2022, leaving a total of 2,134 tracts in the final analytic sample for the LA county-wide models and 991 tracts (out of 1,004 in the LA CoC) for the LA city-only models.

Although the focus of this subaim was to identify the types of places unsheltered people are moving into or away from in the context of increased criminalization, irrespective of whether the tract was in an area enforcing a camping law, for sensitivity analyses, I fit models that added a control variable in the county-wide models for whether a tract was in any one of the 14 cities that banned public camping in 2021 and after: City of LA, Arcadia, Carson, Malibu, Temple City, Hermosa Beach, Calabasas, Norwalk, Glendora, Culver City, Vernon, La Puente, La Mirada, and Lawndale. Substantive findings from these models with the added control did not differ from the models without; therefore, I report the results from the more parsimonious models. After model building, I checked for spatial autocorrelation in the regression residuals using Moran's I statistics; results showed that most of the spatial autocorrelation in unsheltered homelessness was accounted for in the regression models, mitigating concerns for potential misspecification due to omitted covariates.

Subaim 1b: Assessing the effect of LAMC 41.18 on tract-level unsheltered homelessness

Exposure: Threat of camping law enforcement

After examining the neighborhood factors associated with unsheltered homelessness, I assessed whether the threat of camping law enforcement affected the level of unsheltered homelessness in an area for tracts in the City of LA. With some areas affected by the camping law and some not, I employed a difference-in-differences (DID) design for the identification strategy to estimate a causal effect of being exposed to potential enforcement of LAMC 41.18.

The main exposure/treatment of this sub-aim is the potential enforcement of the camping law, which I operationalized law as having a 41.18 enforcement zone within its boundaries. LA's Department of City Planning maintains a record of LAMC 41.18 zones, with information on their

location and dates when the enforcement zone was approved and when they went into effect. Tracts were considered as "exposed" or "treated" if they overlap with at least one active 41.18 enforcement zone at the time of that year's PIT Count. By the time the 2022 PIT Count was conducted, there were 44 areas designated as LAMC 41.18 enforcement zones through resolutions in the City of LA that overlapped with 80 tracts. By the 2023 PIT Count, there were 1,875 zones across 962 tracts (Figure 1-2).

Figure 1-2. Map of active Los Angeles Municipal Code (LAMC) 41.18 enforcement zones before the 2022 and 2023 Point-In-Time (PIT) Count in the City of Los Angeles
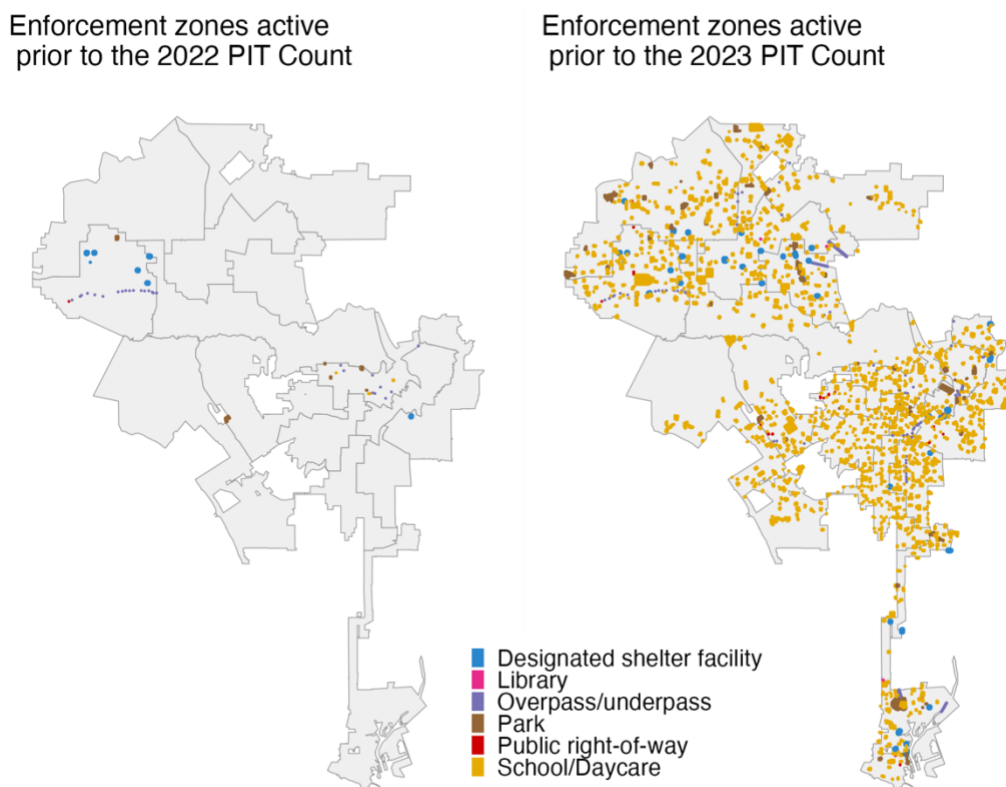
Note: Boundary lines correspond to the Council District (CD) boundaries for the City of LA.

Analytic Strategy

Using a DID approach, I examined whether there were significant differences in changes in the visible unsheltered count over time between tracts with active 41.18 zones and tracts

without active zones following the implementation of LAMC 41.18 in 2021. Two tracts (in Venice and Woodland Hills) were missing on at least one year of data from the PIT Count, so these tracts were excluded, leaving 1,002 tracts in the City of LA in the final analytic sample.

Prior to estimation, I explored the factors that predict the enactment of an enforcement zone, particularly those introduced by resolution, through multivariable logistic regression analysis, using the neighborhood characteristics explored in subaim 1 as well as total visible unsheltered count in 2020 (the year prior to policy implementation) as covariates.

In DID designs, estimates of the causal effect are unbiased only under the "parallel trends" assumption, which states that differences in the outcomes between the control and treated groups should be constant over time before the intervention and remain constant if not for the intervention. Although it is not possible to observe this counterfactual, I assessed the plausibility of this assumption by visually inspecting plots of the average unsheltered count between the control/untreated and treated group each year prior to policy implementation. Additionally, I compared treated tracts and control tracts in relation to the neighborhood factors to check for covariate balance and assess the level of potential confounding from selection bias.

With the panel data, I then ran two-way fixed effects (TWFE) models to estimate the average treatment effect while adjusting for time-invariant confounders. These models had tract and year fixed effects and used quasi-maximum likelihood Poisson estimator with cluster-robust standard errors to model the overdispersed, clusered count data. I used a binary treatment assignment, with "treated" defined having at least one active 41.18 enforcement zone prior to that year's PIT Count. The resulting coefficient from TWFE models estimates the average treatment effect of the treated groups (ATT).

TWFE specification:
$$\log(Y_{i,t}) = \alpha_i + \gamma_t + \tau \cdot D_{i,t} + u_{i,t}$$
where,
$Y_{i,t} \sim Poisson(\lambda_{it,})$= Count of unsheltered individuals for tract i at by year t,
α_i=unit fixed effect

$$\gamma_t = \text{year fixed effect}$$
$$\tau = \text{estimated causal effect of treatment (ATT)}$$
$$D_{i,t} = \text{indicator for tract } i \text{ being treated by year } t$$
$$u_{i,t} = \text{error term}$$

A concern with DID method is that the control and treated groups may differ in ways that are related to their trends over time (Abadie, 2005). The parallel trends assumption is also more plausible among units that are more similar on pre-treatment covariates and lagged outcomes (Abadie, 2005; Wei et al., 2023). To mitigate concerns for selection bias and provide robustness against potential violation to the parallel trends assumption, as a sensitivity check, I weighed the control and treated groups to be more balanced on a set of known, pre-treatment characteristics. I first calculated the probability—or propensity—of being treated, using a variable for prior year's visible unsheltered count and the neighborhood factors examined in subaim 1 (i.e., social conditions, housing conditions, access to support services, and policing activity) as covariates. Using these propensity scores, I then constructed stabilized inverse probability weights (IPWs) and reran the TWFE models with the IPWs. Given that one of the limitations of using IPWs is the possibility of generating extreme weights that can bias results (Chesnaye et al., 2021), I checked the distribution of weights and trimmed any large weights at the 90$^{\text{th}}$ percentile.

As an alternative design and robustness check to the standard TWFE approach, I estimated an event study model, since treatment adoption in this study was "staggered," with 41.18 zones going into effect in different years. Event study, or dynamic DID, designs can showcase how the treatment effect evolves over time, assess pre-treatment trends, and can help reduce bias from variation in treatment timing (Wing et al., 2024). With this design, I estimated the differences in the outcome associated with each year before and after a tract was considered "exposed" to potential enforcement to LAMC 41.18. The primary exposure variables were indicators for the years relative to the first year of treatment (i.e., had an active 41.18 zone within its boundaries). Tracts that never had 41.18 zone were assigned 0 for all the time period indicators.

Event study specification:

Let $Z_{i,0}$ be an indicator for the observation in the first year of treatment

$\rightarrow Z_{i,0} = 1$ when $D_{i,t} = 1$ & $D_{i,t-1} = 0$

$\rightarrow Z_{i,k} =$ indicator for the kth year after the first year of treatment

$\rightarrow Z_{i,-k} =$ indicator for the kth year before the first year of treatment

$$\log(Y_{it}) = \alpha_i + \gamma_t \ldots \beta_{-2}Z_{i,-2} + \beta_0 Z_{i,0} + \beta_1 Z_{i,1} + \cdots + u_{it}$$

where,

$\beta_{-k} =$ anticipatory effects for the years prior to treatment

$\beta_k =$ post treatment effects

with $Z_{i,-1}$ for the last pre-treatment period omitted (i.e., the last year prior to treatment serves as the reference group)

I conducted six additional sensitivity/robustness checks. Recent research on DID with variation in treatment timing has shown that TWFE models can lead to misleading inferences if there is heterogeneity in treatment effects (Callaway & Sant'Anna, 2021). When units are treated at different times, TWFE estimate is actually an average of each pairwise comparison of treated and control groups, weighted by group sizes and variance, at each treatment time point (e.g., earlier vs never treated group; earlier vs later treated group; later vs. never treated group)— including problematic comparisons of later treated units with units who have already been treated earlier, as if they were valid controls (Goodman-Bacon, 2021). The inclusion of this "forbidden comparison" biases the TWFE overall treatment effect estimate. To diagnose the magnitude of this bias, I decomposed the 2 × 2 DID estimates using Goodman-Bacon's method to quantify the contribution of the forbidden comparisons of late treated tracts to tracts that already enacted a 41.18 zone in the overall TWFE estimate (Goodman-Bacon, 2021)

I then estimated the TWFE models the using placebo outcomes of the number of sheltered people in a tract as well as number of cars, vans, and RVs suspected to have unhoused individuals to identify any "placebo effect," with the idea that threat of camping law enforcement should not affect these unhoused subpopulations. If there was a significant effect, this would signal possible confounding in our treatment estimate from omitted variables affecting the levels

of visible unsheltered homelessness in an area. In another falsification test, I restricted the data to the period before policy implementation and ran a placebo DID to check for parallel trends.

For the next two robustness checks/alternatives, I leverage the known influence of City Council representatives of the 15 council districts in determining the extent of enforcement. In the initial rollout of LAMC 41.18 in 2021, enforcement of the camping law could only occur in designated 41.18 enforcement zones that Councilmembers assigned for their district through City Council Meeting resolutions. However, the 2022 expansion of LAMC 41.18 automatically made areas around all schools and daycares across the City of LA as zones of possible enforcement, even in Council Districts (CDs) whose Councilmembers voted against it. Since actual enforcement of a 41.18 zone is determined by the Councilmember of the area—who often receives pressure from neighborhood constituents to conduct sweeps—I restricted the sample to tracts in Council Districts (CDs) where the Councilmember had introduced an enforcement zone by resolution in the past, (hereafter referred to as "enforcing CDs", mapped in Appendix 1-5). The rationale is to compare tracts with and without zones in enforcing CDs, assuming that the distinction is more meaningful in these districts and allows for a more direct comparison between tracts that are likely more similar in other respects. As alternative specification, I defined treatment based solely on the Council District (CD) a tract was in, with treatment being assigned to tracts in enforcing CDs. This approach assumes that Councilmembers in enforcing CDs are more likely to designate and enforce 41.18 zones, thereby creating a stricter policing environment that may spill over to other tracts in the district, regardless of whether those tracts are officially designated for enforcement (hereafter referred to as the 'intent-to-treat' model).

Lastly, enforcement in 41.18 zones near school/daycares adopted as part of the 2022 amendment may be less stringent because of the sheer scale of the expansion compared to enforcement in zones introduced through resolution. Hence, as my final sensitivity analysis, I tested an alternative treatment specification of whether a tract had 41.18 enforcement zone

introduced through resolution only (see Appendix 1-6 for map of 41.18 zones introduced by resolution).

All statistical analyses for both subaims were conducted in R. Statistical significance was set at $p<0.05$, and all tests were 2-tailed.

Results

Describing the spatial and temporal trends in unsheltered homelessness

Table 1-2 displays the average and median number of unsheltered people experiencing visible homelessness per census tract in the LA CoC in each year from 2017 to 2023, and Figure 1-3 reveals the spatial variations in the average number across tracts prior to (2017-2020) and following the implementation of LAMC 41.18 (2022-2023). In general, the number of people living on the street or in encampments grew over the study period, increasing 30% from 2017 to 2023, with the sharpest jump in 2019; the average and median count of visible unsheltered persons tract showed similar increasing trends. From 2017-2020, the share of tracts with at least 1 one visibly unsheltered individual steadily rose; this then declined in 2022 following policy implementation, implying that people may have been clustering in fewer tracts that year as camping laws rolled out in City of LA and a few other cities in LA County. However, in 2023, this number drastically increased by 10%, which could signify potential dispersion of the visible unsheltered population across tracts that year as more areas in the City of LA became exposed to potential enforcement of its camping law.[3]

To quantify the level of global spatial clustering in visible unsheltered homelessness, Table 1-2 also presents the Global Moran's I statistic for spatial autocorrelation for each year. Much like

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[3] Although 2023 was also the year where the tract boundaries used in the PIT Count changed, it is unlikely that the use of the geographically crosswalked data was the only cause of this increase in the proportion of tracts that had an unsheltered person in its boundaries, since this trend was observed in both tracts that experienced a boundary change (66% in 2022 to 83% 2023) and those that did not (71% in 2022 to 78% 2023).

correlation coefficients, scores are between -1 and 1; 1 means perfect positive spatial autocorrelation (i.e., the data is clustered), 0 identifies the data is randomly distributed, and -1 represents negative autocorrelation (i.e., dissimilar values are next to each other). Results demonstrate a fair amount of global spatial autocorrelation in unsheltered homelessness throughout the study period. In particular, the amount of spatial clustering among the population of unsheltered people sleeping on the street or in encampments increased the most from 2017-2019 and then flattened from 2020-2023. Similar trends were observed when considering only tracts in the City of LA (Appendix 1-7), with a stable growth of the visible unsheltered population from 2017-2023 but a plateauing of spatial clustering in the last two study years.

Comparison of the spatial distributions of the visible unsheltered population prior to and following policy implementation in Figure 1-3 shows persistent clustering located in and around the central business district of the City of LA corresponding to Skid Row as well as in the beach communities of Santa Monica and Venice, also known for having large clusters of unhoused people. Between 2022-2023, there was general trend of diffusion of the visible unsheltered population in tracts both within and outside the City of LA as well as a few growing spatial clusters in other cities in LA County.

Table 1-2. Descriptive statistics of the number of visibly unsheltered persons at the census tract level in the Los Angeles Countinuum of Care from 2017-2023 (N=2,162)*

Year	Total count	Mean (SD) per tract	Median (IQR) per tract	Maximum per tract	Percent tracts with ≥1 unsheltered person	Global spatial autocorrelation**
2017	20,332	9.4 (34.43)	2.7 (8.78)	1,169	68.7	0.33
2018	20,193	9.4 (36.89)	3 (8.68)	1,320	69.9	0.35
2019	23,560	10.9 (38.63)	3 (10.00)	1,230	71.8	0.39
2020	24,045	11.1 (36.35)	3 (10.00)	1,062	73.3	0.40
2022	25,155	11.6 (42.23)	3 (10.10)	1,261	69.5	0.40
2023	26,509	12.3 (37.72)	4 (11.84)	1,265	79.9	0.41

*Excludes the tract in Venice with known error in its Point-In-Time (PIT) Count estimate in 2022.

**Global Moran's I statistic calculated using a "queen" neighborhood structure and a binary weight matrix specification. Much like correlation coefficients, scores are between -1 and 1; 1 determines perfect positive spatial autocorrelation (i.e., geographically nearby values are similar), 0 identifies the data as randomly distributed, and -1 represents negative spatial autocorrelation (i.e., neighbors of locations with large values have small values and vice versa).

Figure 1-3. Choropleth maps of the average number of unsheltered persons at the census tract level in the Los Angeles Continuum of Care prior to and following the implementation of Los Angeles Municipal Code (LAMC) 41.18 (N=2,162 tracts)

Average Point-in-Time (PIT) Count of visible unsheltered persons from 2017-2020 (Pre-policy implementation)
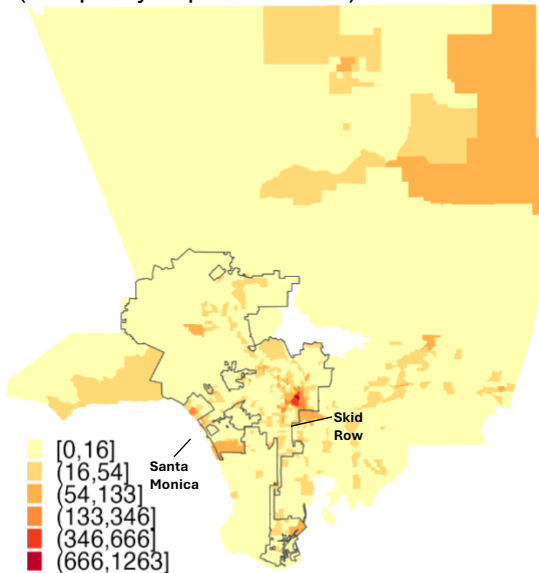
Average Point-In-Time (PIT) Count of visible unsheltered persons from 2022-2023 (Post-policy implementation)
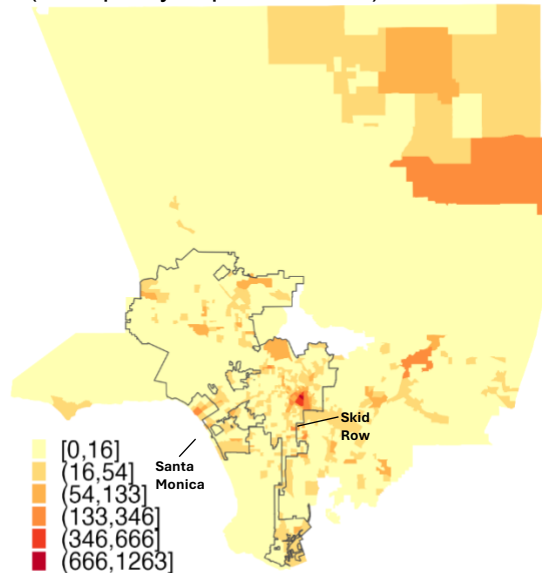
Note: The legend breaks were calculated using the Jenks natural breaks optimization, which seeks to reduce the variance within classes and maximize the variance between classes. The dark grey lines in each map correspond to the borders of the City of Los Angeles. See Appendix 1-8 for maps of all years.

Describing the neighborhood characteristics associated with unsheltered homelessness

Table 1-3 presents descriptive statistics of the neighborhood characteristics of study interest and results from the Clifford Richardson tests examining their correlations with the count of visible unsheltered persons per tract across LA County. Higher counts of visible unsheltered population per tract was significantly correlated with lower share of residential land use [-0.30, p<0.001] and owner-occupied housing [-0.18, p<0.001] but higher share of vacant housing [0.12, p<0.001]. Being in a gentrifying area exhibited a positive but weak correlation with visible unsheltered homelessness [0.07, p<0.001], which may signify that despite surrounding processes of neighborhood change, unsheltered people are still occupying these spaces due to their familiarity with the area or for the scavenging opportunities they provide. Racially concentrated

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areas of affluence were also significantly but weakly correlated with lower counts of visible unsheltered homelessness [-0.074, p<0.001], while areas of poverty were more strongly significantly positively correlated [0.15, p<0.001]. As expected, visible unsheltered homelessness was significantly correlated with greater access to health services and an array of resources often used by unhoused individuals (i.e., shelters, food assistance, and libraries) along with greater number of bridges and areas dedicated to railways and freeways where unsheltered people often sleep. Among these features, greater proximity to shelters and food assistance programs were most strongly correlated with higher count [0.43 & 0.35, respectively]. The only feature not significantly correlated with count was share of park and open space land. For the City of LA, increased presence of the visible unsheltered population was significantly correlated with increased policing activity by residents [0.23, p<0.001] and law enforcement [0.30, p<0.001], likely because in LA, policing is concentrated in socially and economically distressed areas where unsheltered people often sleep and that homelessness complaints often report people living in encampments.

Table 1-3. Descriptive statistics of neighborhood social and built environment characteristics at the census tract level in the Los Angeles Continuum of Care (N=2,162)

Neighborhood characteristic+	Mean (SD)/ N (%)	Correlation with visible unsheltered count per tract
Neighborhood typology: Advanced/ongoing Gentrification	311 (14.4)	0.073***
Racial and economic segregation index++		
Racially concentrated areas of relative poverty	563 (26.4)	0.151***
Racially concentrated areas of relative affluence	388 (18.2)	-0.074***
% Owner-occupied housing units	47.3 (26.13)	-0.181***
% Residential land use	87.9 (15.83)	-0.303***
% Vacant housing	6.1 (5.46)	0.124***
% Land classified as parks and open space	4.4 (11.27)	-0.005
# Shelters within a half-mile of a tract centroid	0.2 (0.61)	0.430***
# Food assistance programs within a half-mile of a tract centroid	0.4 (0.92)	0.350***
# Public libraries within a half-mile of a tract centroid	0.2 (0.50)	0.077***
# Health clinics and hospitals within a	0.5 (1.04)	0.157***

half-mile of a tract centroid		
# Bridge overpasses within a tract	2.6 (5.95)	0.150***
Length (miles) of railways within a tract	0.1 (0.41)	0.225***
Length (miles) of freeways within a tract	1.6 (6.76)	0.046***
# Arrests per 100,000 residents (lagged & log transformed) [+++]	7.2 (1.18)	0.295***
# 311 calls per 100,000 residents (lagged & log transformed) [+++]	6.0 (1.90)	0.227***

* p<0.05   ** p<0.01   ***p<0.001
SD=Standard Deviation
p-values obtained from Clifford Richardson tests to assess bivariate correlations in the presence of spatial autocorrelation.
[+]All neighborhood factor variables are time-invariant, except for the variables for rate of 311 calls and rate of police arrests.
[++]The category for neither an area of concentrated poverty nor affluence is excluded from the table.
[+++]Data for arrests and 311 calls is averaged across study period and covers tracts in the city of Los Angeles only.

Subaim 1a: Describing neighborhood characteristics associated tract-level trends in unsheltered homelessness prior to and following the expansion of LAMC 41.18

What neighborhood characteristics are associated with levels of and changes in unsheltered homelessness across the study period (2017-2023)?

I first examined the neighborhood factors associated with tract-level trends in visible unsheltered homelessness over the entire study period, irrespective of the policy period/implementation. Figure 1-4 reports the standardized regression coefficients from multivariable Poisson models (interpreted as count ratios [CR]) depicting the relationship between the neighborhood characteristics and count of visible unsheltered persons per tract, and Appendix 1-9 presents both unstandardized and standardized regression coefficients for all covariates. Across tracts in LA County from 2017-2023, visible unsheltered homelessness was concentrated in tracts with a lower share of owner-occupied housing [CR=0.85, p<0.001] and residential land use [CR=0.73, p<0.001] but higher share of vacant housing [CR=1.12, p<0.001], after adjusting for other covariates. Racially concentrated areas of affluence were also found to have significantly lower counts of visible unsheltered homelessness compared to concentrated areas of poverty [CR: 0.58, p<0.001], signifying that unsheltered individuals avoided whiter and wealthier areas

and places with more homeowners in favor of areas where there may be more opportunities to shelter without opposition (i.e., areas with more vacant housing). In terms of access to supportive services and built environment features, the positive associations of access to shelters [CR=1.17, p<0.001] and food assistance [CR=1.07, p=0.03] along with bridge overpasses [CR=1.18, p<0.001] and railway coverage [CR=1.10, p=0.008] observed in the bivariate analyses with visible unsheltered count remained significant in the multivariable models, demonstrating the importance of proximity to services for homeless survival. Trends were mostly similar when restricting to tracts only in the City of LA, except the relationship between unsheltered counts and share of owner-occupied housing and vacant housing were not significant. Moreover, in the City of LA, higher counts of visible unsheltered population was significantly associated with both higher policing activity by law enforcement [CR=1.13, p=0.008] and residents through 311 complaint calls [CR=1.60, p<0.001].

I then assessed the factors related with year-to-year relative changes in tract-level visible unsheltered homelessness. Figure 1-5 displays the predicted values of count of visible unsheltered persons per tract over time for the neighborhood characteristics significantly associated with changes in unsheltered homelessness, and Appendix 1-10 presents all the regression coefficients for these change models. For ease of interpretation, I compare tracts with high (i.e., one standard deviation above) versus low (i.e., one standard deviation below) values for the continuous neighborhood covariates and report their percent change in the predicted unsheltered count from the beginning (2017) to the end of the study period (2023) calculated from the regression model.

For all tracts across LA County, I observed a small yet significant higher growth in visible unsheltered homelessness in tracts with greater railway coverage; tracts with high railway coverage had an expected 36% increase [95% CI: 16-60%] in count over the study period, while

tracts with low coverage saw a 20% increase [95% CI: 2-41%], a 16% significant difference [p=0.02] in percent change. All other growth trends were not significant at the county-wide level.

In the city-wide model, the number of visible unsheltered persons was significantly higher in tracts with low share of residential land at the beginning of the study compared to tracts with high share [CR=1.29, p=0.002]; counts in these low share tracts rose 65% over the study period, compared to an 18% growth in tracts with a high share [percent change difference: 47%, p<0.001]. On the other hand, tracts with low rates of arrest began with significantly lower counts of the visible unsheltered population at the start of the study period [CR=0.56, p<0.001] but experienced much higher increases in counts over time compared to tracts with high rates of arrests [81% vs. 6%, p<0.001]. Tracts with high/better access to shelters had significantly higher counts in the first year of the study [CR=1.36, p<0.001] and continued to see more growth compared to areas with low/worse access [49% vs. 28%, p=0.02]. Although counts of the visible unsheltered population were not significantly different among tracts with low/worse access to health services and tracts with better access in the beginning, tracts with low/worse saw greater increases over time [51% vs. 27%, p=0.03]. Lastly, contrary to my initial hypothesis, while gentrification status was not associated with significant differences in unsheltered count in the first year [CR: 0.94, p=0.492], gentrifying tracts experienced higher growth in counts compared to non-gentrifying tracts [57% vs. 23%, p=0.02], perhaps due to having more foot traffic and business that offer opportunities for unhoused individuals to forage for basic needs. Taken together, these results illustrate that across the study period, the visible unsheltered population was concentrating more rapidly in areas near train tracks in LA County; within the City LA, unsheltered individuals moved into areas in greater numbers with increased access to shelter yet decreased access to health services and areas with lower probability of contacting police and residents.

Figure 1-4. Count ratios from multivariable Poisson General Estimating Equations (GEE) regression models of count of the total visible unsheltered population on neighborhood characteristics from 2017-2023

All tracts in Los Angeles County (N=2,134)   **Tracts in the City of Los Angeles (N=991)**
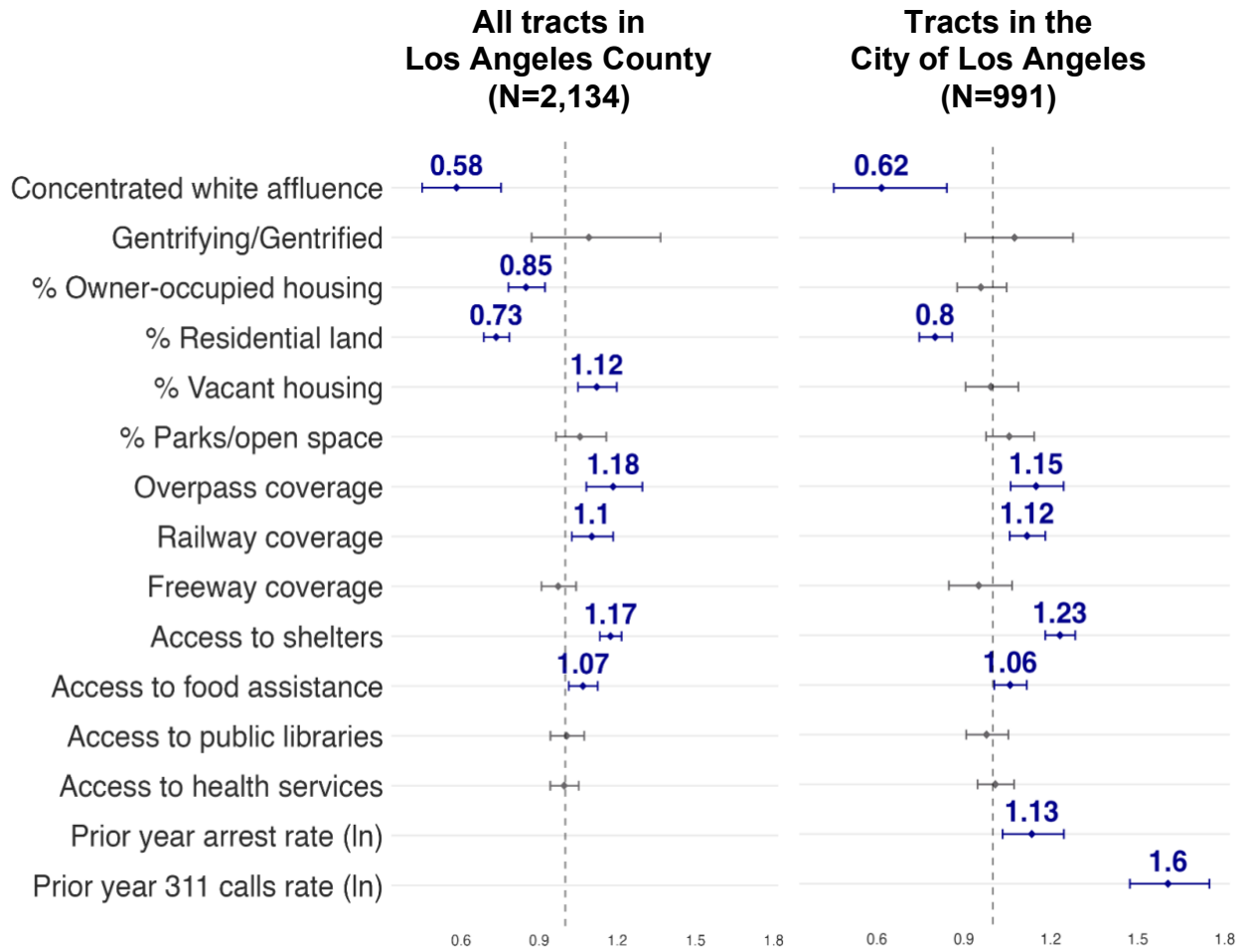
Note: Regression coefficients significant at the p<0.05 are colored in blue. Coefficients for year and whether a tract changed boundaries is presented in the Appendix.

Figure 1-5. Predicted values of the count of visible unsheltered population over time by levels of select neighborhood characteristics from 2017-2023

Predicted values were calculated from regression models with interactions between a continuous time variable and the neighborhood explanatory factor. All neighborhood covariates were standardized; interpretation is the predicted value when all other covariates are at their average. For the neighborhood covariates measured on a continuous level, I compared the percent change (with 95% Confidence Intervals) in count from 2017 to 2023 for tracts that have a value 1 standard deviation (SD) above the mean for the covariate versus one that is 1 SD below. This figure shows only the neighborhood factors with significant differences.

LAMC=Los Angeles Municipal Code

All tracts in Los Angeles County (N=2,134)
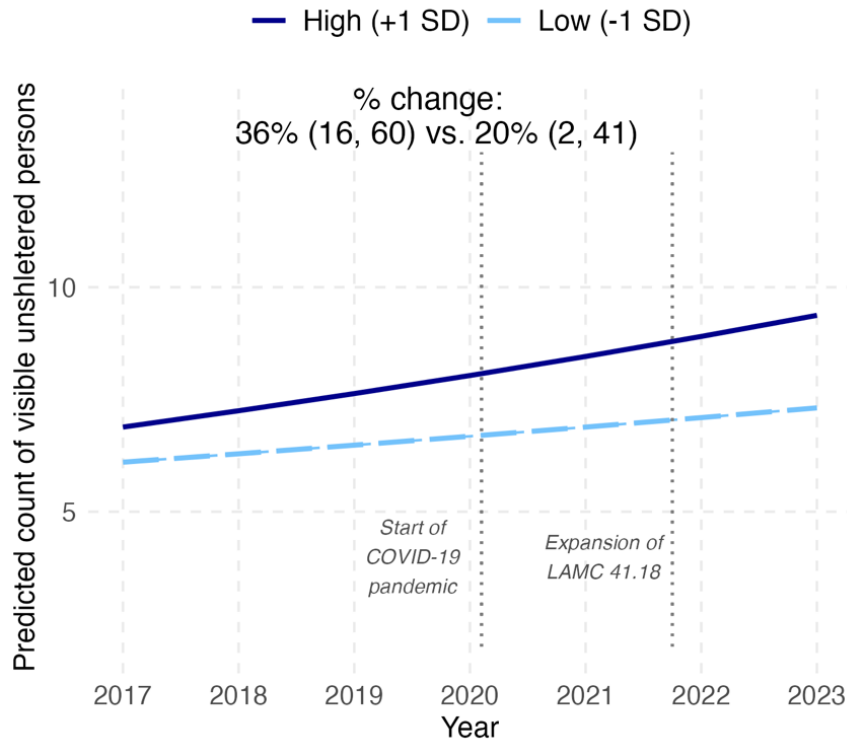
Tracts in the City of Los Angeles (N=991)

Percent residential land use
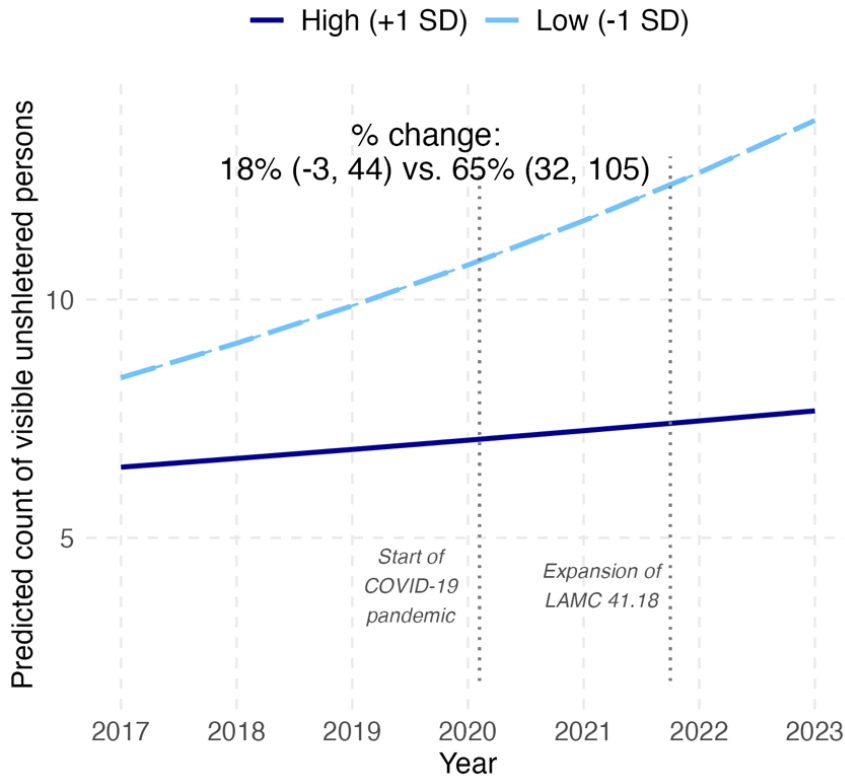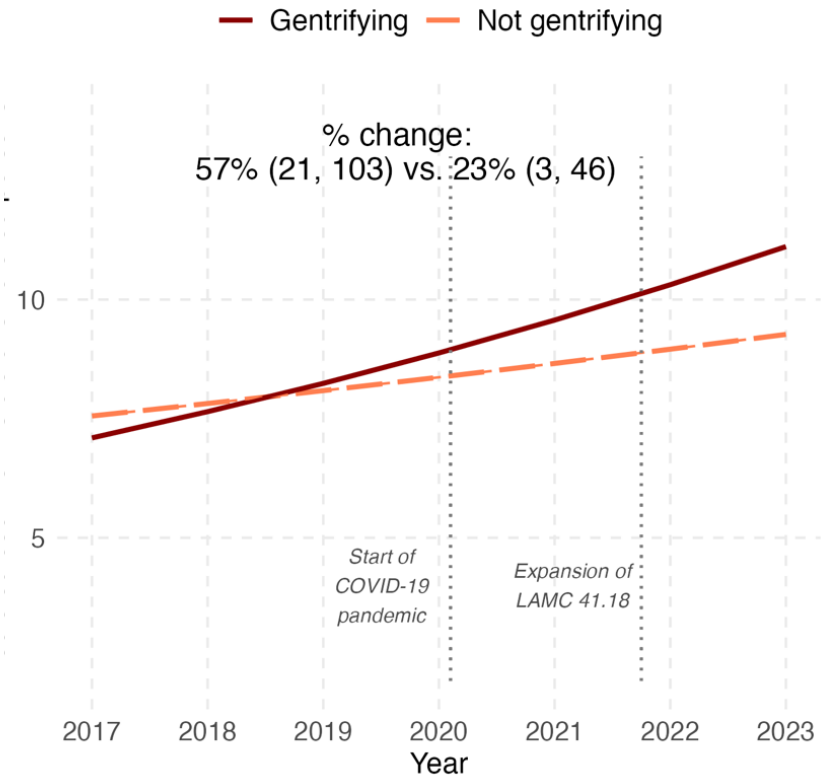
High (+1 SD) — Low (-1 SD)

% change:
18% (-3, 44) vs. 65% (32, 105)

Predicted count of visible unsheltered persons

Start of
COVID-19
pandemic

Expansion of
LAMC 41.18

Gentrification status

Gentrifying — Not gentrifying

% change:
57% (21, 103) vs. 23% (3, 46)

Start of
COVID-19
pandemic

Expansion of
LAMC 41.18

Year

82

Number of shelters within a half-mile of a tract centroid

— High (+1 SD) — Low (-1 SD)

% change:
49% (23, 82) vs. 28% (7, 54)

Predicted count of visible unshletered persons

Start of COVID-19 pandemic

Expansion of LAMC 41.18

Year

Number of health clinics and hospitals within a half-mile of a tract centroid

— High (+1 SD) — Low (-1 SD)

% change:
27% (6, 54) vs. 51% (22, 86)

Start of COVID-19 pandemic

Expansion of LAMC 41.18

Year

Arrests per 100,000 residents (lagged & log transformed)

High (+1 SD) — Low (-1 SD)

% change:
6% (-17, 36) vs. 81% (38, 139)

Predicted count of visible unsheltered persons

10

5

Start of
COVID-19
pandemic

Expansion of
LAMC 41.18

2017   2018   2019   2020   2021   2022   2023

Year
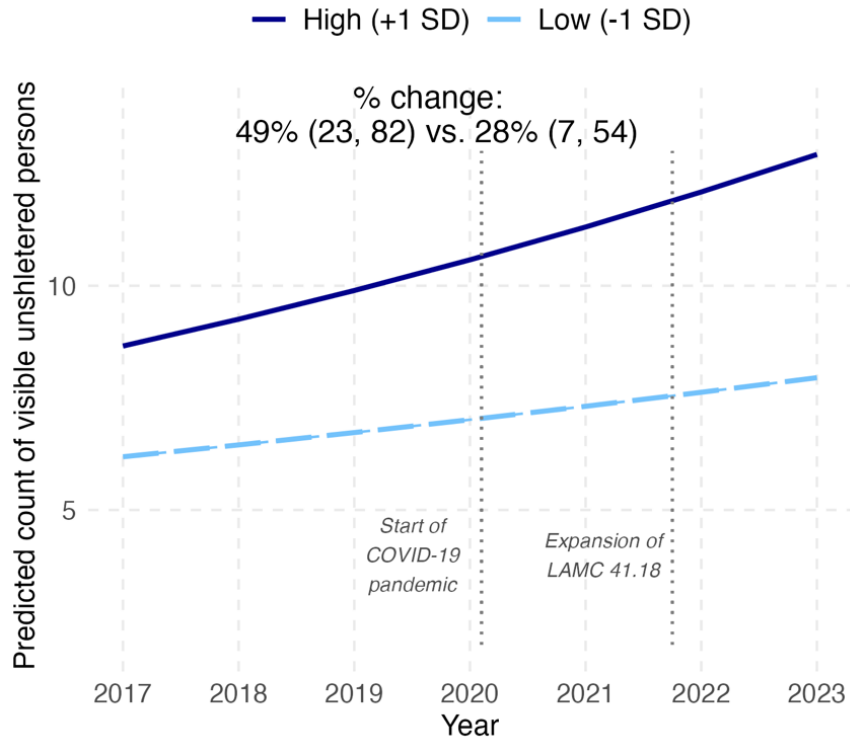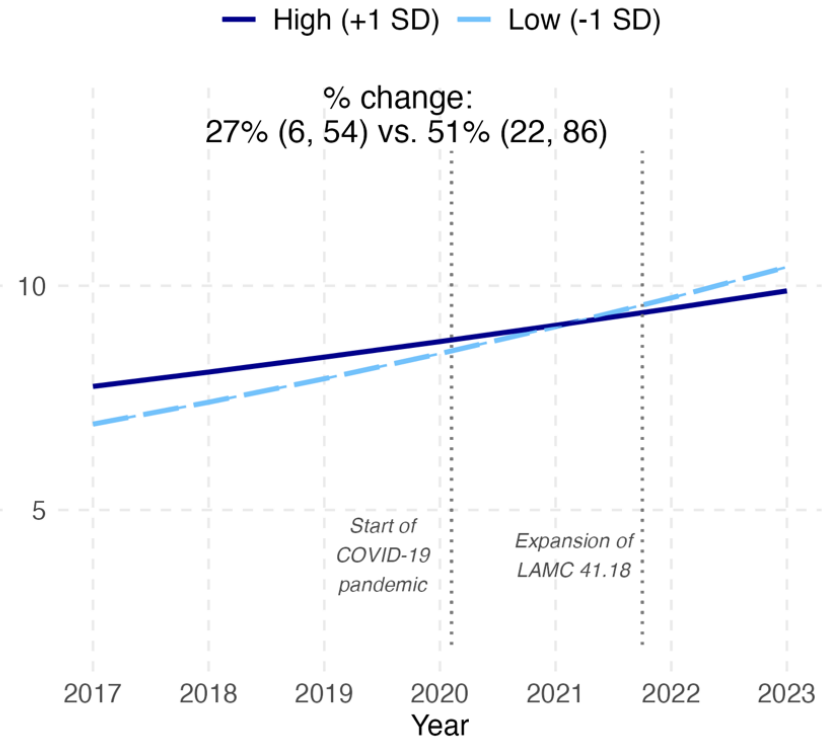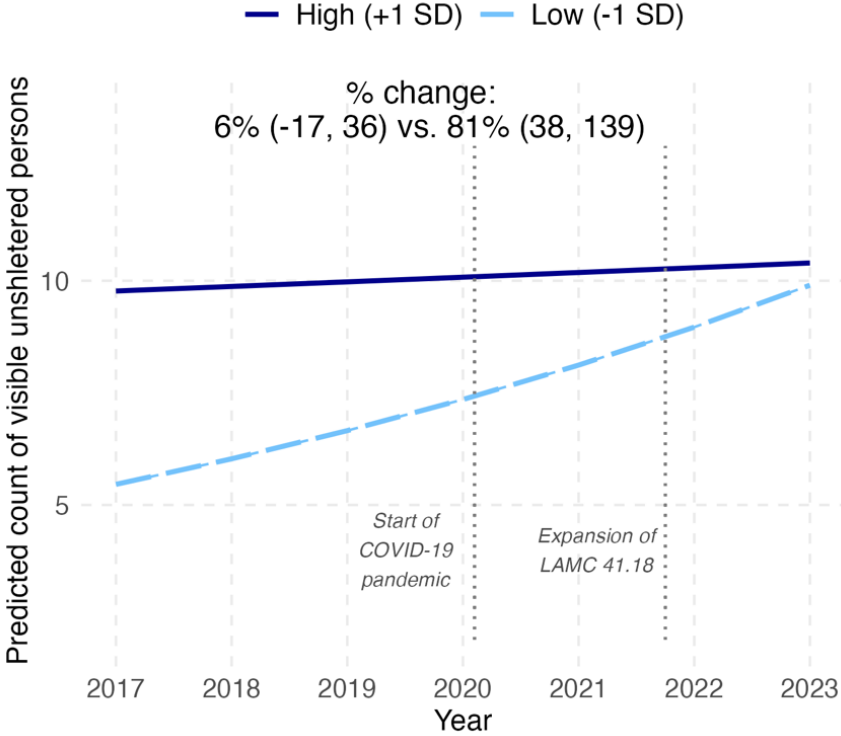
Where do we see differences in the levels of and changes in unsheltered homelessness after the implementation of LAMC 41.18 in 2021 compared to before?

Next, I conducted moderation analyses to test whether there were any differences in the relationships between the neighborhood characteristics and levels of unsheltered homelessness after LAMC 41.18 was implemented (post-policy; 2022-2023) versus before (pre-policy; 2017-2020). Figure 1-6 reports the standardized regression coefficients of the associations between the neighborhood covariates and visible unsheltered count by policy period, while Figure 1-7 plots the predicted values of count of visible unsheltered persons from the models that had a significant difference by policy period for easier visualization of trends; Appendix 1-11 & 1-12 presents all regression coefficients. The associations between the neighborhood factors and visible unsheltered count differed slightly in the periods before and after the LAMC 41.18 was reinstated. In the county-wide model, there was a significantly stronger positive effect of access to shelter on visible unsheltered homelessness post-policy period [CR: 1.21, p<0.001] compared to the pre-policy period [CR: 1.15, p<0.001; difference p=0.01]. Furthermore, greater access to food assistance programs was only significantly associated with higher count in the period prior to policy implementation [Post CR: 1.04, p=0.2 vs. Pre CR: 1.09, p=0.006]. This suggests that the county's visible unsheltered population may have dispersed from areas with more food assistance programs post-policy implementation and begun clustering even more heavily in areas in closer proximity to shelters, known widely to be hotspots of unsheltered homelessness.

The stronger positive effect of shelter access in the post-policy period was also detected in the model for the City of LA only [Post CR: 1.30, p<0.001 vs. Pre CR: 1.19, p<0.001; difference p=0.003], along with a stronger positive effect of bridge overpass coverage [Post CR: 1.19, p<0.001 vs. Pre CR: 1.11, p=0.004; difference p=0.02]. On the other hand, lower share of residential land use had a stronger negative effect on the visible unsheltered count for tracts in the City of LA during the post-policy period [CR: 0.77, p<0.001] compared to the pre-policy period [CR=0.84, p<0.001; difference p=0.03]. Lastly, higher rate of arrests in the City of LA was only

significantly associated with higher count in the pre-policy period [CR=1.25, p<0.001]; this effect was not observed in the post-policy period [CR=1.07, p=0.24; difference p=0.02]. These findings illustrate how in the City of LA where LAMC 41.18 applies, unsheltered individuals maybe moving away from areas with greater policing activity and residential land share after policy implementation to minimize potential negative interactions with police and residents, resorting to staying areas where people are more accustomed to seeing unhoused individuals, such as near shelters and bridge overpasses.

Finally, I examined whether there were differences in the growth patterns in visible unsheltered homelessness before and after LAMC 41.18 went into effect in models with three-way interactions with policy period, time, and each neighborhood factor. Figure 1-8 plots the predicted values of count of visible unsheltered persons from the moderated year-to-year change models that had a significant difference by policy period, and Appendix 1-13 reports all regression coefficients. For ease of interpretation, I report the regression coefficient for year-to-year change in unsheltered count that can be interpreted as a yearly growth rate (YGR). For tracts across LA County, only the effect of percent land classified as parks/open space on year-to-year change in unsheltered homelessness was significantly different pre and post policy implementation. Prior to the implementation of LAMC 41.18, a high share of parks and open space in a tract was not significantly associated with more growth in the unsheltered count [YGR=1.04, p=0.923], yet following policy implementation, a high share was significantly associated with higher year-to-year increases in unsheltered count [YGR=1.18, p=0.011]. When considering tracts in the City of LA only, gentrifying/gentrified areas demonstrated a slightly higher growth in visible unsheltered count [YGR=1.14, p=0.001] compared to non-gentrifying areas [YGR=1.06, p=0.02] in the pre-policy period. However, in the post-policy period, unsheltered count continued to increase in non-gentrifying areas [YGR=1.17, p=0.02] but stagnated in gentrifying areas [YGR=1.00, p=0.987]. In total, results from this moderation analysis indicate that in the City of LA, gentrifying areas may slowly be more inhospitable for unhoused individuals as the reach of the cities camping law

expands, and that areas with more parks and open space may serve as relatively new sources of

refuge for the county's unsheltered community during increased enforcement.

Figure 1-6. Count ratios from multivariable Poisson General Estimating Equations (GEE) regression models of count of the total visible unsheltered population on neighborhood characteristics, by policy period

All tracts in Los Angeles County (N=2,134)
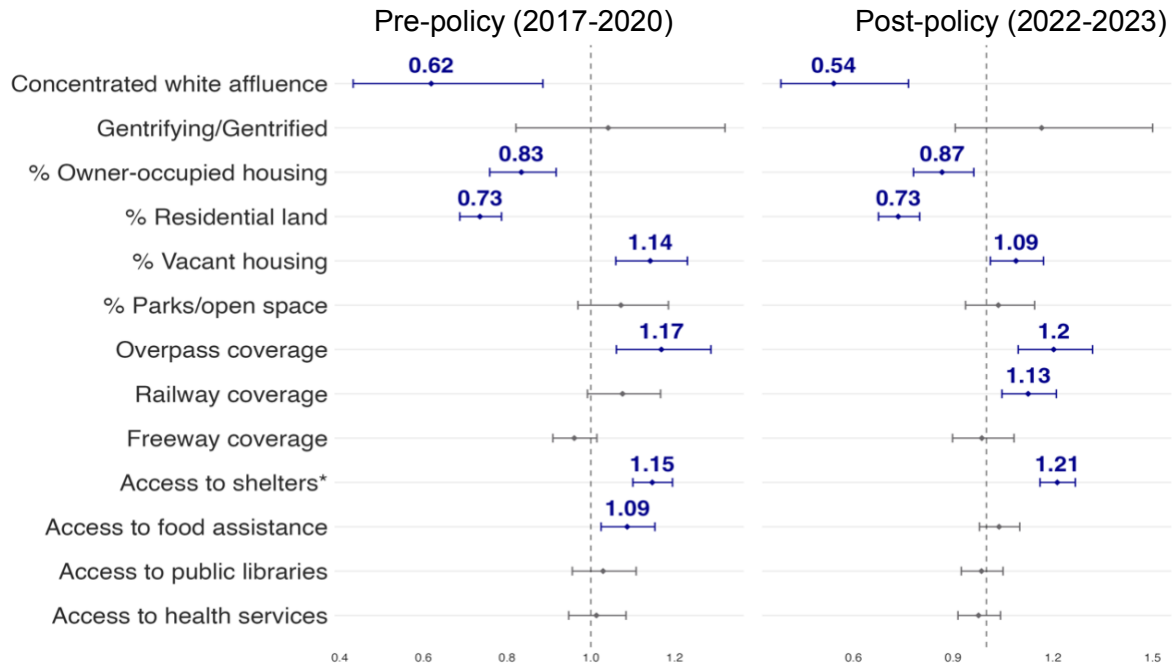
Tracts in the City of Los Angeles (N=991)
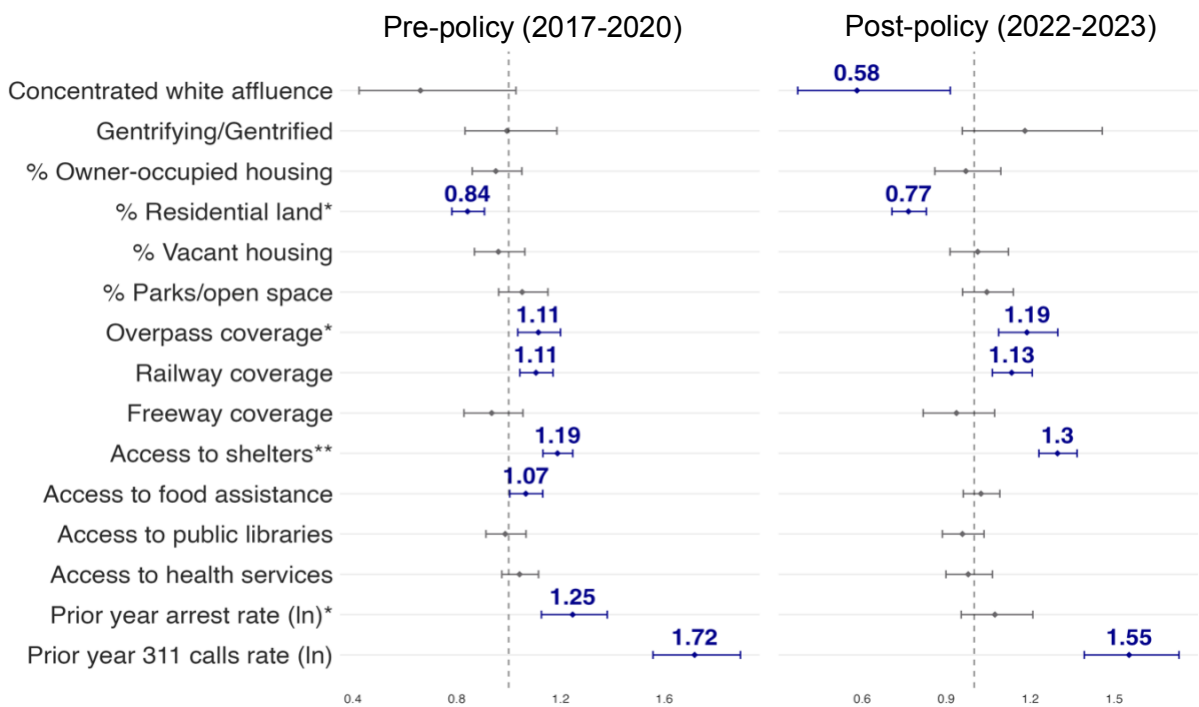
* p<0.05; ** p<0.01: Significance level for difference in associations between pre- and post- policy period.
Note: Regression coefficients significant at the p<0.05 are colored in blue. Coefficients for year and whether a tract changed boundaries is presented in the Appendix.

Figure 1-7. Predicted values of the count of the visible unsheltered population per tract during pre-policy (2017-2020) and post-policy (2022-2023) period by levels of select neighborhood characteristics

All tracts in Los Angeles County (N=2,134)
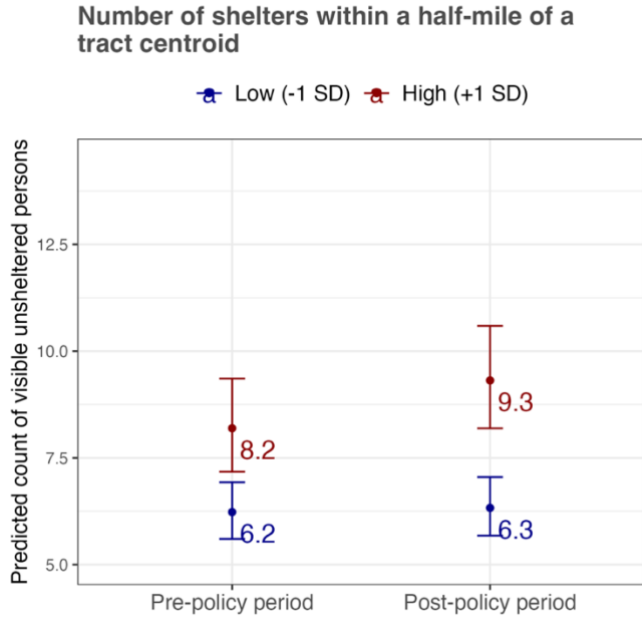
Predicted values calculated from regression models with interactions between policy period and the neighborhood explanatory factor. All neighborhood covariates were standardized; interpretation is the predicted value when all predictors are at their average. For the neighborhood covariates measured on a continuous level, I compared tracts that have a value 1 standard deviation (SD) above the mean for the covariate versus one that is 1 SD below. This figure shows only the neighborhood factors with significant differences.

Tracts in the City of Los Angeles (N=991)
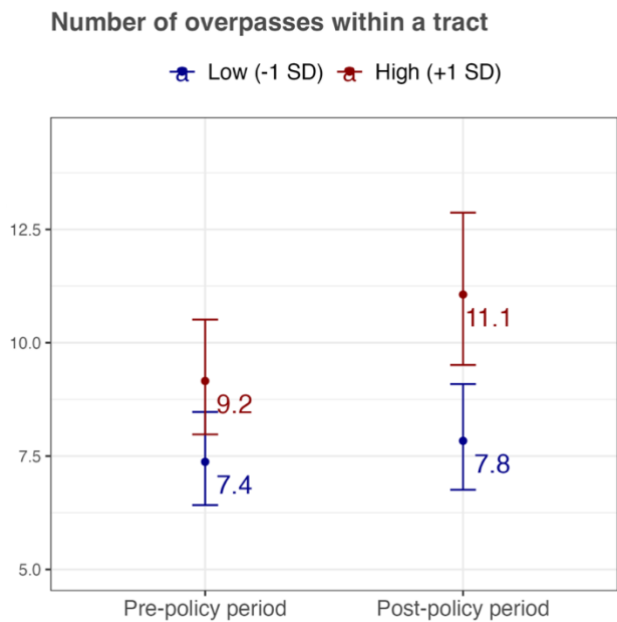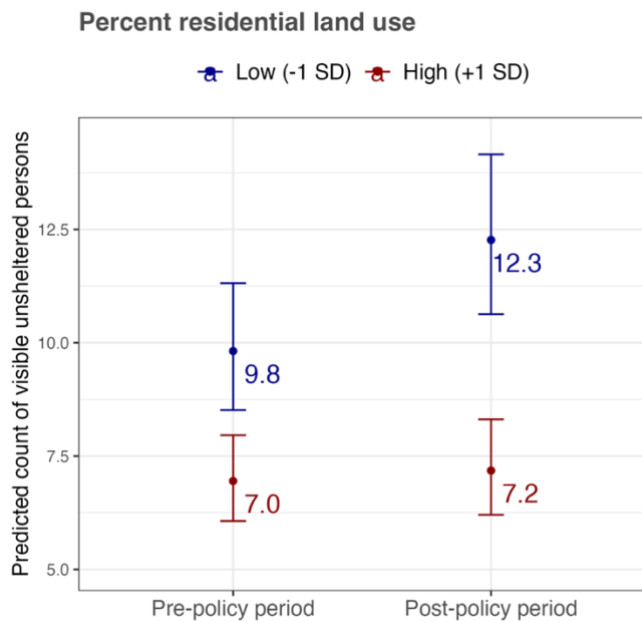
Number of shelters within a half-mile of a tract centroid

Low (-1 SD) High (+1 SD)
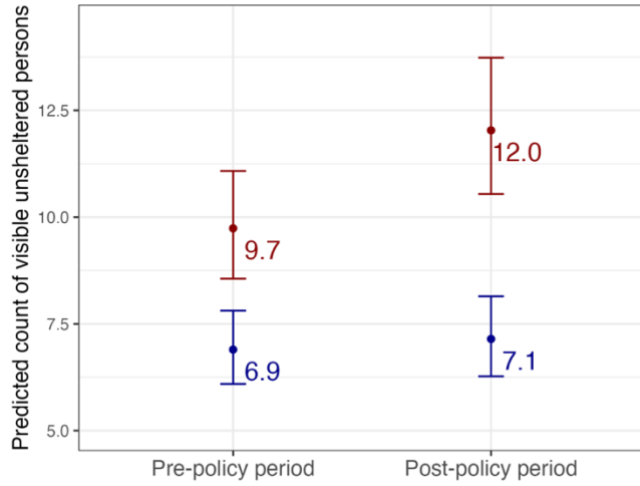
Arrests per 100,000 residents (lagged & log transformed)

Low (-1 SD) High (+1 SD)

90
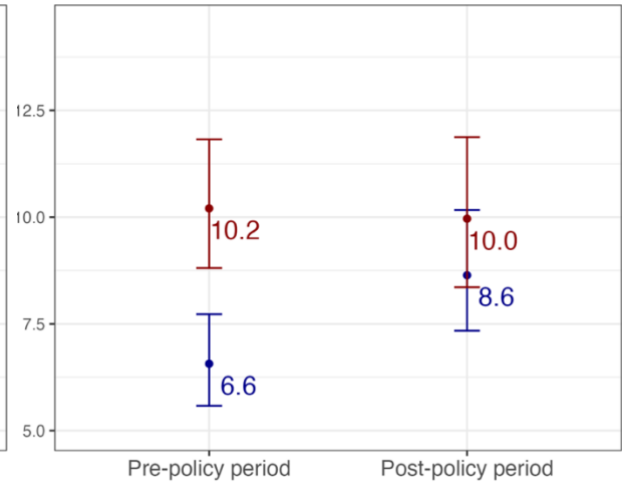
Figure 1-8. Predicted values of the count of visible unsheltered population over time by levels of select neighborhood characteristics from 2017-2023

Predicted values calculated from regression models with interactions between policy period indicator, period-specific time variable, and the neighborhood explanatory factor. All neighborhood covariates were standardized; interpretation is the predicted value when all predictors are at their average. For the neighborhood covariates measured on a continuous level, I compared the time trends among tracts that have a value 1 standard deviation (SD) above the mean for the covariate versus one that is 1 SD below. This figure shows only the neighborhood factors with significant differences.

All tracts in Los Angeles County (N=2,134)

Percentage of land classified as parks and open space
— High (+1 SD) — Low (-1 SD)
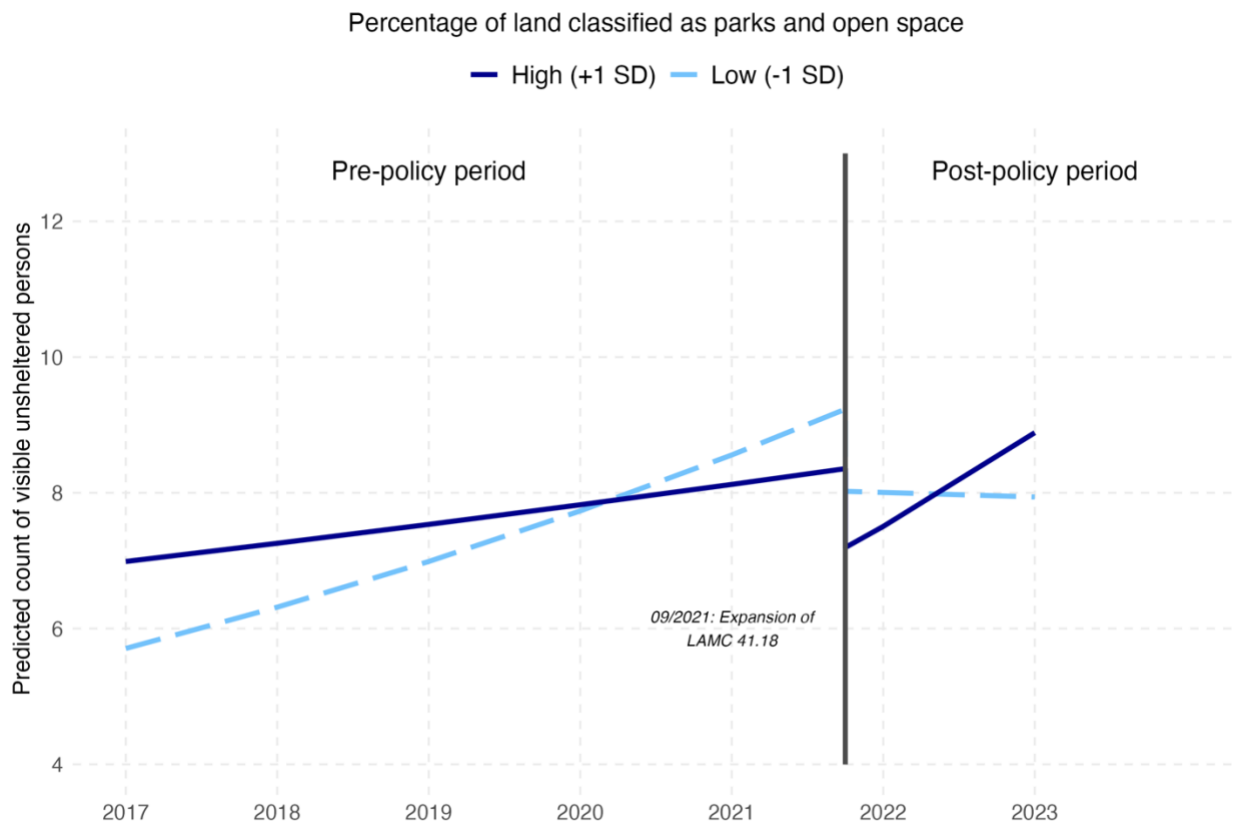
Level of percent of park & open space land	Policy period	Std CR [95% CI] for yearly growth rate	Difference [95% CI] in yearly growth rate[+]
High (+1SD)	Pre-policy	1.04 [0.99, 1.09]	13.5%
High (+1SD)	Post-policy	1.18 [1.04, 1.35]*	[5.1, 23.9]
Low (-1SD)	Pre-policy	1.11 [1.06, 1.16]***	-10.8%
Low (-1SD)	Post-policy	0.99 [0.84, 1.17]	[-20.8, 0.9]

* p<0.05   ** p<0.01   ***p<0.001
Std CR=Standardized Count Ratio; CI=Confidence interval; LAMC=Los Angeles Municipal Code
2021 data on unsheltered count was not observed.
Marginal estimates were calculated for when all other covariates are set at their mean.
[+]Percent difference in yearly growth rate for each level of the neighborhood covariate was calculated as:
$$\left(\frac{Post\ CR}{Pre\ CR} - 1\right) * 100$$

Tracts in the City of Los Angeles (N=991)

Gentrification status

— Gentrifying　– Not gentrifying
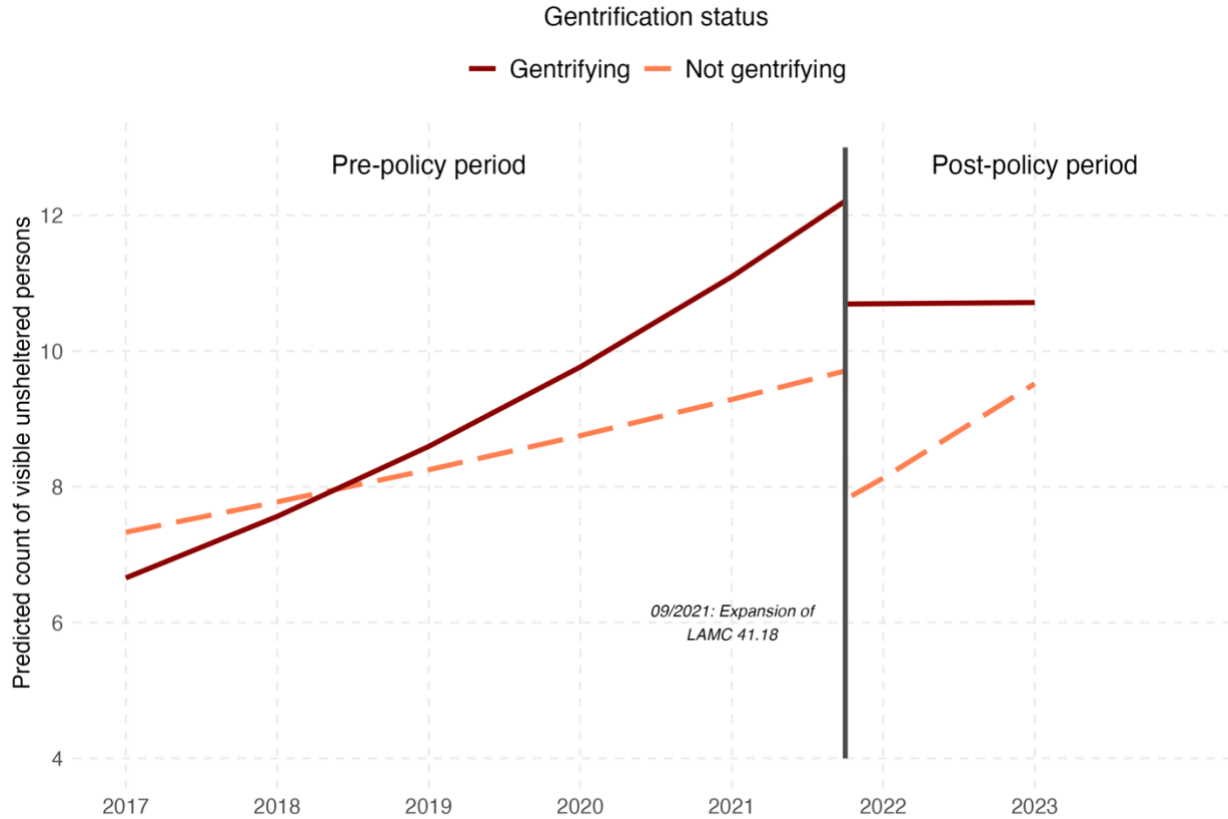
Gentrification status	Policy period	Std CR [95% CI] for yearly growth rate	Difference [95% CI] in yearly growth rate[+]
Gentrifying/gentrified	Pre-policy	1.14 [1.06, 1.22]**	-12.3%
Gentrifying/gentrified	Post-policy	1.00 [0.82, 1.22]	[-22.6, 0.0]
Not gentrifying	Pre-policy	1.06 [1.01, 1.11]*	10.4%
Not gentrifying	Post-policy	1.17 [1.03, 1.34]*	[2.0, 20.7]

* p<0.05   ** p<0.01   ***p<0.001
Std CR=Standardized Count Ratio; CI=Confidence interval; LAMC=Los Angeles Municipal Code
2021 data on unsheltered count was not observed.
Marginal estimates were calculated for when all other covariates are set at their mean.
[+]Percent difference in yearly growth rate for each level of the neighborhood covariate was calculated as:
$$\left(\frac{Post\ CR}{Pre\ CR} - 1\right) * 100$$

Subaim 1b: Assessing the effect of LAMC 41.18 on tract-level unsheltered homelessness

Exploratory analysis

For this subaim, I examined whether the implementation of LAMC 41.18 had an effect on tract-level unsheltered homelessness. Figure 1-9 shows the change in the counts of the visible unsheltered population from 2020 to 2022 and from 2022 to 2023 per tract for the City of LA, overlaid with the LAMC 41.18 zones that were effective prior to that year's PIT count. From the maps, there is not an obvious trend in change in count for areas with enforcement zones versus those without. Tracts with 41.18 zones generally appear to experience no change or a slight decrease in the visible unsheltered count; however, tracts surrounding these areas with zones seem to have experienced slight increases in count, pointing to a potential spillover effect of the implementation of LAMC 41.18.

Figure 1-9. Map of active Los Angeles Municipal Code (LAMC) 41.18 enforcement zones overlaid on changes in the Point-In-Time (PIT) Count of the visible unsheltered population in the City of Los Angeles (N=1,003 tracts)
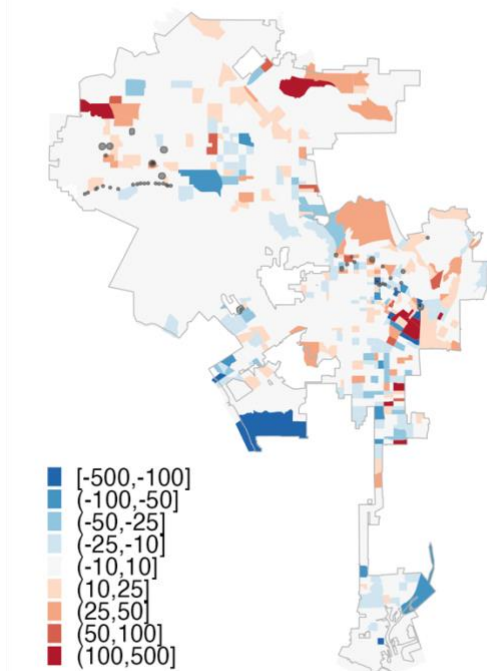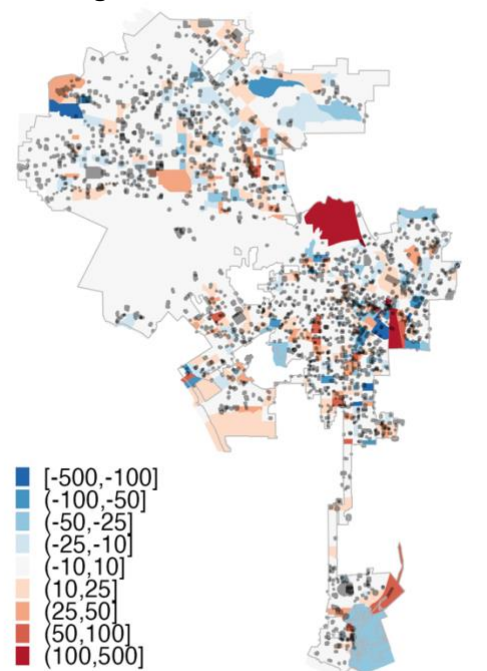
Note: Dark grey dots correspond to active 41.18 enforcement zones at the time of that year's PIT Count.

Before estimating the treatment effect, I examined the neighborhood factors associated with the enactment of a 41.18 enforcement zone by resolution in tract (Appendix 1-14). Results from multivariable logistic regression analysis revealed that tracts with higher share of owner-occupied housing but lower share of vacant housing had higher odds of having an enforcement zone introduced by resolution [OR: 1.39, p=0.02 & OR: 0.69, p=0.002, respectively]. Additionally, greater levels of policing from law enforcement and residents (through 311 complaint calls) in the year prior to implementation was also associated with increased odds of 41.18 enforcement zone implementation [OR: 1.33, p=0.49 & OR: 2.18, p<0.001, respectively], yet higher count of visible unsheltered homelessness was not. This insinuates that the voluntary adoption of the camping law, defined as the designation of a LAMC 41.18 zone through resolution in a tract, may be partly driven by the sociopolitical dimensions in the surrounding area.

I then compared tracts in the City of LA that had at least one 41.18 enforcement zone ("treated tracts") to tracts that did not ("control tracts") in terms of these neighborhood factors to assess for covariate balance (Appendix 1-15). Compared to control tracts, treated tracts had a significantly greater share of land covered by bridge overpasses (2.2% vs 1.1%, p=0.008) and freeways (0.93% vs. 0.48%, p=0.006) as well as greater mean number of public libraries in close proximity (0.28 vs 0.13, p=0.012). All other covariates were fairly balanced between treated and control tracts.

Figure 1-10 plots the average count of the visible unsheltered population per tract for each year across the study period and displays the averages in count before and after the implementation of LAMC 41.18 by tracts who ever overlapped a 41.18 zone during the study period ("treated") and tracts who never had a zone ("control"). Treated tracts consistently had higher counts both before and after policy implementation. For the City of LA, control and treated tracts had mostly similar trends in the pre-policy period (note that the PIT Count was not conducted in 2021). Control tracts experienced a dip in average count in 2022 after policy implementation but a jump in average count in the following year.

94

Figure 1-10. Average Point-In-Time (PIT) Count of the visible unsheltered population per year in tracts in the City of Los Angeles by treatment assignment, 2017-2023 (N=1002)
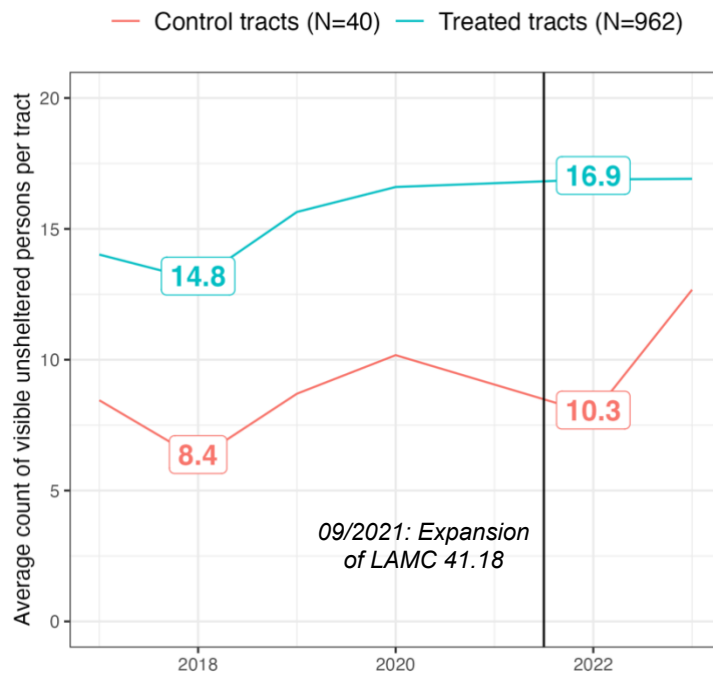
LAMC=Los Angeles Municipal Code
Note: The numbers in boxes refer to the average count of the visible unsheltered population in the years prior to and following the expansion of LAMC 41.18 in September 2021. The count of the visible unsheltered population was not observed in 2021.

Difference-in-Differences estimates

Results from two-way fixed effects (TWFE) models show a negative average treatment [ATT= -0.17] (Table 1-4), suggesting that potential enforcement of LAMC 41.18 on average reduced the expected count of visible unsheltered persons in the area by 16%, however, this effect was not statistically significant [p=0.09]. Given the slight covariate imbalance in the data, as a robustness check, I reran the TWFE model with stabilized IPWs to make the treated and control groups more comparable. Appendix 1-16 compares the balance of the covariates between the groups before and after applying the IPWs. Groups were much more similar after weighting; while many of the covariates had mean differences greater than 0.10 between the groups prior to weighting, most covariates experienced a reduction in mean differences after applying the IPWs. In the weighted

TWFE models, the estimated treatment effect remained non-significant [ATT= -0.10, 0.317] (Table 1-4).

The event study design revealed a lagged treatment effect of potential enforcement of LAMC 41.18, in that reductions in the visible unsheltered count was greater in the year following the first year of having a 41.18 enforcement zone in the area (Figure 1-11). Count decreased 19% [95% CI: 1-44%, p=0.046] in the first year and decreased 34% [95% CI: 8-53%, p=0.02] in the next year.

Additional sensitivity checks

Appendices 1-17 to 1-20 display the results from the sensitivity analyses. The use of TWFE models in studies with variation in treatment adoption can led to misleading inferences if the problematic comparison of late treated units (i.e., tracts who adopted a 41.18 enforcement zone in the second year) to early treated units (i.e., tracts that already implemented a 41.18 zone in the first year) contributes to a large proportion of the TWFE estimate. The Goodman-Bacon decomposition procedure established that this "forbidden comparison" accounted 13% in the city-only models, mitigating some concerns for a biased treatment effect estimate.

In the first falsification test using placebo outcomes, none of the estimated treatment effects on the number of sheltered people in a tract as well as number of cars, vans, and RVs suspected to have unhoused individuals were significant; this signifies that confounding from omitted variables is likely not driving the main results. The second falsification test of rerunning the main TWFE model using the data from pre-treatment period only also did not exhibit significant treatment effects, which gives some support to the plausibility of the parallel trends assumption in our data.

For my last three sensitivity analyses, I assessed whether the impact of the adoption of an LAMC 41.18 enforcement zone depended on the probability of it being enforced by considering the jurisdiction it was in as well as the way the 41.18 zone was initiated. I first re-estimated the

treatment effect on a subsample of tracts that are in Council Districts led by Council Members who are presumed to be more likely to reinforce the camping ban in their district. The estimated average treatment effect among this restricted sample was negative [ATT: -0.26, p=0.01], representing a 23% significant decline [95% CI: 5-37%] in the visible unsheltered population due to the threat of camping law enforcement within these districts—a higher reduction than the one estimated in the main model. I then tested an alternative treatment specification based solely on the Council District (CD) a tract was in, with treatment being assigned to tracts in enforcing CDs (intent-to-treat approach). The estimated average treatment effect was negative but not significant [ATT: -0.12, p=0.21]. Lastly, I used a more stringent definition of potential enforcement of LAMC 41.18, operationalizing treatment as whether a tract had 41.18 enforcement zone introduced through resolution only, with the idea that these zones may be more likely to be enforced (as opposed those designated in the 2022 expansion to all schools/daycares). This alternative treatment measure was significantly associated with a 12% [95% CI: 1-23%] reduction in visible unsheltered count.

Table 1-4. Estimated treatment effects of Los Angeles Municipal Code (LAMC) 41.18 enforcement zone implementation on tract-level visible unsheltered count in the City of Los Angeles (N=1002)

	ATT Estimate [95% CI]	Percent Change[+] [95% CI]	p-value	2022		2023	
				Control Mean (SD), N	Treated Mean (SD), N	Control Mean (SD), N	Treated Mean (SD), N
Unweighted	-0.17 [-0.37, 0.03]	-16 [-31, 3]	0.094	15 (56), 922	32 (69), 80	13 (24), 40	17 (53), 962
Weighted	-0.10 [-0.29, 0.09]	-9 [-25, 10]	0.317				

CI=Confidence Interval; SD=Standard Deviation
Estimates are derived from unweighted and weighted two-way fixed effects models with fixed effects for tract and year. Weighted two-way fixed effects regression used stabilized inverse probability weights created by calculating the propensity of being treated with data on neighborhood characteristics and a lagged outcome variable.
[+]Calculated as [count ratio($[exp(\beta)]$) − 1]*100.

Figure 1-11. Event study estimates: Change in visible unsheltered count before and after the implementation of an Los Angeles Municipal Code (LAMC) 41.18 enforcement zone in tracts in the City of Los Angeles (N=1002)
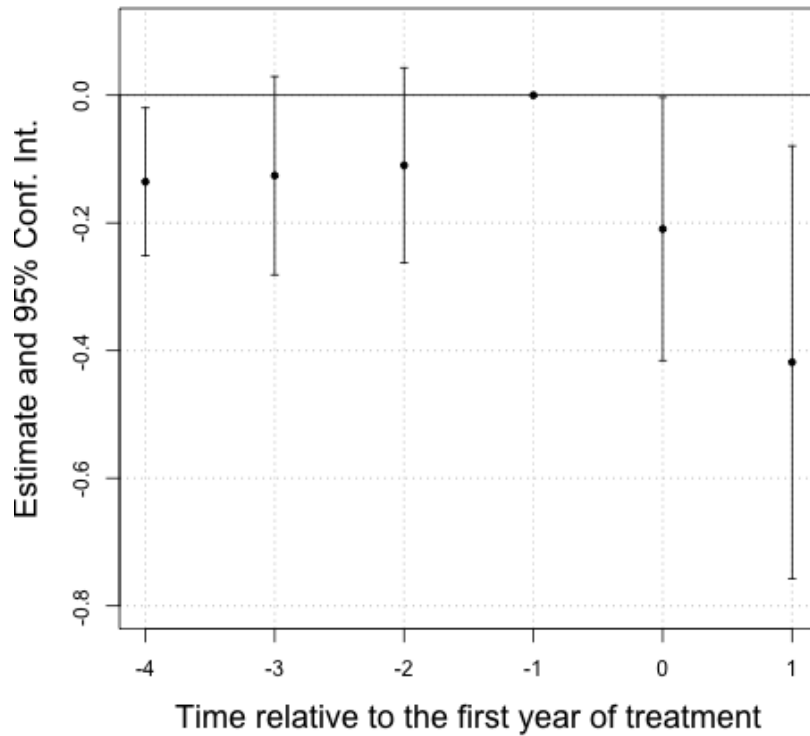
Event estimates are based on running the main two-way fixed effects models and replacing the treatment/exposure variable with binary indicators for the years relative to the first year of treatment (i.e., had an active 41.18 zone within its boundaries); tracts that never implemented a 41.18 zone during the study period were set to 0 for all indicators. The reference group in the regression is the year immediately prior to the having a 41.18 enforcement zone (event time= -1). The year 2021 was omitted since count data for that year was not available. The error bars represent 95% Confidence Intervals.

Discussion

This study, to my knowledge, is one of the first to empirically assess the effects of anti-homeless laws on the geography of unsheltered homelessness and characterize the areas where unsheltered people are moving in order to avoid enforcement in the context of renewed criminalization. I found that visible unsheltered homelessness was clustered in areas of racially concentrated areas of poverty (and away from areas of concentrated white affluence), with lower share of owner-occupied housing and residential land use but higher share of vacant housing, greater access to shelters, and more bridge coverage before the implementation the City of LA's camping ban. These patterns persisted after policy implementation, with unhoused individuals increasingly congregating around shelters, areas with more bridge coverage, and neighborhoods with higher share of residential land. As other studies note (Shin, 2021), areas with more homeless services and bridge overpasses are important places for unhoused people to sleep (relatively) undisturbed by homeowners and businesses. Over the study period, visible unsheltered homelessness grew more rapidly in areas with greater access to shelter but lower access to health services, and in places with lower probability of interacting with police and hostile residents. These overall growth patterns signify that the spatial trends in unsheltered homelessness had evolved over the study period, likely due to an array of external factors that make places more or less conducive for homeless survival.

When comparing trends before and after the implementation of LAMC 41.18, I noted that the unsheltered population may be driven away from areas with more food assistance programs post-policy implementation, moving into areas surrounding rail tracks that are more hidden and concentrating in spaces that may be more tolerant of or accustomed to the unsheltered community, such as places with more shelters, higher percentage of bridges and overpasses, and less residential land (Marr et al., 2009; Schor et al., 2003; Shin, 2021). Notably, I found significant increased year-to-year growth in areas with more parks and open space after policy implementation, areas that previously did not have significantly higher counts of the visible

unsheltered population. This suggests that parks and other open spaces—possibly less traveled by police and other residents—may serve as new sources of secure shelter for the unsheltered community as the reach of the LA City's camping law expands. Furthermore, although gentrifying communities in the City of LA experienced greater growth in the visible unsheltered population during the study period, the increase was only statistically significant before the camping law went into effect. After the implementation of LAMC 41.18, growth stagnated in gentrifying areas, while non-gentrifying neighborhoods saw high yearly growth in counts of the visible unsheltered population compared to before policy implementation. This could be due to the fact areas undergoing gentrification are often subjected to increased "order maintenance" or "broken windows" policing to remove "disorderly" populations (Johnson & Guy, 2024); as a result, unsheltered individuals may evade or escape areas under greater police attention. Clearly then, gentrifying areas remain active sites of endless contestations over the right to use space for unhoused individuals.

This investigation is rooted in the idea that survival strategies for unhoused people (and its spatial manifestation) are relational and embedded in a certain time and place (DeVerteuil et al., 2009; Marr et al., 2009; Preece et al., 2020). By examining the differences in the levels and changes in unsheltered homelessness prior and following the adoption of a camping law, this study reveals how the unsheltered population are "reacting with their feet" (either voluntary or forcibly) to changes in the sociopolitical context of homeless management. In his study on the place-homeless survival nexus, Marr et al. elucidates the ways unsheltered individuals regularly alter their subsistence strategies, strategically traversing or avoiding areas to reach services and other resources (Marr et al., 2009). Indeed, the finding of increased growth in unsheltered homelessness in non-gentrifying neighborhoods and areas with lower share of residential land and lower rates of arrest in the period following the implementation of LAMC 41.18 may signify that unsheltered individuals are taking the necessary steps to minimize potential anti-homeless behaviors and activities from hostile residents and police. Circumventing areas with greater

policing and increased residential land share may have been especially vital for unsheltered individuals, as these places were more likely to have a zone of potential LAMC 41.18 enforcement. Instead, the unsheltered population appear to be concentrating in places around shelters, since these areas tend to be more hospitable and accepting of the unhoused population, around rail tracks unseen by the general population, and bridges and overpasses where people are accustomed to seeing unsheltered individuals (Lee & Price-Spratlen, 2004; Shin, 2021). Thus, transformations in the overall spatial patterning of unsheltered homelessness can provide insight into the ways unsheltered individuals perceive and navigate spatial constraints brought by anti-homeless policing.

Interestingly, I did not detect any significant changes or differences in visible unsheltered homelessness in racially concentrated areas of relative affluence or neighborhoods with greater owner-occupied housing. Instead, when considering all areas in LA County, these areas were persistently associated with lower counts of the unsheltered population, likely due to the fact that homelessness is already heavily sanitized from these spaces (Herring, 2014; Lee & Price-Spratlen, 2004; Margier, 2023). On the other hand, when assessing trends in the City of LA, property ownership was not a significant predictor of lower levels of or decreases in visible unsheltered homelessness, even though they were more likely to have a designated zone of potential LAMC 41.18 enforcement nearby. This may be because these areas already have low numbers of unsheltered individuals, so the lack of meaningful change in the count could result from challenges in accurately enumerating this highly mobile population and capturing true movement patterns or population shifts rather than random variation. Another possibility is that the few individuals that stay in these areas may have already developed extensive strategies to divert unwanted attention or avoid being seen, and hence may not perceive the camping ban as much of an added threat to their existence in these spaces. Yet, being an area of concentrated white affluence was only significantly associated with lower unsheltered count compared to areas of racialized poverty after LAMC 41.18 was implemented. Although not a significant difference

from levels identified in the pre-policy period, this may still signify how the camping ban could gradually extend the exclusionary powers of these affluent communities, making areas of concentrated racialized poverty persist as ideal environments for "concealment" (Muniz, 2021).

This study attempted to estimate a treatment effect of a camping ban (LAMC 41.18) on tract-level unsheltered homelessness to assess whether the implementation of anti-homeless laws displace the unsheltered population in areas of potential enforcement. Although there was greater decline in visible unsheltered homelessness in tracts enforcing the camping ban compared to tracts not enforcing the ban, this effect was not statistically significant. One possible explanation for this non-significant result is that, in general, the unsheltered population in LA are avoiding areas in the City of LA, regardless of whether these areas have active zones of camping law enforcement. This suggests that camping laws like LAMC 41.18 may engender an "anti-homeless" climate throughout the city, affecting unhoused individuals not only through policing in designated enforcement zones but also through more indirect exclusionary practices in other areas. Subsequent analyses can explore the inter-city spillover effects of anti-homeless laws to examine whether the unsheltered population move away from cities that are enacting and enforcing criminalization policies into cities that are not. Furthermore, the event study analysis uncovered a lagged effect from having a designated zone of 41.18 enforcement, suggesting that the effects of camping law adoption may take some time to have a measurable change on the level of unsheltered homelessness in an area. Additionally, results from the sensitivity analyses suggest that the magnitude of the effect also depended on the likelihood of the camping ban to be enforced in the designated 41.18 zones (i.e., whether the zone was introduced through a council meeting resolution). Taken together, results from the sensitivity analyses suggests that implementation of anti-homeless laws and ensuing threats of enforcement may act as a spatial constraint for unsheltered individuals to impact local unsheltered rates, albeit in a delayed manner and depending on the likelihood of the ban actually being enforced.

Findings from this investigation demonstrate that heightened homeless criminalization leads to shifts in the spatial opportunities for homeless survival and consequently forces unsheltered individuals to alter their mobility patterns to avoid enforcement or harassment. The subsequent displacement from previous areas into more marginal spaces have the potential to create new geographies of hidden homelessness that expose unsheltered community to acute health risks and additional harm (Langegger & Koester, 2016). For example, in Chang et al.'s qualitative examination into the health harms of encampment abatement in San Francisco, unhoused individuals often recounted how they would move to more isolated, secluded areas less likely to be accessed and seen by police and housed residents, such as areas along train tracks, along or under freeways, and deep in forested creeks and hill—trends corroborated in this study (J. S. Chang et al., 2022). Additional studies have noted that these more remote places are also more hazardous and unsustainable for maintaining health and safety, subjecting unhoused people to limited access to daily necessities (e.g., water, bathrooms, cell service, electricity), numerous environmental health harms (e.g., smog) and potential mortal injury (e.g., traffic accidents, train collisions) (J. S. Chang et al., 2022; Westbrook & Robinson, 2021). Moreover, transportation and distance barriers stemming from involuntary displacement may compromise people's access to health care, which can aggravate existing health conditions (Goldshear et al., 2023; Meehan et al., 2024). Indeed, the decreases in unsheltered homelessness in places with more food assistance programs and increased growth in areas with worse access to health services documented in this study point to emerging access barriers faced by the unsheltered population. The analysis adds to the emergent literature on the health impacts of anti-homeless practices by demonstrating that during a period of increased criminalization, unsheltered people are pushed further to the margins of urban space, where exposure to health-adverse situations is more likely and accessibility to health protective resources is more precarious (J. S. Chang et al., 2022; Meehan et al., 2024).

While mobility is regularly framed as an detrimental outcome of encampment sweeps and anti-homeless laws, the broader literature base in human geography affirms that "mobility and immobility do not represent extremes on a good-bad continuum"(Lowe & DeVerteuil, 2020) . As Low & Deverteuil outline, immobility can improve health in some scenarios and settings, whereas in others, it can worsen it. In the case of homeless survival, freedom of both mobility between place to place to obtain daily necessities without opposition or punishment and immobility from areas that are familiar or closer to services or positive social networks are vital for health protection. On the other hand, the consistent relegation—or immobility—of unsheltered individuals from neighborhoods of racialized poverty and other marginal spaces heightens their exposure to the adverse environmental hazards that historically have plagued these areas, including increased noise and air pollution, poor accessibility to health care services, and higher rates of crime and violence (Phelan & Link, 2015; Williams & Collins, 2001). Additionally, Muniz foregrounds the negative ramifications the "geographic immobility" from disenfranchise communities on opportunities for unhoused people to advance on a path of housing stability and upward mobility, stating that "if the surrounding environment where homeless adults are concentrated has less available and affordable housing and more economic distress, this spatial segregation may be one of the many real barriers to obtaining stable housing in the future" (Muniz, 2021) This spatial "entrapment" may also be internalized—where "constant reminders of one's own marginality can negatively threaten a person's ability to overcome it" (Muniz, 2021)—undermining unhoused individuals' perceived self-efficacy and psychological wellbeing. Therefore, the notions about and experiences with mobility/immobility and their connection to power/powerlessness and health are context-specific and may be experienced differently across space and time.

Perhaps an even more insidious consequence of the geographic marginalization of homelessness from anti-homeless laws is its influence on the collective conscientious and subsequent (in)actions of residents with substantial social, economic, and political power, like

property owners and those living in (white) affluent neighborhoods. According to Muniz, the spatial segregation of the unsheltered community in secluded or disadvantaged areas can also manifest as a mental one, where the health and social challenges unhoused people face are either willfully ignored (i.e., an out of sight, out of mind mentality) or legitimized as normal and inevitable due to their perceived "inferior" social status (Lachapelle et al., 2022; Muniz, 2021). This "social psychological normalization effect" has repercussions on the ways advantaged residents perceive and treat the unhoused in everyday interactions as well as their motivation (or lack thereof) to engage in meaningful dialogue and to support initiatives that actually combat homelessness (Muniz, 2021; Przybylinski, 2021). Along similar lines, the reconcentration of unhoused people in areas with greater access to services and resources that mostly serve unhoused communities, as seen in this study, can be interpreted as an extension of modern-day strategies of containment that ultimately benefits elite property interests (Lee & Price-Spratlen, 2004). In this case, the indirect pushing unsheltered populations in "homeless service hubs" can be seen as a way of isolating marginalized groups in specific "undesirable" areas, preventing their presence in more affluent or commercially valuable spaces. This process, while framed as a public health or safety measure, functions to protect the interests of property owners, developers, or wealthy or politically powerful residents by restricting the visibility of homelessness to areas that are less likely to be in close proximity to wealthier communities. In effect, such strategies of containment not only perpetuate the spatial marginalization of the unhoused individuals but also reinforce broader power dynamics that prioritize property values and economic development. Crucially then, the spatial governance of unsheltered people through anti-homeless legislation, and its subsequent health effects, are deeply entrenched in issues of power, privilege, and identity—spatializing a stratified social order to reify prevailing policy prerogatives and power structures.

Limitations and Future Directions

Despite making significant contributions to existing scholarship on the spatial impacts of the criminalization of homelessness, this analysis had some limitations that can offer directions for additional research. First, the post-policy study period was relatively short since the ordinance under examination (LAMC 41.18) was only recently implemented in late 2021. Therefore, I was not able to assess the long-term impacts of camping laws on the spatial movement of the unsheltered population. Future inquiries can investigate whether the spatial and temporal trends that I observed in study hold and whether other patterns emerge as enforcement of the camping ban intensifies with additional years of data. This study also focused only on neighborhood characteristics fixed at a single point in time. Hence, I was not able to assess how changes in other neighborhood social and physical conditions intersect with changes in the execution and enforcement of anti-homeless laws to influence local unsheltered rates over time.

Potential violations to key assumptions in the DID analyses also weakened my ability to make strong causal claims of the effects of potential enforcement of the camping laws on unsheltered homelessness. First, the assumption of "no spillover" for causal inference may not hold in the study's data due to possible spatial autocorrelation and heterogeneity, as unsheltered count in a tract may have been influenced by the enactment of a 41.18 zone in a neighboring tract. Furthermore, without 2021 data of unsheltered homelessness, I was not able to evaluate the parallel trends assumption in the context of the COVID-19 pandemic; if the impact of the pandemic on unsheltered count differs between treated and untreated tracts, the estimate for the average treatment effect is biased. Additionally, my use of a binary treatment assignment (i.e., contains at least one enforcement zone vs. not) to estimate the effect of adopting a LAMC 41.18 enforcement zone may have obscured any variation in changes to the level of unsheltered homelessness in the surrounding area stemming from different numbers of designated 41.18 zones in a tract; for example, tracts with more enforcement zones may experience more drastic decreases in unsheltered homelessness compared to those with only a few. Forthcoming studies

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can explore the impact of different "intensities" of exposure to 41.18 zones to see how local unsheltered rates change as more and more public spaces are transformed into areas of possible enforcement, making it more difficult for the nearby unhoused community to exist without punishment.

It is also important to note that actual enforcement of the camping ban, such as conducting an encampment sweep, does not necessarily have to occur after an area is designated as a 41.18 zone; the decision to enforce the ban in a designated zone is up to the Councilmember of the Council District, who often receives pressure from neighborhood constituents to displace nearby unsheltered persons. As a result, two types of exposures to LAMC 41.18 exist—the threat of enforcement and enactment of enforcement. This investigation focused on the effect of "threat of enforcement" on the spatial distribution of unsheltered homelessness. However, future research can build on this analysis to see if the actual enforcement of the camping law through encampment sweeps has a more noticeable impact on the concentration of visible unsheltered homelessness in the surrounding area.

Lastly, this study was an ecological analysis into the spatial trends in unsheltered homelessness to describe changes to the mobility patterns of the unsheltered population at an aggregate level. Readers should be cautious of making incorrect assumptions and inferences stemming from the ecological fallacy; study findings cannot be interpreted as the effects of camping law implementation on individual experiences of displacement; rather it reflects the displacement and dispersion of the broader unsheltered community in a particular area. The unsheltered population observed during this period may not represent the same individuals over time, as changes in the population could result from new individuals becoming unhoused or others exiting homelessness after being housed. Examinations using individual-level data on exposure to anti-homeless laws and policing and experiences of displacement are needed to see if either the threat of or actual enforcement of anti-homeless ordinances leads to individual instances of forced removal in public spaces.

Implications

In vast counties like LA with a large number of unsheltered people dispersed in various parts of the region, understanding the spatial and temporal dynamics of unsheltered homelessness is necessary for the prompt delivery of health interventions to this population (Shin, 2021). Yet, the mounting dependence on anti-homeless practices to curb the unsheltered crisis undermine the goals of public health practice, creating logistical burdens to street medicine programs for unhoused people that require ongoing contact for trust-building and follow-up care (J. S. Chang et al., 2022). Findings from this study will enable the allocation and distribution of services to the unsheltered community in LA and similar settings, who otherwise would remain hidden from outreach workers.

Overall, this investigation highlights the importance of applying a spatial approach to understanding the health impacts of criminalization. Describing the settings where unsheltered homelessness grows or declines amid criminalization provides critical and timely insights on unsheltered people's exposure to risk-exacerbating situations and barriers to health-protective resources. Additional qualitative research can support this knowledge by elucidating the social and behavioral mechanisms through which anti-homeless practices and subsequent involuntary displacement influences new or worsening health outcomes, while longitudinal investigations with robust observational research designs could further quantify and isolate these effects. Such body of research can develop a fuller understanding of the manner in which unhoused people's place-based health experiences are governed by law.

2 AIM 2 : EXPLORING THE MOBILITY AND HEALTH NARRATIVES OF UNSHELTERED HOMELESSNESS AMID CRIMINALIZATION

Abstract

Background: Unhoused individuals must navigate various geographies to meet their needs for shelter, health, and survival, yet policies and policing practices that criminalize their existence in public space continuously undermine their ability to move freely between places and obtain basic necessities. **Objective:** This qualitative study explores narratives among unsheltered people about the influence of anti-homeless practices on their daily spatial mobility patterns, perceptions of place, and health-related experiences. **Methods:** I conducted 13 semi-structured interviews with individuals currently or recently unsheltered in LA County between September and December 2023 using qualitative activity space methods. Interview transcripts were analyzed through narrative analysis, focusing on how participants perceive, experience, and navigate constraints to their daily routines. **Results:** Encounters with anti-homeless policing, such as sweeps and citations, increased participants' anxiety, eroded their social connections, and destabilized their ontological security. Criminalization practices caused their routines for health and survival to become highly unstable, as related displacement disrupted their support networks and compromised their access to vital services and resources. **Conclusions:** Narratives from unsheltered individuals showcased the ways everyday stigmatization, spatial marginalization, and displacement intensified their health and safety challenges while living unsheltered. **Implications:** These findings can help guide the development and distribution of interventions that mitigate the health risks of criminalization as well as encourage more humane approaches to foster housing stability. This study also lays the groundwork for future investigations into the specific psychosocial and behavioral mechanisms that determine the health of the unsheltered population during an increasingly hostile policy environment.

Introduction

With fewer opportunities to exist in public space without contestation, unhoused individuals are forced in a perpetual state of movement, resulting in a condition Jackson terms as "fixed in mobility" (Jackson, 2012). Access to resources and social support is essential for coping with the harsh conditions of unsheltered homelessness and for maintaining overall health (Snow & Mulcahy, 2001). However, exclusion and displacement from both public and private spaces from anti-homeless practices severely limit their ability to navigate various environments to meet basic needs, preserve social connections, and form a sense of safety in place. As their established daily routines are disrupted, the health and safety risks they face while living unsheltered escalate, further exacerbating their already precarious situations and health (J. S. Chang et al., 2022; Goldshear et al., 2023).

Understanding the mobility patterns of the unhoused population—along with their determinants and outcomes—can help illustrate their complex, daily health-related experiences and identify points for service intervention. Mobility extends beyond physical movement, encompassing the regular routines, social networks, and meanings individuals attach to places— all of which can contribute to a sense of security in place (Cagney et al., 2020; Coulter et al., 2016; Cresswell, 2010). Despite the importance of these interrelated dynamics, few studies have investigated the ways unhoused individuals perceive and manage the structural and environmental constraints that shape their daily mobility patterns, and how these patterns, in turn, forge their survival strategies.

This study explores the sociospatial factors shaping the daily health contexts of the unsheltered population amid homeless criminalization. Through interviews with 13 unsheltered Angelenos during a period of intensified policing efforts, I delve into their narratives about their routines for health and wellbeing as well as their meanings of place. I pay special attention to how they interact with and interpret features of their physical, social, and political environment, revealing the tensions between their coerced mobility and their feelings of safety, social

connection, and self-efficacy in managing their health. By emphasizing the ways unhoused individuals share their lived experiences over time, I can gain deeper insights into how empowered—or disempowered—they feel within their circumstances and larger power structures.

Background

Unbounded mobility is crucial for homeless survival. Throughout the day, unhoused individuals engage with a variety of people and places to obtain basic needs, access essential services, and seek shelter (Šimon et al., 2020; Snow & Mulcahy, 2001; Wolch et al., 1993). Their movement not only serves to secure resources but also reflects a deep-seated need to achieve a sense of safety and to sustain social ties that provide emotional and practical support when enduring the stressors from living unsheltered (Anderson et al., 2021b). These paths are defined by personal needs and preferences along with opportunities and constraints within the immediate environment, such as proximity to resources, access to transportation, and the presence of law enforcement (Marr et al., 2009). Consequently, each locale visited presents unique social and ecological conditions that can either nurture or hinder their health.

Human geographers frame mobility as a relational practice— "continually occurring with, against, through or alongside some other thing or things which are themselves far from static" (Gillespie et al., 2020)—that can be experienced in both positive and negative ways, with its value shifting across different times, spaces, and contexts. As Cresswell notes, the study of mobility embraces not just the origins and destinations of movement but also how that movement is experienced, the emotions it evokes, and the resistances it encounters (Cresswell, 2010). For unhoused individuals, predictable mobility patterns can foster a sense of stability and safety (Marr et al., 2009; Wolch et al., 1993). However, their routines are frequently disrupted by anti-homeless practices (e.g., anti-camping ordinances, encampment sweeps, and hostile architecture that deters people from using/resting in public areas) that exclude or displace them from public spaces

(Goldshear et al., 2023). The ensuing hypermobility is both a necessary means of survival for accessing vital resources as well as source of detriment to their health and wellbeing.

Practices of banishment amid criminalization

Recently, scholars have started to analyze mobility as a specific tactic unhoused people use to avert punitive policies and policing practices (Langegger & Koester, 2016). Situating the mobilities of the unhoused within the socially patterned, state-sanctioned, and power-laden processes of banishment is central in understanding the systemic forces that propagate their spatial marginalization. Conceptually, banishment represents a territorial control strategy designed to dispossess and delegitimize populations deemed as "other" within structures of settler colonialism and racial capitalism (Beckett & Herbert, 2010; Roy, 2019). In practice, it manifests as the legal strategies, policing efforts, and societal norms that sanction the surveillance, exclusion, and displacement of individuals perceived as undesirable or threatening (Mitchell, 1997; T. Robinson, 2019). For the unhoused—who are often seen as intrusive to public life— banishment practices emerging from the criminalization and stigmatization of homelessness simultaneously evicts them from public spaces and exiles them to the "social exterior"(D. Kaufman, 2022). Thus, homeless mobility is both produced by and reproduces hierarchical relations of belonging that sustain cycles of instability for the unhoused.

Under systemic banishment, the spatial behaviors of unhoused individuals become coerced and disciplined, exemplifying dynamics of power and identity (D. Kaufman, 2022). While places may offer resources for homeless sustenance, evolving dispersal tactics targeting visible homelessness constrains their ability move across certain spaces freely. Depending on local policies, law enforcement may forcibly remove and issue citations to those found sleeping in public spaces or parked cars in areas designated as "off-limits" (Herring et al., 2019; T. Robinson, 2019). This also extends to the destruction of encampment settlements, treating these communities—initially formed as a core coping strategy—as "unsightly human trash" (Langegger

& Koester, 2016). Recently, some cities have implemented "service-oriented" policing, pairing enforcement with outreach efforts; however, studies indicate that these "tough love" approaches often fall short due to a lack of adequate services (Herring, 2021; Westbrook & Robinson, 2021). These enforcement measures are augmented by hostile actions from business owners and housed residents, who subject unhoused individuals to ongoing scrutiny, harassment, monitoring, effectively keeping them on the move (Herring, 2019b). While the mechanisms of banishment may vary, the outcomes are the same: they condemn unhoused people to what Kaufman depicts as "a social death…where people lack money, are disenfranchised from communities, and are socially dishonored" (D. Kaufman, 2022).

As a result, places are either regarded as hospitable or inhospitable to the unhoused. This spatialized social exclusion can lead to a life of "perpetual motion" for unhoused individuals, wherein they are compelled to relocate incessantly and have their access to essential resources disrupted (Langegger & Koester, 2016). Previous research has demonstrated how practices such as encampment sweeps and move-along orders further complicate access to healthcare and homeless services as well as their social support networks, ultimately depriving individuals of their basic needs to survive on the streets (J. S. Chang et al., 2022). With their access undermined, their ability to establish stable routines protective of health is also compromised, resulting in a cascade of health consequences (Goldshear et al., 2023; Westbrook & Robinson, 2021).

Constant involuntary mobility also gives rise to feelings of "placelessness," where individuals feel disconnected from their physical surroundings or lack a sense of belonging to a particular place (Somerville, 1992). Yet, critical to their survival, unhoused individuals must navigate and negotiate spaces as places of refuge to protect their wellbeing (Douglas, 2023). Every day, unhoused individuals engage with the material and social dimensions of their surroundings both affectively and cognitively, developing strategies to adapt to life on the street (Marr et al., 2009). This form of place-making underscores the efforts of the unhoused community to cultivate secure environments for themselves as well as others in similar situations (Boucher

et al., 2022; Lachapelle et al., 2022). Additionally, unsheltered individuals imbue specific spaces with meaning to foster a sense of safety and control, which is fundamental for their daily existence (Douglas, 2023). However, the rise in anti-homeless practices also challenges their right to use space and sustain their relationships to these environments (Langegger & Koester, 2016). Each experience of displacement severs ties to place, creating an endless sense of loss that gradually erodes feelings of rootedness and belonging (Douglas, 2023; Somerville, 1992). Therefore, the experiences of banishment and subsequent "placelessness" is both affective and embodied, carrying substantial repercussions for individuals' sense of identity and wellbeing.

Although a budding literature base has characterized the mobility patterns and significance of place among the unhoused population (Ahasan, 2022; D. Kaufman, 2022; T. Robinson, 2019; Šimon et al., 2020; Wolch et al., 1993), few have examined these concepts concurrently or elucidated the specific mechanisms that determine their health. This oversight is important, as their daily experiences of banishment illustrate the complex interplay between their place-based experiences, health vulnerabilities, and resilience. I contend that a fuller picture of the health impacts of homeless mobilities requires joint attention to displacement effects on their daily routines, meanings of place, and social connections.

Psychosocial and behavioral health mechanisms

For individuals living unsheltered, protecting wellbeing hinges on not only access to health-related resources (including social support) but also a sense of stability within the spaces they occupy (Anderson et al., 2021b; Richards & Kuhn, 2022). Therefore, I posit that psychosocial factors, including ontological security and social support networks, along with behavioral processes like healthcare engagement, serve as crucial mechanisms linking place-based experiences to health outcomes among the unhoused population.

Ontological security refers to the need for individuals to experience a coherent sense of self, constancy, safety, and control over time (Dupuis & Thorns, 1998). For unhoused individuals,

the disruption caused by anti-homeless practices can lead to a loss of connection to place, unsettling daily routines, and diminishing opportunities for shelter (Goldshear et al., 2023). Furthermore, the experience of displacement is akin to trauma, as it dissolves ties to familiar environments and community, resulting in reduced perceptions of safety, feelings of disorientation, and a weakened sense of stability (J. S. Chang et al., 2022; Fullilove, 2001). Without the ability to establish secure resting places, the anxiety and loss of control over their living situations increase, further eroding their feelings of ontological security.

Another critical component of ontological security is a sense of identity (Lados et al., 2023). Identities are fluid and multifaceted, formed by context and relational processes, wherein "people come to understand their place in the world, relative to others" (Preece et al., 2020). Due to extreme stigmatization, unhoused individuals are often reduced to negative stereotypes that mark them as deviants or failures (Lachapelle et al., 2022; Reilly et al., 2022). While most people are free to hold and present multiple identities, unhoused individuals are often defined and recognized solely by their homelessness status, leading to a reductive categorization that obscures their complex circumstances (Preece et al., 2020). This phenomenon represents a distinct form of marginality, where the unhoused are burdened by the symbolic weight of the cultural tropes associated with being "homeless" (Farrugia, 2011). Criminalization only reinforces their "outsider" status—deepening not only their precarious living conditions but also their unstable social connections and mental state (Langegger & Koester, 2016).

Moreover, anti-homeless practices create new geographies of hidden homelessness, often pushing unhoused individuals into isolated areas that threaten continuity of service provision and expose them to environmental health risks (J. S. Chang et al., 2022). Forced relocations can also unsettle social networks that provide emotional and material assistance. As these individuals struggle to maintain health-promoting routines and access to services, their overall wellbeing is jeopardized, worsening existing physical and mental health issues.

Activity spaces of homelessness

Examining how people's everyday experiences of place affect health requires a research strategy that captures the features and perceptions of the various physical and social environments they regularly engage with. One approach is to observe people's narratives of their daily paths and activity spaces, or the set of places people encounter as part of their daily routines (R. J. Petteway, 2022a). Daily paths are anchored by fixed locations and key points of return within routine activities; these places also serve as important sites for social interactions (Wolch & Rowe, 1992). The physical and social contexts at the intersection of an individual's daily path characterize their activity space; this includes the environmental features, institutions, and people present at specific times and places (Owczarzak et al., 2022). Activity spaces are also emblematic of individual meanings of place and ambitions; people form psychological attachments to place, which contribute to their identity, self-esteem, and life goals (Wolch & Rowe, 1992).

Investigating unhoused individuals' activity spaces can offer a window into the patterns of movement and social interactions, heterogeneity of contexts, and space-time conditions affecting their health experiences. Evaluating whether unhoused people's activity spaces and daily routines are transformed or made chaotic by displacement from anti-homeless practices can also reveal emergent exposures to risk-exacerbating situations and barriers to health-protective resources. Furthermore, this research can aid the development of short- and long-term services that leverage the strengths of existing support networks and their connections to place as well as policy solutions to support their transition out of homelessness (Semborski et al., 2022; Šimon et al., 2020).

To disrupt the monolithic narratives of homelessness, it is essential to portray the socially differentiated experiences of mobility among the unhoused population. Unhoused women confront urban spaces that are heavily shaped by gendered dynamics, facing high rates of gender-based violence and sexual harassment that significantly influence their daily interactions (Watson, 2016). The inadequacy or inaccessibility of gender-responsive services often form them

to rely on more informal support networks, such as family, romantic partners, or trusted community members facing similar circumstances (Huey & Berndt, 2008). Racialized individuals also experience homelessness in ways that reproduce ongoing legacies of racial banishment and structural racism, enduring increased surveillance and discrimination in public spaces that constrain their mobility (Herring et al., 2019). Equally important to sharing stories of marginalization is highlighting how the unhoused resist and reshape their conditions of existence. Acknowledging their diverse experiences and resilience can challenge prevailing narratives that tend to homogenize homelessness and undermine their agency to transform their lives.

Study Objectives

The goal of this study is to explore narratives among unsheltered persons about the influence of anti-homeless practices on their daily mobility patterns, meanings of place, and health-related experiences. This study investigates the activity spaces and place-making processes of unsheltered individuals amid the escalation of anti-homeless practices that induce banishment. It also elucidates the pathways that link physical, mental, and social health outcomes among unsheltered individuals to the routines and experiences of place within the course of their daily lives. The subaims are to:

2a) Elicit narratives on the daily paths of unsheltered persons to seek shelter and daily necessities, with a focus on the sociospatial conditions that influence their movement and ontological security.

2b) Examine the ways unsheltered people describe changes to their activity spaces, meanings and experience of place, and health experiences due to increased policing, enforcement of anti-homeless ordinances, and related displacement.

2c) Explore the varied strategies unsheltered people are taking to resist or adapt to their circumstances and reclaim wellbeing.

To humanize the experiences of those who are marginalized, qualitative health geographers emphasize the importance of centering participants' subjectivities—expressed through their voices and narratives—within research (Cresswell, 2010; Lowe & DeVerteuil, 2020). As Caine notes, research that focuses only on the "policies and practices rather than with a focus on the lives of people [...] can result in silencing the experiences of participants" (Caine et al., 2018). To this end, I foreground personal accounts from unsheltered individuals in LA County, showing how they derive meaning and wellbeing from the places they occupy in their daily lives, especially amid contestations over their right to use space. Sharing the stories unhoused people tell can challenge dominant stereotypes, highlight their agency to reshape their circumstances, and assert the dignity that is often overlooked in discussions about homelessness

Methods

Study overview

This qualitative interview study used a narrative approach to explore unhoused people's stories of their activity spaces, perceptions of place, and health experiences amid criminalization. In narrative inquiries, individual stories are understood to be the outcome of how people make sense of what has happened or is happening to them in a particular time and place, in relation to their intersecting identities, and within practices of power. It is often applied to emphasize the "hidden geographies," "contested spaces of identity", and the "place-based lives and memories" of people living at the margins (Georgakopoulou & Anna, 2015; Kwan & Ding, 2008). Narrative analysis was, therefore, well suited for exploring the varied ways unsheltered people perceive, experience, and navigate constraints to their daily paths and routines given their sociopolitical context. Furthermore, as the criminalization of homelessness is an evolving phenomenon, this study's methodology was grounded in an emergent design, meaning that the research plan remained iterative and flexible to modifications as data was collected.

Sampling procedures

I sampled interview participants from the Periodic Assessment of Trajectories of Housing, Homelessness and Health Study (PATHS), a prospective study following the housing and health outcomes of a cohort of people experiencing unsheltered homelessness in LA County (additional details on the goals and methodology of PATHS are provided in Chapter 4). Eligibility criteria for PATHS include living in a homeless shelter or unsheltered setting (e.g., street, vehicle, tent, or makeshift shelter) at least one night in the past month; living in LA County; and being at least 18 years of age. At the time of interview recruitment, 440 people were actively enrolled in PATHS.

PATHS respondents were eligible for this qualitative study if they were fluent in English, resided in LA County, had been unsheltered in LA for at least 2 months since 2021—a time period in which anti-homeless practices became more prominent in the region. For recruitment, a series of questions was added at the end of the PATHS monthly survey in July and August 2023; the first asked if respondents would be interested in partaking in an in-person interview, followed by questions needed to determine eligibility (Appendix 2-1). Out of 283 survey respondents for those months, 147 (51.9%) expressed interest in participating in the interviews and completed the screening questions; 128 (87.1%) of those met eligibility criteria and were subsequently added to list of potential interviewees.

For sample selection, I conducted maximum variation sampling, a purposive sampling method, to document the diverse experiences of criminalization stemming from different circumstances. This sampling approach can also help feature the shared patterns cutting across cases that "derive their significance from having emerged out of heterogeneity" (Patton, 1990). To capture differences by race, gender, unsheltered situation, and experiences with anti-homeless policing, I initially randomly selected 15 people from the pool of eligible participants to follow-up with, with around 70% identifying as non-white (including people who identify as Hispanic/Latinx; matching the racial demographics of the unsheltered population in LA County), 50% identifying as cisgender man, 75% who had lived on the street or in tents, and 75% who had

experienced a sweep or been ticketed. Eight of those initially selected were interviewed; the rest either declined or were lost to follow-up.

Throughout data collection, I reviewed participant demographic, housing situation, and residential neighborhood data periodically to ensure that included participants also represented a range of characteristics and experiences. From the initial interviews, the social and physical aspects of a neighborhood emerged as a core determinant of people's experiences with anti-homeless policing. Therefore, I selected an additional 10 individuals—of which 5 were eventually interviewed—who specifically indicated living in areas outside persistent unsheltered hotspots (i.e., Skid Row, Hollywood, Venice) to explore variations by neighborhood residence. In total, I interviewed 13 participants between September to December of 2023.

Table 2-1 presents the sociodemographic, health, and homelessness characteristics of the 13 interview participants. Their ages ranged from 29 to 63, with a median age of 38. Four participants identified exclusively as non-Hispanic White; among the other participants, five identified as Black, four as Hispanic/Latinx (hereinafter referred to as Latinx), and two as Asian. Seven of the participants were cisgender women, one was a transgender man, and four indicated their sexual orientation as lesbian, gay, bisexual or other. The majority (69%) had been unhoused for at least five years.

Eight participants (62%) had spent the majority of their time unhoused in the past two years (prior to the interview) living outside on the street or in tents, while the remaining had lived in their vehicle. The neighborhood locations where participants lived unsheltered in that time frame included Hollywood, Skid Row, Topanga State Park, Elysian Park, South Central Los Angeles, Santa Monica, Echo Park, Pomona, Lancaster, Koreatown, Venice, and Glendora. Of the nine who had recently been "street" homeless, only two had not experienced a sweep during that time. On the other hand, all participants who had slept in their vehicles had received at least one parking citation. At the time of the interview, three participants were currently doubling up

with a friend or family member or staying in a motel paid for by themselves, and another two were

sleeping in an agency-provided shelter.

Table 2-1. Sociodemographic, health, and housing characteristics of the sample (N=13)

Characteristic	n (%)
Age, median (range)	38 (29-63)
Race/ethnicity*	
White, non-Hispanic	4 (30.8)
Black	5 (38.5)
Latinx/Hispanic	4 (30.8)
Asian	2 (7.7)
Gender identity	
Cisgender man	5 (38.5)
Cisgender woman	7 (53.8)
Transgender man	1 (7.7)
Lesbian, gay, bisexual, or other (LGB+) sexual orientation	4 (30.8)
Past diagnosis of a physical health condition	6 (46.2)
Past diagnosis of a mental health condition	10 (76.9)
Past diagnosis of a substance use condition	4 (30.8)
Years homeless	
Less than a year	1 (7.7)
1-4 years	3 (23.0)
5-9 years	5 (38.5)
10 or more years	4 (30.8)
Primary unsheltered situation since 2021	
Outside on the street or in tents	8 (61.5)
In a vehicle	5 (38.5)
Unsheltered on street or in tents at any time since 2021	9 (69.2)
Unsheltered at the time of the interview	8 (61.5)

*Participants could indicate more than one racial identity; therefore, frequencies do not add up to 100%. One participant identified as Latinx and Black and another identified as Hispanic, Black, and Asian.

Data collection

I drew on qualitative activity space mapping approaches to develop the interview guide

(Kwan & Ding, 2008; Owczarzak et al., 2022), focusing on the social, spatial, and political factors

that influence the daily mobility patterns, routines, and perceptions of place when living

unsheltered. Appendix 2-2 contains the questions used for the semi-structured interviews. The

interview guide included open-ended questions asking participants to narrate their typical daily

routine and paths of movement, living situations, social interactions, health perceptions, and health care engagement in the times they were unsheltered since 2021. This was followed by questions about the role of policing, anti-homeless policing, and related displacement on their daily routine, social networks, and health. During the interview, participants were also asked, to the best of their ability, to mark (or verbally indicate) on printed maps of LA County the general locations they encountered frequently as part of their usual routine as well as specify and describe the places important for their health, where they feel safe, where they avoid, and where they were swept/ticketed. The goals of this activity were to visualize an individual's daily space–time paths, facilitate discussion about participants' mobility patterns and experiences with place, and deepen understanding of how participants make sense of their surroundings and perceive and interact with health-harming or promoting aspects of their environment.

The interviews lasted between 45 and 90 minutes, and participants received a $40 gift card as compensation upon completion. During each interview, I took hand-written notes and wrote memos shortly afterwards that summarized the participant's main experiences. Each interview was audio recorded and transcribed verbatim. I also annotated in the transcripts any notable speech patterns (e.g., emphasis, pauses) to highlight not only what was said but also how participants conveyed specific aspects of their stories. Data was stored, organized, and analyzed in MAXQDA, and all study procedures were approved by the UCLA Institutional Review Board.

Data analysis

Narrative analysis is interested in both the "what" and "how" of storytelling, i.e., what story is told, how a particular story is crafted, and how people, as relational beings, create meaning through telling stories. In this tradition, I analyzed the transcripts with a focus on the narratives employed within the daily routine activities of unsheltered informants and how storytelling of their

activity spaces becomes rooted expressions of their lived experiences of spatial exclusion, banishment, and criminalization.

The process of narrative analysis comprises of "restorying", or reframing, people's experiences by structuring and interpreting their narratives in relation to identity claims and their particular social context. It often proceeds through analyzing the key elements of people's stories (e.g., time, place, sociality, plot, and scene) and situating those stories in terms of the research purpose and analytic framework (Kwan & Ding, 2008). Informed by this procedure, I first conducted an in-depth analysis of each life story, documenting initial impressions in analytic memos about how they constructed their stories about their identity and unsheltered experiences amid criminalization. I then conducted initial open coding on a small subset of transcripts, grouping codes with similar motifs to create a codebook. This codebook included both emergent themes—identified through the data—and a priori themes, based on the research aims and interview guide (see Appendix 2-3 for the full codebook). In addition to thematic content, the codebook also incorporated codes related to narrative structures, storytelling components, and segments of daily routines and activity spaces. These elements were included to explore how participants framed their experiences and the meanings they attached to them.

After coding all the transcripts and collating common themes within each story segment, I wrote analytic memos describing participants' "core narratives," connecting their place-based health experiences and then embedding these within their backgrounds, life journeys, and sociopolitical contexts. Lastly, I compared the themes and narratives across participants to reveal areas of convergence and divergence and inspected maps of activity spaces to identify patterns in daily paths, For example, I noted places they regularly frequented (or avoided) as part of their routines (like parks, libraries, and health services), common nodes in their daily paths (such as areas around Skid Row), and geographic spread of their activity spaces to understand how far they were willing to travel obtain basic necessities and how far they moved to seek safer shelter. The goal of this mapping process was to highlight both common behaviors among participants,

such as returning to specific locations for support, as well as individualized patterns of how people adapted to their circumstances differently.

During the process of identifying core narratives, I also noted in analytic memos how unsheltered people construct and communicate a sense of belonging within each node of their activity space and engage in "identity" work (i.e., defining and reflecting on who they are and how the present themselves to the world) amid spatial constraints and larger systemic inequalities (Clandinin & Connelly, 2000). This specific exploration was done to illustrate their attempts to transform spaces into meaningful places to attain ontological security as well as their experiences of banishment and anti-homeless policing in relation to their identity.

Lastly, my position as a researcher without personal experiences of homelessness may have affected the ways participants engaged with me as well as how I interpreted their responses given my own assumptions and beliefs about the topics under investigation. To mitigate the potential impact of these biases, I engaged in several reflexive practices throughout data collection and analysis. For instance, I composed field notes and memos prior to and after each interview that: 1) detailed the assumptions made before, during, and after the interview; 2) defined the interview context in terms of historical time and place; and 3) described other factors that influence the interview experience. The goal of memoing was to uncover potential biases stemming from my background and to foster a nuanced interpretation informed by critical awareness people's experiences to enhance the quality and integrity of the research.

Results

Results from the semi-structured interviews with 13 unsheltered informants in LA County are organized by the subaims of this paper and grouped into themes and subthemes (summarized in Table 2-2). Illustrative quotes are included to highlight the findings.

Table 2-2. Summary of themes and subthemes

Categories	Theme	Subthemes
Life histories	Path to homelessness	Adverse childhood events Family issues Substance use Incarceration Abuse
	Trajectories of Temporary Living Situations	Cycling through Barriers to housing assistance Challenges with shelters
Daily paths of unsheltered homelessness (Subaim 2a)	Seeking security amid hostility	Prioritizing concealment Fear of retaliation Reliance on familiarity
	Routines of opportunistic mobility	Flexible mobility Precarious provisioning Irregular services Stigma avoidance
	Struggle for community	Transient connections Selective socialization Resilience through solitude
Changes to place-based experiences under increased criminalization (Subaim 2b)	Policing and place-based anxiety	Dehumanizing encounters Differential enforcement Heightened vigilance
	Health toll of displacement	Increased trauma Fragmented healthcare Dissolution of support networks
	Shifting activity spaces	Chaotic routines Disruption to place attachment
Reclaiming wellbeing (Subaim 2c)	Strategies of survival and desire for dignity	Stigma and grief Desire for stability and dignity Transformation and renewal

Contextualizing narratives in life histories and housing trajectories

Unraveling Stability: The Path to Homelessness

Themes: Adverse childhood events; Family issues; Substance use; Incarceration; Abuse

To ground participants' current experiences of homelessness in their life histories, I opened each interview with the prompt, "Tell me a little bit about yourself, your life, and what brought you here." Many participants began by recounting stories about their turbulent childhoods,

often marked by family drug use or mental illness, child neglect, financial problems, and unstable housing. One participant who had moved around multiple foster care placements explained feeling like a "rat pack and just always having to leave at a minute's notice" (Woman living outside, unhoused for 16 years). Early exposure to physical and sexual abuse, especially among women, was also a recurrent theme, leading many to articulate a sense of ongoing trauma in adulthood.

While most participants traced their narratives back to their upbringing, others identified the onset of substance use as a pivotal turning point in their housing trajectory. Drug and alcohol abuse offered a momentary respite from unresolved issues like low self-esteem, post-traumatic stress, undiagnosed mental illness, or abusive relationships. These struggles frequently resulted in job loss and evictions. A few participants also found themselves trapped in the jail-homelessness cycle, having been arrested for drug possession or other minor offenses. For others, the inability to keep up with rent, especially following the Great Recession and the COVID-19 pandemic, precipitated their downward spiral into homelessness. Facing uncertainty, many attempted to seek help from family and friends. However, strained family dynamics, the death of a family member, relatives facing similar financial hardships, and disapproval from friends regarding their life circumstances made it increasingly difficult for them to rely on their social networks for financial and housing support. As an example, here is an account of a participants' descent into homelessness from drug use:

"I became a criminal, I ended up going to prison. And I did cocaine back in those days, I haven't done drugs in 20 years. But that's what kind of set this whole thing off. You know, lost family and friends because they didn't like, {pause} because you can't stop doing this shit when you start doing it…I didn't think it would grab me like it did. But it did. And it kind of set everything. Everything is still in motion today. {pause} And then in association with my mental illnesses, you know, the paranoia and the depression and all that kind of stuff. It kind of went hand in hand."

Man living outside, unhoused for 10 years

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For all participants, instability served as a baseline for how they perceived and confronted current life challenges (including experiences of displacement and policing). Some described existing in an unending state of anxiety, while others resorted to indifference and emotional numbness as coping mechanisms. Furthermore, the long-term impacts of distressing family backgrounds, mental issues, and other complex situations intensified their trauma while living unsheltered—creating a self-perpetuating cycle that hampered their efforts to achieve stability. One participant articulated this pattern poignantly:

> "I was in an abusive relationship, it affected my self-esteem…And yeah, I think, like, I wasn't aware of it at the time, but I think just like, {pause} my trauma impacted me. And then I ended up sort of like being introduced to heroin, and I really liked the way like it made me feel. So I think I very quickly became addicted to it…And I think that sort of, in it, having undiagnosed mental illness has sort of set me up for making bad choices…then I found like, being homeless is also very traumatic, because there were situations where I've been raped on the street, which was very difficult...So It just sort of builds upon itself. It's a struggle to overcome repeated trauma. {emphasis} And I think trauma sometimes tends to attract more trauma."

> Woman living outside, unhoused for 3 years

A Revolving Door: Trajectories of Temporary Living Situations

Themes: Cycling through; Barriers to housing assistance; Challenges with shelters

The precarity associated with being homeless was evident in participants' anecdotes, as many rotated through a series of short-term living situations while seeking housing assistance. These included sleeping on the streets; staying with friends, family, or sexual partners; living in vehicles; and using agency-provided shelters. Occasionally, some relied on government cash assistance or engaged in informal work, such as drug dealing or sex work, to afford brief stays in motels. Participants who primarily lived outside tended to shift more frequently between sheltered

and unsheltered situations compared to those living in vehicles, who more or less were better shielded from public scrutiny and harsh environmental conditions. Notably, a handful who lived outside had previously owned and slept in their vehicles but had to give it up after troubles with paying off car expenses and parking citations.

Accessing stable housing had been an ongoing trial for all participants, many of whom have been on waitlists for subsidized housing for years, as long wait times and limited options stalled transitions out of homelessness. Difficulties with obtaining identification documents, clearing outstanding tickets, staff turnover, and a lack of follow-up communication from service providers further hindered their access to housing programs and support. Many participants reported encountering bureaucratic red tape and experiencing the "runaround" from different service providers, as demonstrated by this participant's lengthy account of searching for housing for himself and his family over the past year:

"I'm still waiting on help...I called [a housing program in South LA]... It took them about two, three weeks [to respond]...They said they don't know nothing about no application... During this whole time I'm waiting, we're actually sleeping in my mama's car... I call [the housing program] again. They said, 'No news.' Every time we go there, they're giving us the runaround. And I've been waiting on HOPICS [LA's Homeless Outreach Program Integrated Care System] for about five months for one placement. First we set four people [in the housing application]. And then we took it down to three just so we got somewhere to go. I was tired of waiting…so we went to [a housing program in Midtown]... She said, 'You know y'all can't be here' so we went back to HOPICS…She looked in the computer and said, 'Y'all name is nowhere on the list... no paperwork, nada.' {emphasis} [Then we] went down to City Hall...The receptionist said she'd put a call in…They sent HOPICS to look into our case [and] they wrote our information down like they were going to do something. And then once I called her back one time, like, 'Oh, what's going on?' She said, 'Oh, I really can't help because we only help single.' I'm like, 'What the hell did you come

take all my information for? You knew there was a family'…Man, it's ridiculous…I've been

out here for months... it flew by."

Although shelters are frequently presented as a favorable alternative to sleeping

unsheltered, all participants voiced some concern (and even contempt) towards the shelter

system. Several scoffed at the notion of being better off in emergency shelters, citing numerous

negative experiences, such as issues with overcrowding, theft, violence, unsanitary conditions,

pests, and infectious diseases. Additionally, many women and transgender participants conveyed

feeling wary around large groups of strangers in shelters, owing to past harassment, assault, and

discrimination:

"Because when I went to a shelter, that's when I realized I was unsafe…I was being more

attacked, having people say things to me that was kind of unwanted. I've been punched

in the face. You name it, that's what happened at the shelter…Basically, it's kind of like, it

gives you more PTSD while you're trying to get help. {emphasis} But you're not getting

help at the same time. There's not really mental health people around while you're inside

of these shelters. It's just more of being in a psych ward."

Transgender man living outside, unhoused for 6 years

Strict policies around schedules, pets, eating and drinking, and personal belongings, along

with a lack of privacy and autonomy, made participants feel confined when staying in shelters.

One even likened their shelter experiences to time spent in prison, describing them as "jail-like,"

with too many rules and suspicious gazes. Mismanagement, racial bias, and a lack of support

from shelter staff fueled feelings of insecurity and mistrust. Accessibility challenges—especially

for transgender individuals, those with pets, or larger families—added another layer of difficulty.

The same transgender participant mentioned in the previous quote noted:

"I stayed [in the shelter] for some time but I wasn't getting assistance…I have a small dog

[so] having him in about 50-men room shelter and things like that where it's open space

and things and anything can happen. And a lot of things did happen. And I'm also trans. So a lot of shelters didn't know that and a lot of shelters didn't help with that anyways, even if they did know… And inside of the shelter, you can't take open containers of water. So my dog needs water consistently. So it was a contradiction for me. So I'd rather be out on the streets where I can just let him do whatever he needs to do freely."

Ultimately, participants portrayed emergency shelters as a last resort, as they felt more comfortable living on the streets or in their own vehicles where they had more autonomy and personal space.

Subaim 2a: Everyday Mobility & Routines in a Controlled Landscape

Precarious Shelter: Seeking Safety amid Hostility

Subthemes: Prioritizing concealment; Fear of retaliation; Reliance on familiarity

Participants' stories of finding places to sleep demonstrated the increased awareness and resourcefulness needed to navigate physical landscapes, evade hostile encounters, and cultivate a sense of security in place. While a few individuals were able to stay in the same location for weeks (or even months), others faced the daily pressure of contemplating their next resting place.

Across all narratives, safety from surveillance and harassment was the primary consideration when seeking shelter. For most participants, that meant remaining inconspicuous and out of sight as much as possible. Secluded hideaways participants frequently sought included: discreet spots on the periphery of industrial zones or flood control channels away from heavy foot and vehicle traffic; abandoned buildings or construction sites, using makeshift barriers for privacy; isolated side streets or dead-end roads; empty parking lots or rail/bus stations with dim lighting; places with overhead cover, such as bridges, freeway overpasses, and dense vegetation; and parks and forested areas shielded by trees and natural barriers. Conversely, they noted avoiding areas near schools and busy business districts for fear of drawing backlash. The majority tried to

stay in the same neighborhood and typically shuffled between different streets/spaces, only relocating to greater distances if they felt they could no longer continue unnoticed.

The need for concealment stemmed from their deep-seated concern about encountering stigma and retaliation from police, business owners, and local residents. Almost all participants shared at least one story about the hostility they faced from people who viewed their presence negatively, ranging from being taunted at to having their belongings taken, that undercut their perceptions of safety:

"I was sleeping in this place where it was like this business, and like, we'd go there at night. And like, we I didn't know it was kind of, they had a little, I don't know, like an enclave or something where we could, {pause} you couldn't necessarily see us when we're sleeping. But they kind of noticed us at first, like when they came in the door, they could look to the right and see us. And you know, at first it wasn't a problem, but then it was. and I remember one day, I left my stuff there. And I came back and all my stuff was missing…And if there's like, there's like a luxury apartment…And like the security guard comes over there. And like looks at people, and asks why are you standing here or like sitting on this bench for so long? They try to make you feel like and like that... They try to make you feel like trash. {pause} And they try to like play on your emotions and your ego. So you feel like you're not worthy enough to even sit there."

<div align="center">Woman living outside, unhoused for 16 years</div>

Individuals living in vehicles found it easier to stay under the radar, employing evasion tactics such as covering their windows to prevent residents and passersby from detecting their presence. In contrast, those living on the street would often use natural features or found materials to improvise shelter and focused on keeping their areas clean to deter scrutiny:

"I stay in a place for a stretch, like maybe move like you know, maybe twice a month. Yeah, like two to three places…But you know, I don't want to like become a nuisance or draw too much attention to myself...But then if it starts to feel like it could be problematic then I

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move on…. I just tried to, I tried to keep like my area neat. And like, try not to draw attention to myself. My, you know, we try not to draw attention to ourselves…So that's why I don't like to like necessarily, like, set up in living area. Like, I tend to avoid corner where someone's going to see me. It's why I choose, like, sort of places where I think I'll have more privacy's, out of the way."

<div align="center">Woman living outside, unhoused for 3 years</div>

Despite their different circumstances, both groups tried to keep a low profile by staying in a location only briefly, leaving early in the morning, and minimizing their belongings in order to avoid being identified and targeted as "homeless". Although most had to regularly move to avert complaints, they also aimed to rotate between a few known spots to maintain a consistent routine. Remaining alert to unexpected movements during the night was also crucial, as individuals had to be ready to respond to threats at all times.

Participants detailed the hypervigilance needed to evade detection by residents and businesses, as exposure could escalate to police intervention. One participant described an instance in which a resident noticed them moving in and promptly called the police:

"Somebody reported us moving in there because they saw us with a big wagon and a queen-sized bed…And so when they saw us moving up towards those, they called. The cops met us there at the gate and said, 'Oh, we got to call that there's some human moving in. And I will tell you this. We don't tolerate homelessness. We don't deal with it.' And then he said, 'We have nothing to do all day. So we're going to keep an eye on it. If you get a bunch of phone calls, you will be asked to leave.' And so we just did our best to keep clean and hidden"

<div align="center">Woman living outside, unhoused for 7 years</div>

To reduce this risk, several chose to avoid affluent neighborhoods (e.g., Marina del Rey, Brentwood), where residents were perceived as more suspicious or antagonistic towards the unhoused. Additionally, a few of the Black participants specifically mentioned steering clear of

areas with more White residents (e.g., Culver City) out of concern for being singled out and racially profiled by law enforcement because they "fit the description":

"We had an issue in, {pause} I want to say it was Culver City. And it was I think I had my, my hair braided but I had on a black sweatsuit or whatever and I guess the lady was racist. And she called the cops on me saying that I looked like one of the people that was stealing cars or stealing from the mall, and I should be investigated. So of course, they, they start laughing when they see it's a small female and she said it was a big black man... And they, they made me get out the car. They made me open the trunk and search it and they were like, 'well, how do we know this is your car'? So I had to tell them everything that was in the car because I keep everything in a certain place…So I stopped going there because I feel like I have to be like on guard. I can't fully like fall asleep comfortably. Like over here [in Inglewood], you know, nobody's gonna follow you because it's more family oriented. In Culver City, it's like, it can be anything. You fit the description, because you're black, you've been sitting here too long, they're suspicious… It's frustrating sometimes…but I can't change that I'm Black. It's always gonna be a factor. So now just, it's kind of like, it's disappointing because of how old I am. But sometimes it's just like, wow, like, you went out of your way to bother me. Because you don't like my skin color…The audacity, the lengths that people go through to prove a point. It's like, for what?"

Woman living in a vehicle, unhoused for 4 years

Although most narratives painted a lack of tolerance for unhoused individuals in public spaces, a few described experiencing leniency from some businesses and acts of kindness from residents, such as sharing food and clothing. One participant described having both positive and negative interactions with residents, underscoring the dichotomy in residents' responses to and engagement with the local unhoused community:

"Some people were nice, they will come out. Like give us blankets. Like you know, they would even cook dinner for us on Sundays and bring it out to us… And then you would

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have the ones that would drive past and beep their horns really loud, and they would shoot paintballs at you from pellets guns at you. Burn your tents down, you know, things like that. You know? Really cold people."

<div align="right">Woman living outside, unhoused for 7 years</div>

Women exercised extra caution while moving between unsheltered spaces, due to the pervasive threats of gender-based violence they faced. Many lived in constant fear of being attacked or taken advantage of by predatory men, especially at night or in remote areas, and all had some experience with harassment, stalking, and sexual assault. They developed several precautions to prevent victimization, such as hiding their gender by wearing men's clothing, staying away from bars and clubs with intoxicated men, and sleeping on buses where others could keep a watchful eye. Although they felt safest with trusted friends or partners, this was often difficult because of the short-lived relationships formed while unhoused. As women shared their stories of harassment while unsheltered, I sensed exhaustion in their voices, showcasing how overwhelming it was on their mental wellbeing to stay alert to all possible dangers and retain a sense of safety. The following are just two anecdotes among many regarding women's experiences with harassment:

"And the guy he got really obsessed with me. He started shooting up, and he was acting all crazy and I had to just get away from him. And he started threatening me, talking about burning me up in my tent…And I kept seeing him on the boulevard while I was walking. And he will see me and do a u turn and come back and he tried to lure me over to the car and things like that and make up stories.… [my encampment community] would keep on eye out for him…And I know that I get gang stalked, and you know, they just try to make you think you're crazy and stuff. Like you see the same people around you all the time, just watching you and following you."

<div align="right">Woman living outside, unhoused for 7 years</div>

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"Because I'm a woman I don't try to like be in the same area a lot. So I would just I would try to leave on my own anyway…[I avoid] areas with lots of men, men who are like outside drinking, obviously like that's why I don't camp around MacArthur Park area anymore. It's like, scary over there. {emphasis} It's so scary over there. Ya know, there are men who literally will try to pick you up like they don't care. Like there was like one guy like because I was like, picking up recycling so I could like you know, make some money and just pay for like the necessities, I need it. And then they're just started like flirting with me and following me around and Im like I gotta get the heck out of here. So I don't feel... and sometimes I just honestly, I just try to sleep on the bus…[And] there's a train station in Culver City. I used to sit under there, right? A lot of us do. And so this guy just come up and he was like, showing me pictures of the mother of his child and saying that could be you. And then he was like, Oh, you look so sad. I'm gonna give you a hug…I'm like, no, please don't. So now I go to the one near [street anonymized], there's a there's a train station…It's more placid over there."

<p align="center">Woman living outside, unhoused for 16 years</p>

Familiarity also played a crucial role in people's decisions about where to take refuge. Individuals often settled in accustomed areas and relied on their knowledge of neighborhood dynamics to ensure a sense of control. One participant detailed how his knowledge of the area helped find secluded spots to sleep:

"I would hunt around and well, as a kid, I would find places with friends to smoke a little pot or something. So that's how I remembered finding the places that I could use as my housing. And it's away from everybody. And people can't find it."

<p align="center">Man living outside, unhoused for 10 years</p>

They usually steered clear of territories with high levels of criminal/gang activity or undergoing redevelopment to reduce the chances of confronting police, instead opting for spaces near essential resources like libraries, fire stations, and hospitals. Only a few participants

gravitated towards encampment communities or areas with a large unhoused presence, such as Skid Row, Hollywood, or MacArthur Park, citing safety in numbers. However, most participants refrained from these homeless hotspots, not wanting to be associated with the area's unhoused individuals whom they perceived as "problematic" (e.g., people who use drugs or those with mental illness) and thus would draw police attention and stayed there only as a last resort.

In contrast, the neighborhoods participants had previously lived—and formed a sense of community—in before becoming unhoused served as safe spaces that provided them with a foundational sense of ontological security. Living in familiar environments where they were recognized by neighbors (who were more likely to leave them alone) and where they had previously established their routines in helped them affirm their place in the community, develop a sense of continuity, and mitigate feelings of uncertainty. This was especially true for participants living in their vehicles, who mostly stayed in their childhood neighborhoods or near family and friends' homes, valuing their familiarity with the area's social dynamics and parking rules. When describing what made them feel safe about staying in their previous community, one participant shared:

> "Well, I feel safe, because I knew the neighborhood. I grew up in that neighborhood, [anonymized]. It's a nicer upscale neighborhood. And some of the people that still live there remember me from back when I lived in my apartment… It's a it's a family orientated neighborhood. I would like to say that. And that makes me feel safer."

Woman living in a vehicle, unhoused for 14 years

Overall, the perpetual need to remain on the move, stay hidden, and assess their environments for safety risks contributed to a tenuous sense of ontological security among participants.

Daily Life in Motion: Routines of Opportunistic Mobility

Subthemes: Flexible mobility; Precarious provisioning; Irregular services; Stigma avoidance

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The daily routines of unsheltered homelessness were structured around the need to secure basic necessities and services, such as food, hygiene, and health care, while minimizing negative encounters. Rather than staying at their sleeping location during the day, for fear of discovery, many participants spent considerable time elsewhere to avoid being seen in the area.

When asked about their usual daily activities, a few described seizing immediate opportunities wherever and whenever they could, leading to more spontaneous, convenience-oriented schedules and mobility patterns. However, most participants favored maintaining relatively consistent routines week-to-week, sticking to a regular set of activity points for a better sense of control and normalcy.

As an everyday practice, managing hygiene typically involved using public amenities at parks, leveraging gym memberships for shower access, visiting designated wash stations and refresh centers, or stopping at friends/families' homes to bathe. When access to these resources was limited, participants detailed improvising solutions for quick washes, like using water bottles, damp paper towels or baby wipes, and sinks in public bathrooms. Occasionally, participants mentioned facing restrictions to using certain facilities, adding to their stress. For example, one participant recounted an instance where a city employee stopped them from using the showers at a public pool following a complaint from a resident. Another participant had their gym membership revoked after staff starting suspecting him to be unhoused:

"I used to go to the gym. And then I had-- not a bunch of stuff, but I used to have more than this. And so I found convenient for me to go in the morning, take a shower…And then after I finished, I used to leave my stuff there, like - I don't know - soap, shampoo, things like that... And I think someone complained, and they used to kind of cut my lock, right, and then grab a plastic bag and put all my stuff there… And I used to kind of, {pause} I get upset because I was paying the monthly dues. There was no need for me to keep buying a new lock every time that they did that. And I mean, I didn't understand why they were doing that, but they kind of kept doing that because they didn't want me there,

right …The last time they kind of called the police, and then I kind of got in an argument with them. I believe one of those times I got arrested. They claimed that I was resisting arrest. And then I kind of was banned from [the gym]"

Man living in a vehicle, unhoused for 13 years

These stigmatizing instances led many to feel like they had to avoid appearing too "homeless" in order to deter discrimination and unwanted attention. As participants moved around different locations, they noted making an effort to conceal or downplay their unhoused status, out of concern of being watched and singled out by authorities or passersby. This involved dressing in a way that "blended in" with the general public, carrying fewer belongings, and not engaging in behaviors that might attract unwanted attention, such as sitting for long periods in one spot.

"But normally when I'm in the west side, I don't let big beards, I get haircuts, right, well I cut my own hair, but I shave. I try to look, {pause} fit into sort of them. I've got some jewelry that I wear to make me look like I'm a normal person. {emphasis} It's a facade. But I try to fit in so that people don't notice."

Man living in outside, unhoused for 10 years

This impression management also manifested in their daily mobility patterns and social interactions; some deliberately steered clear of areas where they might be associated with other unhoused individuals and were wary of engaging in conversations with others, fearing that such interactions would reveal their status and lead to negative judgment.

Participants mainly depended on food banks, food stamps, and inexpensive fast food options for meals. While grocery shopping was based on convenience, some participants mentioned heading to preferred food distribution sites and places offering free meals (e.g., shelters, churches), intentionally rotating between locations to not "overstay their welcome." When desperate, a few mentioned shoplifting for basic food items at stores. Another essential daily task was accessing power sources to charge phones and other electronic devices. Public libraries served as a vital hub for this purpose, with many participants spending their downtime there to

read, browse the internet, and take free classes. Only a couple of participants (all living in their vehicle) reported having consistent work/school schedules; most relied on odd jobs, recycling, panhandling, or illegal activities for income.

Accessing health care was less common in participants' activity spaces, with around half reporting regular service utilization, including mental health counseling, substance use treatment, general physical check-ups, and medication. For others, health care was on an as-needed basis, with some delaying care until issues became severe; a few had made multiple emergency room visits over the years for physical injuries, infections, and anxiety attacks. A couple of these less-engaged individuals had recently received care from street medicine providers, which, while described as convenient, did not necessarily offer ongoing support. When asked about their health, most participants expressed a desire to address long-neglected issues but felt that healthcare visits had to take a backseat to more immediate survival concerns:

"Well it's easier since I'm on MediCal. I didn't always have MediCal but yeah, it's easy with MediCal…But, it's taken me for some reason, {pause} it's taken me a long time to see, like, I don't know, attend my appointments. It just and maybe that's because of a chaotic lifestyle, or it makes it harder to like, make appointments and attend appointments kind of in a timely way."

Woman living outside, unhoused for 3 years

Although chronic health conditions, including allergies, arthritis, and dental problems, were common among participants, these issues often went undertreated due to persistent barriers in accessing healthcare. For example, the instability of their housing situations, as well as poor access to reliable transportation, made it difficult for them to keep up with regular medical appointments. Others were reluctant to seek care because of prior negative experiences with healthcare providers, such as inadequate treatment and dismissive attitudes. For some, the absence of consistent follow-up care made their chronic pain worse and limited their everyday functionality; left with few options, many simply endured the pain or resorted to self-medication to

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cope. Furthermore, participants struggled to stay in contact with service providers because they constantly lost their phones or had to move to new locations; as a result, they often missed important updates, appointments, or opportunities for assistance that prolonged their efforts to secure housing and other forms of support.

Most participants confined their activity spaces to the neighborhoods where they slept and avoided extensive travel. However, Downtown LA (and the surrounding neighborhoods) was a shared node across participants' daily paths, considering it is the central locus of social and healthcare services in the region. Yet, a few opted to entirely distance themselves from the area, as they did not want to interact or be associated with its local unsheltered population, who they often regarded as problematic due to their substance use, public intoxication, or involvement in criminal activity, even if it meant sacrificing access to resources.

Finding places to relax and recharge during the day was a pivotal component of participants' daily activities. Several, especially those with vehicle access, said they were willing to travel some distance to visit family and friends for social connection. They also commonly found peace and solitude in parks, beaches, and isolated areas and relief from adverse weather conditions in libraries or casinos. Those living outside used public transportation to escape the outside and settle somewhere, whereas individuals with vehicles used them as private spaces to get away from crowds and "let their guard down." Many also spent their downtime learning new skills or engaging in hobbies or creative pursuits to cope with the stressors of unsheltered living.

Opportunistic mobility emerged as a common theme across participants' narratives; although many sought comfort in established patterns and familiar spaces, they had to remain adaptable—modifying their activities and locations based on factors like convenience, accessibility, and possible retaliation. Vulnerable routines and unstable support compromised their health maintenance and overall wellbeing, and stigmatization controlled their access to certain resources and forced them to be highly attuned to their social surroundings.

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(Dis)connection: Struggle for Community in Transient Living

Subthemes: Transient connections; Selective socialization; Resilience through solitude

Participants stories of the social relationships that fill their daily journeys were complex and multifaceted, ranging from transient connections to enduring community bonds. However, even though some participants identified as "lone wolves," their narratives emphasized the importance of relationships with trusted individuals in fostering a sense of belonging and support, often in stark contrast to the isolating experience of homelessness.

Encampment communities were a fixture in only a couple of participants' social networks. For these individuals, these small tent cities offered a sense of community, where they described them as a "family" that provided reciprocal support—sharing food, supplies, and shelter—as well as small moments of joy, like celebrating birthdays:

"It's like a family there, everybody. I mean like everybody there was like family. And I felt...And I had just came out here. So I didn't know anybody. And everybody like just accepted me. And I felt, like I never felt so...soo um, like, uh, like part of something, like at this point. Like I belong. Like all my life I felt like I was out of place, like I don't belong. And I came out here, and I met these people, and I just felt like I could be myself and not be judged…We, we stick together, we stick together…Like I always feel safe around them because they're not going to let anything happen to me."

Woman living outside, unhoused for 7 years

However, most participants avoided large encampments of unhoused individuals, perceiving them as chaotic. They felt safer and more comfortable in smaller, more intimate groups of unhoused acquaintances that offered assistance, protection, and a sense of camaraderie. One participant noted how critical it was for their sense of safety to identify a few people they could trust as temporary sleep companions:

"I was sleeping in a park on the tables at first, and I'd just have a sleeping bag and that's how I would do it. And in those instances, you have to be in a group. You have to trust at

least two or three people around you to not kill you in the middle of the night because the

middle of the night is the worst part of being homeless…Sometimes you find the right ones

that just want somewhere to sleep and want to be comfortable.”

Transgender man living outside, unhoused for 6 years

Yet many participants characterized these friendships as shallow, as they felt like they

could not consistently rely on them—emphasizing the transient nature of relationships often

formed within the unhoused community. In general, participants were wary and selective in their

interactions with other unhoused people and were cautious about forming close bonds with them

because of previous experiences of theft and betrayal. As a result, they distanced themselves

from individuals they considered threatening, problematic, or untrustworthy. A handful adopted a

guarded attitude and prioritized self-preservation, preferring solitude and independence over the

risk of exploitation.

“But I stay away from all those [homeless] people. Because I've learned over time that

nothing good comes with trying to play with other people that are on drugs, or they want

to rob you, they want to do something. And then they've got mental illness. So I just avoid

it. Because they're strangers as well. [and] it just it doesn't make sense for me to

compromise myself for something, just to talk with somebody.”

Man living outside, unhoused for 10 years

Rather than relying on fellow unhoused individuals, some opted to lean on their social

networks outside the homeless community, though a few expressed some hesitancy or difficulty

in depending on them for support. For instance, one participant in substance use treatment named

their Narcotics Anonymous group as a source of accountability in managing their addiction.

Another participant found support through a church community and a mentor but was sometimes

reluctant to accept their help, fearing it might burden them. While many sought help with food and

showers from nearby family, some indicated they could not rely too heavily on them because of

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their family's own financial issues or unresolved conflicts between them. For example, one participant shared:

> "My, my aunt lets us shower [at her place] here and there, because her daughter, daughter has her own situation going on there. So I tried to be there when she's not there, because she's dealing with CPS too. And I dont want us to intertwine."
>
> Woman living in a vehicle, unhoused for 4 years

Trusted companions provided social support, protection, and emotional stability within transient living arrangements. Some participants stressed the ways shared experiences and mutual aid within intimate, trusted circles cultivated a sense of belonging, even amidst instability. However, many practiced selective socialization, remaining fearful and wary of most unhoused individuals. Their narratives illustrate how the social connections formed while unhoused can be both meaningful and fleeting, contributing to a fragile sense of community.

Subaim 2b: Changes to Place-based Experiences under the Politics of Banishment

Under Surveillance: Policing and Place-based Anxiety

Subthemes: Dehumanizing encounters; Differential enforcement; Heightened vigilance

Although most participants were unaware of the specific anti-homeless laws and camping restrictions in the region, they shared accounts of augmented policing and the emotional weight of being surveilled. Their stories showcased the ways the looming threat of policing and displacement instilled a continual sense of anxiety about their safety.

Among the nine participants who had lived on the street since 2021, all but two reported experiencing a "sweep", typically involving police or highway patrol, along with sanitation workers and community safety guards. Participants were seldom informed of the reasons for the sweeps (e.g., enforcement of a camping ban, being on private property, or other reason); they were simply told they were not permitted to be there and had to move. Most sweeps occurred with little notice, forcing those targeted to hastily pack their belongings. The toll of these experiences was

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significant, as many participants lost their possessions without the chance to retrieve them, often treated as if their items were mere "trash".

Only one of these incidents was followed by outreach or offers of housing. This participant entered shelter in a motel after a massive encampment clearing yet only stayed there for two weeks, citing dissatisfaction with management, regulations, and housing conditions:

"So one day out of nowhere, some people came and they said everybody had to pack up to go with them, that they were going to move us into housing. So they put us in a little hotel…it wasn't a real hotel. It was like an apartment building, but it wasn't completed. {pause} Like there was no running water. It was just the room with the door and that's it. I don't even think the door has pad locks yet…I couldn't take the fact that we had to check-in every single day. And on top of that, we had to be back at a certain time. And then they had a group, but nobody really shows up. So it's like, why are we showing up to a group that isn't even ran by anybody from the outside source to come to see us? They didn't even have a manager on site. {emphasis}They had nothing. It was just an empty apartment building that seemed like an abandoned. So it was whatever. I stayed there for two weeks because there was no running hot water, I got tired of taking cold showers."

Man living outside, unhoused for 2 years

When describing their experiences of being forcefully moved, participants spoke with a tone of exasperation and powerlessness. Many were left traumatized and on edge following a sweep. One participant recounted an especially frustrating and disrespectful encounter, during which police laughed at their situation and failed to offer any help while their items were confiscated or destroyed without care.

"At that time, I had just finished setting everything up. I just sat down to take a rest. And next thing you know, I look outside, there's a whole cleanup crew with the bulldozer and the whole CHP [California Highway Patrol] and everybody outside just waiting to take my stuff down and throw all my stuff away. And it's crazy because they only take the stuff that

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they know that you need and then all the trash, they leave all the trash there…They just came in and just started cleaning up. And like, I'm inside. They didn't know I was inside. And then they see my dog and then that's when they stopped and start yelling, 'Clean up. You got to get out. You got to get out.' But then I'm just right there. {emphasis} They didn't give me no notice or anything. No heads up or nothing. So I'm like, that's not fair because I have all my stuff here. I can't pack up all my stuff right now and leave…And then they all just like—CHP and some workers, they were all just right here, just having a conversation loud, but laughing at me. I can hear them laughing. I should have recorded it, but I wasn't thinking at the time. I was just so mad, upset, sitting there laughing at me, {emphasis} it's not funny…They said 30 minutes, but during that 30 minutes, CHP is just right there at the door just yelling at me trying to hurry me up. I'm like, it's not nowhere near 30 minutes, like, can you please get off my back? Let me get my stuff. {pause} I'm in here trying to gather all my things and you just keep yelling at me…They just say, 'You're on state property. You got to get out…We don't care where you go, but you just got to get out of here.'"

Man living outside, unhoused for 8 years

Some participants felt police were selectively enforcing laws regarding camping/sleeping in public spaces, as some encampments were left undisturbed while others were repeatedly displaced. This unequal enforcement reinforced participants' view that sweeps merely functioned as a means for the city to create a "sanitary" appearance for tourists. On a similar note, one participant vented that they felt police were unfairly targeting unhoused individuals for neighborhood issues related to drug activity and crime, viewing them as "low hanging fruit" to scapegoat. Additionally, many were skeptical of the offers of housing and shelter made during sweeps—seeing them as insincere attempts to remove unhoused people out of public view, as opposed to genuine efforts to improve their living situation and livelihood.

For those living in their vehicles, parking restrictions added to their stress when searching for suitable places to idle. These participants had to monitor street cleaning schedules and parking signs closely and had to frequently move their vehicles to less conspicuous locations to avoid tickets and towing. Some felt that traffic officers were pursuing them specifically, pointing out that other parked vehicles nearby were rarely fined for violating the same rules. Many already had multiple parking tickets on the books—with one participant accumulating fines totaling around $6,000—and feared that their outstanding tickets would cause delays in obtaining housing support. Despite receiving some help from case managers, participants' attempts to resolve these tickets were mostly unsuccessful:

> "I already explained [the police] that I am using the van as a place to sleep, so that's kind of important. If I get more tickets, if the van gets impounded, where am I going to sleep? {emphasis} On the street, right? So I'm working with some case workers at [social service agency]… and she kind of wrote this letter and asked me to put it on the windshield so they could read. So basically the letter will say, 'Oh, my name is [anonymized], and I have a caseworker and her name is— …And he's working with us and trying to find a place to a home. And right now he's experiencing homelessness and please don't give any more tickets because the event doesn't work. And if you keep doing that, it might be kind of a {pause} street homeless.' And we did that. And then I saw many times parking ticket officers and they will kind of read the letter and they will write the tickets and on the comments will say, 'I cannot read what the note says,' things like that. I mean, come on…{emphasis} I still have the 27 tickets under my name. And I had to renew my driver's license this year. And I was thinking that at the DMV, they would say, 'You cannot renew because you have parking tickets.'"

> Man living in a vehicle, unhoused for 13 years

While not directly involved in encampment sweep and parking citation interactions, business owners and residents were seen as informal enforcers of camping bans and parking

restrictions. Some participants noted a rise in hostility from these groups in recent years, believing that the reintroduction of anti-homeless policies had emboldened them to be more retaliatory— yelling at unhoused individuals, callously discarding their belongings, and immediately calling upon police.

"There's like less respect for us. And like, we can't have those makeshift, like, you know, shanty communities, even if you want to call it that we don't have that anymore. So I know that if I were to, like, leave a tent up somewhere, it's like, the [camping] laws have emboldened, you know, people who are business owners, and even if it's across the street in an abandoned, like, business, or like, where there's nobody there, they'll just go across the street and have that stuff thrown out. Or the security guard will. Or, like they will call, I don't know, like what is called like the community ambassadors. And yeah, so they'll come up and then start like making phone calls and having everything thrown away."

Women living outside, unhoused for 16 years

Additionally, participants noticed more "neighborhood watch" signs as well as increased security measures around businesses, such as cutting down trees to eliminate potential hiding spots, installing more surveillance cameras, and locking gates to restrict access. While these measures are intended to prevent crime and protect property, participants felt that they collectively contributed to a more unwelcoming and restrictive atmosphere. The visible presence of these surveillance and defensive features solidified the idea that certain areas were unsafe and off-limits to them and other unhoused people, deepening their sense of ontological insecurity and marginalization.

"I recall staying at the library. And when the library first reopened at the Edendale library, and we would sleep on their ramp…So yeah, eventually became a problem. And they ended up putting up the gate…Or that [business] where I got arrested, they ended up putting up more like fencing..and they ended up removing the spigets [for water]…So yeah, it definitely seems that it's like comparing now to what it was like, in the past that, yeah, it

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seems that businesses are more aware. And maybe because, well, homelessness is more of a problem now. They're, they've taken greater steps to keep people away. like, for example…I'll stay at a spot with some friends. And I recall an area where it was near like a sort of like a, like a Catholic school or something. And there were trees, you know, and people would would sort of camp out on the side. And he ended up like, cutting all the branches down. So it's visible, so you couldn't sleep there and they did that."

<div align="center">Woman living outside, unhoused for 7 years</div>

Heightened vigilance emerged as a common response to being (or avoid being) swept or ticketed. Participants regularly watched for police presence and enforcement, feeling the need to move frequently and "blend in" with their environment to prevent suspicion and escalation. Many began steering clear areas with increased police visibility, even if it meant less convenient living situations. Indeed, the two participants who had not experienced a sweep attributed this to staying in more hidden or remote locations, such as deep in the forest or on covert side streets.

Women, in particular, reported feeling more vulnerable, as the need to constantly relocate further limited their options for safe refuge. As a result, participants spoke about the need to not become too "comfortable" anywhere and moving more often, seeing this as a way to assert some sense of control:

"We [unhoused women] are just afraid to get comfortable anywhere. Yeah, I mean, it's almost like a way of getting the control back and saying before you guys can tell me to leave. {emphasis} I'm just gonna do it on my own. This is part of my whole routine. And my situation, my character. And so yeah, I mean, {pause} it kind of gives me the power back. Oh, it's not because of [the police]. It's because you know, I'm adventurous or I'm this way. Yeah, because…I shouldn't but just trying to get back, claiming my power. Because we don't have much of that."

<div align="center">Woman living outside, unhoused for 16 years</div>

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While the majority described sweeps as destabilizing, one participant (who lived more spontaneously) seemed unfazed by their experience, simply labeling sweeps as ineffective. Their account reflected a routine familiarity with the process; carrying only a few belongings, they noted that they would just pack up and return shortly after the police and sanitation workers had left. This contrasting perspective affirms earlier research detailing the futility of sweeps that, at the very least, inconveniences those targeted.

The cycle of dehumanization and anxiety featured in participants' accounts regarding threats and experiences of aggressive policing disrupted their sense of constancy and safety. With each encounter, participants felt neither valued nor regarded as fully human, diminishing their sense of self and ontological security.

Health Under Duress: The Toll of Displacement

Subthemes: Increased trauma; Fragmented healthcare; Dissolution of support networks

Participants' narratives revealed the psychological, physical health, and social impacts of ongoing uncertainty and continual displacement amid rising criminalization efforts. One participant highlighted the physical exhaustion of having to regularly move:

> "I reached out to my therapist and all my case managers. I said, 'The police came down here and they told me I had to move. I'm not moving. I don't have in me to move again.' I mean, just physically, {pause} I just don't have it. {emphasis} I'm going to be 54... I mean, everything in my body hurts. I mean, I'm in pain all the time. So it's too much."

> Woman living outside, unhoused for 7 years

The growing unpredictability of participants' living situations from heightened anti-homeless policing left many feeling exhausted and overwhelmed. Participants felt compelled to remain on alert and defensive, which, for some, contributed to increased intrusive thoughts and suspicions about potential threats. The unceasing stress and a lack of sleep from being unable to let their guard down drove participants to experience additional mental health issues, including

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hallucinations and emotional dysregulation. Furthermore, the dehumanization experienced during sweep encounters, coupled with a perceived lack of empathy from businesses and the general public, further diminished participants' self-worth and intensified their mental health challenges:

"It's very exhausting and stressful. It stresses me out. Because {pause} you never know when they're going to come. They always want to surprise you. And like now they're talking about they're going to be coming out here every single day. I really got to figure out what to do and where to go. Because they don't care. They don't care if you got housing or not. Yeah, they're just like, {pause} we don't care. We're not required to help you, but you got to get out of here. And that's it… I have pretty bad anxiety. And they just make me more anxious. It affects all of it... It's like I can never sleep comfortably. I'm always on alert and it messes up my mental more and more and more. I start seeing stuff and I start hallucinating. Because of the stress and I can't sleep and I'm always trying to figure out what I'm going to do next and always worried about what I'm going to do next and where I'm going to go, what I'm going to do."

Man living outside, unhoused for 8 years

Juggling the mental load associated with threats of displacement also compromised their engagement in regular routines for health. One participant detailed frequently missing medication doses due to the hypervigilance and time lost from continual relocation.

"I feel like during this bout of homelessness, [taking medication] has been difficult to do. But I feel like it gives me some type of pattern. So I try to stick to it, so then my brain sticks to whatever this concept is that's going on at this point. But it has been very difficult to remember to do it or things like that, especially with losing sleep or losing time. Time is a big thing…I just missed it again the other day….It's just trying to remember to survive and take medication."

Transgender man living outside, unhoused for 6 years

For individuals reliant on street medicine services (i.e., healthcare provided to unsheltered people directly on the street in public spaces or encampments), consistent visits depended on their relative immobility; thus, encampment sweeps interrupted access to care by compelling involuntary movement. For example, one participant who used street medicine for prenatal care had just been forced to move and voiced concern that, without a way to communicate, their provider would struggle to find them in their new location. This was also true of homeless services; without a way for outreach workers to find them, follow-up coordination was jeopardized. This experience highlights how unanticipated mobility ultimately sabotages access to essential healthcare services.

"Sometimes [the outreach teams] came where I was with like food and stuff, and just stopped showing up, like what am I supposed to do? Like they take my name but because, they're like can we find you here? And I was like, displaced from there…I don't know where they are. Even if I go back that area what's the chance that I'm gonna be there at the exact same time. Exact same place they're gonna be. and I can't be there forever because people will notice. And you know, the whole cycle will begin again."

Woman living outside, unhoused for 16 years

As participants were displaced into more dangerous living situations, they faced increased health risks in their new environments. Many sought refuge in secluded locations on the outskirts of urban areas, such as deep in forests, dense vegetation, or behind freeways. However, these areas, while offering some privacy, often harbored additional health dangers. The dense vegetation and proximity to wildlife increased participants' risk for insect infestation, including mosquitoes and spiders. Without regular access to clean water and sanitation facilities in these hidden areas, participants were forced to improvise makeshift setups (like using buckets as toilets and using contaminated water sources from lakes/rivers for showers), making them more susceptible to skin infections and rashes. For example, one participant recounted visiting the

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emergency room multiple times in a short span for spider bites and cuts sustained while sleeping in various wooded areas—injuries that took months to heal:

"Two times I had surgery on my fingers because I had a spider bite. My finger was swelling all the way up. So they sliced my finger open all the way down to here. And they cut all of this out. And they took out my nail...When I got that spider bite, [it was] down in the river. Down the cruise. there's a lot of spiders and a lot of roaches and a lot of centipedes."

Man living outside, unhoused for 8 years

Already on shaky ground, participants' efforts to form steady and meaningful relationships with other unhoused individuals were compromised by criminalization and forced mobility. Some were once part of close-knit groups or established encampment communities that provided safety in numbers, but aggressive policing and sweeps have caused their support networks to disband—prompting a renegotiation of their sense of identity and belonging. As much as they wanted to stay connected with their peers they spent considerable time establishing trusting relationships with, differing ideas of safe locations after displacement forced them apart. Participants' shrinking networks of support disrupted any sense of community they had and made them even more wary of others. This was especially true for women, who depended heavily on stable connections for protection. As their relationships became more fleeting, participants grew increasingly reluctant to form close bonds, fearing that these connections could quickly dissolve from displacement, which only intensified their sense of loneliness and insecurity. One participant portrayed this feeling effectively:

"I don't have any social relationships anymore…like a lot of [my friends] headed to unincorporated areas where there's like, less rules and less, you know, {pause} hatred towards them or towards this situation…Like, I used to be able to camp out with people, and I was like, Well, I have these people, they're gonna look out for me, I don't have that anymore. There's nobody…Like, the last times, I tried, you know, {pause} basically, because of these [camping] laws, like it was all uprooted anyway. So it's only a matter of

time before like, It's all useless. Because like, how am I going to keep up with everybody? We're all now scared to death. We don't know where we're gonna go and camp out next."

Woman living outside, unhoused for 16 years

Unending displacement not only destabilized participants' mental health, sense of safety, and access to healthcare but also their already limited social networks. Overall, their experiences highlight the immense social and emotional toll of heightened policing efforts, as the relentless need to prioritize survival left little room for maintaining health or developing trusting relationships.

Restricted Access: Shifting Activity Spaces

Subthemes: Chaotic routines; Disruption to place attachment

Across participants' narratives, increased enforcement disrupted their daily routines and turned once-safe areas into sites of fear and displacement. This reconfiguration of their activity spaces illustrates how mobility is constrained by socio-political forces that reshape the conditions of their lived environments.

"Yeah. There's no sense of normality. It's constant moving. Something could change. A 7-Eleven could be something else the next day and I just don't know it when I get there. So it's kind of a surprise, like, oh, hopefully it's the same when I get there, or maybe there's a transient that happened to move into that area while I was gone that is destroying everything. So now I really can't…It's like you can't be there now because now the police are really looking. So yeah, no, there's no sense of normality... [My routines] have to change because to keep up with the police and keep up with the park rangers."

Transgender man living outside, unhoused for 6 years

As the restrictions on where participants could go without punishment grew, their access to resources became more precarious. The absence of electrical sources in the more secluded locations they began seeking refuge in hindered their ability to stay connected to social services and social support networks—effectively severing a crucial lifeline. Some participants also noted

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how experiences of sweeps prevented them from storing food and other necessities in advance. Because they had to pack up quickly, many chose to stockpile fewer items. With reduced capacity to carry essentials and a fear of confiscation, they found themselves needing to buy food and other items more frequently, adding more chaos (and expenses) to their routines.

A handful shared poignant reflections on how their attachment to their "temporary" homes were repeatedly destroyed from policing, causing ongoing emotional distress from losing already limited safe spaces. Increased disruption to these connections to place made them feel even more unstable in their environment. For instance, one participant felt at home on the streets Hollywood, where they had decorated their tent and built a sense of community with familiar unhoused neighbors and kind local housed residents who shared food. However, increased law enforcement actions transformed this once-safe place into a site of danger for them. The fear of being watched in the neighborhood impacted their comfort and sense of security.

"And I'd go to my tent. And I had my tent set up so cute, it's like a little bedroom. You know what I mean? I had all my little lights there and everything. You know? Yeah. And I set it up on [anonymized street name] and we were all family there too. When you're trying to survive, and trying live, you know, and you want to be comfortable. And if you're going to call this home you're going to try to make it as comfortable as possible and try to make it home you know? …And then once we set up and got all comfortable with it, we got to leave again. And then, Sanitation come in and taken all our shit, you know. It makes me fuckin angry. I just, like you motherfuckers don't give a shit about nothing. Because you got a home to go to, and you just came up on homeless people's valuables."

Woman living outside, unhoused for 7 years

A few individuals residing in vehicles shared similar sentiments about how policing disrupted their attachment to and meanings of place. The threat of parking tickets and impoundment and the anxiety of having their situation exposed affected their ability to maintain a stable living space.

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Some participants explained that camping laws made them feel warehoused into "undesirable" areas like Skid Row or unincorporated regions, as other neighborhoods became increasingly inhospitable to them because of growing surveillance. This dynamic fostered feelings of alienation:

"I've heard this like, {pause} a lot of us are going to unincorporated areas like even like more on North and like Lancaster and stuff. Where there's like, no, that's where they want us and then there's no water there. It's not incorporated. There's no like sewage system. {emphasis} There's nothing there. There's no infrastructure. There are no plumbing, there's no plumbing nothing so yeah, I can't personally do that…They don't want us in this city because we give it a bad name for tourists and stuff. So yeah, they wherever it's almost like a game to them wherever they can spot like somebody's makeshift shelter. They just want to rip it up and throw it away."

Woman living outside, unhoused for 16 years

Participants' narratives demonstrated the links between place and personal wellbeing as well as the broader socio-political landscape. As their activity spaces changed, so did their health-related experiences. When once-familiar areas became fraught with fear, their meanings and experiences attached to these spaces shifted dramatically, altering how individuals related to their physical surrounding and social community.

Subaim 2c: Collective Stories of Resilience and Hope for Change

Challenging Marginalization: Strategies of Survival and Desire for Dignity

Subthemes: Stigma and grief; Desire for stability and dignity; Transformation and renewal

The core narratives participants shared reflected a deep yearning for stability, dignity, and connection amidst the challenges of homelessness and stigma. Many feared being judged, undermined, or exploited by others, alongside a profound desire to be recognized beyond their circumstances. The weight of this stigma not only affected their self-image and ability to express

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themselves freely but also shaped the way they navigated the realities of homelessness, resorting to strategies of impression management (i.e., covering up their unhoused status) and defensive othering. Criminalization only exacerbated their marginalization.

The fear of being forgotten or overlooked resonated deeply with participants who had lost several friends and community members over the years. Many recounted the tragic deaths of their unhoused peers—some due to violence or drug overdoses—that intensified their sense of isolation and grief. Participants expressed sadness and frustration over the lack of attention from government officials and the broader public to these losses within their community, which contributed to an overarching feeling of neglect:

"There's a lot of people out here, a lot of people who die. I've never, like experienced so much death {pause} until I came out here. It's like somebody's dying every week…It's like sad {starts tearing up}. Yeah, it's sad because nobody cares. Nobody cares. Police don't care. They're like, 'oh another gang member off the street.'…So many people die. {starts crying} And you know it's like, they don't deserve that. It's just so painful… And I don't sleep well. A lot of people's {pauses} lives are forgotten out here. You know? And that's somebody's kid, somebody's sibling, mother, father, you know? It's just so painful…And we don't really have the time to look grieve and mourn. Because its like there's always something going on. Like we got to keep moving, we have to be strong, to kind of like, face it and move on from it. And sometimes it's hard when you're really close to that person, you know? Especially when you know that person's death was, was, could've been, you know, avoided or...And then it's like pushed, like brushed off like it was nothing. We know that he was murdered you know. But they don't see it like that…Nobody cares. Nobody cares. They just, they just sweep it under the rug like they didn't matter, you know. Because he was homeless."

Woman living outside, unhoused for 7 years

The majority of participants indicated feeling "broken down" by the various difficulties associated with living outdoors. One participant said they had surrendered themselves to never "really have peace of mind" because of their experiences with frequent moves and relentless vigilance that was necessary for their survival. Another participant detailed the damage that the stress and anxiety of their situation had taken on them:

"I'd say that you have a shell sitting in front of you of the former person that I used to be, and that I can sit here and do this only because of who I used to be. But unfortunately, when I walk away, I'm going to have to go be the person that I am now. {pause} That's how bad my mental health is. That's how bad the PTSD is. That's how bad the nightmares are. But unfortunately, I can't act that out here, can I? Without going to jail. So everything that I've seen, every single thing that I've had to deal with has been traumatizing."

Transgender man living outside, unhoused for 6 years

Although most participants stated that they managed to get by day-to-day, the constant upheaval and uncertainty surrounding their living situations eroded their physical and mental health. Their experiences with ongoing delays in securing housing fostered a pervasive sense of exhaustion and despair, igniting an intense longing for more stable living conditions. This sentiment was powerfully illustrated in the account of one participant who had been unhoused for 7 years. Over the years, they experienced multiple instances of sweeps, degrading encounters with business owners, and sexual assault, causing them to be hospitalized and institutionalized for attempted suicide. When reflecting on her experiences, she stated:

"I'm just trying to like I you know, I'm just like through with it. And I'm really looking for for housing now…{pause} It's totally changed me from who I was. I used to reach out to help people, and now I just bark to keep people away. I don't want to become close because they're going to want, they're going to take, they're going to need, they're going to—{pause} and I just don't have anything to give. And that's sad to feel that way. I mean, I've sat down the side of the road all beat to shit, blood everywhere, and people just drive by and look

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at me like I'm crazy…I just wanted to-- it's just too much …Because at 54, I feel like I'm 100 years old"

<p align="center">Woman living outside, unhoused for 7 years</p>

Despite their struggles, participants' stories were also filled with expressions of perseverance, resourcefulness, and a desire for change. Individuals coped either by seeking seclusion, focusing on turning their lives around, or calling attention to the structural conditions that drove their current circumstances. Many voiced frustrations at the ways society dismisses unhoused individuals and their struggles and criticized the lack of effective solutions from authorities. In response, a few participants began advocating for themselves and their community, demonstrating a remarkable sense of agency and resilience in the face of adversity:

"That's so sad. It makes me sad. {pause} Because it's like, nobody's out here to advocate for these people. You know, and that's something that I think {emphasis} I was brought out here for, like I'm supposed to experience it and to speak up for them. Because it's like, it's not just them, it's us. You know?"

<p align="center">Woman living outside, unhoused for 7 years</p>

Others emphasized the importance of remembering lost friends and maintaining connections as a means to restore a sense of humanity in their lives. Through small acts of community-building, individuals displayed their determination to find comfort and belonging. Together, their stories showcased both their adaptability in confronting barriers and their courage to assert their dignity while tackling immense hardships.

Additionally, many narratives conveyed a desire for renewal and a chance at stability. Beyond merely surviving, individuals were motivated to restore a sense of control over their futures. This drive for change manifested in various forms, such as a commitment to overcoming substance use issues, finishing their education, seeking personal growth, or focusing on employment opportunities, for the sake of themselves and their families. One participant shared

their desire to turn their life around to avoid a fate like that of their unhoused friends who passed away too early while unhoused.

> "I think because they all died from uhh bad health. And drugs. Most of them, majority, it effected me to change. {emphasis} That was like a wake up call. Because I don't want to be like them."

<div align="right">Woman living in a vehicle, unhoused for 14 years</div>

Another individual wanted to prioritize personal care in order to be in a healthier mindset as she worked towards regaining her housing and reunifying with her children, who had recently been placed in the care of Child Protective Services:

> "Up and down, a roller coaster. {pause} Some days are good some days I'll be fine. And I'll be like, completely motivated. Listen to my affirmation music. And then I could just be eaten Cheeze-its and I just start crying. I'm like, maybe that's like part of the PTSD and I'm just not realizing it. Or like it's hitting me late that my kids aren't, aren't with me…it's just, it feels like a lot. A lot, just like piling up at once. Plus I'm, my case finally got taken for my mom's ex-husband being sexually abusive. So that's, that's open and then it was like, then the kids, and then and then this and this, it's like, Jesus, I just need to breathe. {pause} So I've been trying to figure out, like, take the time to figure out like things that used to make me happy, like outside of being a mom and wife and all that so I can find some peace because I feel like I just let myself take an exit a long time ago."

<div align="right">Woman living in a vehicle, unhoused for 4 years</div>

Stable housing emerged as a crucial component for realizing these aspirations—something many have never experienced in their lifetime. As such, several participants described actively seeking housing assistance and taking more initiative to follow up on applications:

> "And I want to sit you know, I want to get into housing. So. So yeah, I, in fact, I plan on going down to like [social service agency] because I've been sort of speaking with the people at [healthcare agency] to, to, like, get some advice on, like, how to, you know, I

can access housing, and I've been doing that like more assertively. Yeah, lately. So yeah, I need to go to one of these places…where you can go and sign up and they like you have a case manager and so on. So yeah, I really like I need to, like want to stop using [drugs] and have a place…Yeah, because I don't want to spend another year on the streets.

Woman living outside, unhoused for 4 years

Despite the challenges they faced in navigating systems of support, participants' narratives were often marked by a clear vision of what long-term stability could look like for them, whether it was securing housing, learning new skills, or finding steady work. For many, the pursuit of renewal was not just about escaping homelessness; it was about reclaiming their identity, dignity, and a hope for a future where they could thrive.

Discussion

This study explored the narratives of unhoused individuals about their mobility patterns and experiences with place in the context of criminalization, portraying these aspects as a complex interplay of physical movement, social relationships, identity, and health. As noted in participants' accounts, experiences of homeless mobilities entail dispossession across several dimensions, including spatial, physical, emotional, and ontological aspects (Somerville, 2013). Their retellings reveal the flexibility required to navigate multiple landscapes and obtain basic necessities while avoiding hostile encounters. Although consistent routines emerged as a crucial source of stability amidst the chaos of homelessness, the constant need to find safe places to sleep jeopardized their ontological security. Moreover, homeless mobilities extended beyond simply moving between outdoor spaces; participants often found themselves trapped in a cycle of involuntary movement through various institutional settings, experiencing repeated transitions in and out of housing, healthcare, and carceral situations. In examining their narratives of broader movement patterns, many individuals were compelled to evade increasingly hostile areas (i.e., those undergoing redevelopment or inhabited by predominantly white, affluent residents) and

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were instead warehoused into places already recognized (and tolerated) as unsheltered hotspots, effectively perpetuating their spatial marginalization.

A key contribution of this study is a more comprehensive understanding of the health outcomes related to criminalization, as it connects the psychosocial and behavioral effects of policing to downstream health challenges. Through stories of their fears of and encounters with policing—such as encampment sweeps and parking citations—participants showcased the unescapable hypervigilance and unpredictability that accompany these experiences that diminished their sense of ontological security. Psychological and public health literature on the topic indicates that a decreased sense of stability and belonging associated with ontological *insecurity* can lead to augmented psychological distress and weakened sense of control and self-efficacy to manage existing health conditions (Bandura, 2001; Dupuis & Thorns, 1998; Henwood et al., 2020; Ingadottir et al., 2023; Lados et al., 2023; Mitzen, 2006; Padgett, 2007). One participant's narrative exemplified this struggle; they described how their constant vigilance interfered with their ability to consistently follow a medication regimen. This challenge was further intensified by increasingly precarious access to basic needs like food and hygiene facilities. Consequently, this study extends previous research on ontological insecurity among the unhoused by suggesting that the impacts of living in a state of chronic hypervigilance stemming from anti-homeless practices are not limited to mental health; they may also exacerbate existing chronic physical health conditions by complicating the health management for these issues, thus increasing downstream negative health sequalae.

Central to this study's objective is to not only consider the material dimensions of health under criminalization but also the relational aspects, including individuals' connections to people and to places. As Hodgetts et al. argues, "we are embodied beings who live in a material world, frequent public spaces and engage with others" (D. Hodgetts et al., 2007). These dimensions are particularly important for showcasing the ways a sense of ontological security is crystallized in specific situations, spaces, and interactions. In this study, I found that as individuals navigated

their changing environments under heightened policing, their relationships with space inevitably evolved. Disruptions caused by law enforcement actions transformed how they related to their surroundings, undermining their sense of security and rootedness. This erosion of security also contributed to a weakened desire to socially connect, as individuals feel progressively isolated in their surroundings. Although dependable companions were critical sources of support and emotional stability in their transient living arrangements, the increased precarity imposed by anti-homeless practices rendered many of these connections fragile. Consequently, the regulation and banishment of unhoused individuals served as constant reminders of their marginalization, prompting questions of belonging. This seclusion can not only undermine mental wellbeing but also makes it increasingly difficult for individuals to seek help, leading to avoidance of support networks and systems and further jeopardizing their health management.

Emphasizing participants' retellings and interpretations of their life trajectories, from childhood to the present, also allowed for a more holistic view of their current struggles with homelessness and their aspirations for stability. Participants reflected on significant moments in their histories, imbuing specific life episodes with symbolic meaning. Many identified their adverse experiences in childhood or early adulthood, including parental neglect, family issues, sexual and physical abuse, substance use, and incarceration, as turning points in their life trajectories—a finding echoed in countless other studies examining the common pathways into homelessness (Liu et al., 2021; Stonehouse et al., 2021). These studies have highlighted how these early hardships give rise to other future challenges, including mental health issues and difficulties in forming stable relationships, thereby creating a foundation of instability that influences the ways people handled their current situations of precarity. Preece et al. suggests that precarity is an ontological experience that can manifest in different forms of flexibility; while some individuals remain "on edge" amid uncertainty, others may become accustomed to a continual sense of insecurity (Preece et al., 2020). Indeed, participants demonstrated contrasting approaches to managing precarity. Some exhibited increased sensitivity to their surroundings, particularly

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among women, avoiding places they perceived as dangerous altogether. Others adopted a more adaptive resilience, such as temporarily relocating during sweeps and returning once the immediate threat had passed. This distinction is crucial, as it impacts how individuals perceived and responded to expanding criminalization efforts and its associated health effects. Therefore, investigations into the health impacts of criminalization should always be situated in a life-course perspective, as it reveals how early adversities shape current psychological and behavioral processes.

As part of their experiences of ontological insecurity, unhoused people are consumed by an "all-defining homeless identity" (Preece et al., 2020). Interwoven in the narratives participants constructed was a profound recognition of the stigma they faced as an unhoused person, with many directly expressing feelings of being perceived as less than human. The internalization of the negative stereotypes often manifested as impression management, as individuals downplayed their unhoused status, especially in the face of heightened surveillance and policing. Snow and Anderson's early research on self-perception among unhoused people explained this strategy, noting that a significant aspect involved avoiding other unhoused individuals to distance themselves from the perceived moral failures they represent (Snow & Anderson, 1993). Movement also became a form of stigma resistance. Participants' need to stay mobile to seek new shelter was not only a survival strategy but also a response to their understanding that remaining in one place for too long often invited judgment and increased scrutiny. This constant need to proactively avoid stigma and social interactions can foster a sense of isolation, making individuals hesitant to reach out and form connections (Preece et al., 2020; Vandemark, 2007). Moreover, previous studies found that individuals not only distanced themselves from others experiencing homelessness but also from the institutions meant to serve them, in an effort to salvage their self-worth (Snow & Anderson, 1993). As seen in this study, this wariness, coupled with the dehumanization they faced from authorities and the public, complicated their interactions with systemic supports. Deep-seated distrust of services can further impact their ability to attain

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the necessary resources to manage health. These dynamics illustrate how the link between mobility and health are also bounded with issues of power and identity and embedded in prevailing social attitudes and power relations (Lowe & DeVerteuil, 2020).

Individuals' discourses about "possible lives" and their desire for recognition of their humanity also reveal how broader societal narratives shape the ways people construct their own life stories. Homelessness is often perceived as a personal failing and presented as a one-dimensional categorization, overlooking the complexity of how unhoused individuals enact diverse identities and tell alternative stories that embody hope and dignity, free from the burden of an all-encompassing "homeless identity" (Preece et al., 2020). In a society that privileges property ownership and ideals of what home should be, experiences of homelessness can deeply unsettle one's self-concept and sense of self-determination (Daya & Wilkins, 2013). Participants were keenly aware of how their paths diverged from the "norm", which fueled their longing for stability, need for stable housing, and aspirations to rebuild their lives. This research highlights their desire to transcend the "homeless" label, asserting agency and dignity amid oppressive power structures.

This fundamental tension between mobility, power, agency, and identity within participants' narratives illustrate a "politics of mobility" within the health geographies of unsheltered homelessness (Cresswell, 2010). As conceptualized by Cresswell, politics of mobility refers to the ways power structures dictate who can move freely and who cannot, favoring certain forms of mobility while marginalizing others based on identity claims and societal values (Cresswell, 2010). In the context of unsheltered homelessness, this framework highlights how the mobility of unhoused individuals is regulated by policies of banishment under propertied citizenship—a system upheld by claims to property and thus personhood (Przybylinski, 2021; Roy, 2003). Consequently, the daily paths of unsheltered individuals were hardly voluntary; they were inherently coerced by surveillance and policing practices from law enforcement, property owners, and housed neighbors that decided where they could go without challenge (Herring, 2019b;

Langegger & Koester, 2016; T. Robinson, 2019). Moreover, the stories shared by women and unhoused people of color of the disproportionate impacts of state-sanctioned violence and displacement on health illustrate how practices of banishment are embedded within interlocking systems of propertied citizenship, gender-based violence, and structural racism (Roy, 2019). Participants' narratives demonstrate a keen awareness of these manifestations of spatial politics, prompting individuals to adjust their routes to avoid encounters with law enforcement as a way to assert some agency within a system built to limit it.

Thus, according to Lowe and DeVerteuil, "the determining factor in the multi-layered interaction between mobility and [health outcomes] appears to rest on the extent to which each individual is able–or perhaps equally as important, feels able—to exercise some say over their [circumstances]" (Lowe & DeVerteuil, 2020). Specifically, it brings attention to the importance of how much individuals perceive their mobility patterns as reflections of their attempts to enact agency within their constrained environments—which is itself influenced by identity-making processes—rather than merely being dictated by external institutional forces. For many unhoused individuals, constant movement served as a core demonstration of their resilience—a strategy to maintain a sense of control and adapt to an ever-changing and often antagonistic environment. For them, each move represented a survival tactic, a way to reclaim some degree of safety and autonomy in a world that often seeks to marginalize them. This difference is central to understanding how people's experiences and perceptions of mobility, along with their broader context, influence their health (Langegger & Koester, 2016; Lowe & DeVerteuil, 2020). Future research can delve into the health risks associated with feelings of entrapment and adopt a more critical, nuanced approach when exploring the interconnections between mobility, agency, and health. Such investigations will enhance our understanding of the health geographies within the power relations that give rise to the criminalization of homelessness.

Limitations and Future Directions

Study findings should be considered in light of a few limitations. First, the English-speaking eligibility criteria may have limited the applicability of the study findings to the growing Latinx population in LA County, many of whom primarily speak Spanish. As a result, the findings may not fully capture the unique challenges and needs of Spanish-speaking individuals experiencing homelessness, particularly those related to immigration concerns, linguistic barriers, and access to culturally appropriate services. Addressing these gaps represents a crucial avenue for future research to develop more effective support systems for this underserved community. Secondly, I employed maximum variation purposive sampling for recruitment. While this approach facilitated in-depth insights from individuals with diverse experiences—particularly those underrepresented in previous research, such as women and racialized individuals—it also means that the findings may not fully represent the wide range of realities faced by the broader unhoused population. On a related note, my sample size of 13 may be considered small compared to other interview studies, which may have undermined my ability to detect meaningful variation in unhoused people's place-based health experiences. However, there are no universally defined criteria for determining sample size in studies employing narrative analysis. Typically, sample sizes in this approach are smaller, reflecting its commitment to exploring the intricacies of human experience and the depth of personal life stories (Creswell et al., 2007). Furthermore, as a pilot study, the goal of this study was not to uncover a comprehensive range of "truths", but rather to explore initial ideas and identify potential areas for further investigation. While the small sample size may have limited the breadth of the findings, it allowed for a richer and more nuanced understanding of the individual narratives I explored. Additionally, I did not formally conduct member checking, which, if implemented, may have enhanced the study's credibility and ensured that the conclusions drawn from the data accurately reflect participants' experiences (Drabble et al., 2016). This omission highlights a potential area for improvement in future research to further validate and deepen our understanding of participants' perspectives. Lastly, my position as a researcher without personal

experiences of homelessness may have colored both the dynamics of the interviews with participants as well as the interpretation of the data. While I aimed to approach participants with sensitivity and openness and engaged in regular self-reflection through reflexive memoing, my lack of lived experience could have hindered their comfortability with and my understanding of the complexities and emotions surrounding their narratives.

Implications

Overall, this investigation underscores the significance of exploring the narratives of mobility and agency among unhoused individuals to comprehensively depict the health impacts of criminalization. The findings build on previous research by offering a more inclusive definition that incorporates social relationships and the meanings attached to place, providing valuable insights into the decision-making processes that influence shifts in the geographic distribution of unsheltered homelessness. Additionally, this study clarifies potential pathways connecting these lived experiences to health outcomes, emphasizing key concepts such as ontological security, social support, and healthcare management. By exemplifying how individuals navigate their environments and affirm their agency in the face of systemic barriers, this research reveals the complex relationships between mobility, identity, and health. Ultimately, it advocates for a more nuanced understanding of how the criminalization of homelessness governs not only where individuals live but also their overall wellbeing.

This study also identified several concrete intervention points, particularly in how support systems can be designed to create humane pathways to stable housing. For example, current service-oriented policing tactics often force individuals indoors, presenting temporary shelters as safer alternative to sleeping unsheltered outside (Westbrook & Robinson, 2021). However, as individuals recounted their various negative experiences in temporary shelter, it became evident that these facilities fell short of meeting their needs and thus are hardly seen as viable options for refuge. Previous studies have similarly highlighted dissatisfaction with shelter stays, revealing

that many are marked by unsanitary, crowded, and unsafe conditions (Donley & Wright, 2012; Ha et al., 2015; Herring, 2021). Even more alarming is the high prevalence of physical and sexual harassment in these settings, which triggers past trauma for many women in this study (Murray, 2011). Additionally, the lack of amenities that address gender-specific needs, the challenges faced by families, racial bias from staff, and restrictive rules regarding pets and personal belongings created significant barriers to entry and prolonged stays. Accordingly, any meaningful strategy to address unsheltered homelessness must prioritize transforming the shelter system and rebuild shelters to be more humane and inclusive. Otherwise, these approaches will only propagate coerced mobilities in and out of sheltered and unsheltered settings, contributing to a cycle of instability detrimental to individuals' sense of constancy, safety, and wellbeing.

Participants' narratives also emphasized the need for comprehensive support interventions that encompass a holistic approach—extending beyond simply meeting housing needs to include resources that empower individuals to reconnect with their aspirations and build essential life skills for long-term stability. Based on participants' feedback on current homeless management approaches, these additional programs should include mental health support, skills development programs, financial and legal advice, and community integration initiatives. Furthermore, to effectively support unhoused individuals, it is essential to foster trust in the systems designed to assist them; this can begin with improved coordination between service systems and enhanced follow-up communication. Rooted in these efforts should also be a recognition of the unique circumstances and vulnerabilities faced by women and racialized individuals, who often face higher levels of trauma and distrust due to experiences of sexual harassment and hyper-policing (Herring et al., 2019; Murray, 2011). By prioritizing these strategies, systems can work to rebuild trust with individuals and empower them to engage more fully with available resources on their path to stability.

3   AIM 3: LONGITUDINAL ASSOCIATIONS BETWEEN EXPERIENCES OF ANTI-HOMELESS POLICING AND HEALTH AMONG LOS ANGELES' UNHOUSED POPULATION

Abstract

Background: Cities across the United States are relying more on "quality-of-life" policing tactics to remove visible homelessness from public spaces. Despite growing evidence of the social consequences of these approaches, few studies have tracked their health impacts on unhoused individuals over time. **Objective:** The present study examined the longitudinal associations of experiences with anti-homeless policing and displacement on physical, mental, and social health among a prospective cohort of unhoused individuals in Los Angeles County (N=731) between 2022-2024. **Methods:** I ran a series of multivariate hierarchical generalized linear models on 6,275 monthly observations to examine whether experiences with anti-homeless policing contribute to poorer physical health, increased psychological distress, greater social isolation, and worsening sleep quality, whether physical displacement mediates these effects, and whether race and gender moderate these relationships. **Results:** Encounters with police, experiences with sweeps, and being concerned about consequences of camping bans was associated with poorer physical health, increased psychological distress, and greater social isolation. Frequent experiences of anti-homeless policing had a cumulative effect on health outcomes over time. These effects were mediated by physical displacement and varied by race and gender. **Conclusion:** This study demonstrates that experiences of anti-homeless policing are embodied through poorer physical, mental, and social health. Displacement plays a critical role in this process, as changes to individuals' physical and social environments due to dislocation introduce additional health stressors. **Implications:** As federal courts continue to evaluate the legality of quality-of-life policing as "cruel and unusual punishment," this study provides evidence that the harmful impacts of sweeps extend to both physical and psychosocial health of unhoused individuals, offering a basis to urge local authorities to halt aggressive policing practices.

Introduction

The directive to "protect public health" is frequently used to justify "quality-of-life" policing tactics aimed at removing visible homelessness from public spaces (Lachapelle et al., 2022). While government officials often present these measures as enhancing the wellbeing of all individuals, including the unhoused people they target (Lachapelle et al., 2022; Westbrook & Robinson, 2021), there is scant empirical evidence supporting these claims. Instead, quality-of-life policing and criminalization laws have been shown to increase destabilization and suffering among the unhoused, including the loss of their personal items, erosion of their sense of security, disruptions to their daily routines, and reduced access to health services and social support networks (J. S. Chang et al., 2022; Goldshear et al., 2023). Despite growing evidence of the social consequences of these approaches (Darrah-Okike et al., 2018; Herring et al., 2019; T. Robinson, 2019), few studies have tracked their long-term impacts on the health of unhoused individuals. Further research is needed to understand how the added psychosocial and behavioral stressors associated with criminalization affect their health over time.

This study explores how policing responses to visible homelessness—such as legislation banning public camping, encampment clearings or "sweeps," and move-along orders—shape the health trajectories of the unhoused population. It contextualizes the surveillance, policing, and criminalization of homelessness in relations of power that exacerbate structural marginalization, resulting in significant inequitable health outcomes for the unhoused community. In particular, this study interrogates the notion of "protecting public health" used to defend quality-of-life policing and anti-homeless legislation, questioning which public and whose health is being prioritized through these strategies.

Background

Health risks of homelessness

Homelessness poses substantial challenges to health and wellbeing (Wolf & Hrast, 2023). Daily struggles with inadequate nutrition, unstable and unsanitary living circumstances, and

barriers to healthcare among the unhoused has produced elevated rates of chronic physical conditions and mental health issues compared to the general population (Amato et al., 2019; Avelar Portillo et al., 2023; Easton et al., 2020; Hernandez et al., 2019; Petrovich et al., 2020). Substance use has also been established to be both a coping mechanism and a risk factor of homelessness, increasing vulnerability to exploitation, violence, and injury (Carrillo Beck et al., 2022; McVicar et al., 2015; Nilsson et al., 2019). People living in unsheltered settings endure additional health and social burdens (Richards & Kuhn, 2022). Unsheltered individuals are more likely to be victims of violence, abuse, and assault, which can trigger trauma and chronic stress (Meinbresse et al., 2014; Padwa et al., 2024). Diminished access to sanitation facilities and clean water from living outside heightens their risk for infections and other hygiene-related issues (Avelar Portillo et al., 2023). Furthermore, a majority of the unsheltered population have unmet health care needs and also lack access to regular medical care, preventive services, and medications that make it difficult for them to manage their existing health conditions or receive timely treatment (Amato et al., 2019; Petrovich et al., 2020). Overall, the intersection of these health hazards contributes to accelerated aging and reduced life expectancy among the unhoused, especially for those who had been living unsheltered for some time (Funk et al., 2022; Richards & Kuhn, 2022; Roncarati et al., 2018).

Against this backdrop of increasing mortality risks of homelessness, city officials are relying more on quality-of-life policing measures and criminalization approaches to manage the rising homelessness crisis (Fisher et al., 2015; National Law Center on Homelessness & Poverty, 2019b). Recent studies illustrate that localities are mobilizing considerable resources to enforce ordinances outlawing activities commonly conducted by unhoused people to survive, such as sleeping, sitting, or camping on sidewalks, through move-along orders, citations, and arrests (Herbert et al., 2018; National Law Center on Homelessness & Poverty, 2019b). These carceral responses are often conducted "in the name of health," framing unhoused people as significant "risks" to public health and safety (Lachapelle et al., 2022). To make such laws more palatable to

the broader population, supporters of "anti-homeless" policies and practices regularly claim that enforcement can serve as a mechanism to connect unhoused people to resources and housing and prompt "service-resistant" people to leave the street and enter shelter (Herbert et al., 2018; O'Sullivan, 2023). Yet, critics of such practices argue that the use of aggressive policing to compel people to utilize services is a form of "coercive care" that erodes their autonomy and places them at greater risk for trauma and stress (Herbert et al., 2018; Herring et al., 2019; O'Sullivan, 2023). Others note flaws in the logic that anti-homeless policing could facilitate shelter and housing placements, because many municipalities lack the amount of affordable housing units and shelter beds needed to service the entire unhoused community in their jurisdiction (Herring et al., 2019; Westbrook & Robinson, 2021).

In reality, criminalization strategies targeting homelessness have been found to exacerbate existing health and safety risks among the unhoused (J. S. Chang et al., 2022; Goldshear et al., 2023; Westbrook & Robinson, 2021). Previous literature has shown how policing interactions cause trauma, disturb sleep patterns, heighten risk for violence, and fracture community support ties (J. S. Chang et al., 2022; Lachapelle et al., 2022; Langegger & Koester, 2016; Westbrook & Robinson, 2021). Moreover, displacement from threats of (or actual) police harassment or eviction often drive unhoused people into more covert and unsafe locations, exposing them to a myriad of other environmental and social harms (J. S. Chang et al., 2022), as demonstrated in Aim 1. Displacement ultimately creates additional barriers to services and stability, making it harder for individuals to improve their circumstances and acquire necessary support (Barocas et al., 2023; Meehan et al., 2024).

Although previous accounts and examinations provide reasons to question the rationale behind "quality-of-life" policing, further research into its health consequences is still needed to inform public policy, especially in light of the current trend of increasing criminalization efforts. First, few existing studies establish whether such programs cause enduring harm along established health metrics. Furthermore, investigations into the mechanisms behind anti-

homeless policies and poor health along with the differences in how subgroups of unsheltered people experience such laws are especially warranted in order to identify areas to intervene and tailor support services.

Pathways of embodiment of criminalization

The hypothesized pathways by which anti-homeless laws and policing affect health encompass changes in the context of homelessness, including aspects of the physical environment (e.g., access to resources, exposure to environmental harms) as well as the social (e.g., safety, social support). Drawing from Krieger's Ecosocial theory, the notion of embodiment is essential to understanding how the structural conditions of homelessness can get under the skin to engender specific health outcomes (Krieger, 2001, 2005). Embodiment situates the manifestation of wellbeing in relation to the political and ecological circumstances shaped by societal arrangements of power (Krieger, 2001; R. Petteway et al., 2019). Seeing the body as a "site of action and contestation," the concept of embodiment helps further conceptualize how the effects of anti-homeless are borne holistically and become embodied health experiences—ultimately uniting the "body natural" to the "body politic"(Krieger, 2021).

Existing inquiries into the consequences of anti-homeless policies and practices position the bodily experiences of criminalization in recurrent psychosocial and behavioral stressors (J. S. Chang et al., 2022). Qualitative accounts have demonstrated the ways the threat of or actual enforcement of anti-homeless laws and eviction from public spaces can amplify anxiety and feelings of powerlessness—diminishing any sense of security one may have developed from the constancy of their environment over time (J. S. Chang et al., 2022; Goldshear et al., 2023; Langegger & Koester, 2016). Additionally, a study of unhoused people in Denver found that concern over police contact contributed to sleep deprivation and prompted many to seek more isolated locations (Westbrook & Robinson, 2021). Living in constant fear of policing encounters provokes severe psychological distress and poor sleep quality, which can develop into declining

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cognitive function and exacerbate chronic conditions such as diabetes and heart disease (J. S. Chang et al., 2022; Langegger & Koester, 2016; Westbrook & Robinson, 2021).

During encampment clearings or move-along orders, unhoused individuals may face injury from physical altercations and have their personal belongings destroyed or confiscated, including critical items like medications, identification, and other important documents (Blomley et al., 2020; Darrah-Okike et al., 2018; T. Robinson, 2019). Loss of these items can have immediate and long-term impacts on access to services and resources crucial for sustained health management. Earlier evidence has also revealed how encampment abatements can disperse existing tent communities that functioned as sources of emotional support and mutual aid—buffering people against material hardships, stigma, and social isolation (Goldshear et al., 2023; Lachapelle et al., 2022). Thus, the fracturing of positive social support ties can undermine the ways unhoused people navigate the harsh conditions of homelessness to protect their wellbeing.

One central outcome of quality-of-life policing and anti-homeless legislation is involuntary displacement. Experiences of involuntary displacement stem from being forced to move by government action or moving for fear of violence and persecution (Langegger & Koester, 2016). Instead of driving unhoused people to shelter and services, prior research demonstrates how criminalization generates a "condition of displaceability" in unhoused people's daily lives (Yiftachel, 2020), where they are rendered vulnerable to continual dislocation. Forced mobility can aggravate existing health stressors by altering the spatially embedded experiences of homelessness. For example, constant eviction from public space forces unhoused people to constantly readjust to new surroundings and re-establish a sense of safety, stability, and belonging when living on the street (Langegger & Koester, 2016). In fact, unhoused people have previously portrayed from anti-homeless laws as a form of root shock—a trauma stress reaction to losing ties to place (Fullilove, 2001; Goldshear et al., 2023; López, 2020). Ensuing feelings of disorientation, loneliness, and identity disruption can compound emotional traumas and distress. Furthermore, when unhoused individuals are displaced from their usual locations, they are often compelled into

more hidden and hazardous areas. Chang et. al's investigation into the aftermath of encampment abatements in San Francisco found that relocation into more isolated, remote spaces amplified people's exposure to environmental hazards, traffic accidents, and interpersonal violence while reducing their access to clean water and sanitation facilities (J. S. Chang et al., 2022).

Movement into more marginalized areas also interrupts unhoused individuals' access to health and outreach services by creating distance or transportation barriers (J. S. Chang et al., 2022). What often follows is a breakdown in continuity of care and potential loss of vital medications and other provisions necessary to maintain health. For instance, in a cross-sectional analysis of people who use drugs in Los Angeles and Denver, over half of the participants who were displaced while unhoused reported a loss of harm reduction supplies, precipitating an increased risk for risky drug use behaviors and nonfatal overdose (Barocas et al., 2023). Another nation-wide study of people experiencing homelessness who use drugs estimated thousands of fewer initiations of medications for opioid use disorder due to continual involuntary displacement—contributing to an estimated 15-24% excess deaths within a ten-year period (Barocas et al., 2023). Moreover, displacement also separates unhoused individuals from members of their social networks, whom they previously relied on for emotional and material support (Lachapelle et al., 2022; Roy et al., 2022). The totalizing experiences of anti-homeless and subsequent displacement can manifest as several mental, physical, and social health problems. In this way, the health profiles of the unhoused population amid criminalization are embodied presentations of stressors caused directly from enforcement as well as from changes to physical and social conditions of homelessness from forced displacement.

Intersections of criminalization and structures of oppression

The criminalization of homelessness and its ramifications on wellbeing are deeply intertwined with broader relations of power and structures of oppression (Przybylinski, n.d.; Roy, 2003). Applying an intersectional lens, the health of unhoused individuals is made more

vulnerable by axes of marginalized identity and multiple layers of systemic exclusion (Bowleg, 2012; Giannini, 2017). This is particularly acute for minoritized racial and gender groups, who endure persistent racialized and gender-based violence. Recognizing how anti-homeless policing underpins racial and gender power structures is fundamental for a holistic understanding of its impacts on prevailing health inequities.

Racialized policing and experiences of homelessness

Critical scholars have long characterized the criminalization of homelessness as a political project that reproduces dominant ideologies of race and class hegemony (Przybylinski, 2021; Roy et al., 2022). Therefore, practices of spatial exclusion and banishment of the unhoused population–in which racialized communities are overrepresented—have become another instrument of racialized violence to preserve the superiority of white identity (Roy, 2017). Indeed, the disproportionate policing of unhoused individuals from racialized communities is well-reported, mirroring broader patterns of racialized policing. Black, Brown, and Indigenous individuals are more likely to be searched and targeted by law enforcement for minor infractions related to homelessness, such as loitering or camping (Herring et al., 2019; National Law Center on Homelessness & Poverty, 2019b; Welsh Carroll et al., 2023). Herring's analysis of move-along orders in San Francisco also found that unhoused people of color were more likely to have their property taken by police during these interactions. The increased scrutiny and biased enforcement of anti-homeless legislation has translated into higher rates of being cited, arrest, and detained (Herring et al., 2019)—illustrating how racial biases intersect with criminalization practices to engender varied and often harsher penalties for members of racialized communities.

Anti-homeless policing is racialized not only in terms of their intent but also their impacts. Black and Brown individuals are more likely than their white counterparts to experience harassment and excessive force when encountering police (Chaney & Robertson, 2013), such as physical mistreatment and verbal abuse, thereby intensifying mental and emotional trauma

(Hawkins, 2022). When accompanied by citation, enforcement can be even more punishing. Due to the enduring legacies of racial discrimination in the criminal legal system, Black individuals are more likely to have a criminal record compared to whites, which often initiates their homelessness (Augustine & Kushel, 2022; Jones, 2016; Vogel & Porter, 2016). Citations from move-along orders result in fines that most are unable to pay. The accumulation of fines not only creates significant financial burdens but also may disqualify them from forms of housing and social services and escalate into low-level arrest warrants. (Herring et al., 2019). For individuals with an existing criminal record, this progressively severe sequence of events can heighten their distress and make it even harder for them to break free from the homelessness-jail cycle.

Furthermore, unhoused people of color regularly encounter discrimination when trying to obtain forms of assistance (Jones, 2016; Olivet et al., 2021), heightening the degree to which criminalization comprises their ability to secure resources critical for homeless survival. Along similar lines, racialized individuals commonly report confronting numerous obstacles accessing healthcare services, including stigma, lack of culturally competent care, a general mistrust in institutions, and reduced availability of healthcare facilities in their communities (Bastos et al., 2018; Phillips et al., 2000; Scheppers et al., 2006; Sorkin et al., 2010). Criminalization efforts can exacerbate their existing barriers to care and further isolate them from basic support. Consequently, systemic racism structures both the experience of homelessness and the experience of anti-homeless policing, thereby deepening the roots of racial health inequities.

Gender-based violence and experiences of homelessness

Gender differences in criminalization experiences and health hazards related to homelessness are multifaceted and reflect gender-based violence and societal norms (Klodawsky, 2006; Milaney et al., 2020; Watson, 2016). Prior literature reveals disproportionately high rates of psychiatric disorders among unhoused women and gender non-conforming people compared to unhoused men, emerging from histories of sexual assault and domestic violence (Hail-Jares et

al., 2023; Murray, 2011; Oberin & Mitra, 2020). Widespread gender-based violence in the lived experience of homelessness for women and gender non-confirming people exacerbate existing vulnerabilities (McCann & Brown, 2021; Milaney et al., 2020; Murray, 2011). Criminalization intensifies their exposure to these dangers by forcing them into less safe spaces and dismantling their networks of community support they previously relied on for safety (Herring et al., 2019; Klodawsky, 2006; McCann & Brown, 2021). Furthermore, encounters with law enforcement can retraumatize them and cause deep-seated mistrust in law enforcement, making them less likely to report other instances of physical and sexual violence while living on the street (Herring et al., 2019; Huey & Quirouette, 2010; Murray, 2011; B. A. Robinson, 2020).

Many homeless services are designed with male-centric models that may not adequately address the needs of women and gender non-conforming individuals (Begun & Kattari, 2016; Bretherton, 2017; Huey & Quirouette, 2010). Added layers of gender discrimination at different points of the continuum of care may further hinder their ability to seek and receive support to protect health (Ecker et al., 2019; McCann & Brown, 2021; Milaney et al., 2020). In particular, gender non-conforming people often report unmet health needs from a shortage of gender-affirming treatments and services (McCann & Brown, 2021). For unhoused women and gender non-conforming individuals, the added stress of navigating a system that may not be accepting or supportive, combined with societal stigma and violence stemming from criminalization, can worsen anxiety, depression, and other psychiatric symptoms (Buccieri et al., 2020; Valentine & Shipherd, 2018). However, although the prevalence of psychiatric disorders is higher among women, unhoused men face higher rates of drug use problems (Stein & Gelberg, 1995); negative interactions with police and other criminalization tactics can trigger risky drug use behaviors and subsequent health sequalae. Hence, the consequences of criminalization may affect gender groups in dissimilar ways.

Study Objectives

The rise in homeless-targeted policing practices across the nation warrants further investigation into its impacts on unhoused individual's already vulnerable health. Recent studies have started to close the knowledge gap on the ways constant policing and involuntary displacement compromise the safety of unhoused individuals, and how criminalization amplifies existing health stressors and threatens access to care, rather than improving it (J. S. Chang et al., 2022; Meehan et al., 2024; Westbrook & Robinson, 2021). However, little is known about the mechanisms behind policing experiences and poor health, and how criminalization intersects with existing inequities stemming from overlapping layers of structural oppression.

The goal of this study is to examine the associations between experiences with anti-homeless policies and practices, displacement, and physical, mental, and social health outcomes among a prospective cohort of unsheltered persons in LA County. I characterize the pathways from perceptions of and exposure to *anti-homeless practices* (e.g., camping laws, policing, move-along orders) to *adverse health outcomes* (e.g., poor physical health, mental health, and sleep quality and social isolation). This investigation further posits that experiences of *physical displacement* connate a cycle of displaceability and changes to unsheltered people's physical and social context and serve as a mediator in the relationship between perceptions and exposure to anti-homeless practices and adverse health. Finally, applying an intersectional approach to these relationships, I explore racial identity and gender as a moderator in these associations, given the disproportionate impacts of anti-homeless practices on minoritized racial and gender groups.

The main relationships I will explore in this aim are displayed in the study conceptual model (Figure 3-1). The specific aims (and corresponding hypotheses) are to:

3a) Examine the effects of policing interactions and camping law experiences on physical, mental, and social health outcomes.

H1: Within-person increases in policing interactions, camping law exposure, and concern about camping laws result in within-person increases in poor self-rated physical health, mental health, and sleep quality and social isolation (within-person effect).

H2: Individuals who were more often exposed to camping laws and policing interactions and more often concerned about camping laws during the study period have poorer self-rated physical health, mental health, and sleep quality and greater social isolation compared to individuals less often exposed/concerned (between-person effect).

3b) Examine whether physical displacement mediates the between- and within-person effects of policing interactions and camping law experiences on social, physical, and mental health outcomes.

H1: Increased policing interactions, camping law exposure, and concern about camping laws result in poorer self-rated physical health, mental health, and sleep quality and social isolation through increased instances of physical displacement (indirect effect)

3c) Examine whether the between- and within-person effects of policing interactions and camping law experiences on social, physical, and mental health outcomes vary by race and gender.

Figure 3-1. Conceptual model of study hypotheses

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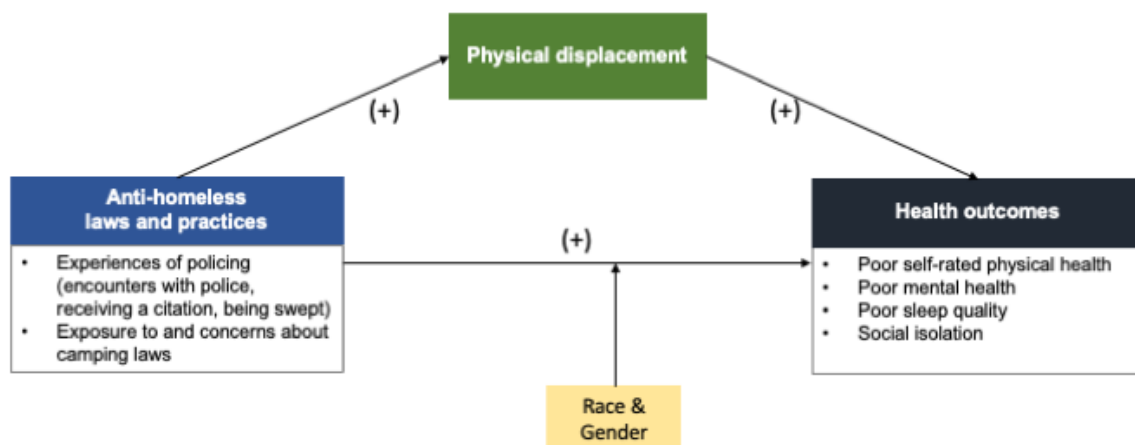
Methods

Recruitment

This study used individual-level, time-series data from the Periodic Assessment of Trajectories of Housing, Homelessness, and Health Study (PATHS). PATHS is an ongoing prospective cohort study of people experiencing homelessness (PEH) in LA County that collects recurring data on participants' health outcomes, housing situations, exposure to policing, and geographic movement from monthly, online phone-based surveys (Kuhn et al., 2023). PATHS launched in December 2021 and to date has undergone three waves of in-person recruitment to enroll a representative sample of unsheltered PEH in LA County. Recruitment was completed during the annual LA County Homeless Count Demographic Survey fieldwork from December to March each year as well as through dedicated canvassing exercises conducted in hotspots of unsheltered homelessness. Interested respondents were either directly sent a link via text to a secure website with study information, consent procedures, and a self-administered screening questionnaire on their phone or self-enrolled with a QR code. Eligibility criteria included: (1) living in a homeless shelter or unsheltered setting (e.g., street, vehicle, tent, or makeshift shelter) at least one night in the past month; (2) living in LA County; and (3) being at least 18 years of age.

Shortly after eligibility determination, respondents were invited via text to answer the baseline survey followed by the first monthly questionnaire. Upon completion, respondents became enrolled in the study and were subsequently sent a text message or email every month with a link to the 10–20-minute online monthly survey. Between 2022 to 2024, 974 individuals were enrolled in the study, out of 2,136 (46%) who were initially screened and determined to be eligible (Appendix 3-1 for study recruitment and enrollment funnel). All surveys were conducted on a secure website accessible through phone or computer and were available in English or Spanish; respondents received a $10 electronic gift card for each completed survey. Study protocols were approved by the UCLA Institutional Review Board.

Sample

I derived the analytic sample from responses to the PATHS monthly survey between December 2021 to July 2024 (n=7,303 monthly observations from 974 individuals). Since PATHS includes people who were unsheltered at recruitment but may have entered housing during the follow-up period, I omitted 655 (9.0%) observations where the respondent indicated being "housed" (i.e., sleeping in their own home) in the previous night, as these individuals are less likely to experience the exposure of interest (i.e., anti-homeless policing). I then restricted the sample to respondents who had at least two monthly observations that was not missing on all the dependent variables of interest in order to observe the effects of changes to the exposures on changes to the outcomes. The final analytic sample consisted of 6,275 monthly observations from 731 individuals (Appendix 3-2 for sample derivation diagram). Respondents in the analytic sample contributed a mean of 9 monthly observations, with a median of 5 and a maximum of 31 (Appendix 3-3 for a histogram showing the distribution of observations per respondent).

To assess the level of bias from the selection of respondents for analysis, Appendix 3-4 displays the sociodemographic and baseline health characteristics of respondents included and excluded from the analytic sample and results from chi-square and t-tests examining differences. Compared to respondents excluded from analysis, included respondents were significantly less likely to be male (50% vs. 58%, p=0.03), less likely to have prior involvement in the criminal legal system (51% vs. 63%, p<0.001), and less likely to be unsheltered outside (41% vs. 53%, p<0.001). Respondents included in the sample were also less likely to have previously received substance use treatment compared to excluded respondents (29% vs. 36%, p=0.054).

To examine the representativeness of the analytic sample to LA County's unsheltered population, Appendix 3-5 compares the sociodemographic characteristics of respondents in the final analytic sample to respondents to the LA County Homeless Count Demographic Survey from 2022 to 2024, which is considered to characterize LA County's unsheltered population (Henwood et al., 2022). Compared to the county's unsheltered population, the analytic sample was slightly

younger (52% vs. 39% under age 40), which may reflect differences between age groups in mobile phone access and in technology literacy needed to enroll in the study and consistently respond to the monthly surveys. The survey also had higher participation rates among females than the overall unsheltered population (48% vs. 28%), a trend typically found in many volunteer opinion surveys. Although the study offers the survey in both English and Spanish, Latino/a/x individuals are slightly underrepresented in the sample (34% vs. 41%), indicating that there was still a language barrier to study participation. The analytic sample is comparable to the adult unsheltered population in duration of homelessness (80% vs. 79% homeless for > 1 year) yet has slightly lower proportion of people with a history of treatment for substance use disorder (28% vs. 32%) but greater proportion of people with a chronic physical health condition (43% vs. 33%).

Study measures

Table 3-1 describes the study measures, and Appendix 3-6 additionally shows the items and survey questions the study measures are derived from. Some of the study measures were introduced a year after the study was launched during data collection, as a response to changes in the homelessness management environment in LA County at that time, such as increased usage of encampment sweeps (see Table 3-1 for list of these measures). All study measures are time-varying unless otherwise specified.

Outcomes. The primary health outcomes were poor self-rated physical health, poor mental health, poor sleep quality, and social isolation. All measures were analyzed on a continuous scale, as there was no problematic deviation to the linear model assumptions in detected in preliminary residual analysis.

Poor self-rated physical health was measured using the question, "In general, how would you rate your physical health?" Respondents were asked to rate their answers on a 5-point scale from poor (0) to excellent (4). Scores were reverse coded, so that higher scores denote poorer self-rated physical health (Hays et al., 2017).

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Poor mental health was operationalized as psychological distress based on responses to the 4-item Patient Health Questionnaire for Depression and Anxiety (PHQ-4). The PHQ-4 is a widely used questionnaire that has been validated as a measure for the severity of anxiety, depression, and general psychological distress symptoms in the general population as well as specific marginalized populations (Löwe et al., 2010). The scale items asked how often in the past two weeks respondents were bothered by feelings and problems related to depression and anxiety rated on a 4-point Likert scale from (0) "Not at all" to (3) "Nearly every day." Responses were summed to create a continuous score (with a possible range of 0-12), with higher values indicating greater psychological distress severity/poorer mental health. The internal consistency reliability of the items among the study sample was high (Cronbach's alpha= 0.92)

Poor sleep quality was measured using an item from the PROMIS sleep disturbance scale (L. Yu et al., 2011), "How would you rate your quality of sleep in the past week?" Respondents were asked to rate their answer on a 5-point Likert scale from Very poor (0) to Very good (4). Scores were reverse coded, so that higher scores indicated poorer sleep quality.

Social isolation was measured using 5-items from the UCLA Loneliness Scale (Russell, 1996). Each item is rated on a 4-point Likert scale (0="I never feel this way" to 3="I always feel this way") and assesses how often respondents feel disconnected from others (e.g., feel left out, lack companionship, feel isolated, etc.). Responses were averaged to generate a composite score, with higher values indicating greater loneliness; internal consistency was high (Cronbach's alpha=0.94).

Exposures. I examined the effects of three types of experiences with anti-homeless laws/practices: policing interactions, exposure to camping laws at the neighborhood-level, and individual concerns about camping laws.

Policing interactions was operationalized in three measures encompassing different types of exposures to policing. The first was a binary measure of "recent encounter with police," defined as having any contact with law enforcement in the last 30 days (0="No" vs. 1="Yes"). Respondents

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who had a recent encounter were then asked how many times in the last 30 days they had been cited or ticketed for staying on the street. Since very few respondents indicated being cited/ticketed more than once, responses were dichotomized into "not cited/no police encounter" versus "cited once or more" to create the second binary measure of "recent move-along citation." The last policing interaction measure was whether a respondent had been "swept" in the past month, based on responses to the question, "In the past 30 days, did anyone tell you that you had or were going to have to move from the area you were sleeping in because of a "sweep" of a no camping or sitting/sleeping/lying law?" Respondents indicated whether they were told to move and, if yes, by whom (i.e., police or law enforcement official, sanitation worker, homeless outreach worker; another person). Responses were combined to create a binary measure for "recent experience of being swept" (no vs. yes).

Neighborhood exposure to camping laws was assessed using data on PATHS respondents' self-reported sleeping location in the previous night, which was either provided as: (1) precise latitude/longitude coordinates; (2) address data from typed-in answers; or (3) neighborhood location, selected from Los Angeles Times' list of 114 neighborhoods in the City of LA, 87 cities/municipalities in LA County, and 71 unincorporated areas. Coordinate and address data were geocoded to obtain the neighborhood location for all responses. This spatial data was overlayed onto maps of LAMC 41.18 enforcement zones (with dates of when the enforcement was active/went into effect), obtained from the LA's Department of City Planning, as well as maps of cities with existing camping laws in effect since 2021, gathered from administrative and legislative archies. A binary variable was then generated that captured whether there were any active enforcement zones or camping laws in the participants' reported neighborhood location by the date their monthly survey was completed. Note that respondents who did not provide their location are excluded from this variable.

Concern about camping laws was measured using three survey questions developed specifically for PATHS. Respondents indicated, on a 5-point Likert scale, how much they agree

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or disagree with the following statements: (1) Laws that ban camping make me feel nervous or anxious; (2) Laws that ban camping will force me to move to a different place; and (3) Laws that ban camping will affect me personally. To facilitate more substantive interpretations of the differences between those who expressed concerned and those who did not, responses were consolidated to a create a binary variable of whether respondents indicated "agree" or "strongly agree" to any of the three statements about concern for camping laws (yes=any concern vs. no= no concern).

Mediator. The mediator variable for this analysis was *physical displacement,* which was operationalized in two ways. The first used the spatial information on the neighborhood location where the respondent slept. Person-month change in neighborhood location was defined as having a mismatch between individuals' neighborhood location reported at time *t* and their previous neighborhood at time *t-1* (mismatch=moved vs. match=not moved). Because this measure requires two time points, this variable was not observed/missing at the first monthly observation (t=0). The second operationalization used self-reported data from the question: "In the past 30 days, how many times did you move locations where you slept (i.e., moving from one address or street to another)?" Since over half of the respondents reported not moving locations in the past month, responses were dichotomized to create a binary measure of moved "0 times" versus "1 or more times." The mediation analysis was conducted separately for each operationalization of physical displacement.

Moderators. Prior research and reports have shown that the impacts of anti-homeless laws may be racialized and gendered; therefore, for this analysis, I evaluated race/ethnicity and gender as moderators of the relationship between the effects of camping laws and health. *Race/ethnicity* was captured in the baseline survey with the questions, "(1) Do you consider yourself to be Hispanic/Latino" (yes or no) and "(2) What best describes your race (select all that apply)?" Racial categories include Black/African American; White; Asian American; Native Hawaiian or Pacific Islander; and American Indian/Alaskan Native. Because the number of Asian

American, Native Hawaiian or Pacific Islander, and American Indian/Alaskan Native respondents in the PATHS sample and in the general population of PEH in LA County is relatively small, to mitigate issues with statistical power, responses to the two questions were consolidated and grouped into four categories: non-Hispanic Black/African American; non-Hispanic White; Hispanic/Latinx/a/o (hereafter referred to as "Latinx"); and another race or multiracial. *Gender* was determined by asking respondents what sex/gender they most identify with: male, female, or neither male nor female (i.e., non-binary). Due to concerns of statistical power, responses were grouped into male versus female/non-binary; non-binary individuals were merged with females due to shared experiences related to gender-based violence and the limited availability of gender-specific resources in homelessness services.

Controls. Based on existing literature, I included sociodemographic, health, and homeless history characteristics as covariates that may confound the relationship between perceptions and experiences with anti-homeless policing and practices, physical displacement, and poor health (summarized in Appendix 3-7). Sociodemographic characteristics comprised of age (binned), veteran status (no vs. yes), and sexual orientation (heterosexual vs. lesbian, gay, bisexual, or other (LGB+)), fixed at baseline (i.e., time invariant). As chronic health status and substance use may affect people's concerns about enforcement and/or interactions with police as well as their perceptions of physical and mental health, I included indicator (no vs. yes) variables for whether the respondent had a past diagnosis of at least one chronic physical health condition from the list in the Center for Disease Control and Prevention's COVID-19 risk factor screener (e.g., serious heart condition, diabetes, asthma, cancer, etc.), measured once at baseline, and for frequent (more than once a week) drug use (including cannabis, meth, cocaine, prescription opioids, heroin, etc.), measured at each month. I also incorporated measures of structural vulnerability, such as experiencing chronic homelessness at baseline (homeless for more than 1 year); food insecurity in the past month (using the following four items from the US Department of Agriculture Household Food Security Scale: didn't eat all day, skipped a meal, ate

less, or ate spoiled food because there wasn't enough food) (Blumberg et al., 1999); and prior involvement with the criminal legal system (had previously spent time in jail, prison, or juvenile detention).

Since exposure and perceptions of camping laws and policing primarily affect people living unsheltered outside, I added a confounder variable for whether the participant reported sleeping in the following locations at least once in the past month: tent/makeshift shelter; outside; in a bus station, train station, airport; or an abandoned building. Additionally, because level of knowledge about camping laws may influence how people perceive and experience the effects of camping laws, I incorporated a covariate measuring how informed respondents feel about the new laws that ban camping in parts of LA in the past month, rated on a 5-point Likert scale from Strongly disagree (0) to Strongly agree (4). Lastly, to net out confounding effects from generic time trends in our data, I included a variable that indicates the year and quarter of the year the monthly survey was completed.

Table 3-1. Summary of the primary study measures

Construct	Operationalization
Outcomes	
Poor physical health (Past month)	Score of self-rated physical health from the PROMIS scale Continuous (range of 0-4): higher scores=poorer physical health
Poor mental health (Past two weeks)	Composite sum score of psychological distress severity from PHQ-4 Continuous (range of 0-12): higher scores= greater distress
Poor sleep quality (Past week)	Score of quality of sleep from the PROMIS sleep disturbance scale[+] Continuous (range of 0-4): higher scores=poorer sleep quality
Social isolation (Past month)	Composite average score of 5-items from the UCLA loneliness scale Continuous (range of 0-3): higher scores=greater loneliness
Exposures	

Policing interactions (Past month)	Recent encounter with police
	  Binary: no vs. yes
	
	Recent move-along citation
	  Binary: no (0 times) vs. yes (1 or more times)
	
	Recent experience of being "swept"/told to move[+]
	  Binary: no vs. yes

Neighborhood exposure to camping laws (Last night)	Prevalence of a camping law or 41.18 enforcement zone in participant's neighborhood location Binary: no vs. yes
Concern about camping laws	Concerned/nervous about laws banning camping

(Past month)	Binary: no concern vs. any concern
Mediator	
Physical displacement	Change in neighborhood location since the previous observation*
(Past month)	Binary: no vs. yes
	Moved locations where the participant slept [+]
	Binary: no (0 times) vs. yes (1 or more times)
Moderator	
Race/ethnicity	Self-report race/ethnicity
(Time invariant)	Categorical: (1) non-Hispanic White; (2) non-Hispanic Black;
	(3) Hispanic/Latinx/o/a; (4) Other/Multiracial
Sex	Self-report gender
(Time invariant)	Categorical: (1) Male; (2) Female/non-binary

[+]Measure was later added to the PATHS survey in April 2023
*Missing at month 1/time=0

Analytic strategy

I conducted hierarchical linear modeling (HGLM) with repeated measures to make inferences about the relationships between individual-level exposures and health outcomes over time, with time-series observations (Level 1, within-person) nested within respondents (Level 2, between-person). The use of HGLM was well suited for this study because it (1) facilitates the examination of changes in exposures and health outcomes for each respondent observed during the study period; (2) adjusts for the dependence among multiple time observations within the same respondent; (3) can decompose the within-person and between-person effects through person-mean centering; and (4) can handle unbalanced data structure and missing within-person data (Curran & Bauer, 2011; Raudenbush & Byrk, 2002).

Analysis proceeded in several stages. I first conducted exploratory data analysis, which consisted of calculating descriptive, univariate statistics of the study measures pooled across months and examining the bivariate distribution of the health outcomes and controls by the exposure and mediator variables. Differences between groups were tested through chi-square tests (for categorical vs. categorical variables) and t-tests or ANOVA (for categorical vs. continuous variables). Prior to model building, I checked for multicollinearity of model covariates using variation inflation factor; all were less than 2 and thus included in subsequent analyses. To

handle missing data on the independent variables, all multilevel models were fit using listwise

deletion for the main analysis.

Examining the between- and within-person effects of experiences with policing and camping laws

on poor health

I fit a series of hierarchical linear models with two levels: level 1 is time, defined as the

number of months since study enrollment, and level 2 is the individual. In line with recommended

model-building procedure for multilevel models, I proceeded with the following steps:

1) I first fit null models with no predictors to evaluate the amount of variation in the

   outcome variables within and between individuals.

Level 1 (within-person level):
$$Y_{ij} = \beta_{0i} + e_{ij}$$

Level 2 (between-person level):
$$\beta_{0i} = \gamma_{00} + r_{0i}$$

Combined model:
$$Y_{ij} = \gamma_{00} + r_{0i} + e_{ij}$$
$$e_{ij} \sim N(0, \sigma^2)$$
$$r_{0i} \sim N(0, \tau_{00})$$

where i is the index of persons, j is the index of time, β_{0i} is the average
outcome for person i, γ_{00} is the mean intercept (i.e., the average of the
outcome over all individuals and timepoints), and r_{0i} is the individual-
specific deviation from the mean (i.e., random intercept).

The intraclass correlation coefficients, a measure of the proportion of variance

attributable to between-person differences, were high (0.50 to 0.67), indicating that

there was a high degree of clustering of the outcomes within individuals. I thus decided

to continue fitting models that allowed the intercept for the outcomes to vary by

individuals (i.e., included a random intercept).

I also fit a null model with a third level as respondents' neighborhood location to

see if a three-level model is warranted; results from likelihood ratio tests did not

indicate a significant improvement of fit from the three-level model compared to a two-level model , so I opted for a two-level model only.

2) Next, I added a coefficient for time (i.e., months since enrollment, with month 1 coded as time=0) to the model to characterize change in the outcome over time.

I first assumed that change over time was the same for all individuals by adding a linear time trend as a fixed effect. I then tested models that included between-person variation in the rate of change (i.e., a random slope for time). Based on likelihood ratio tests comparing models with and without random slopes, I proceeded with the models that had a random intercept, a random slope for time, and covariance between the random effects.

Level 1:
$$Y_{ij} = \beta_{0i} + \beta_{1i}Months_{ij} + e_{ij}$$

Level 2:
$$\beta_{0i} = \gamma_{00} + r_{0i}$$
$$\beta_{1i} = \gamma_{10} + r_{1i}$$

Combined model:
$$Y_{ij} = (\gamma_{00} + \gamma_{10}Months_{ij}) + (r_{0i} + r_{1i}Months_{ij}) + e_{ij}$$
$$e_{ij} \sim N(0, \sigma^2)$$
$$r_{0i} \sim N(0, \tau_{00}), r_{1i} \sim N(0, \tau_{11})$$
$$cov(r_{0i}, r_{1i}) = \tau_{01}$$

where β_{0i} and β_{1i} represent the intercept (i.e., initial status of the outcome) and slope (i.e., rate of change) for individual i, γ_{00} and γ_{10} are the overall mean intercept and slope, r_{0i} and r_{1i} are the individual-specific deviations from the mean intercept and slope (random effects), and τ_{01} represents the covariance between the random effects.

3) I then fit a conditional model with the time-varying, main exposure variables (i.e., exposure to and perceptions of camping laws and policing) and the covariates.

To decompose the within-person and between-person effects, the exposure variables at each time observation were centered at the person's mean calculated

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across the study period and added to the Level 1 model. The "person-mean centered" variables represent the variation around one's own mean level. The person-specific means were then included as an independent variable at Level 2 to assess differences across individuals.

Time-varying covariates (TVC) were included in the level 1 model and also person-mean centered to assess their within-person effects on the outcome. The time-invariant covariates (TIC) of individual characteristics measured baseline were included in the level 2 model for the intercept; only age was centered while all the variables were left as dichotomous/categorical variables.

All exposure variables and covariates were specified as fixed effects as there is no theoretical reason to believe that their effects vary between individuals.

Level 1:
$$Y_{ij} = \beta_{0i} + \beta_{1i}Months_{ij} + \beta_{2i}(X_{ij} - \bar{X}_i) + \beta_{3i}(TVC_{ij} - \overline{TVC_i}) + e_{ij}$$

Level 2:
$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\bar{X}_i) + \gamma_{02}(TIC)_i + r_{0i}$$
$$\beta_{1i} = \gamma_{10} + r_{1i}$$
$$\beta_{2i} = \gamma_{20}$$
$$\beta_{3i} = \gamma_{30}$$

Combined model:
$$Y_{ij} = [\gamma_{00} + \gamma_{10}(Months)_{ij} + \gamma_{20}(X_{ij} - \bar{X}_i) + \gamma_{30}(TVC_{ij} - \overline{TVC_i})$$
$$+ \gamma_{01}(\bar{X}_i) + \gamma_{02}(TIC)_i] + [r_{0i} + r_{1i}(Months)_{ij}] + e_{ij}$$

$$e_{ij} \sim N(0, \sigma^2)$$
$$r_{0i} \sim N(0, \tau_{00}), r_{1i} \sim N(0, \tau_{11})$$
$$cov(r_{0i}, r_{1i}) = \tau_{01}$$

where $\bar{X}_i$ represents the mean value of exposure variable for an individual across all time points (i.e., person-specific mean) and $(X_{ij} - \bar{X}_i)$ represents the time-specific deviation of the variable from the person-specific mean. TVC stands for time-varying covariate and TIC stands for time-invariant variables.

Examining the indirect effects through physical displacement

To assess whether physical displacement mediates the relationship between exposure to and perceptions of anti-homeless practices and health outcomes, I adopted Zhang et al.'s recommendations for multilevel mediation modeling and Yu and Li's procedure for examining third-variable ("mediator") effects with hierarchical data structures (Q. Yu & Li, 2020; Zhang et al., 2009). This approach extends Baron and Kenny's method of mediation to HGLM settings; it uses multilevel additive models to assess the total, indirect, and direct effects at the within and between-person levels and is flexible to both random and fixed effects (Q. Yu & Li, 2020). Informed by this process, I modeled the level 1 and level 2 relationships displayed in Figure 1-2 for each combination of the exposure and mediator variables. Because current neighborhood exposure to camping laws is likely to prompt displacement and affect health outcomes reported at the next time observation, for analysis, I lagged the measure for neighborhood exposure by one time observation (i.e., t-1) for the mediation analysis; all other variables were left as "past month" exposure. I entered person-mean centered exposure and mediator variables at level 1 and person-means at Level 2 to partition the indirect effect at the between-person level and within-person level. Lastly, I used Yu and Li's bootstrap method to obtain the asymptotic/normal approximation and percentile confidence intervals of the indirect effects, drawing 1000 random samples with replacement from the original dataset to calculate the variances.

Figure 3-2. Multilevel mediation model

$\bar{X}_i$ & $\bar{M}_i$= Person-means of the exposure (i.e., experiences with camping laws and policing) and mediator (physical displacement) variables.
$X_{ij} - \bar{X}_i$ & $M_{ij} - \bar{M}_i$= Exposure and mediator variables centered at its mean for the individual
Y_{ij}= Outcome variables of the health indicators
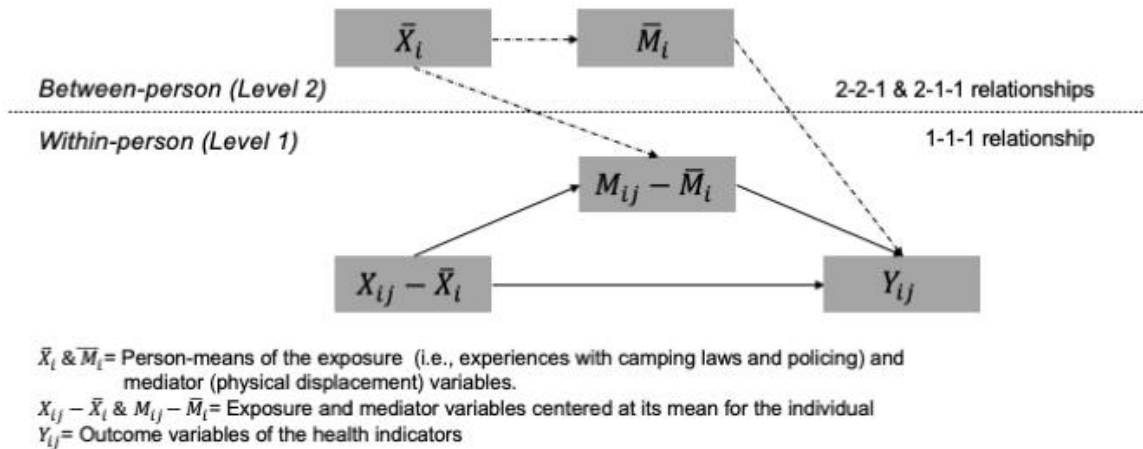
Examining the moderating effects of race and gender

Lastly, I included interaction terms between the exposure variables and the moderator variables (race and gender) in separate models and tested the hypotheses that the between- and within-person relationships between the exposure variables and health outcomes differed by race/gender by using the F-test of joint significance.

Sensitivity analyses

Lagged exposures. The main analysis assessed the effects of past month experiences of camping laws and policing on current (or past two weeks) perceptions of physical, mental, and social health. Although the longitudinal study design employed in this study can capture the temporality of the relationships, for sensitivity analyses, I lagged the exposure by one time observation (t-1) to establish stronger temporality and see if the relationships hold when considering a longer duration.

Restricted sample. The main analysis examined the consequences of anti-homeless policing on health among respondents who were experiencing different types of homelessness, including those who were unsheltered and sheltered. Past research suggests that unhoused people may frequently rotate between unsheltered and sheltered settings within a month and still

be overpoliced regardless of whether they were sleeping (Herring et al., 2019; Kuhn et al., 2023; Langegger & Koester, 2016); however, people who frequently sleep outside in public locations may be more likely to be exposed to and experience the negative impacts of policing than those who do not and have worse health outcomes due to their housing situation (Kuhn et al., 2023; Richards & Kuhn, 2022). While the main analysis included a control variable to net out confounding effects of housing status, for sensitivity analyses, I fit the models examining the between- and within-person effects on a sample of respondents who reported sleeping outside at least once in the past month.

Survey item missingness. Although the PATHS survey requires respondents to provide a selection to every close-ended question, as part of a trauma-informed survey questionnaire design, respondents were allowed to select "prefer not to answer" (PNTA). This design choice contributed to a non-trivial "missingness" issue, where some variables had up to 11% missing responses (Appendix 3-8). Results from Little's test suggests that the missing data (i.e., PNTA responses) on the independent variables are not missing completely at random (MCAR), hence the study results estimated using listwise deletion/complete case analysis may be biased. Bivariate tests examining differences between observations missing on at least one of the independent variables versus those not missing also showed that survey item nonresponse was associated with sociodemographic, health, and survey response characteristics, including age, gender, race, last night housing status, and mode of survey invite (Appendix 3-9 for complete results).

As a sensitivity check to the main results, assuming the data was missing at random (MAR), I recalculated the regression estimates using imputed datasets derived from multiple imputation by chained equations (MICE) that accounted for the two-level data structure. To replace the missing values in the independent variables, I used imputation models with fixed effects, a random intercept, and cluster means. In line with current recommendations, for each imputed covariate, I included the outcome variables as well as auxiliary variables (i.e., variables

not included in the regression analysis) correlated with the variable and with missingness as predictors in the imputation models (Hardt et al., 2012; Kontopantelis et al., 2017; White et al., 2011). Continuous and categorical variables were derived using multilevel predictive mean matching while binary variables were generated from multilevel logistic regression. Full procedure steps for multiple imputation are outlined in Appendix 3-10. I imputed 5 complete data sets, reran the regression model for the between- and within-person effects on each imputed dataset, and pooled the model estimates using Rubin's rules to compare the inferences from complete case analysis and analysis using MICE.

Survey nonresponse. During data collection for PATHS, some respondents were lost to follow-up, while some others would respond to the surveys more sporadically (i.e., respond one month and miss the next and then return—also known as nonmonotone nonresponse). Both types of nonresponse could compromise the validity of study estimates if nonresponse is associated with the exposure variables. For example, a concern in this study is that respondents who had experienced some type of camping law enforcement or policing or had been displaced may be less likely to respond to the subsequently monthly surveys due to interruption to internet or mobile phone access. Indeed, respondents who reported being swept, had an encounter with law enforcement, being concerned about camping laws, or changed neighborhood locations between monthly observations were significantly more likely to have missed the next monthly survey they were eligible for (Appendix 3-11).

To address concerns for selective nonresponse, I conducted the regression analysis of the between- and within-person effects using nonresponse weighting. To construct the weights, I calculated the probability of responding to the survey using Bayesian additive regression trees (BART) with random effects, modeling Chang et. al's procedure for propensity score estimation (T.-H. Chang et al., 2022). BART is a nonparametric approach that is often conceived as a machine learning method and has been used in prediction, forecasting, and estimation of causal effects (Tan & Roy, 2019). Introduced by Chipman et al., it uses a sum of decision trees along

with regularization priors in Bayesian framework to update its decision-making process based on probability distributions (Chipman et al., 2010). With this approach, I modeled the probability of responding to the current survey as a function of baseline factors (e.g., age, race, gender, chronically homeless, etc.), aspects of study recruitment and enrollment, overall survey response patterns and characteristics, and housing and health-related factors collected from the respondents' previous monthly survey observations (e.g., last night housing situation, encounter with police, frequent substance use) (Appendix 3-12 for list of variables and full procedure). Since there was some missingness in the covariates, I ran the BART models using the imputed datasets. I then used these propensity scores to calculate stabilized inverse probability weights to be used in the regression models on the imputed data.

Hierarchical linear modeling with nonresponse weights was done in Stata; all other analyses and statistical procedures were completed in R. Statistical significance was set at $p < 0.05$, and all tests were 2-tailed.

Results

Description of the analytic sample

The 731 individuals in the current analytic sample have contributed 6,275 monthly observations between the study period (December 2021 to July 2024). Most respondents in the sample were recruited in the first year of the study (2022, 40%), while the 2023 and 2024 cohorts have equal representation (30%).

Table 3-2 describes the analytic sample in terms of their demographic characteristics as well as health status and structural vulnerability indicators at enrollment. Of the 731 individuals in the analytic sample, the mean age was 40 (SD=12.9) and less than 5% were veterans. A little over a quarter (28%) of the sample were non-Hispanic White, a quarter were non-Hispanic Black, and a third identified as Latinx. Half of the sample were cisgender men, and less than a quarter (14%) specified their sexual orientation as lesbian, gay, bisexual or other. In terms of health status,

43% had been diagnosed with a past physical health condition at baseline, and a third of the sample reported weekly substance use. Food insecurity was common among the sample at month 1 (70%). Around half (47%) had a history of criminal justice involvement at baseline, reflecting the persistent homelessness-jail cycle. The majority (80%) had been unhoused for more than a year at baseline, and 40% reported living unsheltered outside in the previous night at enrollment. Only a fifth of the sample felt informed about the camping laws in LA County.

To examine patterns in response rate among the analytic sample, Appendix 3-13 shows the distribution of sociodemographic characteristics of respondents by the proportion of eligible surveys completed. Response rates did not differ by age, race, or gender. However, prior involvement in the criminal legal system and past treatment for drug or alcohol use disorder of were significantly associated with lower response rates [p=0.04 and p<0.001, respectively].

Table 3-2. Sociodemographic, health, and structural vulnerability characteristics at enrollment among the analytic sample (N=731)

Variable	n (%)
Sociodemographic characteristics	
Age, mean (SD)	40.49 (12.87)
Race/ethnicity	
White, non-Hispanic	206 (28.2)
Black/African American, non-Hispanic	187 (25.6)
Any Hispanic/Latinx	250 (34.2)
Other/Multiracial	54 (7.4)
Gender identity	
Cisgender man	365 (49.9)
Cisgender woman	345 (47.2)
Other	21 (2.9)
Veteran	23 (3.2)
Lesbian, gay, bisexual, or other (LGB+) sexual orientation	127 (17.4)
Health status indicators	
Past diagnosis of a chronic physical health condition	311 (42.5)
Weekly substance use, past 30 days	238 (32.6)
Structural vulnerability indicators	
Chronically homeless	585 (80.0)
Food insecure, past week	505 (69.1)
History of criminal justice involvement	343 (46.9)
Feel informed about camping laws	155 (21.2)
Last night housing status	

Unsheltered outside	295 (40.4)
Unsheltered in a vehicle	255 (34.9)
Sheltered	111 (15.2)
Doubled-up or staying in a self-paid hotel	55 (7.5)

SD=Standard deviation

Note: Prefer not to answer responses are not shown but are factored into the column percentages. Characteristics were measured at enrollment from participants' baseline survey and first monthly survey.

Descriptive statistics of experiences with policing, camping laws, physical displacement, and poor health among the analytic sample

Table 3-3 shows the univariate distribution of the study variables after pooling all monthly observations in the analytic sample, and Appendix 3-14 shows the trends in the distributions over time. Across all observations, 15% were from respondents who had interacted with law enforcement in the past month, with 4% of the sample being cited for staying on the street. Although citations were not common across the study period, around a third (30%) of responses were from respondents who experienced a sweep in the past month; half of the sweeps (48%) were reported to be conducted by police, and a third (31%) were conducted by sanitation workers. Over three-quarters of observations were from respondents who were currently in a neighborhood with some type camping law enforcement; when breaking this down by calendar month, neighborhood exposure grew from 27% in January 2022 to 80% in June 2024, demonstrating the growing reach of criminalization over the past two years. Over half of the sample came from respondents who indicated some concern about recently implemented camping laws in the county; this remained consistent across the study period. A little less than half (45%) of the sample experienced a change in reported neighborhood locations between months; the self-reported data on movement also showed that around half (46%) moved locations where they slept in the past month.

When evaluating differences in sociodemographic and homelessness characteristics by exposure to and perceptions of anti-homeless policing and experiences of physical displacement (Appendix 3-15), I observed that respondents who were more structurally vulnerable, including

being food insecure, having prior criminal legal system involvement, being chronically homeless, and living unsheltered outside, were significantly more likely to have experienced some type of policing interaction in the past month (i.e., being swept, had encounter with police, or received a move-along citation) than not. Furthermore, a significantly lower proportion of respondents who had an encounter with police and who were cited for staying on the street felt informed about camping laws than those who had no encounter and were not cited; feeling informed about camping laws was also significantly associated with being concerned about camping law. This could suggest that increased knowledge of the camping laws has made unhoused individuals more aware of its consequences on their livelihood, which in turn has motivated these more informed individuals to be proactive about evading police in general. As expected, a significantly higher proportion of respondents who experienced physical displacement were living unsheltered outside in the past month compared to those who were not displaced—showcasing how the existence of unhoused individuals in public space is constantly contested.

Notably, race was a significant determinant of exposure to policing and experiences with camping laws. White respondents were significantly more likely to report having an encounter with police than not, while Black respondents were less likely to have an encounter with police than not. On the other hand, Black and Latinx respondents were more likely to experience a sweep in the past month, while White respondents were less likely to be swept. Furthermore, Black respondents were significantly less likely to receive a move-along citation, reside in a neighborhood with camping law enforcement, and be concerned about camping laws but more likely to have changed neighborhoods between follow-up observations; the inverse was true for White respondents. Although Latinx respondents were less likely to be in a neighborhood with camping law enforcement than not, they were also more likely to concerned about camping laws. Taken together, these trends may indicate that Black and Latinx respondents may be purposefully avoiding areas with greater police presence and enforcement of camping laws; however, they

continue to face the widespread impact of sweeps, which are not exclusively carried out by law enforcement.

Differences in the gender distribution were fewer. Although respondents exposed to policing interactions and concerned about camping laws were equally likely to identify as female or non-binary than people not exposed or concerned, neighborhood exposure to camping law enforcement was associated with lower proportions of female and nonbinary respondents. Conversely, female and non-binary people had greater representation among respondents who moved neighborhoods or sleep locations than those who did not move; this suggests that there may be reasons other than policing for them to move from place to place, such as constant threats of gender-based harassment and violence when unhoused.

Univariate statistics of the health outcomes show that the means of the index scores for each indicator of poor health fell close to midpoint of their possible range, nonetheless, standard deviations of each score indicate a fair amount of variability. For bivariate analyses, Figure 1-3 displays the distribution of scores for the indicators of poor health by exposure to and perceptions of anti-homeless policing, measured in the same month. Recent experiences of policing and physical displacement as well as being concerned about camping laws were significantly associated with poorer health on all indicators. Respondents who were living in a neighborhood with camping law enforcement on average had higher psychological distress severity and greater loneliness in the same month than those were not, but there were no significant differences in self-rated physical health and sleep quality. While these bivariate results show that experiences of anti-homeless policing were associated with worse physical, mental, and social health indicators in the same month, the directionality of these relationships remain unclear. It could be that respondents who performed worse on these physical, mental, and social health indicators were more likely to be targets of anti-homeless policing, either due to aspects of their identity or living environments. Subsequent analyses that examine how changes in exposures affect changes in health can better assess the temporality of these associations.

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Table 3-3. Distribution of exposures, mediators, and health outcomes across monthly observations from the analytic sample (N=6275)

Variable	
Exposures	n (%)
Had encounter with police, past month	941 (15.1)
Received move-along citation, past month	238 (3.8)
Experienced a sweep, past month	1,169 (30.0)
In a neighborhood with camping law enforcement, last night	4,302 (77.3)
Concerned about camping laws, past month	3,394 (54.2)
Mediators	n (%)
Changed neighborhood locations, past month	2,178 (44.9)
Moved locations where they slept, past month	1,696 (46.1)
Health outcomes[+]	mean (SD)
Poor self-reported physical health score (range 0-4), past month	2.47 (1.05)
Psychological distress severity score (range 0-12), past two weeks	5.58 (4.08)
Poor sleep quality score (range 0-4), past week	2.35 (1.08)
Loneliness score (range 0-3), past month	1.42 (0.96)

SD=Standard deviation
[+]Higher values=worse/poorer health

Figure 3-3. Distribution of social, physical, and mental health outcomes by experiences with policing and camping laws across all monthly observations from the analytic sample (N=6275)
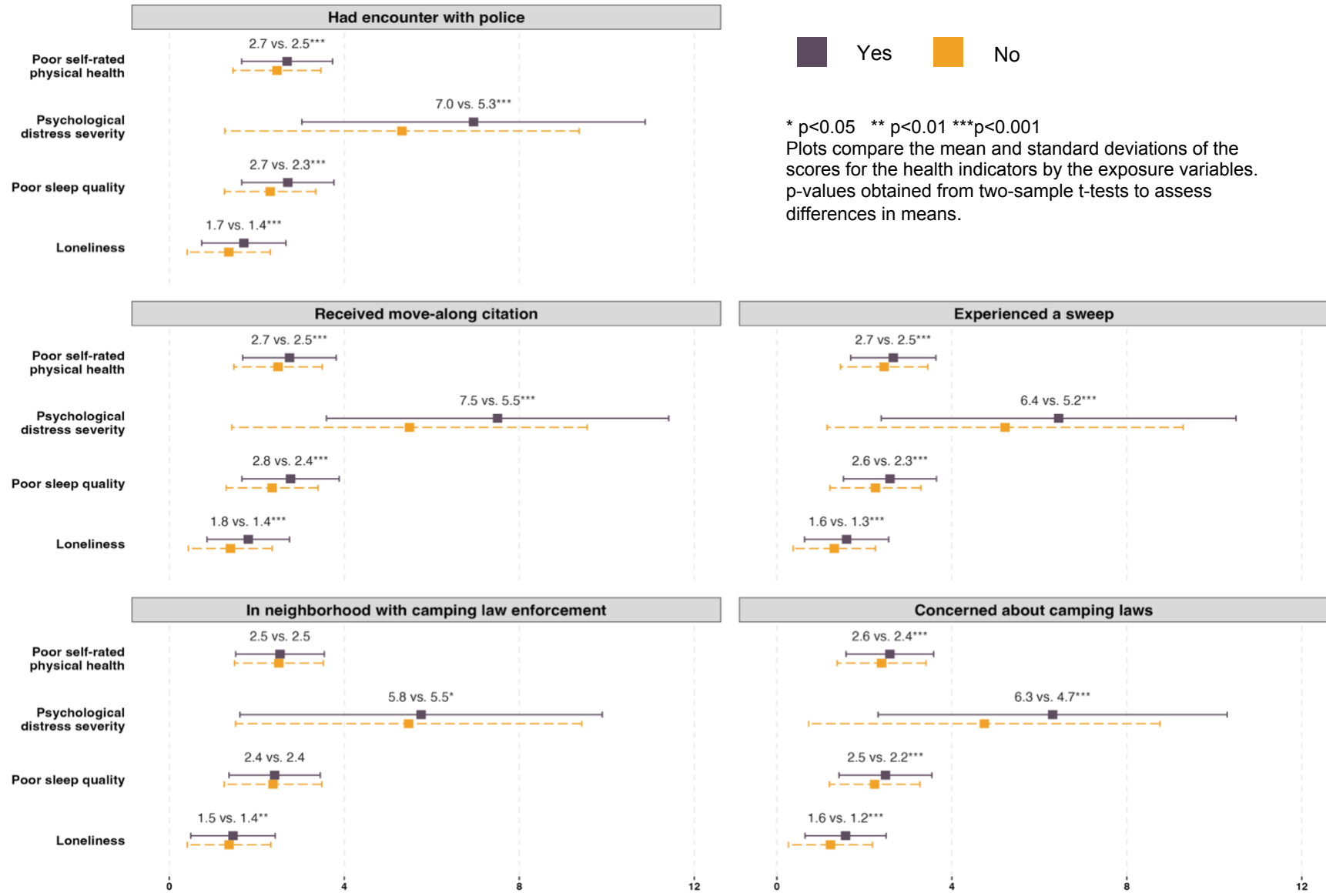
Subaim 3a: Examining the between- and within-person effects of experiences with policing and camping laws on poor health

Table 3-4 shows the results from multivariate hierarchical linear models investigating the relationships between experiences with policing interactions and camping law and perceptions of health at both the between- and within-person levels. The between-person effects for recent encounter with law enforcement were significantly associated with poorer health on all indicators, meaning that respondents with more encounters with police during the study period had on average worse health than respondents with less encounters. The within-person effects on poor self-rated physical health, psychological distress severity, and loneliness were also significantly positively associated, suggesting that encounters with police led to increases in poorer physical and mental health and social isolation. Respondents who more often were cited for staying on the street during the study had significantly greater psychological distress severity and poorer sleep quality than those who were cited less often (between-person effect), while receiving a citation was significantly associated with an increase in poor self-rated physical health between months (within-person effect). All between-person effects of experiencing a sweep were significant, demonstrating the destabilizing nature of sweeps on health over time. When looking at trends between months (within-person effects), experiencing a sweep was significantly associated with poorer self-rated physical health and increased psychological distress severity.

Respondents who were more often concerned about the effects of camping laws during the study period had greater psychological distress severity, poorer sleep quality, and greater loneliness; significant effects on increased psychological distress severity and loneliness were also observed at the within-person level, along with poorer self-rated physical health. In contrast, exposure to camping laws at the neighborhood level was not significantly associated with any of the health indicators, either at the between-person or within-person level.

In summary, exposure to various types of anti-homeless policing interactions, particularly encounters with police and experiences with sweeps, along with being concerned about

consequences of camping bans on their livelihood generally lead to poorer physical health, greater psychological distress, and more isolation among the analytic sample. Furthermore, frequent exposure to policing and concern also had a cumulative effect on physical, mental, and social health over time.

Table 3-4. Estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the analytic sample

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	4626 (577 IDs)	4617 (578 IDs)	2921 (444 IDs)	4595 (577 IDs)
Between-person effect	**0.35 [0.10, 0.59]****	**2.03 [1.03, 3.02]*****	**0.59 [0.32, 0.86]*****	**0.36 [0.12, 0.6]****
Within-person effect	**0.12 [0.06, 0.18]*****	**0.32 [0.08, 0.56]***	0.07 [-0.02, 0.16]	**0.07 [0.02, 0.13]***
Recent move-along citation	4613 (575 IDs)	4603 (576 IDs)	2912 (442 IDs)	4581 (575 IDs)
Between-person effect	0.49 [-0.01, 0.98]	**2.34 [0.32, 4.36]***	**0.67 [0.16, 1.18]***	0.47 [-0.01, 0.95]
Within-person effect	**0.11 [0.01, 0.21]***	0.11 [-0.29, 0.51]	0.05 [-0.1, 0.2]	0.09 [-0.01, 0.18]
Recent experience of being swept	2586 (429 IDs)	2581 (428 IDs)	2588 (430 IDs)	2571 (428 IDs)
Between-person effect	**0.22 [0.01, 0.44]***	**1.47 [0.59, 2.35]****	**0.38 [0.17, 0.58]*****	**0.37 [0.16, 0.59]****
Within-person effect	**0.10 [0.03, 0.16]****	**0.35 [0.08, 0.61]***	-0.01 [-0.09, 0.07]	0.01 [-0.05, 0.07]
Neighborhood exposure to camping laws	4264 (562 IDs)	4250 (562 IDs)	2664 (428 IDs)	4226 (560 IDs)
Between-person effect	0.06 [-0.14, 0.26]	-0.32 [-1.17, 0.52]	0.01 [-0.22, 0.24]	-0.02 [-0.22, 0.18]
Within-person effect	0.02 [-0.05, 0.09]	0.03 [-0.24, 0.31]	-0.03 [-0.16, 0.1]	-0.04 [-0.10, 0.03]
Concern about camping laws	4706 (581 IDs)	4692 (582 IDs)	2985 (449 IDs)	4661 (580 IDs)
Between-person effect	0.17 [-0.02, 0.36]	**2.13 [1.36, 2.9]*****	**0.30 [0.10, 0.51]****	**0.55 [0.37, 0.73]*****
Within-person effect	**0.06 [0.01, 0.12]***	**0.39 [0.19, 0.6]*****	-0.06 [-0.14, 0.03]	**0.07 [0.02, 0.12]****

* p<0.05   ** p<0.01   ***p<0.001
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Subaim 3b: Examining the indirect effects through physical displacement

Next, I investigated the role of physical displacement in the mediating the effects of experiences of policing interactions and camping laws on poor health. Prior to estimating the indirect effects, I assessed the relationships between experiences with policing and camping laws and instances of physical displacement in multilevel logistic regressions (Appendix 3-16). At the within-person level, recent encounter with law enforcement was significantly associated with a higher odds of changing neighborhood locations between monthly observations. At the between-person level, individuals who were more often swept during the study period had increased odds of experiencing a change in neighborhood location than those who experienced sweeps less often. For the self-reported measure of physical displacement, recent encounter with police and experience of being swept were both associated with higher odds of moving sleep locations at the between- and within- person levels. However, recent move-along citation, neighborhood exposure to camping laws, and concern about camping laws had significant, positive associations with self-reported moves at the between-person level only.

I then examined the relationships between instances of physical displacement and poor health in multilevel linear regression analysis (Appendix 3-17). Respondents who changed neighborhood locations more often during the study period had higher scores for loneliness than those who changed neighborhoods less often; there were no other significant effects on health from this measure of physical displacement. For the self-report measure of moving sleep locations within a month, the between-person effects on the indicators of poor health were all significant and positive, meaning that respondents who more often reported moving locations had poorer physical, mental, and social health than those who reported moving locations less often. At the within-person level, moving locations where they slept was significantly associated with increases in psychological distress severity and loneliness.

Finally, Table 3-5 shows the coefficients of the indirect effects of policing interactions and camping laws experiences through the measures of physical displacement both at the within- and

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between-persons level, along with their corresponding asymptotic confidence intervals using normal approximation (percentile confidence intervals are displayed in Appendix 3-18 and are similar to the normal confidence intervals); it also shows the percentage of the total effect attributable to the indirect pathway for estimates significant at the $p<0.05$ level. Encounters with police had a positive indirect effect on all poor health indicators at the within-person level through measured change in neighborhood locations between monthly observations, with the percentage of the total effect explained by the indirect pathway ranging from 12-30%. There were no other significant indirect effects through this measure of physical displacement.

In contrast, the self-reported measure of physical displacement (i.e., moving sleep locations in the past month) mediated all within-person effects of the types of policing interactions (i.e., encountering police, receiving a move-along citation, and experiencing a sweep), so that exposure to policing resulted in poorer physical, mental, and social health from moving sleep locations in the past month. Furthermore, concern about camping laws also had a significant indirect effect at the within-person level on increased psychological distress severity, poor sleep-quality, and loneliness through increased self-reported physical displacement. At the between-person level, all policing interactions and camping law experiences had a positive indirect effect on psychological distress severity through self-reported physical displacement. Self-reported physical displacement also mediated the between-person effect of recent experience of being swept on poorer sleep quality as well as the between-person effect of concern about camping laws on increased loneliness.

Table 3-5. Estimates of the between- and within-person indirect effects through physical displacement with asymptotic confidence intervals from bootstrapping

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
Mediator: Change in neighborhood locations	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)
Recent encounter with police	3586 (458 IDs)	3568 (454 IDs)	2324 (367 IDs)	3555 (453 IDs)
Between-person indirect effect	-0.001 [-0.012, 0.012]	-0.009 [-0.053, 0.033]	-0.001 [-0.015, 0.013]	-0.002 [-0.017, 0.013]
Within-person indirect effect	**0.018 [0.007, 0.030] (14)**	**0.059 [0.018, 0.098] (12)**	**0.017 [0.004, 0.029] (30)**	**0.022 [0.009, 0.037] (28)**
Recent move-along citation	3577 (457 IDs)	3558 (453 IDs)	2318 (366 IDs)	3545 (452 IDs)
Between-person indirect effect	0.001 [-0.022, 0.025]	0.016 [-0.063, 0.097]	0.001 [-0.024, 0.026]	0.004 [-0.026, 0.033]
Within-person indirect effect	0.003 [-0.012, 0.018]	0.009 [-0.040, 0.060]	0.007 [-0.008, 0.022]	0.004 [-0.014, 0.024]
Recent experience of being swept	2055 (357 IDs)	2046 (353 IDs)	2052 (355 IDs)	2039 (353 IDs)
Between-person indirect effect	0.001 [-0.012, 0.014]	-0.002 [-0.049, 0.043]	0.005 [-0.011, 0.023]	0.004 [-0.008, 0.016]
Within-person indirect effect	0.007 [-0.002, 0.016]	0.004 [-0.011, 0.018]	0.005 [-0.002, 0.011]	0.006 [-0.001, 0.014]
Neighborhood exposure to camping laws	3483 (452 IDs)	3463 (446 IDs)	2259 (363 IDs)	3450 (447 IDs)
Between-person indirect effect	-0.003 [-0.013, 0.007]	-0.024 [-0.072, 0.021]	-0.003 [-0.018, 0.010]	-0.005 [-0.020, 0.008]
Within-person indirect effect	-0.001 [-0.010, 0.007]	-0.004 [-0.044, 0.038]	-0.021 [-0.041, -0.001]	-0.001 [-0.015, 0.013]
Concern about camping laws	3642 (461 IDs)	3622 (456 IDs)	2373 (373 IDs)	3602 (454 IDs)
Between-person indirect effect	0.001 [-0.006, 0.007]	0.003 [-0.019, 0.025]	0.001 [-0.006, 0.008]	0.001 [-0.008, 0.009]
Within-person indirect effect	0.004 [-0.004, 0.012]	0.014 [-0.012, 0.041]	0.001 [-0.007, 0.009]	0.005 [-0.006, 0.015]
Mediator: Moved locations where they slept	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)	Beta [95% CI] (% TE)
Recent encounter with police	2776 (437 IDs)	2771 (438 IDs)	2779 (437 IDs)	2759 (438 IDs)
Between-person indirect effect	0.010 [-0.011, 0.029]	**0.087 [0.008, 0.167] (4)**	0.017 [-0.003, 0.040]	0.013 [-0.009, 0.034]
Within-person indirect effect	**0.034 [0.018, 0.049] (22)**	**0.146 [0.079, 0.215] (34)**	**0.035 [0.018, 0.051] (26)**	**0.045 [0.026, 0.064] (33)**
Recent move-along citation	2767 (435 IDs)	2762 (436 IDs)	2770 (435 IDs)	2750 (436 IDs)

Between-person indirect effect	0.018 [-0.023, 0.057]	**0.160 [0.019, 0.312] (8)**	0.030 [-0.011, 0.075]	0.023 [-0.017, 0.066]
Within-person indirect effect	**0.028 [0.003, 0.054] (17)**	**0.126 [0.013, 0.232] (27)**	**0.030 [0.003, 0.056] (27)**	**0.037 [0.007, 0.068] (18)**
Recent experience of being swept	2468 (420 IDs)	2459 (418 IDs)	2467 (419 IDs)	2449 (417 IDs)
Between-person indirect effect	0.008 [-0.016, 0.033]	**0.127 [0.033, 0.230] (11)**	**0.034 [0.005, 0.065] (10)**	0.021 [-0.001, 0.045]
Within-person indirect effect	**0.047 [0.030, 0.063] (30)**	**0.204 [0.132, 0.274] (33)**	**0.049 [0.030, 0.068] (83)**	**0.045 [0.029, 0.061] (53)**
Neighborhood exposure to camping laws	2301 (376 IDs)	2288 (373 IDs)	2299 (374 IDs)	2275 (373 IDs)
Between-person indirect effect	0.005 [-0.004, 0.014]	**0.051 [0.016, 0.088] (45)**	0.009 [-0.001, 0.020]	0.008 [-0.001, 0.018]
Within-person indirect effect	0.005 [-0.002, 0.013]	0.030 [-0.009, 0.071]	0.008 [-0.003, 0.018]	0.007 [-0.003, 0.018]
Concern about camping laws	2835 (442 IDs)	2824 (441 IDs)	2838 (442 IDs)	2805 (441 IDs)
Between-person indirect effect	0.010 [-0.006 ,0.025]	**0.095 [0.034, 0.161] (5)**	0.017 [-0.001, 0.036]	**0.016 [0.001, 0.031] (4)**
Within-person indirect effect	0.011 [-0.001 ,0.024]	**0.064 [0.009, 0.120] (18)**	**0.016 [0.001, 0.030] (90)**	**0.016 [0.001, 0.030] (16)**

CI= Confidence interval; TE=Total effect; IDs=Individuals

Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate multilevel mediation models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter. Confidence intervals are asymptotic (normal approximation) intervals from bootstrapping 1000 random samples. Estimates highlighted in bold are significant at the p<0.05 level. Percent of total effect that is attributable to the indirect effect is only shown for estimates significant at the p<0.05 level.

Subaim 3c: Examining the moderating effects of race and gender

Lastly, I explored race and gender as potential moderators in the relationships between experiences of policing and camping laws and poor health. I first examined the prevalence of experiences with policing and camping laws by race and gender (Appendix 3-19), and then examined the bivariate relationships between these exposures and the indicators for poor health by race and gender (Appendices 3-20 & 3-21). As reported previously, there were significant differences by race in all the examined exposures. Some key differences include that a greater proportion of White respondents (18%) had a recent encounter with police compared to Black and Latinx respondents (10% and 14%, respectively, p<0.001), while a greater proportion of Black and Latinx respondents (32% for both) recently experienced a sweep compared to White respondents (27%, p=0.006). On the other hand, gender differences were only observed in the exposures related to sweeps and being in a location with camping law enforcement. Males had higher proportions of respondents who were swept in the past month and currently resided in a neighborhood with camping law enforcement compared to females and non-binary people (31% vs. 29%, p=0.046 & 80% vs. 74%, p<0.001). Stratified bivariate tables show that Latinx respondents, along with respondents who identified as multiracial or another race, generally reported poorer physical, mental, and social health than White and Black respondents. Females and non-binary respondents mostly had higher mean scores for poor health than males as well.

Appendices 3-22 & 3-23 presents the regression coefficients describing relationships between the exposures and health outcomes across racial and gender groups estimated in models with interactions with race/gender, and Figures 1-4 and 1-5 plots the relationships that significantly differ by race/gender. There were significant differences by race in the within-person relationship between recent encounter with police and poor self-rated physical health [F-statistic=2.79, p=0.039], recent experiences of sweeps on psychological distress severity [F-statistic=3.19, p=0.023], and recent move-along citation and poor self-rated physical health [F-statistic=3.30, p=0.020]. Within-person increases in encounters with police was associated with

significant increases in poor self-rated physical health among Latinx respondents [ß=0.18, 95% CI: (0.08, 0.29)] as well as Multiracial respondents [ß=0.24, 95% CI: (0.07, 0.42)], while there was no significant relationship among Black and White respondents. Similarly, there was a significant positive within-person effect of experiences with sweeps on psychological distress severity only among Latinx [ß=0.54, 95% CI: (0.11, 0.97)] and Multiracial/Other race [ß=1.19, 95% CI: (0.22, 2.16)] respondents. However, receiving a move-along citation was significantly associated with within-person increases in poor self-rated physical health only among White respondents [ß=0.24, 95% CI: (0.07, 0.40)]; the effects among the other racial groups were not significant.

In terms of gender, there were significant differences in the within-person effects of recent experience of being swept and concern about camping laws on loneliness [F-statistic=5.61, p=0.018 and F-statistic=8.57, p=0.003, respectively], as well as the between- and within-person effect of concern about camping laws on self-rated physical health [F-statistic=5.60, p=0.018 and F-statistic=4.48, p=0.034, respectively]. Recent experience of being swept was significantly associated with an increase in loneliness among Women [ß=0.09, 95% CI: (0.00, 0.17)] but not among men, while concern about camping laws was significantly associated with within-person increases in loneliness among men [ß=0.14, 95% CI: (0.07, 0.21)] only. The between and within person effects of concern about camping laws were associated with between- and within-person increases in self-rated physical health among men only [ß=0.38, 95% CI: (0.12, 0.64) and ß=0.12, 95% CI: (0.05, 0.19)].

Figure 3-4. Marginal effects of select exposure variables by racial category

Predicted values were calculated from regression models with interactions between the exposure of interest and race. All covariates were standardized; interpretation is the predicted value when all other covariates are at their average. This figure shows only the exposures with significant differences by race.

*Regression coefficient for the association between the exposure and outcome is significant at the p<0.05 level.
NH=non-Hispanic

Received move-along citation

F-test:
3.30
(p=0.020)

NH White*   Hispanic/Latinx
NH Black   Other/Multiracial

Predicted value of poor self-rated physical health score (higher=poorer health)

Within-person change

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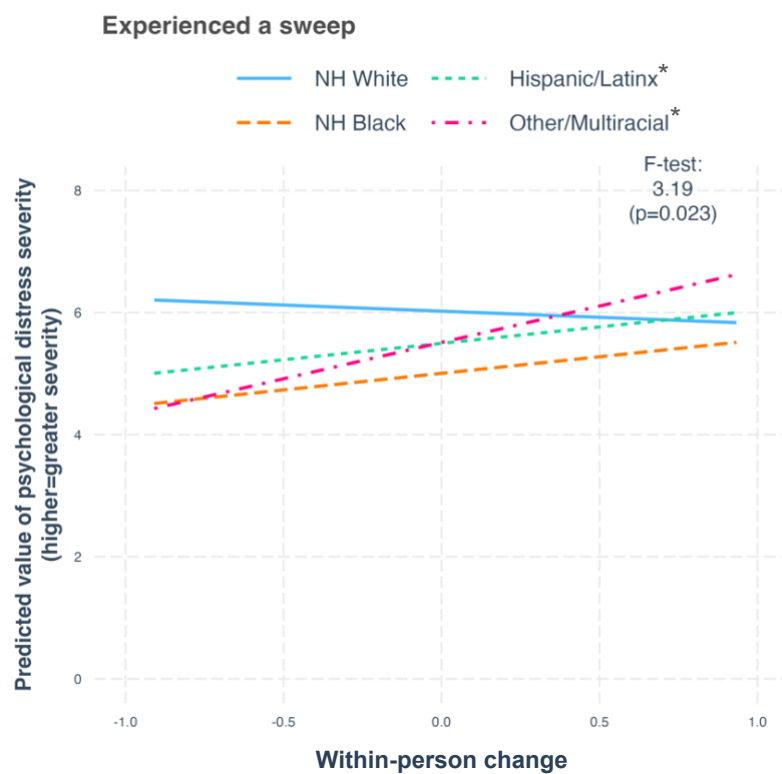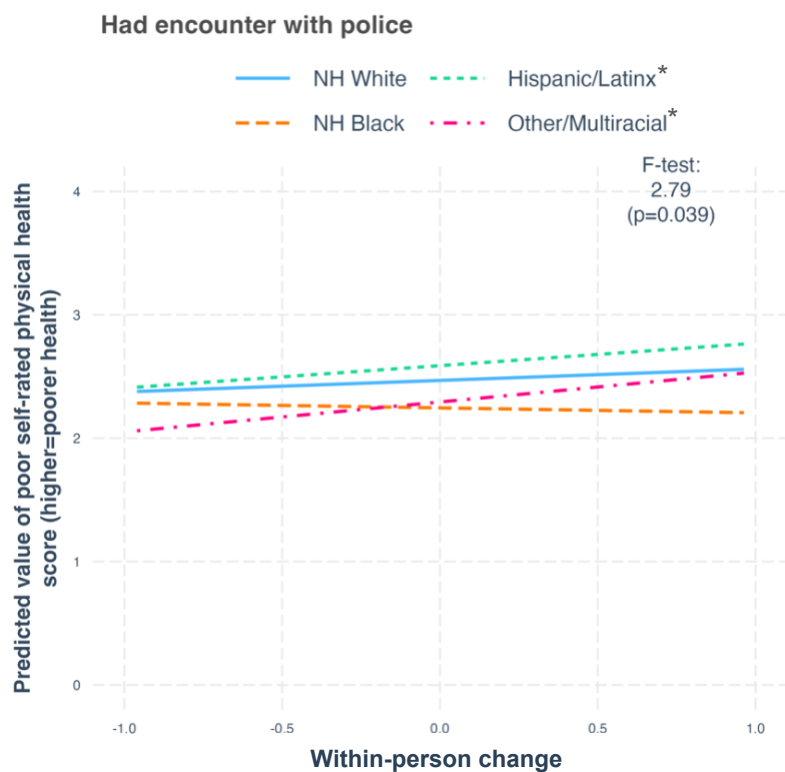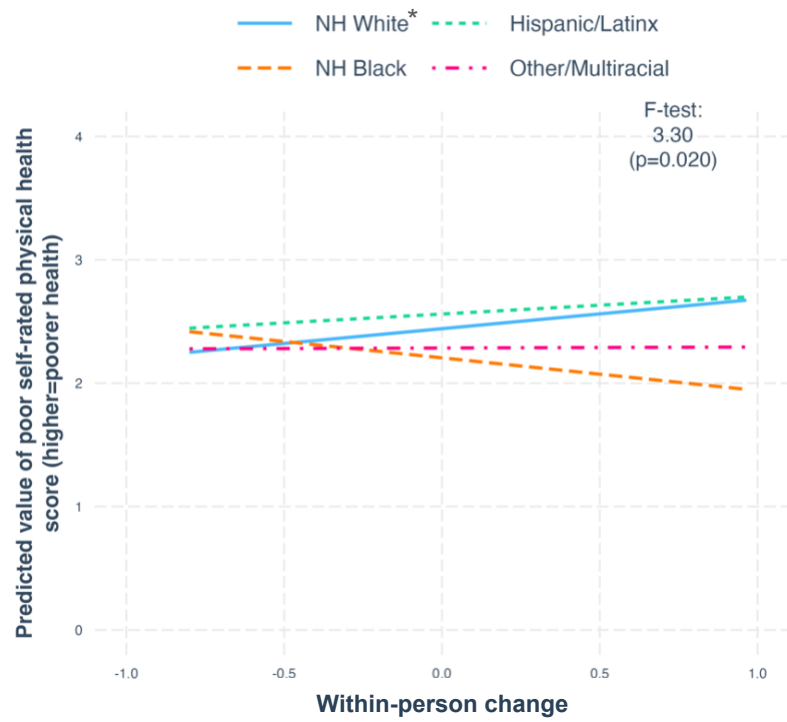
Figure 3-5. Marginal effects of select exposure variables by gender

Predicted values were calculated from regression models with interactions between the exposure of interest and gender. All covariates were standardized; interpretation is the predicted value when all other covariates are at their average. This figure shows only the exposures with significant differences by gender.

*Regression coefficient for the association between the exposure and outcome is significant at the p<0.05 level.
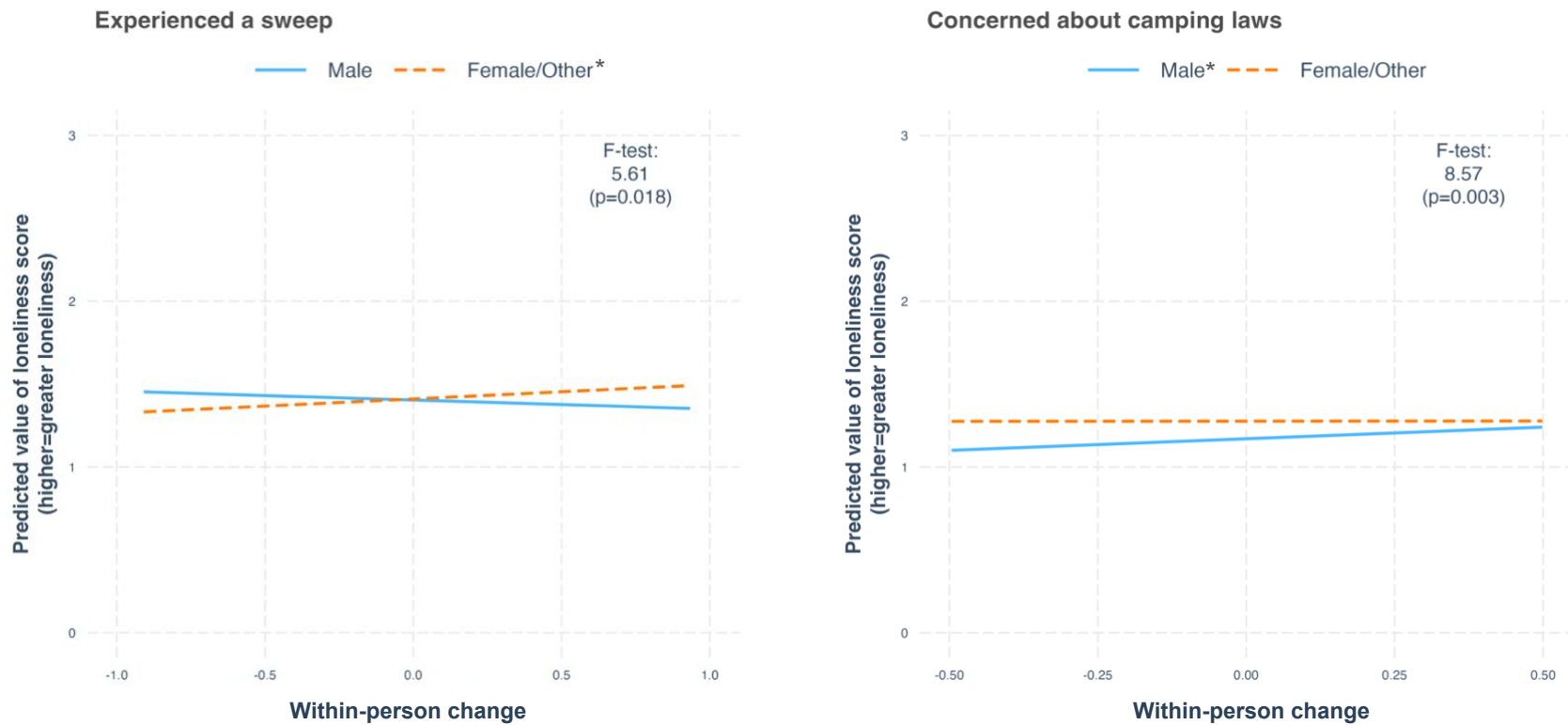
Concerned about camping laws
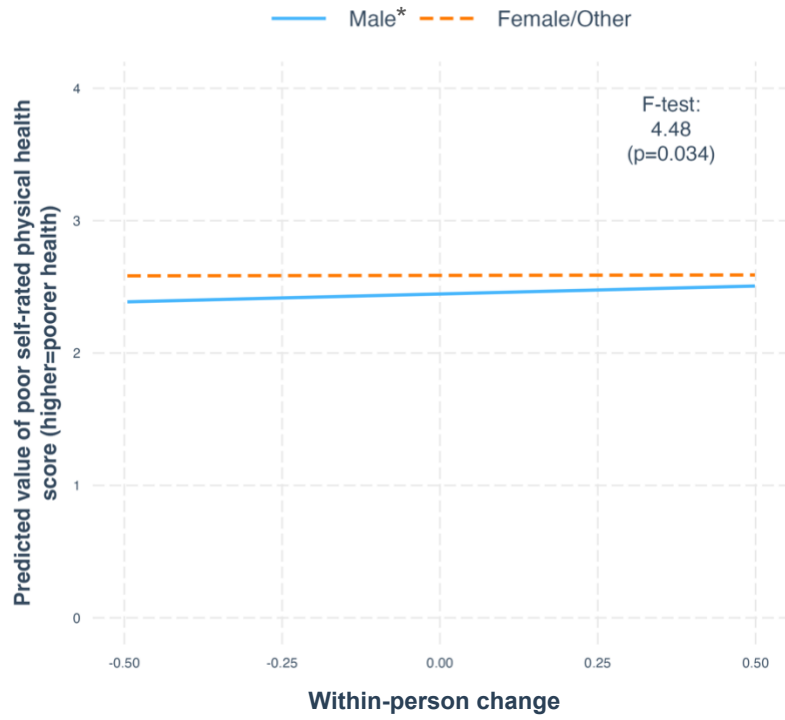
Concerned about camping laws
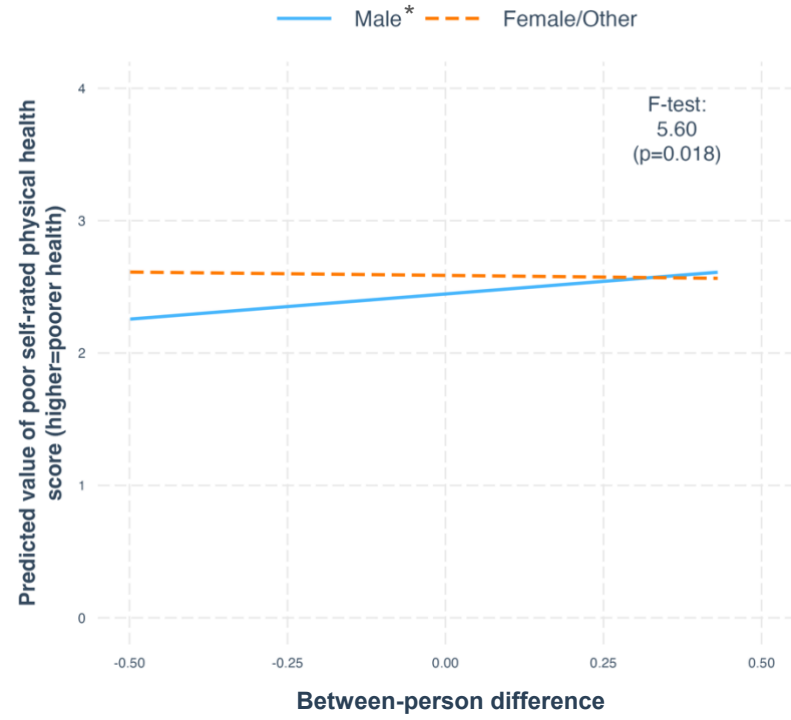
Sensitivity analysis

Lagged exposure and restricted sample

For sensitivity analysis, I reran the models assessing the between- and within-person effects of experiences with policing and camping laws on health with a lagged version of the exposure variables to increase the temporality of the relationships (Appendix 3-24). Only a few of the within-person effects remained in these models. This may indicate that the impacts of experiences of policing and camping laws on month-to-month increases in poor health may only be temporary, returning back to the average levels the following month, or may be a residual effect of having a smaller sample size after lagging. Notably, recent experience of being swept was associated with an increase in poor sleep quality score in the following month in lagged models, whereas there no observed effect in the current month models.

When examining the effects only among responses where the respondent indicated sleeping unsheltered outside at least once in the past month (Appendix 3-25), the within-person effects of recent encounter with police and recent experience of being swept on psychological distress severity were no longer significant, along with the within-person relationship between concern about camping laws and loneliness. However, having a recent move-along citation was associated with an increase in loneliness between months among publicly unsheltered individuals, while there no observed effect in the models with all unhoused people in the sample. The models also showed that respondents who received a move-along citation and were concerned about camping laws more often during the study period had increased poor self-rated physical health compared to those who experienced these exposures less often. These supplementary results suggest that unhoused people living outside in public spaces, who may already be in poorer mental and physical state than people living in vehicles or temporary shelters, may internalize the effects policing interactions and camping laws differently than other subpopulations of the unhoused community.

Addressing survey item nonresponse and survey nonresponse

After fitting models with imputed data (Appendix 3-26), most of the significant between- and within-person effects remained, but there were additional significant effects observed. Recent move-along citation and concern about camping laws had a significant between-person effect on poor self-rated physical health. Additionally, recent move-along citation and experience of being swept now both had a significant between- and within-person effect on loneliness. The inferences drawn from models that used non-response weights on top of imputed data were nearly identical to the models without weights (Appendix 3-27). Only the within-person effect of recent move-along citation was no longer significant with increased loneliness. The additional significant effects observed in models using imputed data and using imputed data with nonresponse weights suggests that the results from the available case analysis may be slightly biased from selective nonresponse.

Discussion

As a continuum of carceral responses towards homelessness become more prevalent in cities across the US, a better understanding of its impacts is needed to develop interventions that reduce health burdens within an already marginalized population. In this study of a cohort of unhoused people in Los Angeles, I found that exposure to various types of anti-homeless policing interactions, chiefly encounters with police and experiences with sweeps, along with being concerned about consequences of camping bans on their livelihood generally resulted in poorer physical health, increased psychological distress, and greater social isolation. Recurrent exposure to policing and concern also had a cumulative effect on physical, mental, and social health over time as hypothesized. Present findings corroborate the handful of studies that uncovered significant associations between encampment sweeps, move-along orders, and other policing interactions on declining health and wellbeing (Goldshear et al., 2024; Meehan et al., 2024; Westbrook & Robinson, 2021). This study adds to a nascent evidence base suggesting that anti-homeless policing further marginalizes unhoused people to exacerbate health inequities.

Prior explorations into lived experience of homeless criminalization, including this investigator's own qualitative dissertation study, can help explicate the ways exposure to policing and worry over camping laws become embodied as adverse health. During encampment clearings—frequently conducted with minimal notice and under threats of arrest—the unhoused individuals are forced to rapidly pack up and move, which itself can be a traumatic experience that increases short-term distress (J. S. Chang et al., 2022; Langegger & Koester, 2016). Moreover, sweeps and other negative interactions with law enforcement often involve excessive force, physical injury, and loss of possessions, supplies, and important documentation needed to attain services (J. S. Chang et al., 2022; Herring et al., 2019). Accordingly, unhoused people commonly portray policing encounters as pervasive sources of distress and disruptions to their routines for health, including taking showers, obtaining food and water, and accessing health or social services (J. S. Chang et al., 2022). The added turmoil caused by policing interactions in their already precarious lives can increase chronic stress and exacerbate pre-existing health conditions. Even the fear of consequences of anti-homeless policing is enough to deteriorate wellbeing, as it necessitates constant alertness that engenders heightened paranoia and a diminished sense of personal control (Goldshear et al., 2023). Persistent exposure to policing interactions and sweeps can alter a persons' sleeping pattern long-term and isolate people from members of their social support network (Westbrook & Robinson, 2021). As a result, exposure to policing, as well as concern over them, can reduce feelings of security and self-efficacy to manage existing physical and mental health conditions.

Notably, living in an area under enforcement of camping laws was not associated with any of the adverse health outcomes in this study. This result could be explained in two ways. First, measurement error may be reason for null findings, since most of the camping ordinances enacted in municipalities in LA County only designate certain areas within neighborhoods for enforcement. For this reason, measuring exposure to camping law enforcement at the neighborhood-level may be too large of an areal unit to detect meaningful differences in the

likelihood of encountering enforcement. Another reason is that although these neighborhoods had areas that were slated for camping law enforcement, this does not directly translate into actual enforcement. Future analyses can examine exposure to potential enforcement at smaller geographic scales or using a spatial intensity measure (e.g., percentage of land area designated for camping law enforcement) for a more accurate measurement or incorporate a measure of actual enforcement of camping laws obtained from government records.

Results from the mediation analysis overall supports the study hypothesis that physical displacement is associated with both anti-homeless policing exposure and poorer health outcomes and intervenes the main pathways. More specifically, exposure to policing interactions, including encounters with police, sweeps, and move-along citations, and concern about camping laws resulted in poorer physical, mental, and social health through self-reported moves in sleeping location. However, the measure of physical displacement at the neighborhood-level only significantly mediated the within-person relationships between encounters with police. Differences in findings from these two operationalizations may represent differences in the definitions used; the self-report measure encompasses displacement at any scale, while tracking changes in neighborhood locations measures relocation into different neighborhoods. This could signify that although experiences with sweeps is associated with movement at the finer scale (such as the block level), it does not directly translate into movement at larger distances (such as neighborhood). Furthermore, the study concludes that displacement was associated with encounters with police but not with formal encampment sweeps or citations. This may be because individuals are often driven to relocate in response to police presence, even when no official enforcement actions, like sweeps or citations, are taking place (J. S. Chang et al., 2022). Additionally, displacement to a different neighborhood may not necessarily lead to worse outcomes, if that move was done volitionally and for beneficial reasons, such as being closer being services or people in their social support networks, to escape poor environmental conditions

in their previous areas, or to find safer sleeping spaces. Study findings illustrate the nuances in the spatial mobility patterns among unhoused individuals within the context of criminalization.

For the unhoused community, displacement often follows policing interactions and operates as a distinct source of health risks. Goldshear's study of people who use drugs living in encampment communities in LA highlighted how sweeps represented an endless source of "environmental impermanence" for the unhoused, trapping them in a cycle of compulsory mobility that made it more difficult for them to re-establish daily routines (Goldshear et al., 2023). Similar research also recounted how displacement into hidden and farther areas separates them from healthcare services and other health-protective resources (J. S. Chang et al., 2022). Indeed, in an analysis of the outcomes of involuntary among a sample of the unhoused community Denver, involuntary displacement was associated with deteriorating mental health, increased incidence of infectious diseases, and higher rates of substance and alcohol use (Meehan et al., 2024). The desire to avoid contact with law enforcement may also compel unhoused people to move from an established location; although not directly forced by law enforcement, these moves still represent a source of distress and disruption to community networks (Langegger & Koester, 2016). This study supports extant literature on how displacement from criminalization threatens unhoused people's ability to protect their health from multilayered stressors from changes in their physical and social environment.

Building on former accounts describing the gendered dimensions of homelessness, this study explored gender as a moderating factor in the relationships between criminalization experiences and poorer health. I discovered that although the negative effects of encampment sweeps on social isolation were more pronounced for women and non-binary individuals than for men, concerns about camping laws had a greater impact on men's physical health and social isolation. The dynamics of gender-based violence, along with existing disparities in health profiles and needs, may help explain these findings. Women and gender non-conforming individuals navigate a heightened state of precarity on the streets, marked by social exclusion and ongoing

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threats of sexual harassment (Begun & Kattari, 2016; McCann & Brown, 2021; Murray, 2011). They also tend to experience poorer physical health due to a higher prevalence of chronic medical conditions (A. E. Montgomery et al., 2017). Since they already have to deal with the dangers of gender-based violence and challenges in accessing support services, the added concern for camping laws may not considerably worsen their already compromised health. However, sweeps pose a direct and immediate threat to their safety. Displacement resulting from these sweeps can dislocate the essential support networks that unhoused women and gender non-conforming individuals lean on for protection (Herring et al., 2019; Klodawsky, 2006). The ensuing feelings of social isolation can aggravate their existing fear of violence and weakened sense of community, so that sweeps affect women more deeply than their male counterparts.

Racial identity also structured the experiences of policing and camping laws in this study of unhoused Angelenos. The impact of police encounters and sweeps on self-reported physical health and psychological distress, respectively, was greater for individuals identifying as Latinx, multiracial, or from other racial backgrounds (such as Asian, Native Hawaiian or Pacific Islander, or American Indian/Alaskan Native) compared to their non-Hispanic White or non-Hispanic Black counterparts. These disparities may arise from the unique set of stressors patterning the experiences of homelessness for different unhoused subpopulations, as well as the availability of culturally component homeless services and health care (Olivet et al., 2021). For Latinx/Hispanic individuals, the trauma and distress resulting from sweeps may compound other factors like past immigration-related stress and discrimination (Pinedo et al., 2021; Valentín-Cortés et al., 2020). The trauma following a sweep may be particular harmful, as mental health issues are heavily stigmatized in some Latinx/Hispanic cultures, compelling individuals to avoid seeking help (Forcén et al., 2023; Rastogi et al., 2012). Furthermore, language barriers can hinder effective communication with service providers during and after encounters with police, making it harder for Latinx individuals to get the help they need to mitigate adverse physical health outcomes (Rastogi et al., 2012). Multiracial and individuals from racial backgrounds less represented in the

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unhoused population also endure distinct stressors, such as identity-based bias and social stigma, which can further intensify psychological distress during sweeps (J. S. Chang et al., 2023; Morton et al., 2019; Olivet et al., 2021). The lack of culturally competent services can leave them with insufficient support and add to the challenges of meeting both their physical and mental health needs effectively—emphasizing the need for targeted interventions that acknowledge the specific barriers confronted by diverse racialized groups within the unhoused community.

Interestingly, White respondents in this analysis were more likely to suffer worsening self-rated physical health as a result of being cited for staying on the street compared to their non-White counterparts. This outcome may be influenced by disparities in pre-existing health conditions, which can be understood through the "racial mortality inversion" hypothesis emerging in the homelessness and health literature (Fowle et al., 2024; Porter et al., 2022). Formally explored by Fowle et al., this phenomenon refers to the reversal of the typical racialized patterns of mortality observed in the general population within the unhoused population, where unhoused whites bear higher mortality rates than their counterparts from racially and ethnically minoritized groups (Fowle et al., 2024). Fowle et al. propose several factors that contribute to this inversion, chiefly the complex and nuanced dynamics that drive individuals into homelessness. Structural racism patterns the experiences of poverty and housing instability along racial lines, making non-white individuals more susceptible to homelessness from single disruptive events, such as eviction or job loss (Fowle, 2022; Olivet et al., 2021). In comparison, as Fowle et al. hypothesizes, the relative class privilege of the average white person means they typically have to exhaust more social and economic resources to be driven into homelessness (Fowle et al., 2024). For white individuals, homelessness is more likely preceded or accompanied by severe medical conditions, which provides some explanation to their observed poorer health while unhoused (Fowle, 2022; Fowle et al., 2024). Additionally, many unhoused whites lack social support networks that can help mitigate the health impacts of citations (Fowle, 2022; Olivet et al., 2021), intensifying their health decline. These results highlight the importance for analyses into the racial dynamics of

homeless criminalization to be attuned to the multifaceted ways systems of power structure both the progression and experience of homelessness.

In this study, I focus on the "embodied experiences of oppression" to portray the ways the structural and place-based conditions associated with carceral responses to homelessness can get under the skin. Biopsychosocial processes such as weathering (i.e., the cumulative 'wear and tear' from prolonged exposure to environmental stressors), root shock (i.e., traumatic stress reactions to displacement), or chronic urban trauma (i.e., psychological effects of place-based state violence) work in tandem to form the "body natural" of unhoused individuals (Fullilove, 2001; Geronimus et al., 2020). Their "body politic" amid criminalization, in contrast, is situated in not only the actions of governments, but in the values of systems "defined in relation to power, property, and privilege," commonly expressed as concerns for "public health" or "public safety."

While many view the mission of public health to be antithetical to carcerality, historical evidence reveals the opposite (Metzl et al., 2010). Ideals of "public health" have and continue to be developed and deployed to promote carceral agendas and justify oppressive policing and surveillance practices rooted in colonialism, racism, and classism (Deivanayagam et al., 2021; Lachapelle et al., 2022). In the context of homeless criminalization, related concepts like "risk" have been leveraged as hegemonic discourses and instruments for marginalization—linking unhoused bodies to "disease" threatening the wellbeing of others, and in turn warranting state intervention (Lachapelle et al., 2022). Language on "public safety" is also heavily mobilized and politicized, elevating the safety concerns of housed individuals while relegating the unhoused into carceral spaces (Rabelo et al., 2024). Governance conducted in the name of "public health and safety" are therefore "purely political agendas [set] under the guise of passion or concern"(Metzl et al., 2010) that drive the overpolicing of the unhoused community and, as observed in this study, challenges their ability to protect their own health and safety.

Furthermore, when government officials state that quality-of-life policing and other punitive responses to homelessness are necessary to "protect public health," they rarely specify which

"public" they mean. From this analysis and the multitude of other reports and examinations, it is clear that the execution of criminalization practices forces unhoused individuals to endure countless added risks to their wellbeing, undermining the public health of the unhoused community. The failure to define "public" dilutes their messaging, obscuring the reality that the health of certain groups (i.e., the powerful and privileged few) has often been preserved at the expense of others intentionally rendered marginalized and under-resourced (Tran, 2024). In doing so, discourses of health and safety reinforce systems of oppression while also feeding into the stigmatization and manufactured precarity of unhoused individuals regarded as unworthy of protection. In the end, the choice of whose health is prioritized is a political one—it is about "where the power lies and in whose interests that power is exercised" (Bambra et al., 2019)

Limitations and Future Directions

This study makes substantial contributions in a more multidimensional understanding of the longitudinal impacts of anti-homeless practices on health, yet it had some limitations. First the study sample was limited to unhoused people who had access to mobile phones at recruitment. Although rates of mobile phone ownership are high among unhoused people in LA County (Rhoades et al., 2017), the phone requirement at enrollment may limit the representativeness of the study sample. This analysis also relied on self-reported data, which opens susceptibility to biased reporting due to recall troubles and/or provision of socially desirable responses on sensitive behaviors. The use of neighborhood as the geographic scale to represent respondents' spatial exposure to camping law enforcement may have been too crude of a measure; additional analyses can look at exposure at a finer spatial scale. Moreover, the main primary outcomes of physical health and sleep quality were a one-item self-reported measure and hence may potentially suffer from greater measurement error compared with other measures. This examination also focused on the effects of anti-homeless practices on self-reported indicators of poor physical, mental, and social health; however, as posited from theories of embodiment,

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exposure to psychosocial and behavioral stressors most likely precede these more downstream health outcomes used in this study. Future investigations can assess the impacts of policing on a set of more proximal health determinants, such as feelings of safety, access to resources, engagement with outreach and health services, and indicators of compromised health care management, to provide a comprehensive view of the progression of poorer health.

Like most longitudinal studies, this examination suffers from issues with respondent retention and selective nonresponse, in addition to survey item missingness. For these reasons, findings from the analysis using available cases should be interpreted considering potential selection bias. While the results estimated using imputed data and nonresponse weighting can provide some insight to the level of bias, caution should also be used in interpretations of findings in case the imputation or propensity scores models were misspecifiied. This study also did not account for the effects of differential loss to follow-up due to mortality; individuals who experience mortality are likely to be those with the most severe health burdens, which may bias the overall findings regarding the health impacts of policing. Lastly, this study explored the health experiences of the unhoused population in LA County, a vast region that includes the City of Los Angeles and 87 other municipalities, each with potentially its own approach to policing homelessness. The geographic and social context of Los Angeles and its extensive homeless management system may make it a particularly unique setting to examine the criminalization of homelessness. As a result, the conclusions of this study may not be generalizable to other populations of unhoused individuals in different regions. Future research in other areas should take into account the specific context of homelessness and criminalization relevant to each particular time and place.

Implications

The recent US Supreme Court case City of Grants Pass v. Johnson in June 2024 ruled that cities can penalize unhoused individuals for camping or sleeping in public spaces, even

without providing them with alternatives for shelter (*City of Grants Pass, Oregon v. Johnson*, 2024). In the years following this ruling, cities across the US will likely see increased adoption and enforcement of anti-homeless legislation framed as a compassionate homelessness management strategy and common-sense measure to ensure public safety. Indeed, after the announcement of this ruling, California Governor Gavin Newsom urged California state officials to begin clearing homeless encampments—for the sake of "protect[ing] the safety and wellbeing of our communities" (California, 2024)—and established the "Encampment Resolution Fund" to transition individuals into housing, under the guise of "ensuring the safety and wellness of people experiencing homelessness in encampments" (*Encampment Resolution Funding Program, Round 3, Rolling Application (ERF-3-R)*, 2024) In contradiction to official claims, I find that the policing that often accompany these encampment abatements are toxically deteriorating the physical health, mental state, and social wellbeing of the unhoused individuals targeted. Thus, findings from this study provides additional evidence against the efficacy of such initiatives to move people off the streets and into shelters through police force and coercive means and can support advocacy efforts calling for non-punitive, service-oriented approaches to homelessness.

As unhoused community leaders, advocacy groups, and other stakeholders apply pressure to local authorities to pause aggressive policing, this evidence can help inform the development of targeted health programs interventions. These public health efforts can include mobilizing street medicine services that better reach people pushed to the margins of urban space due to anti-homeless policing, deploying sanitation facilities and hygiene supplies, and increasing access to harm reduction resources. Ultimately, protecting the health of the unhoused community is contingent on centering community-determined, survivor-centered strategies that focus on healing and restoration, rather than policing and punishment.

4 SYNTHESIS

Although criminalization has been the de facto management strategy in some municipalities over the past five years, the *City of Grants Pass v. Johnson* Supreme Court ruling in 2024 has the potential to amplify punitive approaches nationwide in the years to come (*City of Grants Pass, Oregon v. Johnson*, 2024). With this renewed legal precedent, local governments may be emboldened to pursue stricter measures against visible homelessness. Given this imminent reality, there is a pressing need for research that investigates their effects on health, access to resources, and overall quality of life for those targeted.

This dissertation aimed to fill this knowledge gap by focusing on the ways anti-homeless laws and practices are spatialized to shape the health of the unhoused community in Los Angeles (LA). The theoretical framework motivating this research drew on Pettway's Placescapes approach that situates the opportunity structures, activity spaces, and relational placemaking consequential for health in relation to social power (R. J. Petteway, 2022a). Within this framework, the criminalization of homelessness emerges from settler colonial logics that uphold the needs and values of property elites at the expense of the rights of the property-less to an adequate standard of living. Anti-homeless practices, as a mechanism of criminalization, reinforce the condition of displaceability among unsheltered individuals that becomes embodied as poor health through psychosocial and behavioral pathways. Conclusions from this dissertation assert that criminalization entrenches existing social stigmas and poor health among the unhoused and thus calls for comprehensive and compassionate solutions that prioritize housing and support services over punitive measures.

In this final chapter, I begin with summarizing the findings for each study and then synthesize the overall takeaways from this dissertation. Next, I outline some implications for homelessness management and public health intervention. Finally, I offer future directions for this research.

Summary of Dissertation Aims

Aim 1

This study investigated the geographic patterns of unsheltered homelessness in LA County in relation to the reintroduction of a camping law in the City of LA (i.e., LAMC 41.18) in 2021 to examine shifts to the opportunity structures of homeless survival amid criminalization. I drew on the Point-In-Time (PIT) Count data of the number of unsheltered people living on the street or in tents/encampments in a single night in tracts in LA County between 2017-2023 and linked it to tract-level data on social and housing conditions, built environment, accessibility of services, and policing activity. To depict the types of places where unsheltered people are moving out of and into to avoid enforcement, I ran longitudinal GEE Poisson models examining the neighborhood characteristics associated with levels and changes in unsheltered homelessness before and after camping law implementation. Results suggests that after the camping ban was enacted, the distribution of unsheltered individuals shifted away from areas with food assistance programs to more hidden spots, particularly near rail tracks, and locations with shelters, bridges, and fewer residential properties. There was also significant growth in unsheltered homelessness after policy implementation in areas with more parks and open spaces across LA County. Furthermore, gentrifying neighborhoods in the City of LA demonstrated more growth in the unsheltered population before the policy was enacted compared to non-gentrifying areas; however, afterward, the unsheltered population continued to grow in non-gentrifying areas but stagnated in gentrifying areas. These trends may suggest that in the City of LA, gentrifying areas may slowly be more inhospitable for unhoused individuals as the reach of the city's camping law expands, and that areas with more parks and open space may serve as relatively new sources of refuge for the county's unsheltered community during increased enforcement.

I then leveraged a difference-in-difference design and linked the PIT Count data to data on zones of potential enforcement of LAMC 41.18 to examine whether there were significant differences in changes in the unsheltered population over time between tracts with potential

enforcement and tracts without in the period following policy implementation. The findings indicated a 16% decline in visible unsheltered homelessness in areas with potential enforcement of the law compared to those that were not, but this effect was not significant [p=0.09]. This may stem from the general tendency of the unsheltered population to avoid areas within the City of LA where LAMC 41.18 applies, irrespective of potential enforcement. Furthermore, the event study design revealed a lagged treatment effect of potential enforcement of LAMC 41.18, signifying that the effects of camping law adoption may take some time to have a measurable change on the level of unsheltered homelessness in an area.

Overall, the study suggests that anti-homeless laws may be a spatial constraint in the daily lives of the unsheltered population that influence the overall spatial dynamics of unsheltered homelessness, pushing them towards areas that may offer more tolerance or concealment from law enforcement. This study underpins earlier qualitative findings that the enactment of anti-homeless laws can influence the mobility patterns (and thereby the overall spatial distribution) of the unsheltered community, as people are either directly forced out of places imposing the law or choose to relocate due to fears of enforcement (D. Kaufman, 2022; Langegger & Koester, 2016). Rather than being scattered randomly, unsheltered people may seek refuge in more "hidden" places that have lower probability of police interference but are potentially more hazardous (e.g., near train tracks) or farther away from resources needed to maintain health and safety (e.g., clinics, food banks) (J. S. Chang et al., 2022). As one of first to empirically assess the effects of anti-homeless legislation on the spatial movement of the unsheltered population, this study illustrates potential shifts in their exposure to environmental health risks and informs the targeted distribution of services to unsheltered communities in settings enforcing criminalization laws.

Aim 2

While Aim 1 provides a county-wide portrait of displacement in response to a camping ban, Aim 2 foregrounds individual lived experience. Drawing on 13 in-depth interviews with unsheltered informants in LA County, I explored the psychosocial and behavioral consequences

emerging from disruptions to their activity spaces and place-making processes amid the escalation of anti-homeless practices. I applied a narrative approach for analysis, focusing on the ways participants perceive, experience, and navigate constraints to their daily routines to reveal evolving health risks and barriers to health promotion associated with criminalization.

Unsheltered individuals' narratives of their daily paths to find shelter and basic needs revealed the ways increased policing, displacement, stigmatization, and spatial marginalization posed challenges to their health and safety. Maintaining consistent routines and social networks helped foster a sense of stability and wellbeing while living unsheltered, however, the ongoing need to search for new places to sleep during a period of heightened surveillance undermined their ontological security. Encounters with policing, such as sweeps and parking citations, intensified their anxiety symptoms and diminished their sense of control; the chronic hypervigilance that followed not only worsened their mental health but also aggravated their existing physical health conditions and complicated their routines to manage their health. Lastly, the instability caused by criminalization made the social connections they relied on for protection more fragile and led them to become increasingly reluctant to form close bonds—all of which deepened their sense of loneliness.

Overall, this study showcases the coerced mobilities of unsheltered individuals in criminalized environments that contributes to increased insecurity in their daily lives. Findings from this study can motivate hypothesis formation on the pathways that structure the health of the unsheltered population during a progressively hostile policy environment. Accounts of sweep and other hostile police interactions from unhoused individuals in this study and others suggests that the mental burdens from having to endure these dehumanizing situations and being fearful of the consequences of camping laws can increase the severity of depressive and anxiety symptoms and sleep deprivation (J. S. Chang et al., 2022; Goldshear et al., 2023; Westbrook & Robinson, 2021). Criminalization laws and related enforcement often displace people from familiar environments that offered a sense of safety and rupture existing social support systems

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(Lachapelle et al., 2022), which can heighten adverse mental health and social isolation. Recurring experiences of sweeps and police interactions can exacerbate poor physical health by destabilizing the routines needed to manage chronic conditions (J. S. Chang et al., 2022), such as attending regular health appointments and taking medications. Altogether, the totalizing effects of spatial exclusion and banishment result in a variety of health risks for the unhoused population.

Aim 3

The last study is a quantitative examination into the longitudinal associations between experiences and perceptions of anti-homeless practices and physical, social, and mental outcomes of psychosocial and behavioral health pathways. I leveraged a novel dataset from a prospective cohort study following the health trajectories of a sample of 731 unsheltered Angelenos, who had contributed 6,275 monthly observations. I ran multivariate hierarchical generalized linear models to test whether greater exposure to and concern about camping laws, sweeps, and negative police interactions leads to increases in poor health over time. I then conducted multilevel mediation modeling to test whether increased instances of physical displacement mediate these associations. Furthermore, narratives shared by unhoused women and unhoused people of color in the qualitative interviews for Aim 2 exposed how the insecurity from the fear of sweeps and increased enforcement can compound existing stress from extensive sexual harassment and racialized policing. Thus, I tested whether there were differences in the relationships between anti-homeless practices and health by race and gender through moderation analysis.

Results from the multivariate models revealed that exposure to various types of anti-homeless policing interactions, particularly encounters with police and experiences with sweeps, along with being concerned about consequences of camping bans generally led to poorer physical health, increased psychological distress, and greater social isolation. Frequent exposure had a cumulative effect on poor health over time, demonstrating how experiences of spatial marginalization may contribute to long-term health disparities for the unhoused population. Self-

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reported instances of physical displacement mediated these relationships, in that both the direct experiences with policing and the threat of it forced individuals to relocate which, in turn, negatively impacted their health. The effects of anti-homeless policing varied by gender: experiencing a sweep had a greater effect on increased social isolation for women and non-binary individuals, whereas being concerned about camping bans was more strongly associated with poorer physical health and social isolation among men. Race also moderated these relationships, with Latinx and multiracial individuals reporting greater declines in health from encounters with police and sweeps. On the other hand, White individuals experienced worsening physical health from receiving a move-along citation at a higher rate than their non-White counterparts.

Overall, this study demonstrates that experiences of anti-homeless policing do become embodied as poorer physical, mental, and social health. Displacement is a critical mechanism in these pathways of embodiment, as changes in their physical and social environment brought by dislocation can induce additional health stressors. Results from the moderation analyses illustrate the ways the health of unhoused individuals is made more vulnerable by intersecting dynamics of systemic exclusion (Bowleg, 2012; Giannini, 2017). As the language of public health continues to be used as justification for criminalizing homelessness, evidence of its adverse health impacts exposes the hypocrisy of policing-led approaches and strengthens calls for more humane interventions that protect the dignity and wellbeing of the unhoused community.

Synthesis of Dissertation Findings

Combining the strengths of quantitative and qualitative approaches, I triangulated the multi-faceted effects of anti-camping practices on the spatial movement and health trajectories of the unsheltered population. By comparing findings from each aim, this study draws on varying ways of knowing and conceptualizing 'truth' to advance a comprehensive understanding of how criminalization efforts can exacerbate health inequities among the unhoused.

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Collectively, my dissertation demonstrates that despite claims that anti-homeless policing can connect unhoused individuals to services and shelter and thereby improve wellbeing, in reality, it causes more harm than good. The studies illuminate how anti-homeless practices reshape the daily spatial context of people's health experiences and lead to an array of negative downstream physical, mental, and social outcomes. After the implementation of the camping ban, the distribution of unsheltered homelessness shifted to areas that were more hidden or less likely to attract public scrutiny, such as locations near shelters, bridge overpasses, railways, parks, and non-gentrifying neighborhoods. The qualitative interviews from Aim 2 provided insight into the mental and decision-making processes driving these population shifts. The unhoused informants reported becoming progressively hypervigilant as safe spaces to occupy dwindled following increased anti-homeless policing and enforcement. The looming threat of police intervention, along with hostile actions from business owners and housed neighbors, decreased their sense of security in place and heightened their anxiety for the unknown. Additionally, their ability to maintain trusted social connections diminished, as people were displaced and their networks of support were disbanded. These patterns in participants' narratives were observed in Aim 3, where experiences of and concerns about anti-homeless policing were associated with higher levels of psychological distress, poor sleep quality, and social isolation. These findings mirror the pathways and mechanisms hypothesized in my conceptual framework, which delineates how anti-homeless practices push individuals into more marginal spaces and contribute to a cycle of displaceability that intensifies their ontological insecurity and undermines their social support networks, eventually becoming embodied as poor health.

Results from Aims 1 and 2 suggest that unsheltered individuals develop spatial schemas of places conducive for health, safety, and survival, making decisions about where to sleep based on their familiarity with these locations and the social, political, and physical characteristics of the area. For example, several participants in the qualitative interviews noted steering clear of areas perceived to be more antagonistic towards unhoused people, such as gentrifying areas and

neighborhoods with wealthier residents; this sentiment was paralleled in the findings of Aim 1 that examined the geographic patterns of unsheltered homelessness. Moreover, the broader movement of the unsheltered population from places with more policing activity to more secluded locations on the outskirts of urban areas after the implementation of a camping ban seen in Aim 1 may signify their growing recognition of the need to seek places that offer more tolerance amid increased enforcement. However, this shift into more marginalized spaces escalates their risk of other health harms. In the qualitative interviews, unhoused individuals reported becoming disconnected from outreach and health services, facing more difficulties accessing daily necessities, such as sanitation facilities and power sources, and encountering adverse environmental exposures after relocating. Thus, criminalization not only confines the unhoused population to more isolated and hazardous spaces but also increases their vulnerability to negative health consequences.

The inevitably of displacement from anti-homeless policing was also highlighted across the studies. Many of the unsheltered informants in Aim 2 noted feeling like they were being forced in endure highly unstable living situations to avoid confrontations with law enforcement. The constant need to search for new places to sleep during increased enforcement diminished their sense of continuity and control over their circumstances—placing them into a perpetual mental state of "ontological insecurity". This instability also undermined follow-up coordination with health care and homeless services as well as their ability to engage health-protective behaviors and regimens. Aims 2 and 3 both underscore how displacement from encounters with law enforcement—such as police sweeps and citations—engender poorer physical and mental health among unhoused individuals. The cumulative effects of such policing practices and subsequent displacement establish a context where unhoused individuals' basic needs, self-efficacy, and wellbeing are continuously threatened.

Aims 2 and 3 also collectively exhibited how the health impacts of criminalization compounded the racialized and gendered dimensions of homelessness. In the qualitative

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interviews, women and gender non-confirming individuals recounted relying on their trusted support networks for protection from sexual harassment and discrimination while living on the streets, but the threat of sweeps compromised their ability to preserve these relationships. As a result, the negative effects of sweeps on social isolation were particularly pronounced for women and non-binary individuals in Aim 3. Racial identity also structured the experiences of policing and camping laws. For Latinx/Hispanic individuals, police encounters and experiences of sweeps were associated with greater psychological distress; findings from the qualitative interviews suggest that this increase could be attributed to their higher levels of self-perceived discrimination from law enforcement. On the other hand, although some of the Black interview participants reported feeling racially targeted by police and housed residents, this did not translate into significantly poorer health outcomes when compared to White individuals in Aim 3. As I described previously, this discrepancy may be explained by differential selection into homelessness—outlined in Fowle's "racial mortality inversion" hypothesis—where White unhoused individuals are more likely to have pre-existing chronic conditions compared to their Black counterparts (Fowle et al., 2024). The overall findings from this examination underscore the need to consider the distinct realities experienced by different racial and gendered groups within the unhoused community.

In Aim 1, the analysis revealed that the presence of zones of potential enforcement did not have a significant causal effect on the levels of unsheltered homelessness within a given tract, contrary to my initial hypothesis. Within this chapter, I outline several methodological limitations of the approach. However, a conceptual explanation could be that either neighborhood or citywide magnitude of changes due to the camping ban may be more consequential than the changes observed in tracts with potential enforcement compared to those without. In other words, the introduction of anti-homeless legislation may create both a highly spatialized structure of enforcement as well as broadly applied one that impacts not only specific enforcement locations but also engenders an overall environment of anti-homeless policing in entire neighborhoods or

cities. Insights from Aim 2 provide a deeper understanding of this phenomenon. The narratives gathered illustrate that unsheltered individuals often have intricate mental frameworks regarding safety. While enforcement zones may be established in specific areas, the lived realities of unsheltered homelessness are shaped by other spatial features as well as the sociopolitical dynamics of the overall area. Factors such as proximity to daily necessities and social support networks contribute to a sense of security that extends beyond designated enforcement zones. Implementation of anti-homeless laws also reflects a political strategy intent on perpetuating societal stigma against homelessness, that, in turn, encourages broader public apathy and resentment toward the unhoused community. When individuals perceive their presence as increasingly unwelcome—whether due to enforcement actions, community attitudes, or other factors—they often make the decision to leave entire communities and cities permanently. As a result, unsheltered individuals often have to search within a wider range of spaces for refuge, so that the impact of enforcement measures may not only be limited to specific geographic areas.

As more and more places are deemed "inhospitable" for the unhoused, this raises critical questions: Where can they turn for refuge in such an environment? Moreover, how does this spatial marginalization affect their ability to survive and their overall health? My findings emphasize how the unhoused are increasingly being pushed into more marginal and secluded spaces—often left to navigate new risks to their wellbeing in these environments without adequate support. Stricter enforcement of anti-homeless laws will likely force them into fewer and fewer spaces after repeated displacements and compound their daily struggles with accessing basic needs, services, and support networks. The implications of recurring social and spatial exclusion extend beyond mere physical displacement; it can lead to increased vulnerability to illness and a deteriorating quality of life. Therefore, this dissertation calls for transformative policy responses that intervene on the systemic barriers that contribute to this cycle and prioritizes of unhoused individuals' experiences, needs, and perspectives to promote health and social justice.

Implications of the Dissertation

My dissertation expands existing advocacy and scholarly work that calls for significant investments into supportive services and permanently affordable housing opportunities at the local, state, and federal levels, in lieu of punitive policies and practices to address homelessness (Human Rights Watch, 2024; National Law Center on Homelessness & Poverty, 2019b). In particular, this study is grounded in an understanding that "housing is health care" and, thus, guaranteeing a safe and stable home is fundamental to people's wellbeing (Fullilove, 2010). Despite the increased focus on permanent supportive housing solutions in Los Angeles County (Sheeley et al., 2021), given the severity of the current housing shortage, there is also an immediate need for better emergency shelter, interim housing, health initiatives rooted in compassionate care, personal choice, and self-determination to better serve the full range of unhoused residents. Successful rehousing and reintegration also requires cultivating support systems, employment opportunities, and life skills for unhoused individuals (Rog et al., 2021). Whatever the path out of homelessness, effective interventions must incorporate knowledge of the daily social context in which unhoused people engage in and the psychosocial and behavioral factors that shape their health trajectories.

Homelessness governance

Policymakers tackling issues of homelessness are well aware of the necessity of increased permanent routes to housing to solve the crisis, and the top priority must be to develop more permanent housing options (O'Regan et al., 2021; Rog et al., 2021). However, as efforts to expand supply continue, a range of reforms to the homelessness services system should be implemented that focus on solutions other than criminalization. A variety of legal analysis has demonstrated that policing-led approaches divert enormous public resources into displacing unhoused people from one place to another without addressing underlying issues (Human Rights Watch, 2024). As this study argues, interventions should concentrate on strengthening ontological

security, social support networks, and self-efficacy, rather than undermining them in order to promote health.

In Los Angeles and other West Coast cities, authorities continue to couple offers of shelter and services with sanitation "sweeps" and threats of citation to spatially control its unsheltered population (Herring, 2021; Human Rights Watch, 2024; Westbrook & Robinson, 2021). The presence of outreach workers in destructive sanitation sweeps legitimizes city officials' claims that sweeps and encampment clearances are "service-led" (Herring, 2021; Human Rights Watch, 2024), While these encounters do occasionally entail the provision of services, recent reports from Los Angeles and San Francisco show that relatively few unhoused people end up in shelter or housing long-term (Herring et al., 2019; Human Rights Watch, 2024). This rarity was also evident in my qualitative interviews, where, of the seven individuals who had experienced sweeps, only one ended up in some form of interim shelter or housing. Evidence of the health harms from anti-homeless policing from this dissertation can be used to apply pressure to local authorities to pause sweeps and continue with client-centered service provision *without* enforcement. Research consistently shows that service provision is most effective when local authorities conduct "proactive" outreach, building trust over time, and providing resources voluntarily (Bond et al., 2022; Bretherton & Pleace, 2023; Fisk et al., 2006; Kopanitsa et al., 2023; Kryda & Compton, 2009). My qualitative interviews similarly demonstrated that policing-led approaches only serve to upend the rapport-building process, engender distrust in the entire homeless services system, and thereby discourage unhoused individuals from seeking help.

A significant component of the current criminalization approaches is the promise of moving people off the streets and into temporary shelters (e.g., emergency shelter, interim housing) (Herring, 2021). Yet in several municipalities, the unsheltered population far exceeds the capacity of available shelter units (National Law Center on Homelessness & Poverty, 2019b), and numerous unhoused individuals, including those in this study and others, have highlighted several habitability problems (Donley & Wright, 2012; Kerman et al., 2023, 2024). Moreover, many have

detailed the ways the restrictive, jail-like rules of temporary shelters—such as curfews, surveillance, and prohibitions on personal belongings—exacerbate existing traumas, particularly for individuals who have experienced violence, abuse, or systemic neglect (Donley & Wright, 2012).

Given the severe inadequacy of current shelters and interim housing in providing safe refuge, attention should also be placed in reforming the shelter system to be grounded in principles of accessibility, healing, and restoration. Such reform would not only address the physical need for shelter but would also support the mental, emotional, and social recovery of unhoused individuals. These efforts should include the adoption of trauma-informed design for spaces that minimize stressors (such as overcrowding and surveillance) while prioritizing privacy, safety, and comfort (Ajeen et al., 2023). Creating opportunities for community-building may also help combat pervasive feelings of isolation and build support networks by helping individuals connect, share experiences, and offer mutual assistance (E. Toolis et al., 2022). Additionally, co-located services, such as on-site medical check-ups, mental health support, substance use treatment, job training, financial planning, and educational opportunities, would help address multiple needs simultaneously, increasing self-sufficiency and the chances of long-term stability (Shamaa et al., 2022). Furthermore, an emerging evidence base has demonstrated the ways cash transfer programs, such as universal basic income, can provide unhoused individuals with a sense of financial autonomy and flexibility as they work and receive other support to resolve their homelessness (Dwyer et al., 2023). Therefore, offering these programs when people enter shelters could better facilitate their transition into stable housing. Addressing the existing accessibility challenges—including barriers to services and limited options for families with children, older adults, LGBTQ+ individuals, and people with pets (Meanwell, 2012)—can also improve the reach of shelter programs. By closing these critical gaps, temporary shelters can evolve into a viable stepping stone for more individuals on their pathway to permanent housing.

However, local authorities must also contend with the fact that reformed emergency shelters may still not meet the needs of all unhoused individuals, and some may prefer to stay in encampments for a sense of community. Instead of relying on sweeps, cities can designate specific safe zones or "managed encampments" where individuals can stay with minimal risk of displacement (Herring, 2024). These zones should foreground self-determination, include on-site access to supportive services within or near encampments, such as food, healthcare, mental health support, addiction treatment programs, and access to case management, and have regular visits from outreach teams. Providing proper sanitation facilities—such as portable toilets, handwashing stations, and trash disposal services—within encampments can drastically improve living conditions for the residents while also addressing broader public health concerns (Herring, 2024). Moreover, all decision-making processes must be grounded in the understanding that individuals are experts in their own lives, particularly when it comes to their health, and therefore place the viewpoints of those living in these areas at the forefront (Lachapelle et al., 2022). Building on this, peer-led and community-driven initiatives—such as peer-run shelters and harm reduction programs—have proven to be effective while also respecting unhoused individuals' autonomy (Huber et al., 2022; Perreault et al., 2016; Wolf, 2024). Of course, creating managed encampments must be accompanied by comprehensive policy reform, including updates to safety codes and liability protections, and a sustainable framework for implementation to ensure these spaces are legally viable and secure for its residents and surrounding housed neighbors. Ultimately, a well-rounded policy agenda should be centered around creating safe, dignified environments for both unhoused and housed individuals.

Public health

Public health can also play critical role in the continuum of care for unhoused individuals—addressing not only their immediate physical health issues but also their broader mental and social needs (Olson & Pauly, 2021; Wolf & Hrast, 2023). Effective public health strategies should bridge gaps in services by adapting collaborative care models to create a coordinated response

to homelessness that addresses all aspects of wellbeing (Stergiopoulos et al., 2010). One such approach that has gained traction in recent years is "street medicine," a healthcare delivery model provided to individuals living in outdoor settings or other locations where they cannot access traditional healthcare facilities (R. A. Kaufman et al., 2024; Liu et al., 2024; Narayan et al., 2024). Street medicine teams typically include physicians, nurses, and other healthcare professionals but could also involve social workers and mental health counselors who can collaborate to provide comprehensive services (R. A. Kaufman et al., 2024). This service model is specifically designed to overcome common barriers to care, such as lack of transportation, insurance, or documentation (R. A. Kaufman et al., 2024). However, as observed in my studies, encampment sweeps often disrupt access to street medicine care as people are displaced. Findings on the mobility patterns and geographic shifts in unsheltered homelessness, particularly in the context of criminalization, can help guide the allocation of health-related resources, ensuring they are tailored to the specific health risks of the population and effectively reach those in need. Without this understanding, unsheltered individuals risk remaining hidden from street medicine teams and other outreach workers.

Integrating healthcare services directly into shelter and housing is also key aspect of public health's role. Offering onsite medical care, mental health services, substance use treatment, and preventive screenings ensures that unhoused individuals can access the healthcare they need (Shamaa et al., 2022). To maximize reach, housing and other services must be low-barrier, particularly for individuals struggling with substance use. In these cases, a harm reduction approach is most effective—one that does not require sobriety to access services but offers supportive measures like clean needles, supervised consumption spaces, and access to addiction treatment (B. Wallace et al., 2018; Wusinich et al., 2019). All care should be trauma-informed and focus on creating a safe, supportive environment for individuals to alleviate the extensive psychosocial harms associated with homelessness.

Future Directions

This research was conducted during a period marked by ongoing political and legal struggles around homelessness in Los Angeles and across the country. The Supreme Court case *City of Grants Pass v. Johnson* ruled that laws regulating camping on public property do not constitute cruel and unusual punishment (*City of Grants Pass, Oregon v. Johnson*, 2024). Yet conclusions from this study, along with countless others, indicate that consequences of these anti-homeless laws and other practices are detrimental to the physical, social, and mental wellbeing of the unhoused community and thus should be considered cruel.

As the political climate becomes increasingly antagonistic toward the most marginalized—with society's elites waging war against the unhoused, those living in poverty, LGBTQ+ individuals, immigrants, and racialized communities—these issues are poised to escalate, particularly in cities like Los Angeles. With the 2028 Olympics on the horizon, the city is under immense pressure to "clean up the streets" and has, so far, favored policing-led strategies to remove homelessness from public view.

When Karen Bass assumed office as Mayor of Los Angeles in 2022, she declared homelessness to be her administration's top priority and pledged to secure state and federal funds for new solutions. One of her key initiatives has been *Inside Safe*, described by her office as a "voluntary, proactive housing-led strategy" to move people from tents and encampments into temporary shelter and prevent their return (City of Los Angeles, n.d.). This program, which falls under the umbrella of "encampment resolution" efforts, is similar to Project Roomkey, in that it offers hotel rooms as short-term housing for those relocated from encampments, along with support services and assistance in securing permanent housing. Despite claims that *Inside Safe* is not a sweep, anecdotes from encampment residents suggest otherwise. Many report being required to surrender much of their property as a condition of accepting the hotel placement, while those who decline the offer face the destruction of their belongings and banishment (Human Rights Watch, 2024). As a relatively new program, there is little evidence regarding the long-term

outcomes or effectiveness of *Inside Safe* and other encampment resolution initiatives. However, early reports suggest that a small percentage have transitioned from the hotels to permanent housing, with some others eventually returning to homelessness (City of Los Angeles, n.d.). Moreover, the selection process for the limited *Inside Safe* placements has been criticized for being politically motivated, with the Bass administration prioritizing visible encampments based on City Council preferences and complaints from housed residents, rather than focusing on the most vulnerable (Human Rights Watch, 2024). Given these concerns, it remains to be seen whether *Inside Safe* represents a viable solution to homelessness, or if it is simply another tool for property elites to punish their unhoused neighbors.

In this critical time of rising tough-on-crime rhetoric and contestations over space in Los Angeles and beyond, researchers committed to social justice must be more proactive in opposing criminalization. Without this shift, public health risks being weaponized to reinforce societal narratives that frame homelessness as a disease or crime, rather than as a result of structural inequities (Lachapelle et al., 2022). At its core, visible homelessness is direct result of government policy failures in upholding the fundamental human right to housing, alongside eroding investments in affordable housing, income support, and social services (Olson & Pauly, 2021).

This dissertation lays the groundwork for additional empirical investigations into the spatial impacts and health pathways from criminalization practices. However, our role as researchers extends beyond documenting their harms; we must actively engage in advocating for policies that center the dignity and humanity of unhoused people. This includes building stronger partnerships with community organizations, directly involving people with lived experiences in our research processes, and presenting to policymakers clear, actionable recommendations for systemic change and the protection of human rights. Embracing a human rights perspective means pushing for the prohibition of encampment evictions until adequate housing and resources are in place and for interventions that prioritize harm reduction (instead of criminalization), champion self-determination (rather than state control), and uphold personhood (above property).

5   APPENDICES

Appendix 1-1. Comparison of Point-In-Time (PIT) Counts of Homelessness of the Continuum of Cares (CoCs) in Los Angeles County
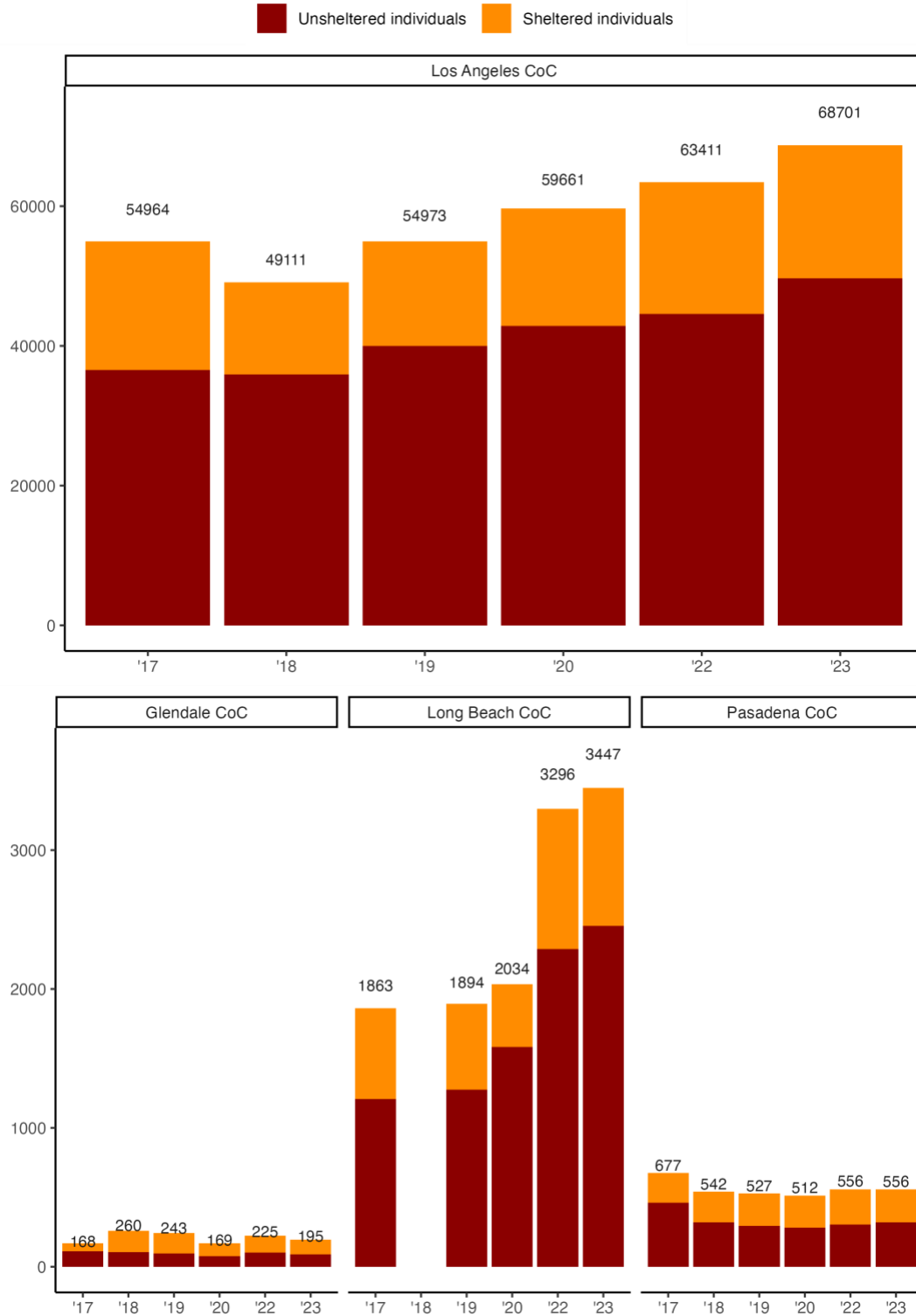
Appendix 1-2. Active Los Angeles Municipal Code (LAMC) 41.18 enforcement zones before the 2022 and 2023 Point-In-Time (PIT) Count in the City of Los Angeles Council Districts (N=1,875)

	Number of LAMC 41.18 Enforcement Zones		
	as of the 2022 PIT Count (February 7, 2022)	as of the 2023 PIT Count (January 22, 2023)	
Council District		Introduced through resolution	Introduced through the 2022 expansion*
1- Gilbert Cedillo	1	23	110
2- Paul Krekorian	0	18	70
3- Bob Blumenfield	26	30	109
4- Nithya Raman	0	0	80
5- Paul Koretz	1	15	126
6- Nury Martinez	0	15	74
7- Monica Rodriguez	0	13	99
8- Marqueece Harris-Dawson	0	0	159
9- Curren D. Price Jr.	0	17	108
10- Mark Ridley-Thomas	0	0	131
11- Mike Bonin	0	0	113
12- John Lee	0	23	121
13- Mitch O'Farrell	15	17	96
14- Kevin de Leon	1	20	144
15- Joe Bascaino	0	37	107
Total	44	228	1647

Listed are the Councilmembers at the time LAMC 41.18 was reintroduced (September 2021).
*In August 2022, the City of Council of Los Angeles voted to expand LAMC 41.18 by designating all schools and daycares in the region as zones of enforcement.

Appendix 1-3. Municipalities in Los Angeles County with camping laws in effect since 2020

Municipality	Year camping law went into effect
City of Los Angeles	2021
Arcadia	2021
Carson	2021
Malibu	2021
Temple City	2021
Hermosa Beach	2021
Calabasas	2021
Norwalk	2022
Glendora	2022
Culver City	2022
Vernon	2022
La Puente	2022
La Mirada	2022
Lawndale	2022

Appendix 1-4. Changes in census tract boundaries in Los Angeles County from 2010 to 2020

Service Planning Area (SPA)	Proportion out of all tracts that had a boundary change
1- Antelope Valley	5.4%
2- San Fernando	18.0%
3- San Gabriel	27.0%
4- Metro LA	6.7%
5- West LA	7.3%
6- South LA	7.0%
7- East LA	17%
8- South Bay/Harbor	12%
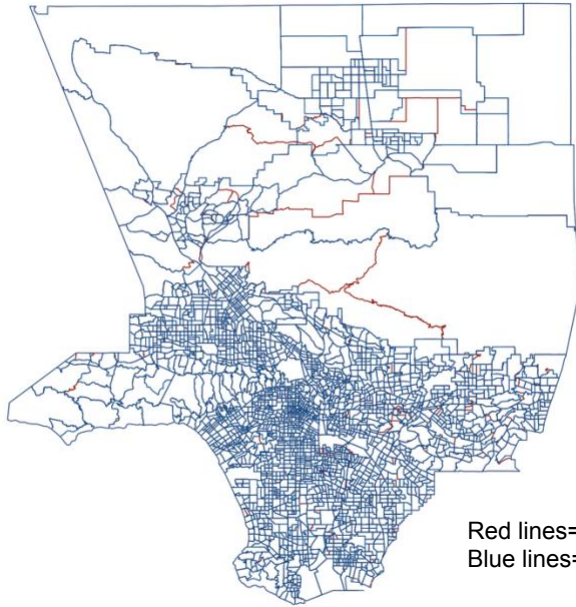
Red lines= 2010 boundaries
Blue lines= 2020 boundaries

Appendix 1-5. Map of Council Districts enforcing Los Angeles Municipal Code (LAMC) 41.18 and the active enforcement zones within these districts
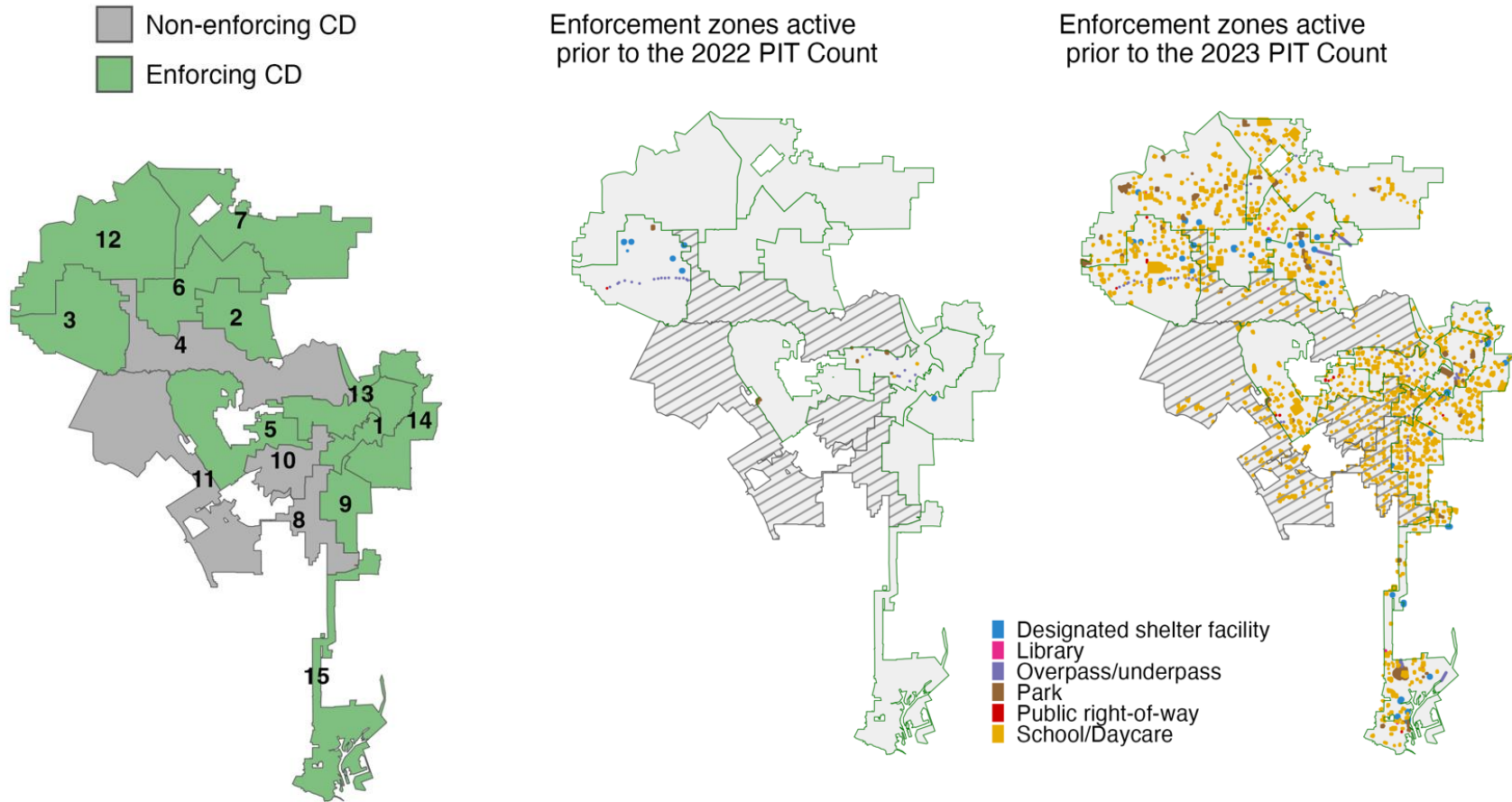
Non-enforcing CD
Enforcing CD

Enforcement zones active prior to the 2022 PIT Count

Enforcement zones active prior to the 2023 PIT Count

Designated shelter facility
Library
Overpass/underpass
Park
Public right-of-way
School/Daycare

Change in visible unsheltered count in 2022 from 2020

Change in visible unsheltered count in 2023 from 2022

[-500,-100]
(-100,-50]
(-50,-25]
(-25,-10]
(-10,10]
(10,25]
(25,50]
(50,100]
(100,500]
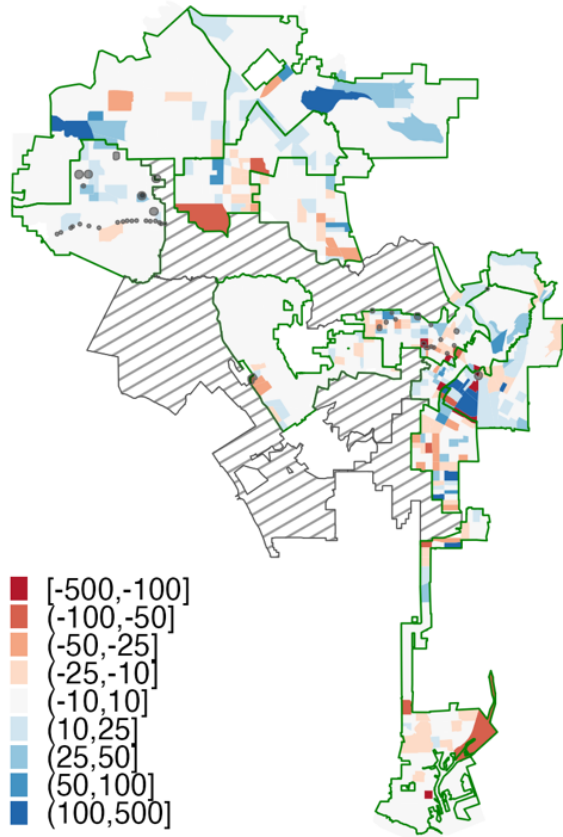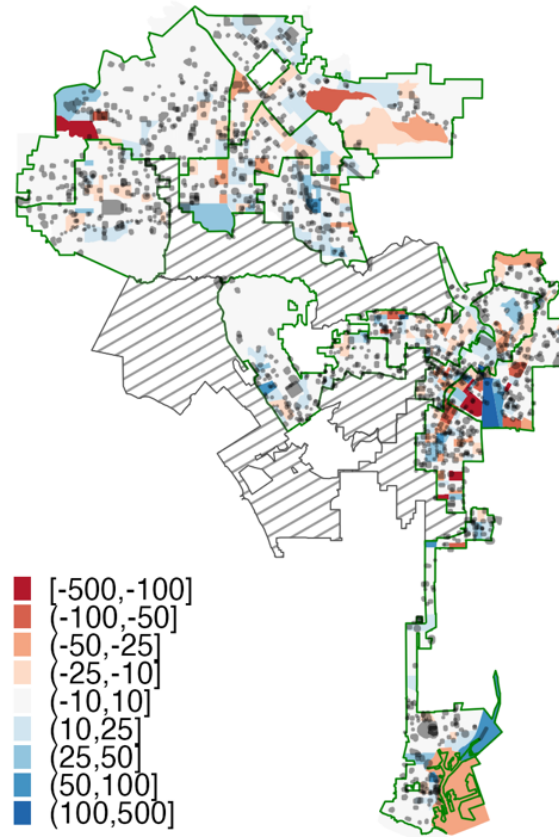
PIT=Point-In-Time
Note: Enforcing Council District (CD) is defined as one where its Councilmember had previously introduced an LAMC 41.18 enforcement zone by resolution in the past. Boundaries in these maps are for Council Districts; Council Districts outlined in green are enforcing CDs.

Appendix 1-6. Map of active Los Angeles Municipal Code (LAMC) 41.18 enforcement zones introduced by resolution, overlaid on changes to the Point-In-Time (PIT) of visible unsheltered homelessness

Enforcement zones
introduced by resolution
prior to the 2022 PIT Count
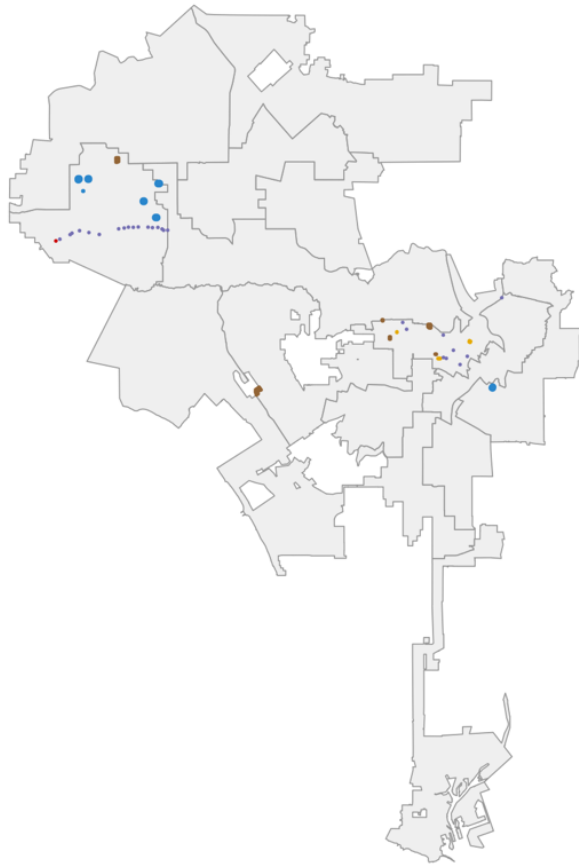
Enforcement zones
introduced by resolution
prior to the 2023 PIT Count
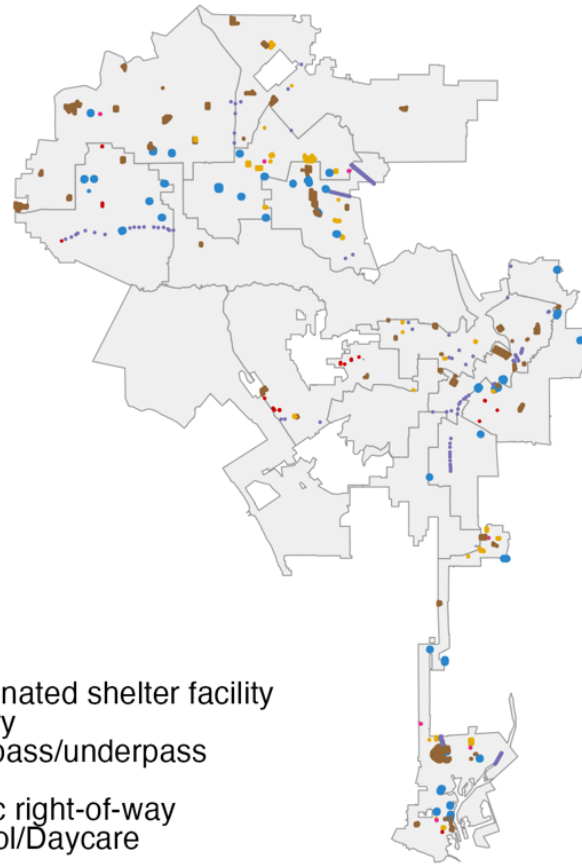
Designated shelter facility
Library
Overpass/underpass
Park
Public right-of-way
School/Daycare

Change in visible unsheltered
count in 2022 from 2020

Change in visible unsheltered
count in 2023 from 2022

[-500,-100]
(-100,-50]
(-50,-25]
(-25,-10]
(-10,10]
(10,25]
(25,50]
(50,100]
(100,500]
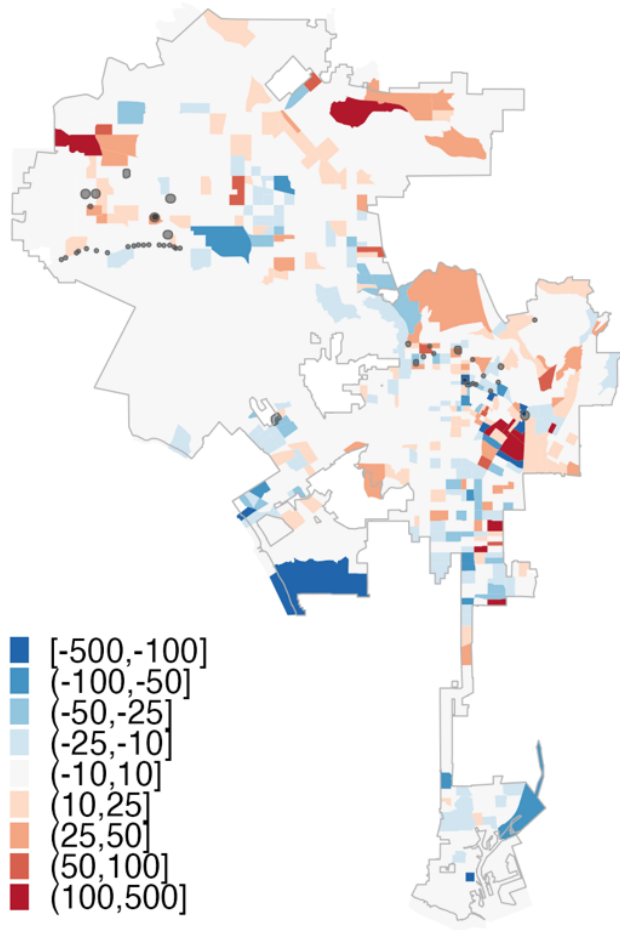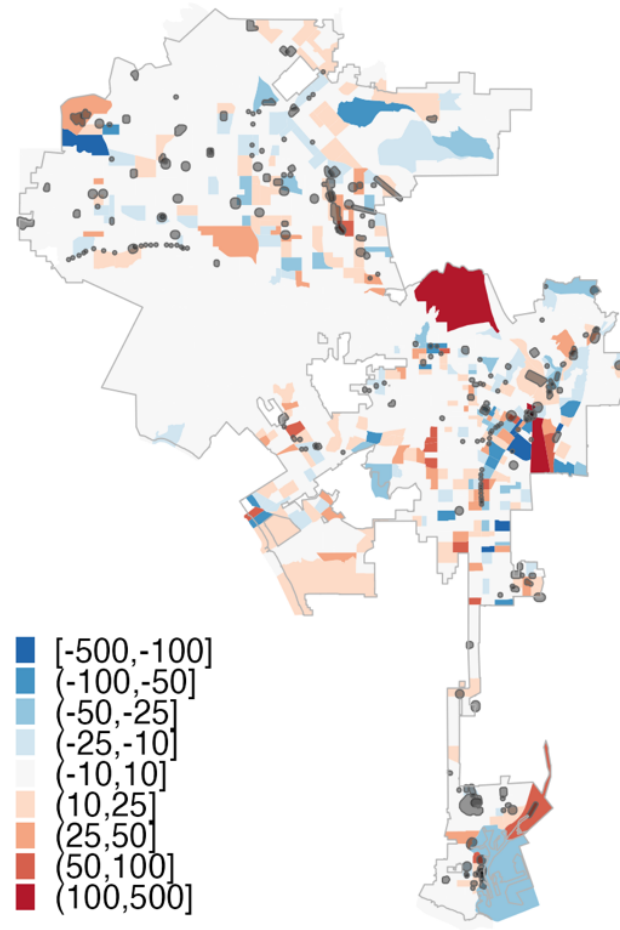
Note: Dark grey dots correspond to active 41.18 enforcement zones introduced by resolution at the time of that year's PIT Count.

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Appendix 1-7. Descriptive statistics of the number of visibly unsheltered persons at the census tract level in the City of Los Angeles from 2017-2023 (N=1,003 tracts)*

Year	Total count	Mean (SD) per tract	Median (IQR) per tract	Maximum per tract	Percent tracts with ≥1 unsheltered person	Global spatial autocorrelation**
2017	13,779	13.7 (48.02)	4.4 (11.41)	1,169	78.1	0.34
2018	12,771	12.4 (51.40)	4 (10.19)	1,320	78.9	0.36
2019	15,386	15.3 (53.68)	5 (12.28)	1,230	77.7	0.41
2020	16,359	16.3 (49.17)	5 (14.00)	1,062	81.8	0.40
2022	16,558	16.5 (57.00)	4.4 (14.29)	1,261	75.4	0.44
2023	16,813	16.8 (51.78)	6.5 (15.81)	1,265	83.4	0.42

IQR=Interquartile Range; SD=Standard Deviation
*Excludes the tract in Venice with known error in its Point-In-Time (PIT) Count estimate in 2022.
**Global Moran's I statistic calculated using a "queen" neighborhood structure and a binary weight matrix specification. Much like correlation coefficients, scores are between -1 and 1; 1 determines perfect positive spatial autocorrelation (i.e., geographically nearby values are similar), 0 identifies the data as randomly distributed, and -1 represents negative spatial autocorrelation (i.e., neighbors of locations with large values have small values and vice versa).

Appendix 1-8. Choropleth maps of the number of unsheltered persons at the census tract level in the Los Angeles Continuum of Care from 2018-2022 (N=2163 tracts)

PIT=Point-In-Time
Note: The legend breaks were calculated using the Jenks natural breaks optimization, which seeks to reduce the variance within classes and maximize the variance between classes. The dark grey lines in each map correspond to the borders of the City of LA.

2017 PIT Count of visible unsheltered persons
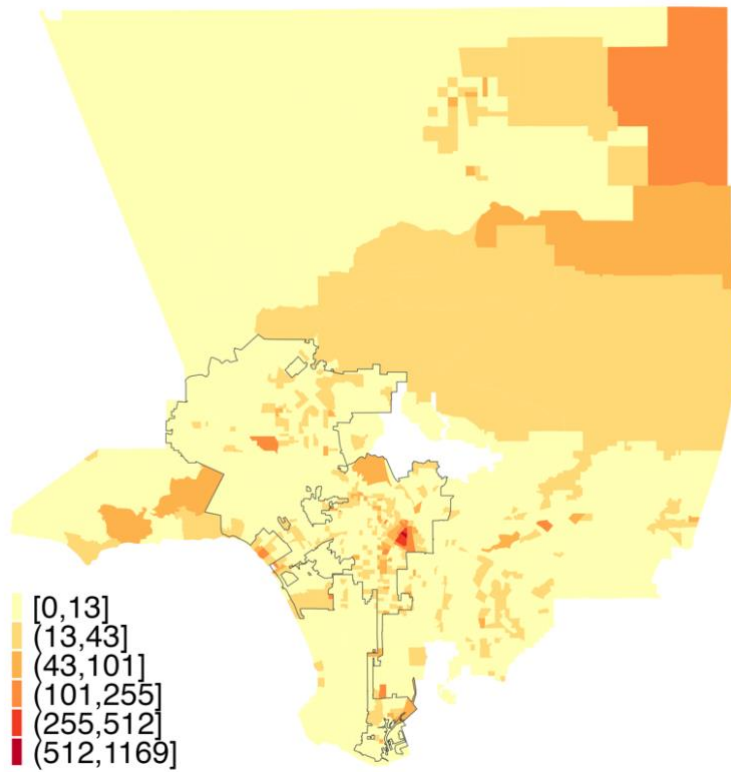
[0,13]
(13,43]
(43,101]
(101,255]
(255,512]
(512,1169]

2018 PIT Count of visible unsheltered persons

[0,13]
(13,45]
(45,127]
(127,294]
(294,579]
(579,1320]

2019 PIT Count of visible unsheltered persons

[0,11]
(11,41]
(41,100]
(100,291]
(291,639]
(639,1230]

2020 PIT Count of visible unsheltered persons

[0,21]
(21,80]
(80,160]
(160,262]
(262,644]
(644,1062]
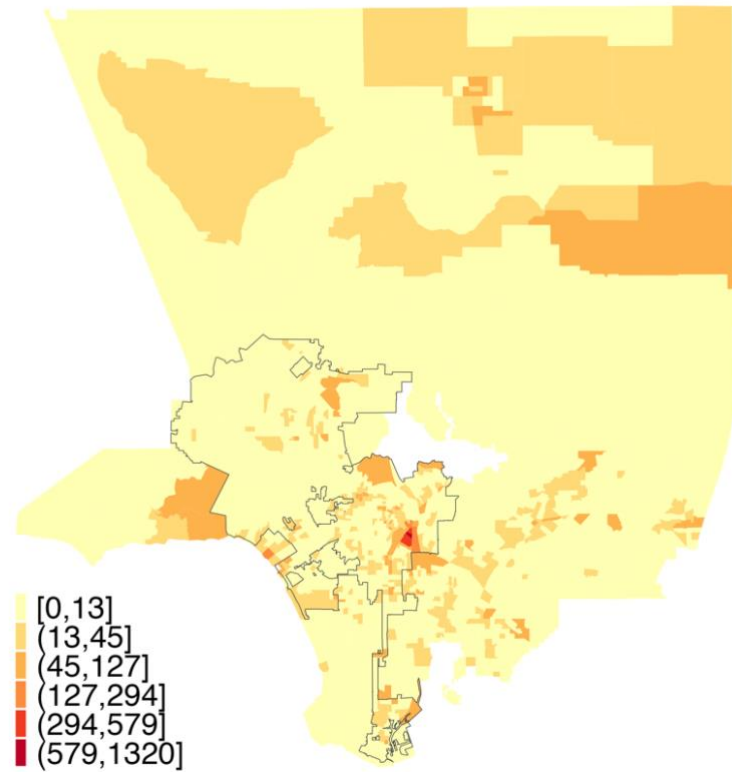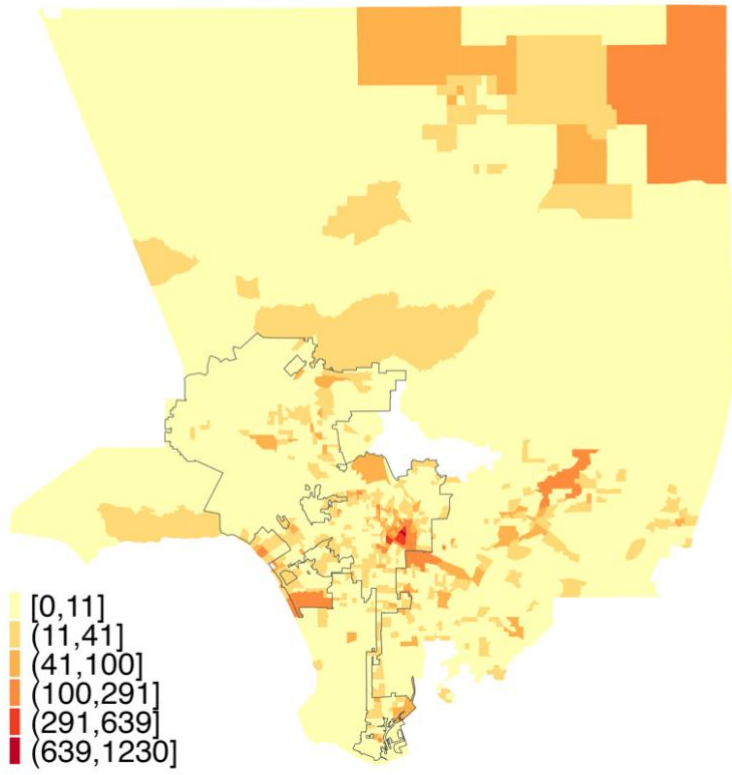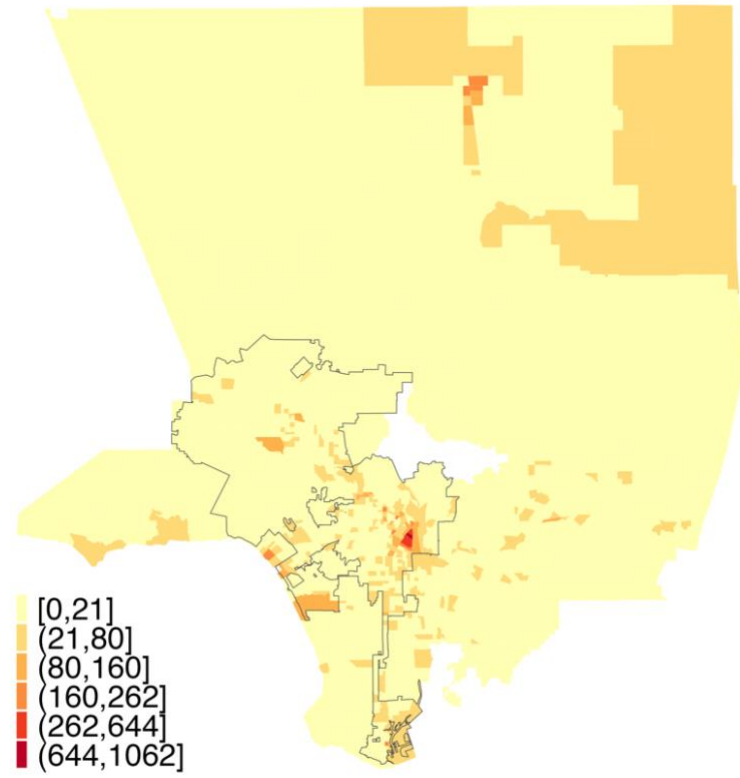
2022 PIT Count of visible unsheltered persons

2023 PIT Count of visible unsheltered persons

[0,15]
(15,50]
(50,130]
(130,246]
(246,726]
(726,1261]

[0,15]
(15,48]
(48,113]
(113,293]
(293,607]
(607,1265]
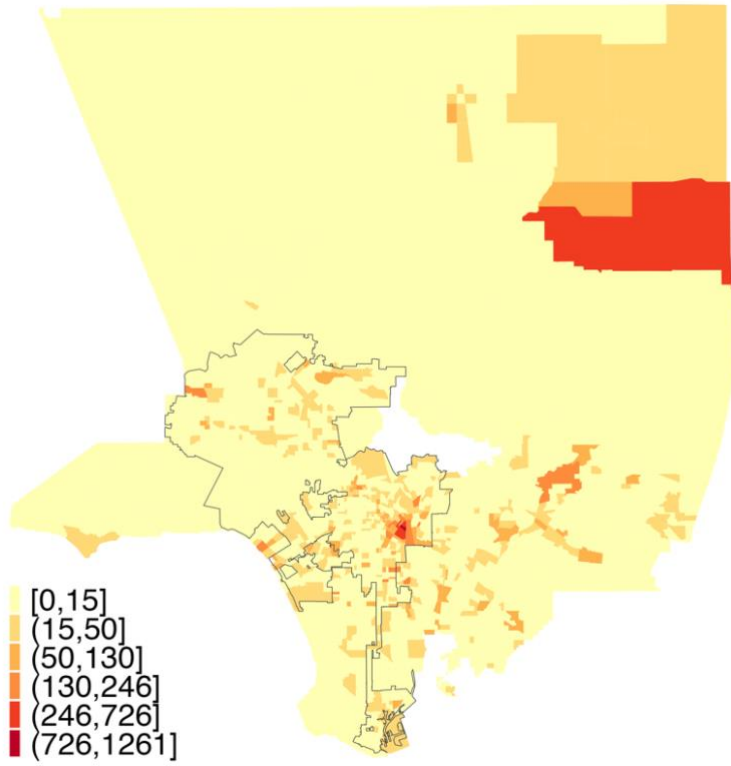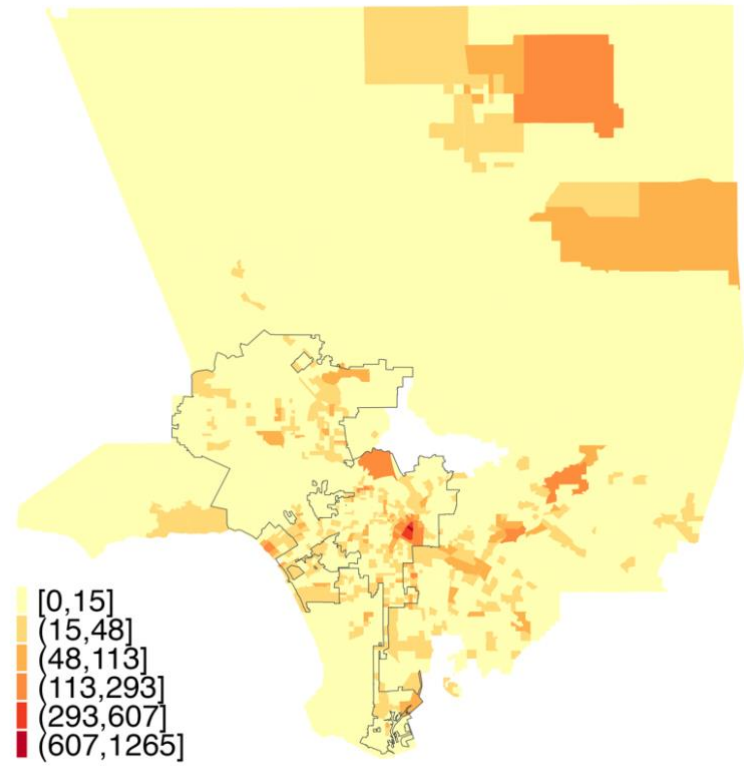
Appendix 1-9. Results from multivariable Poisson GEE regression models examining the associations between neighborhood characteristics and count of the total visible unsheltered population from 2017-2023

Neighborhood characteristic	Unstandardized CR [95% CI]	Standardized CR [95% CI]	p-value
All tracts in LA County (N=2134)			
Racially concentrated areas			<0.001
Concentrated area of poverty (RG)	----	----	
Neither	0.83 [0.73, 0.95]**	0.83 [0.73, 0.95]**	0.008
Concentrated area of affluence	0.58 [0.45, 0.75]***	0.58 [0.45, 0.75]***	<0.001
Gentrifying/Gentrified	1.09 [0.87, 1.37]	1.09 [0.87, 1.37]	0.450
% Owner-occupied housing	0.99 [0.99, 1.00]***	0.85 [0.78, 0.92]***	<0.001
% Residential land	0.98 [0.98, 0.98]***	0.73 [0.69, 0.79]***	<0.001
% Vacant housing	1.02 [1.01, 1.03]**	1.12 [1.05, 1.20]**	0.001
% Parks/open space	1.00 [1.00, 1.01]	1.06 [0.96, 1.16]	0.239
Bridge coverage	1.03 [1.01, 1.04]***	1.18 [1.08, 1.30]***	<0.001
Railway coverage	1.27 [1.06, 1.51]**	1.10 [1.03, 1.18]**	0.008
Freeway coverage	1.00 [0.99, 1.01]	0.97 [0.91, 1.04]	0.427
Access to shelters	1.30 [1.23, 1.38]***	1.17 [1.13, 1.22]***	<0.001
Access to food assistance	1.07 [1.02, 1.14]*	1.07 [1.01, 1.12]*	0.013
Access to public libraries	1.01 [0.89, 1.15]	1.01 [0.94, 1.07]	0.862
Access to health services	1.00 [0.94, 1.05]	1.00 [0.94, 1.05]	0.875
Time	1.04 [1.03, 1.05]***	1.04 [1.03, 1.05]***	<0.001
Changed census tract boundary	0.95 [0.82, 1.09]	0.95 [0.82, 1.09]	0.448
Tracts in the City of LA (N=991)			
Racially concentrated areas			0.010
Concentrated area of poverty (RG)	----	----	
Neither	0.91 [0.79, 1.06]	0.92 [0.79, 1.06]	0.258
Concentrated area of affluence	0.62 [0.45, 0.84]**	0.62 [0.45, 0.84]**	0.002
Gentrifying/Gentrified	1.07 [0.90, 1.28]	1.07 [0.90, 1.28]	0.412
% Owner-occupied housing	1.00 [0.99, 1.00]	0.96 [0.88, 1.05]	0.350
% Residential land	0.99 [0.98, 0.99]***	0.80 [0.75, 0.86]***	<0.001
% Vacant housing	1.00 [0.98, 1.02]	0.99 [0.91, 1.09]	0.880
% Parks/open space	1.01 [1.00, 1.01]	1.06 [0.98, 1.14]	0.171
Bridge coverage	1.02 [1.01, 1.04]**	1.15 [1.06, 1.24]**	0.001
Railway coverage	1.29 [1.14, 1.46]***	1.12 [1.06, 1.18]***	<0.001
Freeway coverage	0.98 [0.93, 1.04]	0.95 [0.85, 1.07]	0.391
Access to shelters	1.28 [1.22, 1.34]***	1.23 [1.18, 1.28]***	<0.001
Access to food assistance	1.05 [1.01, 1.10]*	1.06 [1.00, 1.12]*	0.032
Access to public libraries	0.96 [0.83, 1.11]	0.98 [0.91, 1.05]	0.561
Access to health services	1.01 [0.96, 1.06]	1.01 [0.95, 1.07]	0.793
Prior year arrest rate (ln)	1.11 [1.02, 1.21]*	1.13 [1.03, 1.25]**	0.008
Prior year 311 calls rate (ln)	1.29 [1.22, 1.35]***	1.60 [1.47, 1.75]***	<0.001
Time	1.02 [0.99, 1.04]	1.04 [1.02, 1.06]***	<0.001
Changed census tract boundary	1.17 [0.99, 1.37]	1.17 [1.00, 1.37]	0.051

* p<0.05   ** p<0.01   ***p<0.001

GEE=Generalized Estimating Equations; CR=Count Ratio; CI=Confidence Interval; RG=Reference Group.

Note: Time is coded as a linear/continuous term, with 2017=0 & 2023=6.

Appendix 1-10. Results from multivariable Poisson GEE regression models examining the associations between neighborhood characteristics and the rate of change in the count of the total visible unsheltered population from 2017-2023

Neighborhood characteristic	All tracts in LA County (N=2134)		Tracts in the City of LA (N=991)	
	Std CR [95% CI]	p-value	Std CR [95% CI]	p-value
Racially concentrated areas				
Concentrated area of poverty (RG)	----		----	
Neither	0.73 [0.62, 0.87]***	<0.001	0.83 [0.68, 1.00]*	0.048
x time	1.04 [1.01, 1.07]*	0.013	1.04 [1.00, 1.08]	0.070
Concentrated area of affluence	0.62 [0.45, 0.87]**	0.005	0.66 [0.44, 0.98]*	0.037
x time	0.98 [0.93, 1.03]	0.425	0.98 [0.92, 1.05]	0.620
Gentrifying/Gentrified	1.00 [0.78, 1.29]	0.985	0.94 [0.79, 1.12]	0.492
x time	1.03 [1.00, 1.06]	0.092	1.04 [1.01, 1.08]*	0.022
% Owner-occupied housing	0.83 [0.74, 0.93]**	0.001	0.93 [0.83, 1.04]	0.184
x time	1.01 [0.98, 1.03]	0.565	1.01 [0.99, 1.04]	0.364
% Residential land	0.75 [0.69, 0.80]***	<0.001	0.88 [0.81, 0.95]**	0.002
x time	1.00 [0.98, 1.01]	0.381	0.97 [0.96, 0.99]***	<0.001
% Vacant housing	1.17 [1.08, 1.28]***	<0.001	0.95 [0.85, 1.06]	0.330
x time	0.98 [0.97, 1.00]	0.059	1.01 [0.99, 1.03]	0.222
% Parks/open space	1.09 [0.96, 1.23]	0.187	1.07 [0.95, 1.21]	0.253
x time	0.99 [0.97, 1.01]	0.423	0.99 [0.97, 1.02]	0.569
Bridge coverage	1.18 [1.07, 1.31]**	0.002	1.12 [1.04, 1.20]**	0.003
x time	1.00 [0.99, 1.01]	0.930	1.01 [1.00, 1.02]	0.209
Railway coverage	1.06 [0.98, 1.15]	0.157	1.10 [1.04, 1.16]**	0.001
x time	1.01 [1.00, 1.02]*	0.021	1.01 [1.00, 1.01]	0.234
Freeway coverage	0.97 [0.92, 1.03]	0.380	0.91 [0.80, 1.03]	0.148
x time	1.00 [0.99, 1.01]	0.989	1.01 [0.99, 1.03]	0.255
Access to shelters	1.15 [1.10, 1.21]***	<0.001	1.18 [1.12, 1.25]***	<0.001
x time	1.01 [1.00, 1.01]	0.093	1.01 [1.00, 1.02]*	0.016
Access to food assistance	1.09 [1.02, 1.17]*	0.011	1.06 [0.98, 1.14]	0.130
x time	0.99 [0.98, 1.00]	0.176	1.00 [0.98, 1.01]	0.741
Access to public libraries	1.03 [0.95, 1.11]	0.488	0.98 [0.90, 1.07]	0.663
x time	0.99 [0.98, 1.00]	0.168	1.00 [0.99, 1.01]	0.772
Access to health services	1.02 [0.96, 1.08]	0.590	1.06 [0.99, 1.13]	0.080
x time	0.99 [0.98, 1.00]	0.172	0.99 [0.97, 1.00]*	0.029
Prior year arrest rate (ln)			1.34 [1.18, 1.51]***	<0.001
x time			0.96 [0.93, 0.98]***	<0.001
Prior year 311 calls rate (ln)			1.75 [1.55, 1.98]***	<0.001
x time			0.98 [0.95, 1.01]	0.130
Time	1.02 [0.99, 1.05]	0.146	1.03 [1.00, 1.07]	0.077
Changed census tract boundary	0.95 [0.82, 1.09]	0.452	1.18 [1.00, 1.38]	0.045

* p<0.05 ** p<0.01 ***p<0.001
GEE=Generalized Estimating Equations; Std CR=Standardized Count Ratio; CI=Confidence Interval; RG=Reference Group.
Note: Time is coded as a linear/continuous term, with 2017=0 & 2023=6.

Appendix 1-11. Results from multivariable Poisson GEE regression models examining the differences in the associations between neighborhood characteristics and count of the total visible unsheltered population before the implementation of LAMC41.18 (2017-2020) versus

Neighborhood characteristic	All tracts in LA County (N=2134)		Tracts in the City of LA (N=991)	
	Std CR [95% CI]	p-value	Std CR [95% CI]	p-value
Racially concentrated areas				
Concentrated area of poverty (RG)				
Neither	0.78 [0.66, 0.92]**	0.003	0.86 [0.73, 1.03]	0.101
x policy period	1.17 [0.95, 1.43]	0.141	1.18 [0.95, 1.47]	0.130
Concentrated area of affluence	0.62 [0.46, 0.83]**	0.002	0.66 [0.46, 0.96]*	0.028
x policy period	0.87 [0.65, 1.17]	0.365	0.88 [0.58, 1.33]	0.545
Gentrifying/Gentrified	1.04 [0.82, 1.32]	0.738	0.99 [0.83, 1.19]	0.940
x policy period	1.12 [0.94, 1.34]	0.219	1.19 [0.98, 1.44]	0.073
% Owner-occupied housing	0.83 [0.76, 0.92]***	<0.001	0.95 [0.86, 1.05]	0.321
x policy period	1.04 [0.94, 1.15]	0.469	1.02 [0.90, 1.16]	0.754
% Residential land	0.73 [0.69, 0.79]***	<0.001	0.84 [0.78, 0.91]***	<0.001
x policy period	1.00 [0.94, 1.06]	0.994	0.91 [0.83, 0.99]*	0.031
% Vacant housing	1.14 [1.06, 1.23]**	0.001	0.96 [0.87, 1.06]	0.432
x policy period	0.95 [0.89, 1.02]	0.152	1.05 [0.95, 1.17]	0.303
% Parks/open space	1.07 [0.97, 1.19]	0.177	1.05 [0.96, 1.15]	0.270
x policy period	0.97 [0.89, 1.05]	0.414	0.99 [0.91, 1.08]	0.876
Bridge coverage	1.17 [1.06, 1.29]**	0.002	1.11 [1.04, 1.20]**	0.004
x policy period	1.03 [0.98, 1.08]	0.283	1.07 [1.01, 1.12]*	0.017
Railway coverage	1.08 [0.99, 1.17]	0.078	1.11 [1.04, 1.17]**	0.001
x policy period	1.05 [0.99, 1.10]	0.086	1.03 [0.97, 1.08]	0.340
Freeway coverage	0.96 [0.91, 1.01]	0.147	0.93 [0.83, 1.05]	0.274
x policy period	1.03 [0.95, 1.10]	0.474	1.00 [0.90, 1.11]	0.967
Access to shelters	1.15 [1.10, 1.20]***	<0.001	1.19 [1.13, 1.25]***	<0.001
x policy period	1.06 [1.01, 1.11]*	0.014	1.09 [1.03, 1.16]**	0.003
Access to food assistance	1.09 [1.02, 1.15]**	0.006	1.07 [1.00, 1.13]*	0.036
x policy period	0.96 [0.90, 1.01]	0.105	0.96 [0.90, 1.03]	0.247
Access to public libraries	1.03 [0.96, 1.11]	0.447	0.99 [0.91, 1.07]	0.738
x policy period	0.96 [0.91, 1.01]	0.110	0.97 [0.92, 1.03]	0.312
Access to health services	1.01 [0.95, 1.08]	0.702	1.04 [0.97, 1.11]	0.235
x policy period	0.96 [0.89, 1.04]	0.345	0.94 [0.86, 1.03]	0.180
Prior year arrest rate (ln)			1.25 [1.13, 1.38]***	<0.001
x policy period			0.86 [0.76, 0.98]*	0.019
Prior year 311 calls rate (ln)			1.72 [1.56, 1.89]***	<0.001
x policy period			0.90 [0.79, 1.03]	0.132
Policy period	1.01 [0.82, 1.24]	0.928	1.03 [0.85, 1.26]	0.754
Changed census tract boundary	0.96 [0.83, 1.10]	0.527	1.18 [1.01, 1.39]*	0.037

* p<0.05   ** p<0.01   ***p<0.001

GEE=Generalized Estimating Equations; Std CR=Standardized Count Ratio; CI=Confidence Interval; RG=Reference Group.

Note: Policy period is an indicator variable for whether the time/year observation was in the pre-policy period before Los Angeles Municipal Code (LAMC) 41.18 was implemented (years 2017-2020=0) or post-policy period (years 2022-2023=1).

Appendix 1-12. Results from multivariable Poisson GEE regression models examining the associations between neighborhood characteristics and count of the total visible unsheltered population before the implementation of LAMC41.18 (2017-2020) versus after (2022-2023)

Neighborhood characteristic	Pre-policy period (2017-2020)		Post-policy period (2022-2023)	
	Std CR [95% CI]	p-value	Std CR [95% CI]	p-value
All tracts in LA County (N=2134)				
Racially concentrated areas				
Concentrated area of poverty (RG)				
Neither	0.78 [0.64, 0.95]**	0.007	0.91 [0.73, 1.12]	0.517
Concentrated area of affluence	0.62 [0.43, 0.89]**	0.005	0.54 [0.38, 0.77]***	<0.001
Gentrifying/Gentrified	1.04 [0.82, 1.32]	0.738	1.17 [0.91, 1.50]	0.232
% Owner-occupied housing	0.83 [0.76, 0.92]***	<0.001	0.87 [0.78, 0.96]**	0.007
% Residential land	0.73 [0.69, 0.79]***	<0.001	0.73 [0.68, 0.80]***	<0.001
% Vacant housing	1.14 [1.06, 1.23]***	<0.001	1.09 [1.01, 1.17]*	0.023
% Parks/open space	1.07 [0.97, 1.19]	0.177	1.04 [0.94, 1.15]	0.489
Bridge coverage	1.17 [1.06, 1.29]**	0.002	1.20 [1.10, 1.32]***	<0.001
Railway coverage	1.08 [0.99, 1.17]	0.078	1.13 [1.05, 1.21]**	0.001
Freeway coverage	0.96 [0.91, 1.01]	0.147	0.99 [0.90, 1.08]	0.773
Access to shelters	1.15 [1.10, 1.20]***	<0.001	1.21 [1.16, 1.27]***	<0.001
Access to food assistance	1.09 [1.02, 1.15]**	0.006	1.04 [0.98, 1.10]	0.209
Access to public libraries	1.03 [0.96, 1.11]	0.447	0.99 [0.92, 1.05]	0.646
Access to health services	1.01 [0.95, 1.08]	0.702	0.98 [0.91, 1.04]	0.474
Tracts in the City of LA (N=991)				
Racially concentrated areas				
Concentrated area of poverty (RG)				
Neither	0.86 [0.70, 1.06]	0.230	1.02 [0.81, 1.29]	0.970
Concentrated area of affluence	0.66 [0.42, 1.03]	0.072	0.58 [0.37, 0.91]*	0.014
Gentrifying/Gentrified	0.99 [0.83, 1.19]	0.940	1.18 [0.96, 1.46]	0.121
% Owner-occupied housing	0.95 [0.86, 1.05]	0.321	0.97 [0.86, 1.10]	0.623
% Residential land	0.84 [0.78, 0.91]***	<0.001	0.77 [0.71, 0.83]***	<0.001
% Vacant housing	0.96 [0.87, 1.06]	0.432	1.01 [0.91, 1.12]	0.814
% Parks/open space	1.05 [0.96, 1.15]	0.270	1.05 [0.96, 1.14]	0.319
Bridge coverage	1.11 [1.04, 1.20]**	0.004	1.19 [1.09, 1.30]***	<0.001
Railway coverage	1.11 [1.04, 1.17]***	<0.001	1.13 [1.06, 1.21]***	<0.001
Freeway coverage	0.93 [0.83, 1.05]	0.274	0.94 [0.82, 1.07]	0.344
Access to shelters	1.19 [1.13, 1.25]***	<0.001	1.30 [1.23, 1.37]***	<0.001
Access to food assistance	1.07 [1.00, 1.13]*	0.036	1.02 [0.96, 1.09]	0.465
Access to public libraries	0.99 [0.91, 1.07]	0.738	0.96 [0.89, 1.04]	0.276
Access to health services	1.04 [0.97, 1.11]	0.235	0.98 [0.90, 1.07]	0.616
Prior year arrest rate (ln)	1.25 [1.13, 1.38]***	<0.001	1.07 [0.95, 1.21]	0.240
Prior year 311 calls rate (ln)	1.72 [1.56, 1.89]***	<0.001	1.55 [1.39, 1.73]***	<0.001

* $p<0.05$ ** $p<0.01$ *** $p<0.001$

GEE=Generalized Estimating Equations; Std CR=Standardized Count Ratio; CI=Confidence Interval; RG=Reference Group.

Note: Regression coefficients for the post policy period was calculated from the linear combinations of the regression coefficient for the neighborhood characteristics and its interaction with an indicator for policy period (pre-policy=0, post-policy=1) in Appendix 1-11. Coefficients are interpreted at the mean levels for all other covariates.

Appendix 1-13. Results from multivariable Poisson GEE regression models examining the differences in the associations between neighborhood characteristics and the rate of change in the count of the total visible unsheltered population, by policy period

Neighborhood characteristic	All tracts in LA County (N=2134)		Tracts in the City of LA (N=991)	
	Std CR [95% CI]	p-value	Std CR [95% CI]	p-value
Racially concentrated areas				
Concentrated area of poverty (RG)				
Neither	0.75 [0.63, 0.90]**	0.002	0.84 [0.69, 1.02]	0.077
x policy period	1.20 [0.95, 1.53]	0.131	1.26 [0.94, 1.68]	0.115
x time	1.02 [0.94, 1.10]	0.672	1.02 [0.94, 1.11]	0.608
x policy period x time	1.02 [0.82, 1.26]	0.886	0.92 [0.70, 1.22]	0.567
Concentrated area of affluence	0.60 [0.43, 0.85]**	0.004	0.63 [0.43, 0.92]*	0.017
x policy period	0.89 [0.61, 1.29]	0.535	0.91 [0.55, 1.51]	0.723
x time	1.02 [0.90, 1.15]	0.800	1.03 [0.89, 1.20]	0.706
x policy period x time	1.03 [0.75, 1.41]	0.845	1.06 [0.66, 1.69]	0.814
Gentrifying/Gentrified	0.98 [0.76, 1.28]	0.905	0.91 [0.76, 1.09]	0.299
x policy period	1.28 [1.04, 1.57]*	0.020	1.45 [1.14, 1.84]**	0.003
x time	1.05 [0.99, 1.12]	0.135	1.07 [0.99, 1.16]	0.087
x policy period x time	0.86 [0.71, 1.04]	0.111	0.80 [0.64, 1.00]*	0.049
% Owner-occupied housing	0.85 [0.75, 0.97]*	0.012	0.92 [0.80, 1.04]	0.184
x policy period	0.99 [0.85, 1.16]	0.942	1.05 [0.87, 1.27]	0.623
x time	0.99 [0.94, 1.04]	0.593	1.02 [0.96, 1.08]	0.535
x policy period x time	1.05 [0.93, 1.19]	0.399	1.01 [0.85, 1.20]	0.895
% Residential land	0.75 [0.69, 0.81]***	<0.001	0.88 [0.81, 0.96]**	0.003
x policy period	0.98 [0.90, 1.06]	0.600	0.88 [0.79, 0.99]*	0.029
x time	0.99 [0.97, 1.01]	0.240	0.98 [0.95, 1.01]	0.193
x policy period x time	0.99 [0.92, 1.07]	0.796	0.99 [0.89, 1.09]	0.786
% Vacant housing	1.18 [1.07, 1.29]**	0.001	0.97 [0.87, 1.08]	0.541
x policy period	0.91 [0.81, 1.02]	0.090	1.03 [0.88, 1.20]	0.749
x time	0.98 [0.95, 1.01]	0.194	0.99 [0.95, 1.04]	0.810
x policy period x time	1.03 [0.95, 1.12]	0.455	1.04 [0.91, 1.19]	0.571
% Parks/open space	1.11 [0.97, 1.26]	0.122	1.09 [0.96, 1.25]	0.183
x policy period	0.88 [0.76, 1.01]	0.076	0.94 [0.80, 1.10]	0.417
x time	0.97 [0.94, 1.00]	0.050	0.98 [0.93, 1.02]	0.317
x policy period x time	1.13 [1.01, 1.26]*	0.035	1.04 [0.94, 1.16]	0.443
Bridge coverage	1.21 [1.09, 1.34]***	<0.001	1.15 [1.07, 1.24]***	<0.001
x policy period	0.98 [0.91, 1.06]	0.685	1.02 [0.95, 1.10]	0.546
x time	0.98 [0.96, 1.00]*	0.034	0.98 [0.96, 1.00]	0.092
x policy period x time	1.02 [0.95, 1.09]	0.629	1.01 [0.95, 1.07]	0.748
Railway coverage	1.07 [0.98, 1.16]	0.138	1.11 [1.05, 1.17]***	<0.001
x policy period	1.07 [1.00, 1.14]*	0.048	1.02 [0.96, 1.08]	0.526
x time	1.01 [0.99, 1.02]	0.397	1.00 [0.98, 1.02]	0.809
x policy period x time	0.98 [0.93, 1.04]	0.575	1.01 [0.96, 1.07]	0.715
Freeway coverage	0.97 [0.91, 1.03]	0.334	0.89 [0.78, 1.02]	0.100
x policy period	1.04 [0.98, 1.11]	0.164	1.03 [0.89, 1.19]	0.685
x time	1.00 [0.97, 1.02]	0.875	1.02 [0.98, 1.07]	0.260
x policy period x time	0.92 [0.83, 1.02]	0.119	1.03 [0.92, 1.16]	0.610
Access to shelters	1.16 [1.11, 1.22]***	<0.001	1.21 [1.13, 1.28]***	<0.001
x policy period	1.06 [0.99, 1.12]	0.076	1.11 [1.02, 1.20]*	0.017
x time	0.99 [0.98, 1.01]	0.491	1.00 [0.97, 1.02]	0.707
x policy period x time	0.97 [0.92, 1.02]	0.244	0.95 [0.87, 1.03]	0.180

Access to food assistance	1.09 [1.01, 1.17]*	0.021	1.05 [0.97, 1.14]	0.215
x policy period	0.94 [0.87, 1.02]	0.116	0.94 [0.85, 1.04]	0.240
x time	1.00 [0.98, 1.02]	0.685	1.00 [0.97, 1.03]	0.880
x policy period x time	1.03 [0.97, 1.10]	0.355	1.07 [0.97, 1.17]	0.165
Access to public libraries	1.02 [0.94, 1.10]	0.612	0.98 [0.90, 1.06]	0.588
x policy period	0.96 [0.91, 1.02]	0.223	0.96 [0.90, 1.03]	0.228
x time	1.00 [0.98, 1.03]	0.666	1.00 [0.98, 1.02]	0.830
x policy period x time	1.01 [0.96, 1.07]	0.701	1.05 [0.97, 1.14]	0.250
Access to health services	1.00 [0.94, 1.07]	0.918	1.03 [0.95, 1.11]	0.429
x policy period	0.99 [0.92, 1.06]	0.714	0.98 [0.88, 1.09]	0.695
x time	1.01 [0.98, 1.04]	0.609	1.01 [0.97, 1.05]	0.647
x policy period x time	0.98 [0.91, 1.05]	0.546	0.94 [0.84, 1.05]	0.247
Prior year arrest rate (ln)			1.33 [1.15, 1.52]***	<0.001
x policy period			0.83 [0.69, 1.00]	0.050
x time			0.97 [0.92, 1.03]	0.313
x policy period x time			0.96 [0.82, 1.12]	0.576
Prior year 311 calls rate (ln)			1.70 [1.48, 1.94]***	<0.001
x policy period			0.94 [0.78, 1.15]	0.567
x time			1.01 [0.94, 1.07]	0.872
x policy period x time			0.95 [0.80, 1.13]	0.574
Policy period	1.06 [0.85, 1.34]	0.604	1.06 [0.83, 1.37]	0.626
Time	1.04 [0.96, 1.12]	0.392	1.04 [0.97, 1.12]	0.264
Policy period x time	1.08 [0.88, 1.32]	0.487	1.12 [0.88, 1.42]	0.359
Changed census tract boundary	0.96 [0.83, 1.10]	0.543	1.18 [1.01, 1.38]	0.041

* p<0.05   ** p<0.01   ***p<0.001

GEE=Generalized Estimating Equations; Std CR=Standardized Count Ratio; CI=Confidence Interval; RG=Reference Group.

Note: Policy period is an indicator variable for whether the time/year observation was in the pre-policy period before Los Angeles Municipal Code (LAMC) 41.18 was implemented (years 2017-2020=0) or post-policy period (years 2022-2023=1). Time is a linear term that is specific to the policy period (2017 & 2022=0; 2018 & 2023=1, etc.).

Appendix 1-14. Results from multivariable logistic regression models examining the associations between neighborhood characteristics and having a Los Angeles Municipal Code (LAMC) 41.18 enforcement zone among tracts in the City of Los Angeles (N=991)

Neighborhood characteristic	Had an enforcement zone introduced by resolution		Had any enforcement zone	
	Std OR [95% CI]	p-value	Std OR [95% CI]	p-value
Racially concentrated areas		0.782		0.4
Concentrated area of poverty (RG)	-----	-----		
Neither	0.92 [0.60, 1.42]	0.708	1.02 [0.69, 1.51]	0.925
Concentrated area of affluence	0.79 [0.40, 1.53]	0.484	0.70 [0.37, 1.35]	0.286
Gentrifying/Gentrified	1.04 [0.66, 1.61]	0.858	0.87 [0.59, 1.31]	0.506
% Owner-occupied housing	1.39 [1.06, 1.82]*	0.016	1.65 [1.29, 2.12]***	<0.001
% Residential land	0.97 [0.76, 1.24]	0.789	0.74 [0.55, 0.96]*	0.032
% Vacant housing	0.69 [0.54, 0.87]**	0.002	0.84 [0.69, 1.03]	0.091
% Parks/open space	1.23 [0.98, 1.53]	0.073	0.79 [0.64, 0.96]*	0.020
Bridge coverage	1.15 [0.94, 1.41]	0.165	1.22 [0.87, 1.82]	0.298
Railway coverage	1.04 [0.88, 1.23]	0.674	1.13 [0.90, 1.47]	0.346
Freeway coverage	1.29 [1.03, 1.61]*	0.023	1.43 [1.04, 2.02]*	0.035
Access to shelters	0.94 [0.76, 1.13]	0.506	0.96 [0.80, 1.18]	0.714
Access to food assistance	0.96 [0.78, 1.19]	0.740	0.97 [0.80, 1.18]	0.745
Access to public libraries	1.16 [0.98, 1.37]	0.076	1.09 [0.92, 1.30]	0.314
Access to health services	1.15 [0.95, 1.38]	0.142	1.18 [0.98, 1.42]	0.085
2019 arrest rate (ln)[+]	1.33 [1.01, 1.77]*	0.049	1.27 [1.01, 1.61]*	0.040
2019 311 calls rate (ln) [+]	2.18 [1.64, 2.94]***	<0.001	1.14 [0.93, 1.38]	0.196
2020 visible unsheltered count[+]	1.15 [0.95, 1.43]	0.169	1.02 [0.82, 1.47]	0.868

* p<0.05   ** p<0.01   ***p<0.001
OR=Odds Ratio; CI=Confidence Interval; RG=Reference Group.
[+]Observation for the year prior to the reinstatement of LAMC 41.18. 2019 was chosen for the policing variables to avoid potential impacts of COVID-19 impacts on policing.

Appendix 1-15. Distribution of neighborhood characteristics by treatment assignment in tracts in the City of Los Angeles (N=991)

Neighborhood characteristic	Treated Mean (N=962)	Control Mean (N=40)	Mean difference	t-test of difference	KS statistics
Racially concentrated area of poverty	0.36	0.39	-0.03	0.714	
Gentrifying/Gentrified	0.20	0.16	0.05	0.469	
% Owner-occupied housing	37.73	33.77	0.09	0.378	0.176
% Residential land	88.13	88.98	0.03	0.668	0.706
% Vacant housing	6.78	7.90	-0.14	0.187	0.118
% Parks/open space	2.99	5.32	-0.65	0.211	0.570
Bridge coverage	2.22	1.11	0.22	0.008	0.346
Railway coverage	0.12	0.15	-0.05	0.755	0.632
Freeway coverage	0.93	0.48	0.25	0.006	0.262
Access to shelters	0.32	0.26	0.08	0.548	0.854
Access to food assistance	0.66	0.34	0.27	0.064	0.008
Access to public libraries	0.28	0.13	0.30	0.012	0.108
Access to health services	0.66	0.39	0.22	0.198	0.052
2019 arrest rate (ln)[+]	7.26	6.88	0.37	0.128	0.088
2019 311 calls rate (ln)[+]	6.32	5.88	0.26	0.171	0.394
2020 visible unsheltered count[+]	16.47	10.73	0.13	0.116	0.272
Changed census tract boundary	0.18	0.26	-0.09	0.262	

KS statistic: Kolmogorov-Smirnov test statistic of the maximum value of the difference between the two groups' cumulative distribution functions.
[+]Observation for the year prior to the reinstatement of Los Angeles Municipal Code (LAMC) 41.18. 2019 was chosen for the policing variables to avoid potential impacts of COVID-19 impacts on policing.

Appendix 1-16. Balance of neighborhood covariates between treated and untreated tracts in the City of Los Angeles prior to and following inverse probability weighting adjustment (N=991)
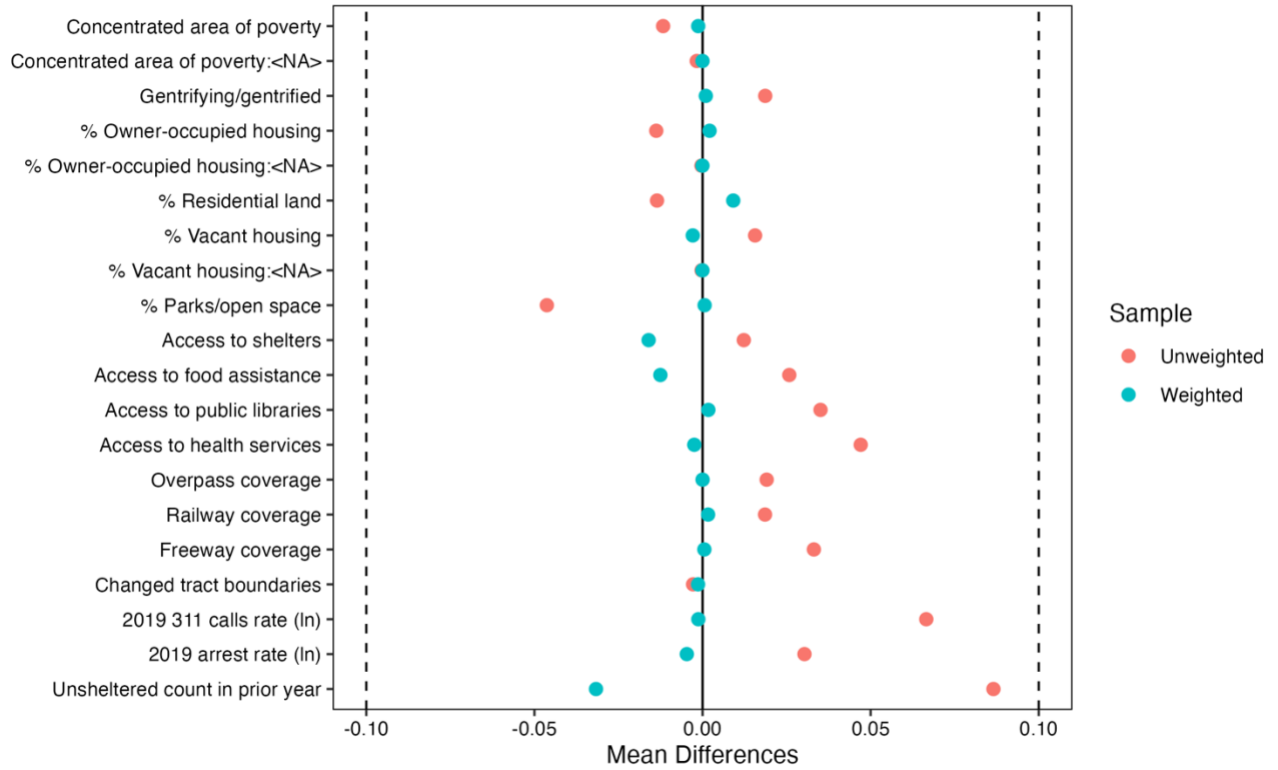
Appendix 1-17. Event study estimates: Change in visible unsheltered count before and after the implementation of a Los Angeles Municipal Code (LAMC) 41.18 enforcement zone

Year relative to first year of treatment[++]	ATT Estimate [95% CI]	Percent Change[+] [95% CI]	p-value
Pre-treatment			
-4	-0.14 [-0.25, -0.02]	-13 [-22, -2]	0.022
-3	-0.13 [-0.28, 0.03]	-12 [-25, 3]	0.112
-2	-0.11 [-0.26, 0.04]	-10 [-23, 4]	0.159
Post-treatment			
0	-0.21 [-0.42, 0]	-19 [-34, -1]	0.046
1	-0.42 [-0.76, -0.08]	-34 [-53, -8]	0.016

CI=Confidence interval
[+]Calculated as count ratio $[\exp(\beta)] - 1$.
[++]Event time= -1 (i.e., year immediately preceding the first year of treatment) is the reference group.
Event estimates are based on running the main two-way fixed effects model and replacing the treatment/exposure variable with binary indicators for the years relative to the first year of treatment (i.e., had an active 41.18 zone within its boundaries); tracts that never implemented a 41.18 zone during the study period were set to 0 for all indicators. The reference group in the regression is the year immediately prior to the having a 41.18 enforcement zone (event time=-1). The year 2021 was omitted since count data for that year was not available.

Appendix 1-18. Goodman-Bacon Decomposition of the 2 x 2 difference-in-differences estimate from two-way fixed effects models
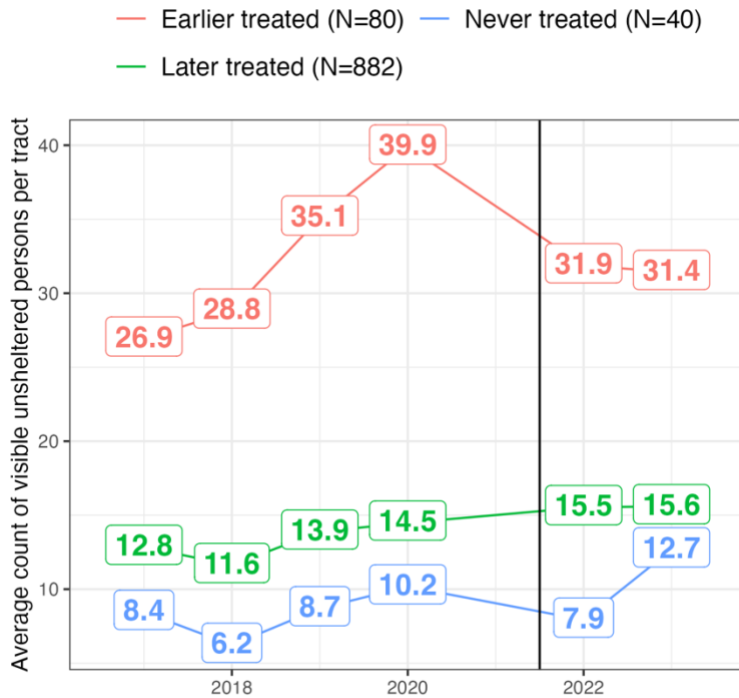
Comparison group	Estimate	Weight
Earlier vs Later Treated	-3.13	0.509
Treated vs Untreated	-2.46	0.318
Treated vs Untreated	-2.95	0.046
Later vs Earlier Treated	0.51	0.127

This table shows all the possible 2 × 2 difference-in-differences (DiD) estimate, with their weights on the average treatment effect among the treated (ATT). The earlier treated group are tracts that had a Los Angeles Municipal Code (LAMC) 41.18 enforcement zone in the first year the policy went into effect (2022), by that year's Point-In-Time (PIT) Homeless Count; later treated group are tracts that had a LAMC 41.18 enforcement zone by the 2023 PIT Count; never treated group are tracts that never had a LAMC 41.18 enforcement zone during the study period.

Appendix 1-19. Falsification tests: Estimated treatment effects of Los Angeles Municipal Code (LAMC) 41.18 enforcement zone implementation on placebo outcomes and placebo time period

	ATT Estimate [95% CI]	Percent Change[+] [95% CI]	p-value	2022 Control Mean (SD)	2022 Treated Mean (SD)	2023 Control Mean (SD)	2023 Treated Mean (SD)
Placebo outcomes				N=922	N=80	N=40	N=962
Number of cars, vans, and RVs with unhoused individuals	-0.19 [-0.46, 0.09]	-17 [-37,9]	0.18	7 (15)	5 (8)	8 (20)	9 (17)
Number of sheltered persons	-0.25 [-0.89, 0.39]	-22 [-59, 47]	0.44	13 (87)	18 (48)	17 (106)	13 (76)
Placebo time period							
Observations during the pretreatment period (2017-2020)	0.05 [-0.06, 0.17]	5 [-6, 19]	0.374	----	----	----	----

CI=Confidence Interval; SD=Standard Deviation
[+]Calculated as count ratio $[\exp(\beta)] - 1$.
Falsification test with placebo outcomes was completed by running the unweighted two-way fixed effects (TWFE) model using (1) the number of cars, vans, and RVs suspected to have unhoused individuals as well as (2) number of sheltered persons in a tract as the outcomes.
Falsification test using placebo difference-in-differences (DID) was completed by lagging the treatment/exposure indicator by two years and running the unweighted TWFE model using only data from the pretreatment period (2017-2020).

Appendix 1-20. Sensitivity analyses: Estimated treatment effects of Los Angeles Municipal Code (LAMC) enforcement zone implementation on an alternative sample and alternative treatment measure

	ATT Estimate [95% CI]	Percent Change[+] [95% CI]	p-value	2022 Control Mean (SD), N	2022 Treated Mean (SD), N	2023 Control Mean (SD), N	2023 Treated Mean (SD), N
Alternative sample:							
Tracts in enforcing Council Districts (N=828)	-0.26 [-0.46, -0.05]	-23 [-37, -5]	0.014	17 (61), 759	35 (73), 69	11 (23), 58	18 (58), 770
Alternative treatment:							
Being in an enforcing Council Districts (intent-to-treat approach)	-0.12 [-0.31, 0.07]	-11 [-27, 7]	0.213	16 (60), 870	17 (29) 132	13 (18), 266	18 (59), 736
Having a LAMC 41.18 enforcement zone introduced by resolution	-0.13 [-0.26, -0.01]	-12 [-23, -1]	0.043	15 (56), 923	32 (69), 80	11 (17), 650	28 (83), 352

CI=Confidence Interval; SD=Standard Deviation

[+]Calculated as count ratio [exp(β)] − 1.

Sensitivity analyses with an alternative sample was completed by running the unweighted two-way fixed effects model only using data from tracts in Council Districts (CD) whose Councilmembers ever introduced a LAMC 41.18 zone by resolution (i.e., "enforcing CD": 1, 2, 3, 5, 6, 7, 9, 12, 13, 14, 15)

Sensitivity analyses with alternative treatment specifications were completed using the following definitions: (1) being in an enforcing CD, and (2) having a LAMC 41.18 enforcement zone that was introduced by resolution during a City Council meeting by the time of that year's Point-In-Time (PIT) Count.

Appendix 2-1. Screening survey

1. Do you consider yourself to be fluent in English?
   [By fluent we mean being able to have conversations about a variety of subjects, for example, about your health.]

   1= YES
   2= NO

2. Do you currently live in Los Angeles County?

   1= YES
   2= NO

3. **To the best of your knowledge and memory**, please estimate the total number of days you spent sleeping at the following places since 2021: outside location; tent or makeshift shelter; in a bus station, train station, airport, or abandoned building. (1 month=30 days)
   [INPUT NUMBER OF DAYS]

4. **To the best of your knowledge and memory**, please estimate the total number of days you spent sleeping **IN A VEHICLE** since 2021. (1 month=30 days)
   [INPUT NUMBER OF DAYS]

Appendix 2-2. Semi-structured interview guide

Topic	Questions*
Social identity and life history	Tell me a little bit about yourself and your life. You can start by talking about anything you think is important for me to know. I may follow-up with some specific questions. • [Probes: life before they became homeless; history of homelessness and stable housing; current housing situation]
Living situations while unsheltered	Tell me about the places you have been sleeping or staying at while you have been unsheltered. • [Probes: location of places where you slept; how you choose locations to sleep; descriptions of the physical/social features of each place; interactions with housed residents; why you moved locations if you slept in more than one place] How safe do you feel at each place you sleep? Who do you see/interact with at each place you sleep?
Health status and routines while unsheltered	How would you describe your health? • [Probes: past/current physical, mental, and substance use conditions and challenges; past experiences of trauma; frequency of hospitalizations] Thinking back to your typical day while you have been living unsheltered, what are some health challenges or stressful situations that you had? What are some things that you do or try to do to cope with or manage these health challenges/stressful situations? • [Probes: mental health/depression/anxiety, chronic physical health conditions, loneliness] How has your social network/community helped you overcome these health challenges/stressful situations?
Daily routine & path while unsheltered	*Now I am interested in what a typical day is like for you as you have been unsheltered.* I am going to show you a map of the neighborhood you said you currently sleep at as well as a map of LA County. While you are telling me about your day, I want you to show me where each place is that you visit on the map. So that I can keep track of all the places you list, I will ask you to name or label them such as: "where I sleep," "where I get food," "where I visit friends," etc. If you prefer not to share specific information about these locations, that is okay as well; you can mark very general areas or choose not to do this activity. Starting with the moment that you wake up, walk me through what you typically do, where you do these activities, and what you see, how you feel, who you interact with at these places. *[If participant notes that their routine is very different week-to-week, ask participant to focus on this past week]*

	• [Probes: place types- work, activities of daily living, socializing; how long do you spend at each place; whether the activity was planned or spontaneous; descriptions of the physical and social features of each place; who is there and who do you interact with or avoid; interactions with housed residents] How does your social network/community support you in carrying out your daily routines? How does managing your health fit in with your daily routine? • [Probes: medication routine; seeking health services] How often does your routine change, and how do your routines differ? • What causes these changes to your routines?
Perceptions of place	Can you describe some places where you feel safe and comfortable? [Ask them to mark the locations on the map if they feel comfortable doing so] • [Probes: physical/built environment features (e.g., buildings, landscapes) and social features (e.g., who is there/ who isn't there); why does this place feel safe to you] • Tell me about the interactions you have with people you know and people you may not know in the places that you feel safe. • What are some aspects of these places that help you manage your health better? Can you describe some places that you feel unsafe and avoid? [Ask them to mark the locations on the map if they feel comfortable doing so] • [Probes: physical/built environment features (e.g., buildings, landscapes) and social features (e.g., who is there/ who isn't there); why does this place feel safe to you] • Tell me about the interactions you have with people you know and people you may not know in the places that you feel unsafe. How does your ability to manage your health differ between the places where you feel safe and unsafe?
Experiences with anti-homeless practices	*Now I am interested in hearing about your interactions with police and experiences with homeless sweeps and the recent laws about camping or sleeping on the streets of Los Angeles with police and homeless sweeps.* What do you know about the recent camping laws and homeless sweeps, and how do they make you feel? Can you tell us about your experiences with being swept, being forced to move, or being ticketed (either for illegal parking or camping) by a government worker from the location you were sleeping at?

	• [Probes: when/where did this occur; how many times has this happened to you; who conducted the sweep/ticketing and what did they tell you; where did you end up moving to; how did you feel during this experience] Can you tell us about your past interactions with police? • [Probes: frequency of interactions; how did you feel during your interactions with police; whether or not you moved locations to avoid future interactions with police] How does concern for the police or for being swept/forced to move/ticketed affect: • Your daily routine and the places that you go to in a day? • Your health management routines and access to medical care? • Your perception of safety? • Your social relationships and interactions? Have you ever had to move sleeping locations permanently because you were swept/ticketed or trying to avoid being swept/ticketed? If so, how did that experience affect: • Your daily routine and the places that you go to in a day? • Your health management routines and access to medical care? • Your perception of safety? • Your social relationships and interactions? Tell me what you have had to do to avoid police, avoid being swept, and feel safe
*Questions are phrased presuming that the participant is currently experiencing unsheltered homelessness. For participants who are not currently unsheltered but meet eligibility criteria, the questions will be rephrased to orient the participant during the most recent period they were living in an unsheltered situation.	

Appendix 2-3. Codebook

Code	Description
Life history	Details of childhood and past life events
Family issues	Issues faced by family members, such as mental illness or substance use, or difficulties in family relationships
Adverse childhood events	Childhood experiences of trauma, housing instability, or financial insecurity
Abuse	Experiences of sexual or physical abuse by family members or partners
Cause of homelessness	Events or reasons behind their homelessness
Social identity	Components of their social identity that influence their experiences/perceptions
Gender	Gendered experiences of homelessness, including violence or abuse
Race	Racialized experiences of homelessness, including experiencing discrimination or discriminating others
Sexual Orientation	Role of sexual orientation in their experiences of homelessness
Unsheltered living situations	Settings where people sleep/lived while unsheltered
Perceptions of safety	Safety perceptions in their living situations, including the physical/social features that make them feel safe
Evasion tactics	Strategies of concealment or evasion or avoidance
Retaliation	Experiences of retaliation from businesses owners, police/law enforcement, or housed neighbors. Includes fear of retaliation
Sweep interaction	Descriptions of past experiences with sweeps, including events that occurred before and after.
Parking citation	Descriptions of past experiences with being ticketed, including the events that occurred before and after.
Decision-making	Factors influencing their decisions on where to sleep, including physical, social, and personal considerations
Health	Health status and experiences
Physical health	Physical health conditions (asthma, diabetes, etc)
Mental health	Mental health conditions (depression, anxiety, bipolar, etc)
Substance use	Current drug use and routines
Hospitalization	History of emergency room visits or hospitalization
Access to care	Access to health care, including treatment, doctors' visits, etc
Daily routine	Practices they do in a day
Regular	Whether their routines are consistent in terms of events and locations
Flexible	Whether their routines are sporadic in terms of events and locations
Daily necessities	Routines related to securing essential needs such as food, water, hygiene, and money
Social interaction	Social interactions (or lack thereof) with friends, family, or acquaintances
Disruptions	Describes disruptions to daily routines
Health management	Health management practices, such as taking medication, attending doctor's appointments, and other related activities
Homeless services engagement	Experiences with homeless services, including outreach workers like HOPICS
Social networks	Description of their social networks
Social support	Emotional, instrumental, or financial support received from members of their social network
Social relationships	Past or current social relationships (or lack thereof)
Isolation/solitude	Description of being isolated or preferring to be in solitude
Perceptions of place	Attitudes toward the places they frequent and those they avoid
Safe spaces	Places where they feel safe, including descriptions of the features and interactions that contribute to their sense of security

Unsafe spaces	Places they feel unsafe in or avoid, including descriptions of the features and interactions that contribute to their discomfort
Meanings of place	The meanings and connections they have to specific places, and why these places are important to them.
Housing experiences	Experiences with obtaining housing
Shelter experiences	Past experiences living in shelters and perceptions of shelter conditions
Housing desires	Desires for housing
Housing waitlist	Whether or not they are on the waitlist for housing
Housing trajectories	Housing situations while unhoused (including sheltered or doubled-up situations)
Homelessness management	Opinions on how Los Angeles is managing homelessness
Knowledge of anti-homeless laws/practices	Knowledge about sweeps, camping law, or other anti-homeless laws/practices
Feelings towards anti-homeless laws/practices	Feelings about sweeps, camping laws, or other anti-homeless laws/practices, such as concern, worry, or ambivalence
Homeless identity	Managing the "homeless" identity, stigma, and stereotypes
Identity management	Strategies to manage their homeless identities
Being stigmatized	Being stigmatized or fears of being stigmatized by others
Defensive othering	Stigmatizing/othering other unhoused people
Future aspirations	Aspirations for the future, including career, housing, family, etc.
Movement patterns	Patterns of movement and mobility
Hypermobility	Descriptions of moving very frequently
Displacement	Descriptions of being displaced
Exclusion	Descriptions of not being able to be in a certain area
Precarity	Description living in unstable conditions
Ontological security	Feelings related to ontological security (safety, constancy, routine, identity, control, surveillance)
Survival strategies	Strategies they employ to survive on the street
Narratives	Components of telling their life narrative
Storytelling	Elements related to the way they tell their story
Reflection	Reflecting on past experiences
Word choice	Choosing specific words to describe a feelings or experience
Mean making	Trying to make meaning or sense of past experiences or feelings
Core narratives	A description that seems fundamental to their life story

Appendix 3-1. PATHS screening and enrollment funnel, by recruitment year (2022-2024)

	2022	**2023**	**2024**
Screening Surveys Completed Total=2,232 (100%)	913 100%	654 100%	665 100%
Eligible Respondents Total=2,136 (96%)	871 95%	620 95%	645 97%
Enrolled Monthly Respondents Total=974 (46%)	408 47%	264 40%	302 47%
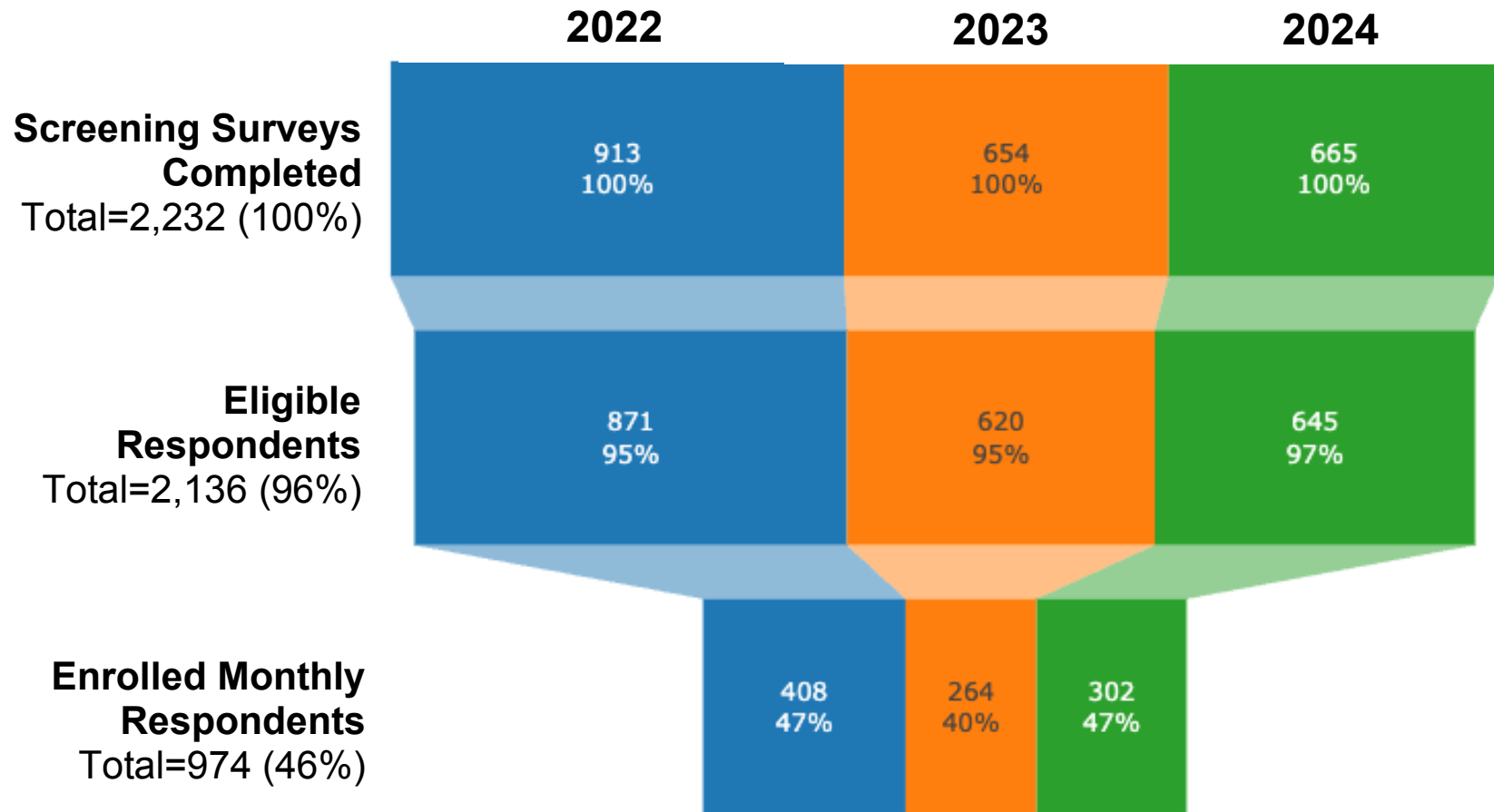
Note: Percentages displayed are out of the numbers in the previous stage

Appendix 3-2. Sample selection of PATHS monthly responses from December 2021 to July 2024

Monthly responses
**N= 7,303 from
974 respondents**

Responses from respondents
who were housed
in the past month
N= 655

Responses from respondents
who were "unhoused"
in the past month
N= 6,648

Responses missing on
all dependent variables
N= 150

2.2% missingness

Responses from respondents
with only one valid monthly
response
N=223

Responses from respondents
who had at least two valid
monthly observations
**N=6,275 from
731 respondents**

**FINAL ANALYTIC
SAMPLE**

Appendix 3-3. Distribution of the number of monthly observations per respondent in the analytic sample (N=6,275 from 731 respondents)
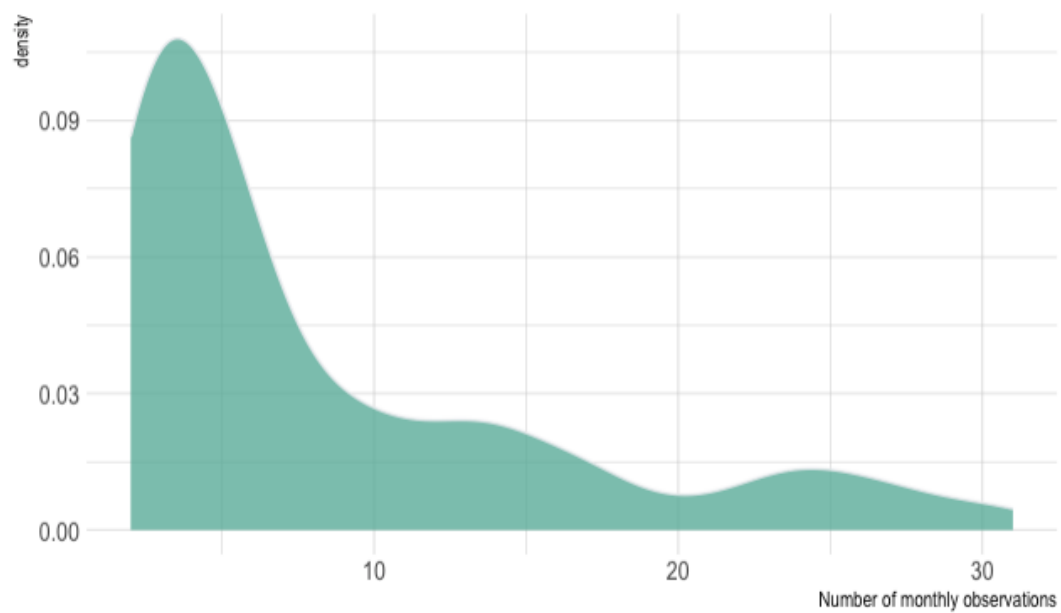
Mean=9; Median=5; Minimum=2; Maximum=31

Appendix 3-4. Comparison of sociodemographic characteristics of PATHS respondents included and excluded from the analytic sample

Characteristic	Included N=731 %, mean (SD)	Excluded N=243 %, mean (SD)	p-value
Age	40.49 (12.87)	40.51 (11.61)	>0.9
Sex			0.029
Male	50	58	
Female or non-binary	50	42	
Race/ethnicity			0.5
White (NH)	30	33	
Black/African American (NH)	27	23	
Hispanic/Latinx	36	35	
Multiracial or another race	8	9	
LGB+ sexual orientation	18	13	0.055
Homeless for > 1 year	81	79	0.400
Prior criminal legal system involvement	51	63	0.002
Veteran	3.2	4.2	0.500
Any physical health condition diagnosis	44	42	0.500
Past treatment for drug/alcohol use	29	36	0.054
Last night housing status at enrollment			<0.001
Unsheltered outside	41	53	
Unsheltered vehicle	35	21	
Sheltered	15	15	
Doubled-up or staying in a self-paid hotel	8	4	
Housed in own home	<1	8	

SD= Standard deviation; NH=non-Hispanic; LGB+=Lesbian, gay, bisexual, or other sexual orientation
Note: Characteristics were measured at enrollment from participants' baseline survey and first monthly survey. p-values are derived from chi-square and two sample t-tests.

Appendix 3-5. Comparison of the PATHS analytic sample to LA County's unsheltered population, 2022-2024

Characteristic	PATHS Analytic Sample %	2022-2024 LA County Unsheltered Population (18+) %
Age		
18-24	9	5
25-39	43	34
40-49	22	24
50-59	16	22
60+	10	16
Sex/Gender		
Male	50	69
Female	47	28
Neither male nor female	3	3
Race/ethnicity		
White (NH)	28	28
Black or African American (NH)	26	24
Asian (NH)	2	1
Native Hawaiian/Pacific Islander (NH)	1	<1
American Indian/Alaskan Native (NH)	1	2
Hispanic/Latinx	34	41
Other/Unknown	8	4
Homeless for > 1 year	80	79
Past treatment of substance use disorder	28	32
Past diagnosis of a chronic physical health condition	43	33

NH=non-Hispanic
Note: Values for LA County's unsheltered population come from the LA Homeless Count Demographic Survey of adults experiencing homelessness, combined for the years 2022, 2023, and 2024. Around 5,000 unsheltered individuals in LA are surveyed each year for the Homeless Count.

Appendix 3-6. Description of the primary study measures

Construct	Operationalization	Instrument/Items	Level of measurement
Outcome			
Poor self-rated physical health	Score of self-rated physical health from the PROMIS scale (Time-varying)	In general, how would you rate your physical health? Response options: 0= Poor; 1= Fair; 2= Good; 3= Very good; 4= Excellent [Responses were reverse coded for analysis]	Continuous: possible range of 0-4, with higher scores indicating poorer physical health
Poor mental health	Composite sum score of psychological distress severity from PHQ-4 (Time-varying)	Over the last two weeks, how often have you been bothered by the following problems? 1. Feeling down, depressed, or hopeless. 2. Little interest or pleasure in doing things. 3. Feeling nervous, anxious, or on edge. 4. Not being able to stop or control worrying. Response options: 0= Not at all; 1= Several days; 2= More than half the days; 3= Nearly every day.	Continuous: possible range of 0-12, with higher scores indicating greater psychological distress
Poor sleep quality	Score of quality of sleep from the PROMIS Sleep Disturbance scale [+] (Time-varying)	How would you rate your quality of sleep in the past week? Response options: 0=Very poor; 1= Poor; 2= Fair; 3= Good; 4= Very good [Responses were reverse coded for analysis]	Continuous: possible range of 0-4, with higher scores indicating poorer sleep quality
Social isolation	Composite average score of 5-items from the UCLA loneliness scale (Time-varying)	Indicate how often each of the statements below describe you: 1. I lack companionship. 2. I feel left out. 3. I feel isolated from others. 4. I am unhappy being so withdrawn. 5. People are around me but not with me. Response options: 0= I never feel this way; 1= I sometimes feel this way; 2= I often feel this way; 3= I always feel this way.	Continuous: possible range of 0-3, with higher scores indicating more loneliness
Exposure			
Policing interactions	Recent encounter with police (Time-varying)	Have you had any contact with police or law enforcement in the last 30 days? (e.g., were approached by an officer, spoke with them, or had further interaction) Response options: 1=Yes; 2=No	Binary: no vs. yes

	Recent move-along citation (Time-varying)	In the past 30 days, how many times have you been ticketed or cited for staying on the street? Response options: 1= 0 times; 2= 1 time; 3= 2 times; 4= 3 times; 5= 4 or more times	Binary: no (0 times) vs. yes (1 or more times)

	Recent experience of being swept[+] (Time-varying)	In the past 30 days, did anyone tell you that you had or were going to have to move from the area you were sleeping in because of a "sweep" of a no camping or sitting/sleeping/lying law? (Select all that apply)
		
		Response options:
		  1= Yes, I was told by police or law enforcement official(s);
		  2= Yes, I was told by a sanitation worker;
		  3=Yes, I was told by a homeless outreach worker;
		  4=Yes, I was told by another person;
		  5= No, I have not been told by anyone that I was going to have to move because of a sweep or a no camping law
			Binary: no vs. yes

Neighborhood exposure to camping laws	Prevalence of camping law or 41.18 enforcement zone (Time-varying)	Whether the geographic location where they currently sleep was in a neighborhood in LA City with a LAMC 41.18 enforcement zone or in a municipality in LA County with a camping law.	Binary: no vs. yes
Concern about camping laws	Worried about laws banning camping (Time-varying)	Rate your feelings about the following statements: 1. Laws that ban camping make me feel nervous or anxious 2. Laws that ban camping will force me to move to a different place 3. Laws that ban camping will affect me personally Response options: 0=Strongly disagree; 1= Strongly disagree; 2= Neither agree nor disagree; 3= Agree; 4= Strongly agree.	Binary: no concern vs. any concern (indicated "agree" or "strongly agree" to any of the three statements)

Mediator

Physical displacement	Change in neighborhood location from the previous observation (Time-varying, missing at month 1)	Neighborhood location where respondents currently sleep, determined from respondents' current coordinate location, self-reported street address, self-reported neighborhood of residence selected from a list of neighborhoods from the Los Angeles Times Moved: Neighborhood location at wave $t-1 \neq$ Neighborhood location at wave t Did not move: Neighborhood location at wave $t-1 =$ Neighborhood location at wave t	Binary: did not move vs. moved
	Moved locations where the participant slept[+] (Time-varying)	In the past 30 days, how many times did you move locations where you slept (i.e., moving from one address or street to another)? (Written-in response)	Binary: no (0 times) vs. yes (1 or more times)
Moderator			
Race/ethnicity	Self-report race/ethnicity (Time-invariant)	1. Do you consider yourself to be Hispanic or Latino/a? 2. What best described your race? (Select all that apply): Response options: 1= Black/African American 2= White 3= Asian American 4= Native Hawaiian or Pacific Islander 5= American Indian/Alaskan Native	Categorical: i. non-Hispanic Black ii. non-Hispanic White iii. Hispanic/Latino/a iv. Multiracial/Other (i.e., Asian American, Native Hawaiian or Pacific Islander, American Indian/Alaskan Native)
Gender	Self-report sex/gender (Time-invariant)	With which sex/gender do you most identify? Response options: 1= Male 2= Female 3= I do not identify as male or female	Binary: male vs. female/ non-binary

[+]Measure was later added to the PATHS survey in April 2023
Note: All items had a "prefer not to answer" option if respondents wanted to skip the question.

Appendix 3-7. Description of study covariates

Measure	Description
Sociodemographic	
Age	Continuous (time-invariant)
Veteran status	Binary (time-invariant): no vs. yes
Sexual orientation	Binary (time-invariant): heterosexual vs. lesbian, gay, bisexual, or other sexual orientation (LGB+)
Health status indicators	
Past diagnosis of a chronic physical health condition	Binary (time-invariant): no vs. yes
Frequent substance use in the past month	Binary (time-varying): no vs. yes (used cannabis, methamphetamine, cocaine, prescription opioids, heroin more than once a week)
Structural vulnerability	
Chronically homeless	Binary (time invariant): no vs. yes (homeless for more than one year at baseline)
Food insecurity in the past week	Binary (time-varying): no vs. yes (didn't eat all day, skipped a meal, ate less, or ate spoiled food because there wasn't any or enough food)
Prior involvement with the criminal legal system	Binary (time invariant): no vs. yes (had spent time in jail, prison, or juvenile detention center in the past at baseline)
Level of knowledge about camping laws	Continuous (time-varying): Felt informed about the camping laws in LA, rated on a 5-point Likert scale (0=Strongly disagree to 4=Strongly agree)
Unsheltered outside in the past month	Binary (time-varying): Spent at least one night in the past month in the following settings: outside; in a tent or makeshift shelter; in a bus station, train station, or airport; abandoned building.
Survey quarter	Categorical (time-varying): year (2021, 2022, 2023, 2024) and quarter of the year (Q1= January/February/March; Q2=April/May/June; Q3= July/August/September; Q4: October/November/December)

Note: Time-invariant covariates were measured at baseline; time-varying covariates were measured at each monthly observation.

Appendix 3-8. Level of missingness on the study variables within monthly observations in the analytic sample (N=6275)

Variable	% missing*
Outcomes	
Self-rated physical health score	1.2
Psychological distress severity score	2.5
Sleep quality score	1.1
Loneliness score	3.6
Exposure and mediator variables	
Recent encounter with police	3.8
Recent move-along citation	4.2
Recent experience of being swept	5.8
Neighborhood exposure to camping laws	11.0
Concern about camping laws	2.8
Change in neighborhood location	11.0
Moved locations where they slept	5.5
Covariates	
Age	0.0
Race/ethnicity	4.9
Sex/gender	0.8
Veteran status	1.9
Sexual orientation	4.8
Past diagnosis of a chronic physical health condition	4.8
Frequent substance use in the past month	3.2
Chronically homeless at baseline	1.5
Food insecurity in the past week	4.6
Prior involvement with the criminal legal system	10.0
Feel informed about camping laws	3.5
Unsheltered outside in the past month	2.4

*Number of observations missing on the study variables, out of all monthly observations in the sample.

Appendix 3-9. Comparison of monthly responses in the analytic sample missing and not missing on the independent study variables (N=6275)

Characteristic	No missing N = 4438 %, mean (SD)	Missing ≥ 1 variable N = 1837 %, mean (SD)	p-value
Baseline measures			
Age	41.97 (12.88)	40.93 (13.85)	0.004
Female or non-binary	49	53	<0.001
Race/ethnicity			<0.001
White (NH)	33	29	
Black/African American (NH)	24	26	
Hispanic/Latino	34	31	
Multiracial or another race	9	15	
LGB+ sexual orientation	18	20	0.200
Homeless for > 1 year	81	86	<0.001
Prior criminal legal system involvement	49	38	<0.001
Veteran	3.4	4.4	0.071
Physical health condition diagnosis	42	44	0.200
Past treatment for drug/alcohol use	28	27	0.300
Monthly measures			
Poor self-rated physical health score[+] (range 0-4)	2.52 (1.01)	2.43 (1.04)	0.001
Psychological distress severity score[+] (range 0-12)	5.80 (4.10)	5.10 (4.10)	<0.001
Poor sleep quality score[+] (range 0-12)	2.38 (1.06)	2.37 (1.05)	0.900
Loneliness score[+] (range 0-12)	1.43 (0.94)	1.38 (1.00)	0.070
Last night housing status			<0.001
Unsheltered outside	33	38	
Unsheltered vehicle	38	28	
Sheltered	18	18	
Doubled-up or staying in a self-paid hotel	12	16	
Food insecure (past week)	65	65	0.800
Frequent drug use	28	25	0.021
Had emergency room visit or overnight hospital stay	14	17	0.004
Correctly responded to all attention questions	98	96	<0.001
Minutes to complete survey, median (IQR)	15 (10, 36)	15 (9, 46)	0.110
Language of survey			0.400
English	98	97	
Spanish	2.2	2.6	
Type of data provided for current location			<0.001
Coordinate data	32	17	

Street address	19	13	
Neighborhood location	42	53	
Provided no location data	7.5	17	
Mode of survey invite			<0.001
Email	5.4	7.8	
Text	95	92	

SD= Standard deviation; IQR= Interquartile range; NH=non-Hispanic; LGB+=Lesbian, gay, bisexual, or other sexual orientation

[+]Continuous measure, with higher scores=poorer health

Note: Values of the characteristics examined were obtained from the current/same monthly observation.

p-values are derived from chi-square tests, two sample t-tests, and Wilcoxon rank sum tests.

Appendix 3-10. Procedure for multiple imputation by chained equations

Steps taken for multilevel multiple imputation, following guidelines from Stef van Buren.

R packages used: mice, miceadds

1. A dataset was constructed with the independent variables to be imputed, along with the dependent variables and contender auxiliary variables to be used as predictors, participant IDs, and sequence of the monthly response.
    Auxiliary variables:
    a. Survey context: Minutes to completion of the monthly survey, mode of survey invite, language the survey was completed in, type of spatial data provided for current location, number of correct responses to the two questions checking participants' attention.
    b. Baseline measures: Prior treatment of substance use history, housing status at the time of the screening survey (e.g., unsheltered, sheltered, doubled-up/self-paid hotel, or housed)
    c. Monthly measures: Regular or occasional smoker, currently receiving treatment for substance use, went to the emergency room or stayed overnight in a hospital, slept in their own home at least one night in the past month
2. Imputation methods were defined for each imputed variable. Level 1 continuous and categorical variables were derived using predictive mean matching from linear mixed models, while binary variables were generated from generalized linear mixed models. Level 2 variables were derived by aggregating the level 1 predictors and imputing the level 2 variables by predictive mean matching,
3. To select the study covariates and auxiliary variables to be used as predictors in the imputation models, correlations were calculated for each variable pair (target-predictor pair). Age, sex, race, and the outcome variables, as well as the variables capturing survey response context associated with missingness (i.e., survey invite mode, spatial data provided, and correctly responding to the attention checks), were defined as predictors for all imputed variables by default. Only covariates and auxiliary variables that reached a minimum correlation threshold of 0.4 with the level 1 variables and 0.1 for level 2 variables were included to prevent overfitting of models with many potential predictors. Highly collinear variables were excluded from the imputation models, as well as the study measures that were introduced later during data collection (i.e., experienced a sweep in the past month and reporting moving locations where they slept), since they were missing on over half of the observations.
4. The disaggregated cluster means of the level 1 variables were passively imputed and later used in the imputation models.
5. Imputation models for the level 1 variables were specified as models with a fixed effect for time, random intercept, and cluster means for the level 1 variables in the predictor matrix.
6. Five datasets were imputed, each with 5 iterations.

Appendix 3-11. Comparison of monthly responses from respondents in the analytic sample who completed and missed the next monthly survey they were eligible for (N=5964)

Characteristic	Completed next monthly N = 5066 %, mean (SD)	Missed next monthly N= 898 %, mean (SD)	p-value
Measured at baseline			
Age	41.97 (13.26)	40.42 (12.75)	0.001
Female or non-binary	50	51	0.300
Race/ethnicity			0.042
White (NH)	32	30	
Black/African American (NH)	24	28	
Hispanic/Latino	32	34	
Multiracial or another race	11	9	
LGB+ sexual orientation	18	19	0.700
Homeless for > 1 year	83	83	>0.9
Prior criminal legal system involvement	46	52	0.001
Veteran	3.8	2.8	0.140
Physical health condition diagnosis	42	43	0.400
Past treatment for drug/alcohol use	27	32	0.001
Measured monthly			
Had encounter with police	15	20	<0.001
Received move-along citation	3.9	5	0.130
Experienced a sweep	30	43	<0.001
In a neighborhood with camping law enforcement	77	77	0.600
Concerned about camping laws	55	59	0.011
Changed neighborhood locations	44	50	0.003
Moved locations where they slept	45	49	0.087
Poor self-rated physical health score[+] (range 0-4)	2.51 (1.01)	2.40 (1.02)	0.004
Psychological distress severity score[+] (range 0-12)	5.62 (4.09)	5.37 (4.01)	0.100
Poor sleep quality score[+] (range 0-12)	2.37 (1.06)	2.39 (1.03)	0.600
Loneliness score[+] (range 0-12)	1.43 (0.96)	1.35 (0.94)	0.031
Last night housing status			0.140
Unsheltered outside	34	37	
Unsheltered vehicle	36	32	
Sheltered	18	17	
Doubled-up or staying in a self-paid hotel	13	13	
Food insecure (past week)	65	66	0.400
Frequent drug use	27	31	0.020
Had emergency room visit or overnight hospital stay	14	17	0.035

Correctly responded to all attention questions	98	95	<0.001
Minutes to complete survey, median (IQR)	15 (9, 35)	18 (10, 80)	<0.001
Language of survey			0.300
English	98	98	
Spanish	2.4	1.8	
Type of data provided for current location			0.017
Coordinate data	27	32	
Street address	17	17	
Neighborhood location	46	41	
Provided no location data	10	10	
Mode of survey invite			0.8
Email	55	54	
Text	45	46	
Recruitment method			0.4
Self-enrolled	4.6	3.9	
Directly opted-in	95	96	

SD=Standard deviation; IQR= Interquartile range; NH=non-Hispanic; LGB+=Lesbian, gay, bisexual, or other sexual orientation

[+]Continuous measure, with higher scores=poorer health

Note: Observations for the last survey distributed (June 2024) are not included since there was no next survey. Values for the characteristics examined were obtained from the current/same monthly observation. p-values are derived from chi-square tests, two sample t-tests, and Wilcoxon rank sum tests.

Appendix 3-12. Procedure for propensity score estimation of survey response using Bayesian additive regression trees

Steps taken for estimating the probability of responding to the current month using Bayesian additive regression trees (BART) with random effects, following the procedures from xx Chang et al. and Dorie. Stabilized inverse probability weights were then generated from these propensity scores.

R packages used: dbarts, WeightIt

1. Imputed data from multiple imputation procedure were used to construct datasets with observed responses and non-observed responses that the respondent was eligible for (observed response=1, non-observed response=0).
2. Predictors for the BART model included study variables and auxiliary variables, including those capturing the monthly survey context, aspects of recruitment, and survey response patterns. The monthly measures were lagged so that values in the last observed survey were used to predict the probability of responding to the current month's survey.
   Auxiliary variables:
   a. Survey context: Minutes to completion of the monthly survey, mode of survey invite, type of spatial data provided for current location, number of correct responses to the two questions checking participants' attention.
   b. Survey response patterns: Response rate as of the current monthly survey, months since the last survey.
   c. Recruitment aspects: Recruitment method, recruitment year
   d. Baseline measures: Age, sex, race, chronically homeless, prior criminal legal system involvement, prior treatment of substance use history, housing status at the time of the screening survey (e.g., unsheltered, sheltered, doubled-up/self-paid hotel, or housed)
   d. Monthly measures: Last night housing status (e.g., unsheltered, sheltered, doubled-up/self-paid hotel, or housed), frequent substance use, regular or occasional smoker, currently receiving treatment for substance use, went to the emergency room or stayed overnight in a hospital, recent encounter with law enforcement, concerned about camping laws, self-rated physical health, psychological distress severity score, and loneliness score. Note that the study measures introduced during data collection were not included as predictors.
3. The BART model estimated the probability of a respondent answering the current month's survey as a function of the variables listed above. Continuous variables were centered to improve model stability and performance. Models used the Cauchi prior distribution, with 75 number of trees and 1500 posterior samples drawn.
4. The fitted values from the BART model were used to generate stabilized inverse probability weights for each imputed dataset. The distribution of the weights was examined to assess issues with extreme weights.

Appendix 3-13. Comparison of sociodemographic characteristics of respondents by survey response rate (N=731)

Characteristic	Low (<25%) N = 148 %, mean (SD)	Medium (25-75%) N = 264 %, mean (SD)	High (>75%) N = 319 %, mean (SD)	p-value
Age	40.45 (13.16)	39.80 (12.62)	41.07 (12.95)	0.500
Female or non-binary	46	50	52	0.400
Race/ethnicity				0.11
White (NH)	31	29	29	
Black/African American (NH)	32	28	23	
Hispanic/Latino	33	33	40	
Multiracial or another race	4	10	8	
LGB+ sexual orientation	17	19	18	0.800
Homeless for > 1 year	87	82	78	0.073
Prior criminal legal system involvement	54	56	45	0.038
Veteran	3.4	2.3	3.9	0.600
Physical health condition diagnosis	44	40	48	0.200
Past treatment for drug/alcohol use	39	32	22	<0.001
Last night housing status at enrollment				0.061
Unsheltered outside	50	43	36	
Unsheltered vehicle	28	34	41	
Sheltered	16	16	15	
Doubled-up or staying in a self-paid hotel	6.1	7	9	
Recruitment method				<0.001
Self-enrolled	63	42	39	
Directly opted-in	37	58	61	

SD=Standard deviation; IQR= Interquartile range; NH=non-Hispanic; LGB+=Lesbian, gay, bisexual, or other sexual orientation

+Continuous measure, with higher scores=poorer health

Note: Response rate was calculated by taking the number of monthly surveys the respondent answered out of all the surveys they were eligible for to complete. Characteristics were measured at enrollment from participants' baseline survey and first monthly survey. p-values are derived from chi-square tests and two sample t-tests.

Appendix 3-14. Trends in experiences with policing, camping laws, and physical displacement and health through the study period (N=6275)
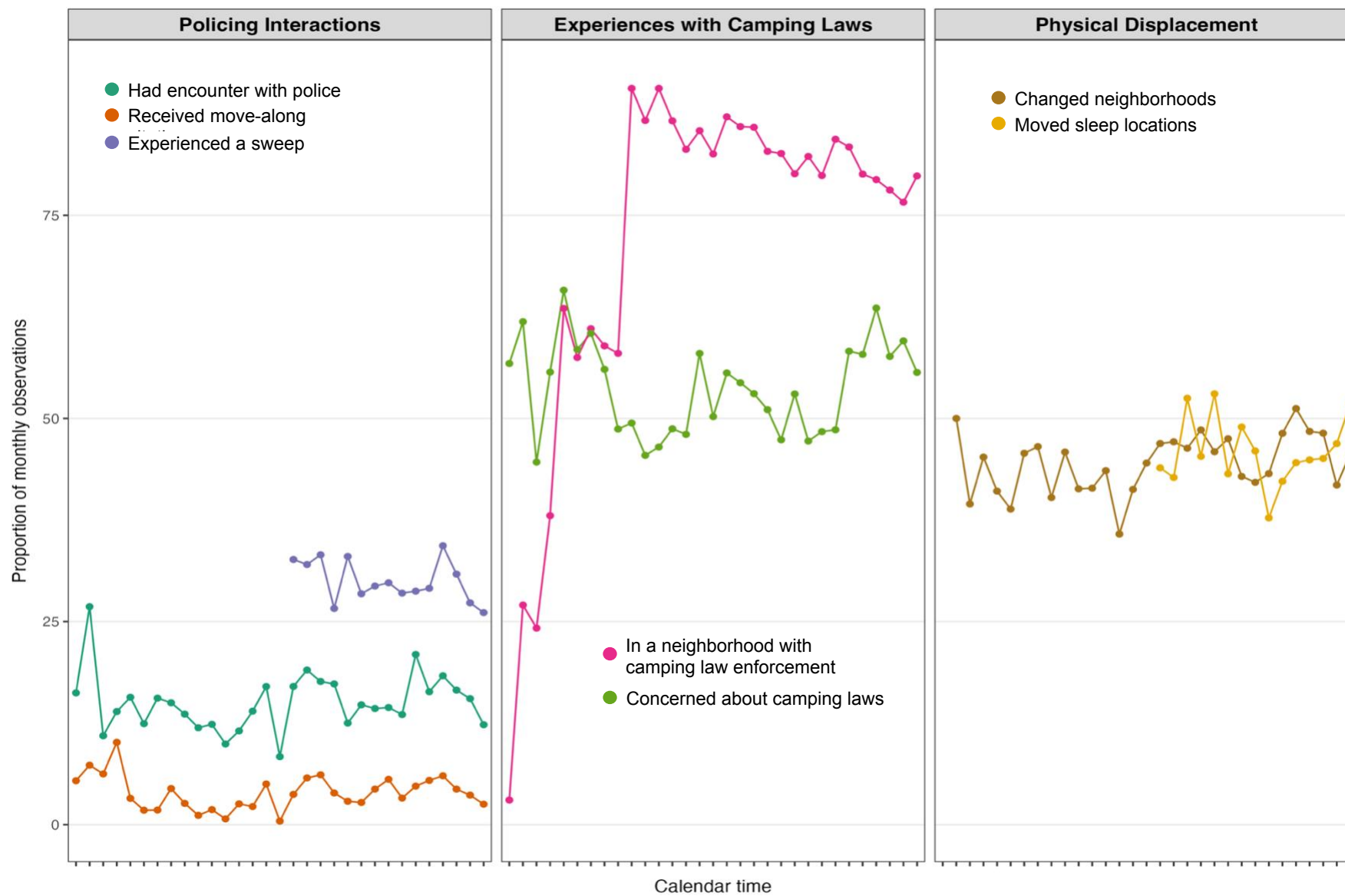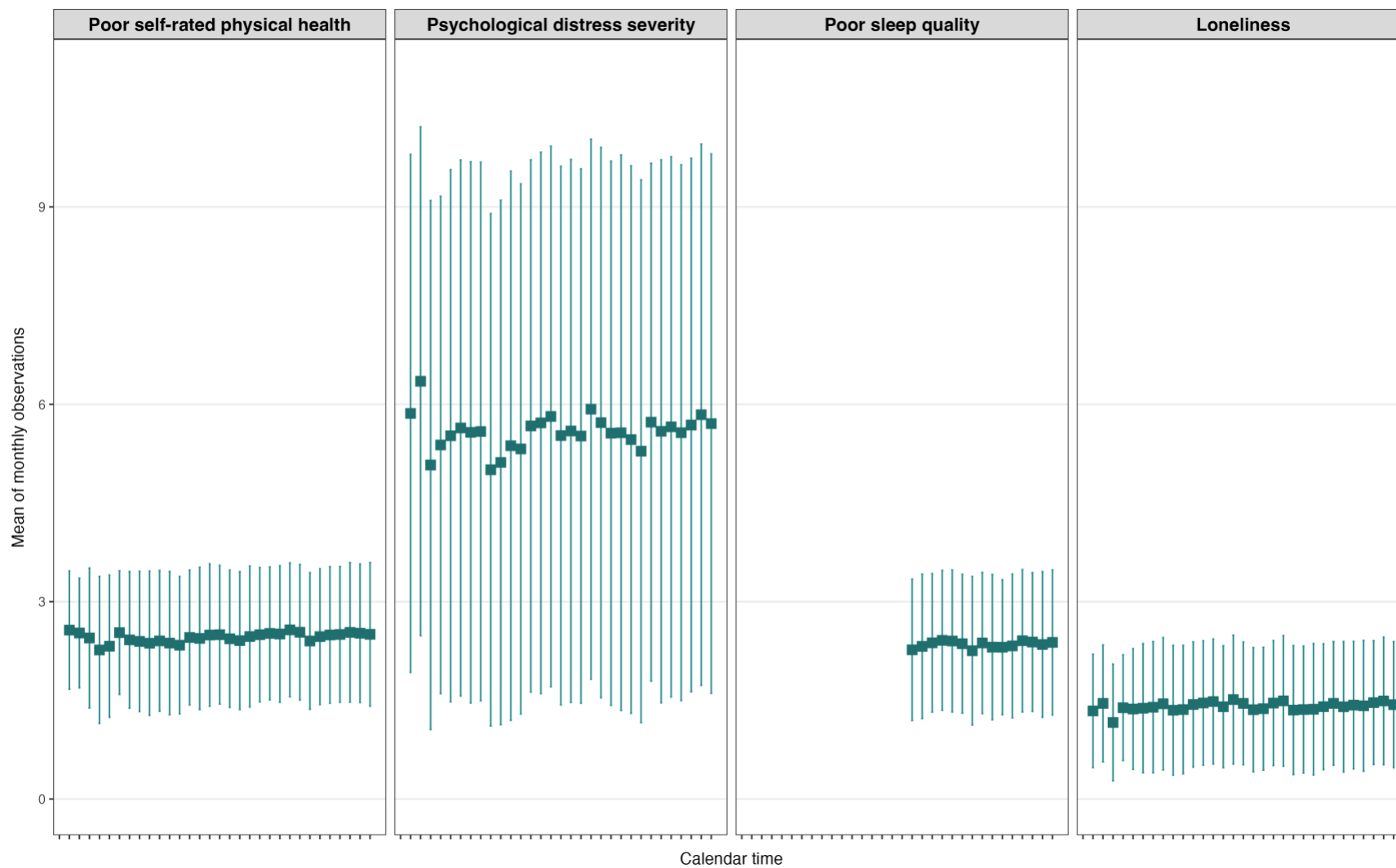
Note: X-axis ticks represent months of the study period, starting from December 2021 through June 2024. The measures for experienced a sweep, moved sleep locations, and poor sleep quality was introduced in April 2023.

Appendix 3-15. Distribution of sociodemographic, health, and homelessness characteristics by exposure to experiences with policing, camping laws, and physical displacement across all monthly observations from the analytic sample (N=6275)

* p<0.05   ** p<0.01 ***p<0.001
Plots show the distribution of sociodemographic, health, and homelessness characteristic by whether the respondent experienced the exposure or not (i.e., policing interactions, neighborhood exposure to camping law enforcement, concern about camping laws, and physical displacement).
The characteristics are coded as indicator variables: yes (proportions shown) vs. no (proportions not shown)
p-values obtained from chi-square tests to assess differences in frequencies.

Received move-along citation

Category	Values
Age: 18-29	21 / 20
Age: 30-44	58 / 39 ***
Age: 45-59	16 / 27 ***
Age: 60+	5 / 14 ***
Race: White (NH)	32 / 30
Race: Black (NH)	15 / 24 **
Race: Latino/Hispanic	37 / 31
Race: Multiracial/Other	13 / 10
Sex: Female/Non-binary	54 / 49
LGB+ sexual orientation	15 / 18
Veteran	3 / 4
Physical condition diagnosis	50 / 40 **
Frequent substance use	34 / 26 *
Chronically homeless	86 / 81
Food insecure	82 / 61 ***
Prior criminal legal system involvement	68 / 41 ***
Informed about camping laws	13 / 21 **
Unsheltered outside	63 / 41 ***

Experienced a sweep

Category	Values
Age: 18-29	17 / 21 **
Age: 30-44	49 / 37 ***
Age: 45-59	26 / 27
Age: 60+	8 / 14 ***
Race: White (NH)	24 / 33 ***
Race: Black (NH)	26 / 21 **
Race: Latino/Hispanic	37 / 32 **
Race: Multiracial/Other	8 / 9
Sex: Female/Non-binary	48 / 50
LGB+ sexual orientation	15 / 19 **
Veteran	3 / 4
Physical condition diagnosis	44 / 39 **
Frequent substance use	26 / 25
Chronically homeless	86 / 77 ***
Food insecure	81 / 58 ***
Prior criminal legal system involvement	50 / 42 ***
Informed about camping laws	19 / 19
Unsheltered outside	68 / 39 ***

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In neighborhood with camping law enforcement

Category	Red	Gray
Age: 18-29	20	19
Age: 30-44	39	42
Age: 45-59	27	27
Age: 60+	14	12
Race: White (NH)	33	25 ***
Race: Black (NH)	22	26 **
Race: Latino/Hispanic	31	36 **
Race: Multiracial/Other	10	10
Sex: Female/Non-binary	48	57 ***
LGB+ sexual orientation	18	16
Veteran	4	3
Physical condition diagnosis	40	46 ***
Frequent substance use	29	22 ***
Chronically homeless	83	77 ***
Food insecure	62	66
Prior criminal legal system involvement	46	36 ***
Informed about camping laws	21	19
Unsheltered outside	43	40 *

Concerned about camping laws

Category	Red	Gray
Age: 18-29	17	24 ***
Age: 30-44	45	34 ***
Age: 45-59	28	24 ***
Age: 60+	9	18 ***
Race: White (NH)	32	29 **
Race: Black (NH)	22	25 **
Race: Latino/Hispanic	34	29 ***
Race: Multiracial/Other	9	12 ***
Sex: Female/Non-binary	49	50
LGB+ sexual orientation	19	16 *
Veteran	4	3 **
Physical condition diagnosis	42	39
Frequent substance use	33	20 ***
Chronically homeless	84	78 ***
Food insecure	72	50 ***
Prior criminal legal system involvement	50	33 ***
Informed about camping laws	22	19 **
Unsheltered outside	51	32 ***

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Changed neighborhoods

Age: 18-29	20 / 18
Age: 30-44	46 / 35 ***
Age: 45-59	23 / 31 ***
Age: 60+	11 / 17 ***
Race: White (NH)	26 / 35 ***
Race: Black (NH)	26 / 19 ***
Race: Latino/Hispanic	33 / 31
Race: Multiracial/Other	10 / 11
Sex: Female/Non-binary	53 / 48 **
LGB+ sexual orientation	19 / 17
Veteran	4 / 4
Physical condition diagnosis	44 / 39 **
Frequent substance use	27 / 26
Chronically homeless	81 / 83
Food insecure	67 / 58 ***
Prior criminal legal system involvement	42 / 44
Informed about camping laws	20 / 21
Unsheltered outside	48 / 36 ***

Moved sleep locations

Age: 18-29	20 / 22
Age: 30-44	42 / 39
Age: 45-59	26 / 27
Age: 60+	11 / 12
Race: White (NH)	28 / 29
Race: Black (NH)	23 / 22
Race: Latino/Hispanic	35 / 36
Race: Multiracial/Other	9 / 9
Sex: Female/Non-binary	52 / 47 **
LGB+ sexual orientation	20 / 17
Veteran	3 / 5 **
Physical condition diagnosis	43 / 39 **
Frequent substance use	26 / 24
Chronically homeless	79 / 83 **
Food insecure	75 / 54 ***
Prior criminal legal system involvement	44 / 44
Informed about camping laws	16 / 21 ***
Unsheltered outside	59 / 41 ***

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Appendix 3-16. Estimates of the between- and within-person effects of experiences with policing and camping laws on physical displacement among the analytic sample

	Change in neighborhood location	Moved locations where they slept
	aOR [95% CI]	aOR [95% CI]
Recent encounter with police	3600 (458 IDs)	2791 (439 IDs)
Between-person effect	0.75 [0.40, 1.42]	**3.64 [1.53, 8.66]****
Within-person effect	**1.52 [1.13, 2.05]****	**1.98 [1.38, 2.84]*****
Recent move-along citation	3590 (457 IDs)	2782 (437 IDs)
Between-person effect	1.29 [0.35, 4.80]	**8.97 [1.65, 48.66]***
Within-person effect	1.00 [0.61, 1.65]	1.63 [0.91, 2.90]
Recent experience of being swept	2062 (357 IDs)	2477 (421 IDs)
Between-person effect	**3.02 [1.75, 5.22]*****	**11.27 [5.72, 22.21]*****
Within-person effect	1.26 [0.91, 1.74]	**2.39 [1.72, 3.32]*****
Neighborhood exposure to camping laws (prior observation)	3496 (452 IDs)	2851 (444 IDs)
Between-person effect	**0.55 [0.33, 0.92]***	**4.73 [2.47, 9.04]*****
Within-person effect	0.99 [0.73, 1.35]	1.25 [0.91, 1.72]
Concern about camping laws	3657 (461 IDs)	2310 (376 IDs)
Between-person effect	1.34 [0.86, 2.09]	**0.35 [0.16, 0.77]****
Within-person effect	1.08 [0.84, 1.39]	1.28 [0.74, 2.21]

* p<0.05   ** p<0.01   ***p<0.001
aOR=Adjusted odds ratio; CI= Confidence interval; IDs=Individuals
Note: Estimates were obtained from multivariate multilevel logistic regression models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-17. Estimates of the between- and within-person effects of experiences with physical displacement on poor health among the analytic sample

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Change in neighborhood location	3645 (462 IDs)	3625 (457 IDs)	2376 (374 IDs)	3605 (455 IDs)
Between-person effect	0.22 [-0.01, 0.45]	0.71 [-0.27, 1.68]	0.13 [-0.12, 0.38]	**0.28 [0.05, 0.51]***
Within-person effect	0.01 [-0.05, 0.05]	0.05 [-0.13, 0.24]	0.01 [-0.07, 0.08]	0.03 [-0.01, 0.07]
Moved locations where they slept	2839 (443 IDs)	2828 (442 IDs)	2842 (443 IDs)	2809 (442 IDs)
Between-person effect	**0.30 [0.09, 0.51]****	**1.45 [0.58, 2.32]****	**0.43 [0.23, 0.63]*****	**0.42 [0.21, 0.62]*****
Within-person effect	0.04 [-0.02, 0.1]	**0.44 [0.19, 0.69]*****	0.05 [-0.03, 0.13]	**0.06 [0.01, 0.11]***

* p<0.05   ** p<0.01   ***p<0.001
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-18. Estimates of the between- and within-person indirect effects through physical displacement with percentile confidence intervals from bootstrapping

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
Mediator: Change in neighborhood locations	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	3586 (458 IDs)	3568 (454 IDs)	2324 (367 IDs)	3555 (453 IDs)
Between-person effect	-0.001 [-0.013, 0.012]	-0.009 [-0.053, 0.033]	-0.001 [-0.015, 0.014]	-0.002 [-0.017, 0.012]
Within-person effect	**0.018 [0.008, 0.030]**	**0.059 [0.021, 0.101]**	**0.017 [0.006, 0.031]**	**0.022 [0.009, 0.039]**
Recent move-along citation	3577 (457 IDs)	3558 (453 IDs)	2318 (366 IDs)	3545 (452 IDs)
Between-person effect	0.001 [-0.022, 0.025]	0.016 [-0.065, 0.099]	0.001 [-0.026, 0.026]	0.004 [-0.026, 0.033]
Within-person effect	0.003 [-0.012, 0.017]	0.009 [-0.043, 0.060]	0.007 [-0.008, 0.024]	0.004 [-0.013, 0.024]
Recent experience of being swept	2055 (357 IDs)	2046 (353 IDs)	2052 (355 IDs)	2039 (353 IDs)
Between-person effect	0.001 [-0.012, 0.014]	-0.002 [-0.046, 0.041]	0.005 [-0.010, 0.022]	0.004 [-0.008, 0.015]
Within-person effect	0.007 [-0.001, 0.017]	0.004 [-0.011, 0.021]	0.005 [-0.001, 0.012]	0.006 [-0.001, 0.014]
Neighborhood exposure to camping laws	3483 (452 IDs)	3463 (446 IDs)	2259 (363 IDs)	3450 (447 IDs)
Between-person effect	-0.003 [-0.013, 0.007]	-0.024 [-0.073, 0.021]	-0.003 [-0.018, 0.010]	-0.005 [-0.020, 0.009]
Within-person effect	-0.001 [-0.010, 0.007]	-0.004 [-0.046, 0.041]	-0.021 [-0.042, -0.003]	-0.001 [-0.015, 0.013]
Concern about camping laws	3642 (461 IDs)	3622 (456 IDs)	2373 (373 IDs)	3602 (454 IDs)
Between-person effect	0.001 [-0.006, 0.006]	0.003 [-0.019, 0.024]	0.001 [-0.006, 0.008]	0.001 [-0.008, 0.009]
Within-person effect	0.004 [-0.003, 0.012]	0.014 [-0.013, 0.042]	0.001 [-0.007, 0.010]	0.005 [-0.005, 0.015]
Mediator: Moved locations where they slept	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	2776 (437 IDs)	2771 (438 IDs)	2779 (437 IDs)	2759 (438 IDs)
Between-person effect	0.010 [-0.011, 0.029]	**0.087 [0.010, 0.171]**	0.017 [-0.005, 0.041]	0.013 [-0.007, 0.033]
Within-person effect	**0.034 [0.018, 0.049]**	**0.146 [0.086, 0.218]**	**0.035 [0.020, 0.052]**	**0.045 [0.026, 0.064]**
Recent move-along citation	2767 (435 IDs)	2762 (436 IDs)	2770 (435 IDs)	2750 (436 IDs)
Between-person effect	0.018 [-0.021, 0.061]	**0.160 [0.016, 0.318]**	0.030 [-0.012, 0.076]	0.023 [-0.018, 0.063]

Within-person effect	**0.028 [0.002, 0.054]**	**0.126 [0.020, 0.238]**	**0.030 [0.004, 0.056]**	**0.037 [0.001, 0.070]**
Recent experience of being swept	2468 (420 IDs)	2459 (418 IDs)	2467 (419 IDs)	2449 (417 IDs)
Between-person effect	0.008 [-0.016, 0.033]	**0.127 [0.032, 0.233]**	**0.034 [0.005, 0.067]**	0.021 [0.000, 0.045]
Within-person effect	**0.047 [0.032, 0.064]**	**0.204 [0.135, 0.274]**	**0.049 [0.031, 0.069]**	**0.045 [0.030, 0.063]**
Neighborhood exposure to camping laws	2301 (376 IDs)	2288 (373 IDs)	2299 (374 IDs)	2275 (373 IDs)
Between-person effect	0.005 [-0.004, 0.014]	**0.051 [0.015, 0.089]**	0.009 [-0.001, 0.020]	0.008 [0.000, 0.017]
Within-person effect	0.005 [-0.002, 0.013]	0.030 [-0.009, 0.072]	0.008 [-0.003, 0.018]	0.007 [-0.003, 0.019]
Concern about camping laws	2835 (442 IDs)	2824 (441 IDs)	2838 (442 IDs)	2805 (441 IDs)
Between-person effect	0.010 [-0.007, 0.025]	**0.095 [0.037, 0.162]**	0.017 [-0.001, 0.036]	**0.016 [0.001, 0.032]**
Within-person effect	0.011 [-0.001, 0.025]	**0.064 [0.011, 0.122]**	**0.016 [0.002, 0.031]**	**0.016 [0.001, 0.031]**

CI= Confidence interval; IDs=Individuals

Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate multilevel mediation models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter. Confidence intervals are percentile intervals from bootstrapping 1000 random samples. Estimates highlighted in bold are significant at the $p<0.05$ level.

Appendix 3-19. Distribution of exposure to experiences with policing, camping laws, and physical displacement by race and gender across all monthly observations from the analytic sample (N=6275)
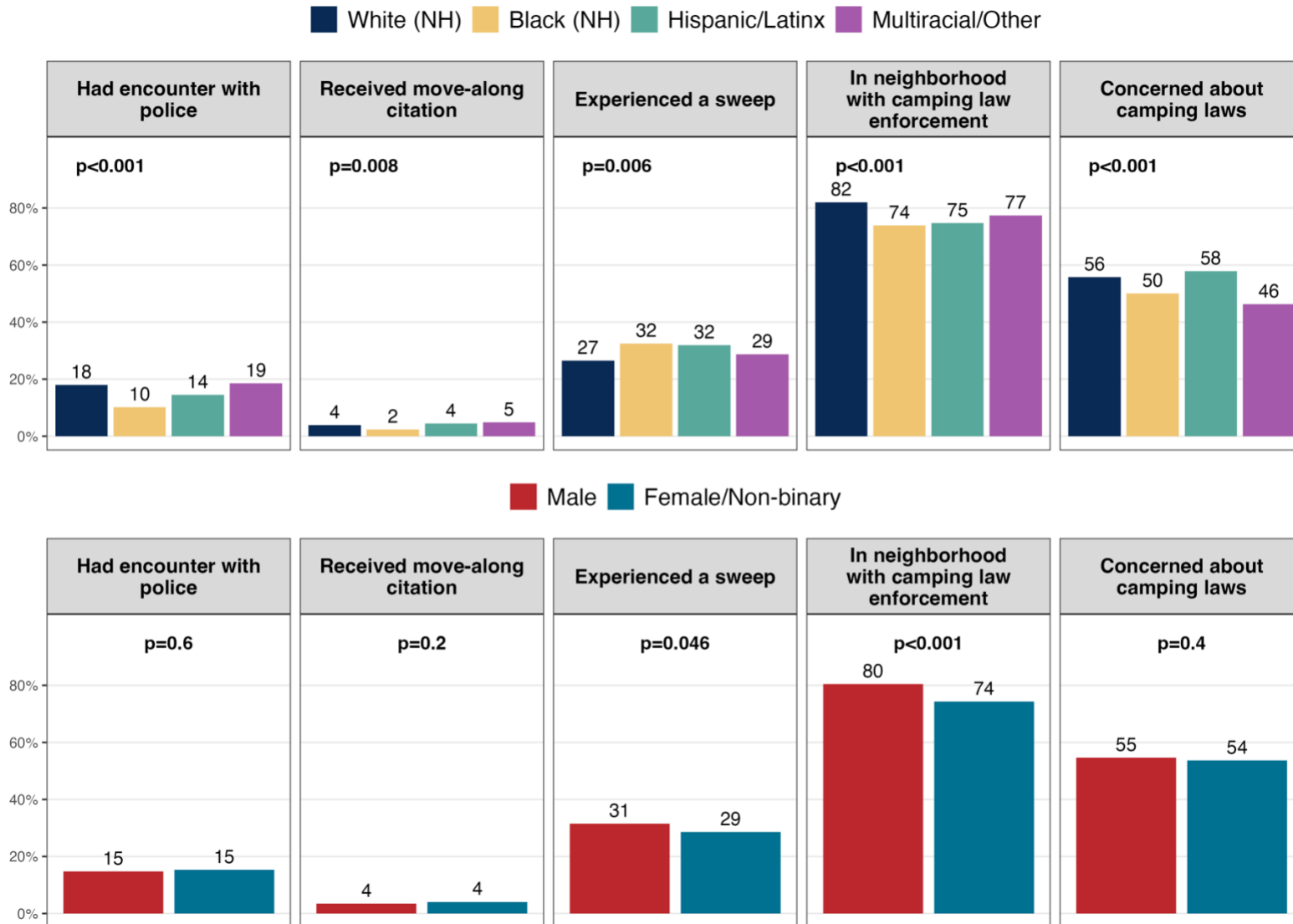
NH=non-Hispanic. *Note:* p-values obtained from chi-square tests to assess differences in frequencies.

Appendix 3-20. Distribution of social, physical, and mental health outcomes by experiences with policing and camping laws across all monthly observations from the analytic sample, stratified by race

	White, non-Hispanic			Black, non-Hispanic		
	No	Yes		No	Yes	
Had encounter with police	n=1504	n=330	p-value	n=1248	n=148	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (0.98)	2.5 (1.00)	0.073	2.3 (1.04)	2.4 (1.12)	0.2
Psychological distress severity score, range 0-12	5.4 (4.11)	7.3 (3.81)	<0.001	4.9 (4.04)	6.2 (4.30)	<0.001
Poor sleep quality score, range 0-4	2.1 (1.12)	2.6 (1.17)	<0.001	2.2 (1.01)	2.5 (1.09)	0.001
Loneliness score range 0-3	1.3 (0.90)	1.6 (0.89)	<0.001	1.4 (1.01)	1.8 (1.06)	<0.001
	Hispanic/Latinx			**Multiracial/Other**		
	No	Yes		No	Yes	
	n=1626	n=285	p-value	n=500	n=116	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.7 (0.97)	3.0 (0.96)	<0.001	2.6 (0.93)	2.9 (1.12)	0.003
Psychological distress severity score, range 0-12	5.4 (4.01)	6.6 (3.80)	<0.001	6.1 (3.79)	7.8 (4.21)	<0.001
Poor sleep quality score, range 0-4	2.5 (1.00)	2.8 (0.95)	<0.001	2.5 (0.94)	2.9 (0.98)	0.004
Loneliness score range 0-3	1.4 (0.96)	1.6 (0.97)	<0.001	1.5 (0.89)	1.9 (1.04)	<0.001
	White, non-Hispanic			**Black, non-Hispanic**		
	No	Yes		No	Yes	
Received a move-along citation	n=1752	n=77	p-value	n=1358	n=35	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (0.99)	2.6 (1.00)	0.044	2.3 (1.05)	2.2 (1.07)	0.5
Psychological distress severity score, range 0-12	5.6 (4.14)	7.5 (3.48)	<0.001	5.0 (4.07)	7.0 (4.21)	0.004
Poor sleep quality score, range 0-4	2.2 (1.14)	2.7 (1.18)	0.003	2.2 (1.02)	2.5 (1.18)	0.2
Loneliness score range 0-3	1.3 (0.90)	1.5 (0.84)	0.044	1.4 (1.02)	1.9 (0.97)	0.002
	Hispanic/Latinx			**Multiracial/Other**		
	No	Yes		No	Yes	
	n=1816	n=87	p-value	n=584	n=30	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.7 (0.97)	3.0 (0.98)	0.012	2.6 (0.95)	3.0 (1.27)	0.019
Psychological distress severity score, range 0-12	5.5 (3.97)	7.3 (4.17)	<0.001	6.3 (3.89)	8.7 (4.08)	0.001

	No	Yes		No	Yes	
Poor sleep quality score, range 0-4	2.5 (1.00)	2.9 (1.04)	0.005	2.5 (0.94)	3.2 (1.03)	0.003
Loneliness score range 0-3	1.4 (0.95)	2.0 (1.00)	<0.001	1.5 (0.92)	1.9 (0.99)	0.040

	White, non-Hispanic			Black, non-Hispanic		
	No	Yes		No	Yes	
Experienced a sweep	n=695	n=284	p-value	n=431	n=301	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (1.01)	2.7 (0.91)	<0.001	2.3 (1.06)	2.3 (1.05)	0.4
Psychological distress severity score, range 0-12	5.5 (4.06)	7.0 (4.24)	<0.001	4.7 (4.16)	5.6 (4.05)	0.002
Poor sleep quality score, range 0-4	2.1 (1.12)	2.6 (1.12)	<0.001	2.1 (0.97)	2.3 (1.10)	0.059
Loneliness score range 0-3	1.3 (0.89)	1.6 (0.90)	<0.001	1.3 (1.00)	1.5 (1.02)	<0.001

	Hispanic/Latinx			Multiracial/Other		
	No	Yes		No	Yes	
	n=667	n=435	p-value	n=197	n=99	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.6 (0.96)	2.8 (0.88)	<0.001	2.6 (0.87)	2.7 (1.12)	0.2
Psychological distress severity score, range 0-12	5.2 (4.06)	6.4 (3.82)	<0.001	5.8 (3.81)	7.2 (4.23)	0.008
Poor sleep quality score, range 0-4	2.4 (0.99)	2.7 (0.99)	<0.001	2.4 (0.98)	2.9 (0.89)	<0.001
Loneliness score range 0-3	1.3 (0.96)	1.6 (0.95)	<0.001	1.5 (0.86)	1.6 (0.98)	0.7

	White, non-Hispanic			Black, non-Hispanic		
	No	Yes		No	Yes	
In a neighborhood with camping law enforcement	n=312	n=1403	p-value	n=329	n=932	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (0.96)	2.5 (0.97)	0.6	2.3 (1.03)	2.3 (1.07)	0.6
Psychological distress severity score, range 0-12	5.7 (4.15)	5.9 (4.14)	0.5	5.5 (3.95)	4.9 (4.19)	0.054
Poor sleep quality score, range 0-4	2.1 (1.09)	2.3 (1.16)	0.090	2.2 (1.07)	2.3 (0.99)	0.6
Loneliness score range 0-3	1.3 (0.91)	1.4 (0.90)	0.065	1.4 (0.97)	1.4 (1.04)	>0.9

	Hispanic/Latinx			Multiracial/Other		
	No	Yes		No	Yes	
	n=451	n=1331	p-value	n=130	n=444	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.7 (1.03)	2.7 (0.97)	0.7	2.5 (0.91)	2.7 (0.99)	0.010
Psychological distress severity score, range 0-12	5.2 (4.07)	5.9 (4.01)	0.001	6.0 (3.21)	6.7 (4.07)	0.066

	No	Yes		No	Yes	
Poor sleep quality score, range 0-4	2.6 (1.15)	2.5 (0.96)	0.5	2.5 (0.88)	2.6 (0.94)	0.5
Loneliness score range 0-3	1.3 (0.99)	1.5 (0.96)	0.014	1.5 (0.93)	1.6 (0.94)	0.074

	White, non-Hispanic			Black, non-Hispanic		
Concerned about camping laws	No n=773	Yes n=1089	p-value	No n=676	Yes n=735	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.2 (1.02)	2.5 (0.95)	<0.001	2.3 (0.98)	2.3 (1.11)	0.8
Psychological distress severity score, range 0-12	4.5 (3.94)	6.6 (4.05)	<0.001	4.2 (3.94)	5.8 (4.07)	<0.001
Poor sleep quality score, range 0-4	2.1 (1.12)	2.4 (1.15)	<0.001	2.1 (0.96)	2.3 (1.07)	0.010
Loneliness score range 0-3	1.1 (0.91)	1.5 (0.86)	<0.001	1.2 (0.99)	1.7 (0.98)	<0.001

	Hispanic/Latinx			Multiracial/Other		
	No n=785	Yes n=1143	p-value	No n=318	Yes n=291	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.6 (1.05)	2.7 (0.92)	0.025	2.5 (0.94)	2.8 (0.98)	<0.001
Psychological distress severity score, range 0-12	5.0 (4.10)	6.1 (3.85)	<0.001	6.1 (4.00)	6.8 (3.82)	0.036
Poor sleep quality score, range 0-4	2.4 (1.03)	2.6 (0.97)	<0.001	2.4 (0.97)	2.7 (0.93)	0.008
Loneliness score range 0-3	1.2 (0.98)	1.6 (0.92)	<0.001	1.6 (0.88)	1.6 (0.98)	0.8

SD=Standard deviation.

Note: p-values obtained from two-sample t-tests to assess differences in means by exposure variable.

Appendix 3-21. Distribution of social, physical, and mental health outcomes by experiences with policing and camping laws across all monthly observations from the analytic sample, stratified by gender

	Male			Female/Non-binary		
	No	Yes		No	Yes	
Had encounter with police	n=2582	n=463	p-value	n=2511	n=478	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (1.05)	2.6 (1.09)	<0.001	2.5 (0.95)	2.8 (0.99)	<0.001
Psychological distress severity score, range 0-12	4.8 (3.98)	6.2 (3.87)	<0.001	5.8 (4.06)	7.6 (3.86)	<0.001
Poor sleep quality score, range 0-4	2.3 (1.05)	2.7 (1.07)	<0.001	2.3 (1.04)	2.7 (1.04)	<0.001
Loneliness score range 0-3	1.3 (0.97)	1.7 (0.98)	<0.001	1.4 (0.92)	1.7 (0.95)	<0.001
	Male			**Female/Non-binary**		
	No	Yes		No	Yes	
Received a move-along citation	n=2926	n=110	p-value	n=2849	n=128	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (1.06)	2.6 (1.02)	0.088	2.5 (0.95)	2.9 (1.10)	<0.001
Psychological distress severity score, range 0-12	5.0 (3.99)	6.6 (3.90)	<0.001	6.0 (4.07)	8.2 (3.79)	<0.001
Poor sleep quality score, range 0-4	2.4 (1.06)	2.7 (1.08)	0.006	2.3 (1.03)	2.8 (1.14)	<0.001
Loneliness score range 0-3	1.4 (0.98)	1.6 (0.93)	0.003	1.4 (0.93)	1.9 (0.93)	<0.001
	Male			**Female/Non-binary**		
	No	Yes		No	Yes	
Experienced a sweep	n=1039	n=612	p-value	n=1042	n=557	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (1.05)	2.6 (0.96)	<0.001	2.5 (0.95)	2.7 (0.99)	<0.001
Psychological distress severity score, range 0-12	4.8 (3.95)	5.9 (4.06)	<0.001	5.7 (4.14)	7.0 (3.97)	<0.001
Poor sleep quality score, range 0-4	2.2 (1.04)	2.6 (1.04)	<0.001	2.3 (1.04)	2.6 (1.09)	<0.001
Loneliness score range 0-3	1.3 (0.98)	1.5 (0.98)	<0.001	1.3 (0.90)	1.7 (0.94)	<0.001
	Male			**Female/Non-binary**		
	No	Yes		No	Yes	
In a neighborhood with camping law enforcement	n=545	n=2234	p-value	n=716	n=2068	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.4 (1.05)	2.5 (1.06)	0.7	2.6 (0.99)	2.6 (0.96)	0.2
Psychological distress severity score, range 0-12	5.0 (3.89)	5.2 (4.08)	0.3	5.9 (3.97)	6.4 (4.12)	0.004

	No	Yes		No	Yes	
Poor sleep quality score, range 0-4	2.5 (1.11)	2.4 (1.05)	0.4	2.3 (1.12)	2.4 (1.04)	0.12
Loneliness score range 0-3	1.3 (0.95)	1.4 (0.99)	<0.001	1.4 (0.95)	1.5 (0.93)	0.3

	Male			Female/Non-binary		
	No	Yes		No	Yes	
Concerned about camping laws	n=1347	n=1715	p-value	n=1358	n=1679	p-value
	mean (SD)	mean (SD)		mean (SD)	mean (SD)	
Poor self-rated physical health score, range 0-4	2.2 (1.08)	2.6 (1.02)	<0.001	2.6 (0.92)	2.6 (0.99)	0.7
Psychological distress severity score, range 0-12	4.1 (3.85)	5.9 (3.95)	<0.001	5.4 (4.07)	6.8 (3.98)	<0.001
Poor sleep quality score, range 0-4	2.1 (1.06)	2.5 (1.04)	<0.001	2.3 (1.00)	2.4 (1.08)	0.048
Loneliness score range 0-3	1.1 (0.95)	1.6 (0.96)	<0.001	1.3 (0.96)	1.6 (0.90)	<0.001

SD=Standard deviation.

Note: p-values obtained from two-sample t-tests to assess differences in means by exposure variable.

Appendix 3-22. Estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the analytic sample, by racial group

	White, non-Hispanic	Black, non-Hispanic	Latinx/ Hispanic	Multiracial/ Other	F-statistic, p-value[+]
Self-rated poor physical health	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police 4626 (577 IDs)					
Between-person effect	0.27 [-0.14, 0.67]	0.20 [-0.39, 0.79]	0.54 [0.14, 0.94]**	0.23 [-0.39, 0.86]	0.50 (p=0.685)
Within-person effect	**0.09 [-0.01, 0.20]**	**-0.04 [-0.18, 0.10]**	**0.18 [0.08, 0.29]***	**0.24 [0.07, 0.42]**	**2.79 (p=0.039)**
Recent move-along citation 4613 (575 IDs)					
Between-person effect	0.56 [-0.33, 1.46]	0.50 [-0.69, 1.70]	0.56 [-0.14, 1.27]	-0.30 [-2.05, 1.44]	0.29 (p=0.833)
Within-person effect	**0.24 [0.07, 0.40]**	**-0.26 [-0.55, 0.02]**	**0.14 [-0.03, 0.32]**	**0.01 [-0.25, 0.27]**	**3.30 (p=0.020)**
Recent experience of being swept 2586 (429 IDs)					
Between-person effect	0.54 [0.11, 0.97]*	0.07 [-0.35, 0.49]	0.23 [-0.11, 0.57]	-0.27 [-0.96, 0.43]	1.57 (p=0.195)
Within-person effect	0.15 [0.03, 0.26]*	0.07 [-0.07, 0.21]	0.06 [-0.05, 0.17]	0.17 [-0.07, 0.42]	0.57 (p=0.632)
Neighborhood exposure to camping laws 4264 (562 IDs)					
Between-person effect	-0.11 [-0.54, 0.32]	0.16 [-0.20, 0.53]	0.04 [-0.29, 0.36]	0.26 [-0.44, 0.97]	0.41 (p=0.742)
Within-person effect	0.06 [-0.07, 0.20]	0.06 [-0.06, 0.18]	-0.04 [-0.16, 0.08]	0.01 [-0.18, 0.19]	0.63 (p=0.595)
Concern about camping laws 4706 (581 IDs)					
Between-person effect	0.29 [-0.05, 0.64]	-0.04 [-0.38, 0.29]	0.18 [-0.15, 0.51]	0.43 [-0.14, 0.99]	0.93 (p=0.425)
Within-person effect	0.15 [0.05, 0.25]**	-0.02 [-0.12, 0.08]	0.06 [-0.02, 0.15]	0.05 [-0.13, 0.22]	1.92 (p=0.124)
Psychological distress severity	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police 4617 (578 IDs)					
Between-person effect	2.75 [1.09, 4.40]**	2.01 [-0.40, 4.42]	1.27 [-0.36, 2.89]	2.24 [-0.35, 4.84]	0.55 (p=0.647)
Within-person effect	0.43 [0.03, 0.84]*	0.58 [0.02, 1.13]*	0.03 [-0.37, 0.44]	0.40 [-0.30, 1.10]	1.04 (p=0.372)
Recent move-along citation 4603 (576 IDs)					

Between-person effect	3.52 [-0.10, 7.14]	4.00 [-1.09, 9.10]	1.14 [-1.78, 4.06]	1.67 [-5.55, 8.88]	0.50 (p=0.682)
Within-person effect	0.14 [-0.50, 0.79]	0.52 [-0.58, 1.62]	0.00 [-0.67, 0.68]	-0.10 [-1.12, 0.92]	0.27 (p=0.846)
Recent experience of being swept					
2581 (428 IDs)					
Between-person effect	2.47 [0.71, 4.23]**	1.66 [-0.07, 3.39]	0.93 [-0.44, 2.30]	0.63 [-2.20, 3.45]	0.77 (p=0.513)
Within-person effect	**-0.20 [-0.67, 0.26]**	**0.54 [-0.02, 1.11]**	**0.54 [0.11, 0.97]***	**1.19 [0.22, 2.16]***	**3.19 (p=0.023)**
Neighborhood exposure to camping laws					
4250 (562 IDs)					
Between-person effect	-0.78 [-2.54, 0.99]	-0.27 [-1.78, 1.24]	-0.32 [-1.68, 1.04]	0.78 [-2.21, 3.77]	0.26 (p=0.854)
Within-person effect	-0.08 [-0.62, 0.46]	-0.09 [-0.57, 0.40]	0.39 [-0.10, 0.87]	-0.32 [-1.05, 0.40]	1.13 (p=0.334)
Concern about camping laws					
4692 (582 IDs)					
Between-person effect	2.31 [0.91, 3.71]**	2.50 [1.13, 3.86]***	1.37 [0.04, 2.70]*	2.92 [0.58, 5.26]*	0.70 (p=0.553)
Within-person effect	0.57 [0.18, 0.96]**	0.41 [0.02, 0.81]*	0.22 [-0.12, 0.56]	0.48 [-0.19, 1.15]	0.65 (p=0.583)
Poor sleep quality	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police					
2921 (444 IDs)					
Between-person effect	0.69 [0.25, 1.13]**	0.98 [0.15, 1.81]*	0.49 [0.08, 0.90]*	0.27 [-0.47, 1.01]	0.69 (p=0.559)
Within-person effect	0.12 [-0.04, 0.28]	0.17 [-0.03, 0.37]	-0.01 [-0.16, 0.14]	-0.02 [-0.31, 0.28]	0.93 (p=0.428)
Recent move-along citation					
2912 (442 IDs)					
Between-person effect	0.77 [-0.08, 1.63]	1.27 [-0.40, 2.93]	0.57 [-0.14, 1.28]	-0.02 [-2.12, 2.09]	0.35 (p=0.788)
Within-person effect	0.08 [-0.15, 0.32]	-0.01 [-0.43, 0.41]	-0.05 [-0.31, 0.21]	0.23 [-0.19, 0.66]	0.50 (p=0.685)
Recent experience of being swept					
2588 (430 IDs)					
Between-person effect	0.54 [0.13, 0.96]*	0.31 [-0.10, 0.72]	0.31 [-0.02, 0.64]	0.40 [-0.27, 1.08]	0.30 (p=0.827)
Within-person effect	0.09 [-0.06, 0.24]	-0.01 [-0.19, 0.17]	-0.13 [-0.27, 0.00]	0.15 [-0.15, 0.45]	2.03 (p=0.108)
Neighborhood exposure to camping laws					
2664 (428 IDs)					
Between-person effect	0.25 [-0.23, 0.72]	-0.03 [-0.47, 0.41]	-0.19 [-0.53, 0.15]	0.94 [-0.08, 1.96]	1.86 (p=0.135)

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	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	
Within-person effect	0.01 [-0.31, 0.33]	-0.01 [-0.22, 0.20]	-0.05 [-0.27, 0.17]	-0.09 [-0.45, 0.27]	0.08 (p=0.971)
Concern about camping laws 2985 (449 IDs)					
Between-person effect	0.33 [-0.08, 0.74]	0.26 [-0.11, 0.62]	0.24 [-0.10, 0.58]	0.60 [-0.02, 1.22]	0.38 (p=0.767)
Within-person effect	-0.04 [-0.19, 0.11]	-0.10 [-0.27, 0.06]	-0.05 [-0.18, 0.08]	-0.01 [-0.32, 0.31]	0.16 (p=0.922)
Loneliness	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police 4595 (577 IDs)					
Between-person effect	0.18 [-0.21, 0.58]	0.68 [0.11, 1.25]*	0.29 [-0.09, 0.68]	0.59 [-0.03, 1.21]	0.88 (p=0.449)
Within-person effect	0.10 [0.01, 0.19]*	0.06 [-0.07, 0.19]	0.08 [-0.02, 0.17]	-0.02 [-0.18, 0.13]	0.62 (p=0.599)
Recent move-along citation 4581 (575 IDs)					
Between-person effect	0.19 [-0.68, 1.06]	1.31 [0.11, 2.51]*	0.38 [-0.31, 1.06]	0.51 [-1.19, 2.21]	0.79 (p=0.498)
Within-person effect	0.04 [-0.11, 0.18]	0.12 [-0.13, 0.37]	0.18 [0.02, 0.33]*	0.00 [-0.24, 0.23]	0.82 (p=0.481)
Recent experience of being swept 2571 (428 IDs)					
Between-person effect	0.41 [-0.02, 0.83]	0.55 [0.13, 0.97]*	0.35 [0.02, 0.68]*	-0.07 [-0.75, 0.61]	0.79 (p=0.498)
Within-person effect	0.00 [-0.10, 0.11]	0.02 [-0.11, 0.14]	0.03 [-0.07, 0.12]	-0.03 [-0.25, 0.18]	0.11 (p=0.957)
Neighborhood exposure to camping laws 4226 (560 IDs)					
Between-person effect	0.09 [-0.33, 0.51]	0.02 [-0.33, 0.38]	-0.15 [-0.47, 0.17]	0.11 [-0.59, 0.82]	0.36 (p=0.785)
Within-person effect	-0.08 [-0.20, 0.04]	-0.03 [-0.14, 0.08]	0.05 [-0.06, 0.16]	-0.17 [-0.34, -0.01]*	1.79 (p=0.147)
Concern about camping laws 4661 (580 IDs)					
Between-person effect	0.46 [0.13, 0.80]**	0.65 [0.32, 0.97]***	0.51 [0.20, 0.82]**	0.60 [0.05, 1.15]*	0.23 (p=0.872)
Within-person effect	0.11 [0.02, 0.20]*	0.05 [-0.04, 0.14]	0.07 [-0.01, 0.14]	0.04 [-0.11, 0.19]	0.40 (p=0.751)

* p<0.05   ** p<0.01   ***p<0.001
CI= Confidence interval; IDs=Individuals
⁺F-statistic and its corresponding p-value were obtained from ANOVA tests that tests the significance of the interaction terms between the exposure variable and race at the between- and with-person level. Degrees of freedom=3.
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that had interactions between the exposure variable and race, used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-23. Estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the analytic sample, by sex/gender group

	Male	Female/Non-binary	F-statistic, p-value
Self-rated poor physical health	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police 4626 (577 IDs)			
Between-person effect	0.52 [0.19, 0.84]**	0.17 [-0.17, 0.51]	2.22 (p=0.137)
Within-person effect	0.15 [0.06, 0.24]***	0.08 [0.00, 0.17]	1.13 (p=0.288)
Recent move-along citation 4613 (575 IDs)			
Between-person effect	0.50 [-0.14, 1.14]	0.47 [-0.26, 1.20]	0.00 (p=0.952)
Within-person effect	0.17 [0.02, 0.32]*	0.06 [-0.08, 0.20]	1.13 (p=0.288)
Recent experience of being swept 2586 (429 IDs)			
Between-person effect	0.28 [-0.02, 0.59]	0.16 [-0.15, 0.46]	0.33 (p=0.566)
Within-person effect	0.14 [0.04, 0.23]**	0.06 [-0.04, 0.15]	1.32 (p=0.250)
Neighborhood exposure to camping laws 4264 (562 IDs)			
Between-person effect	0.06 [-0.23, 0.35]	0.06 [-0.22, 0.34]	0.00 (p=0.987)
Within-person effect	0.03 [-0.08, 0.13]	0.02 [-0.07, 0.11]	0.01 (p=0.909)
Concern about camping laws 4706 (581 IDs)			
Between-person effect	0.38 [0.12, 0.64]**	-0.05 [-0.31, 0.21]	5.60 (p=0.018)
Within-person effect	0.12 [0.05, 0.19]**	0.01 [-0.07, 0.08]	4.48 (p=0.034)
Psychological distress severity	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police 4617 (578 IDs)			
Between-person effect	2.38 [1.05, 3.72]***	1.63 [0.22, 3.03]*	0.62 (p=0.431)
Within-person effect	0.30 [-0.04, 0.63]	0.34 [-0.01, 0.68]	0.02 (p=0.875)
Recent move-along citation 4603 (576 IDs)			
Between-person effect	3.16 [0.52, 5.81]*	1.24 [-1.79, 4.28]	0.89 (p=0.345)
Within-person effect	0.08 [-0.51, 0.66]	0.13 [-0.41, 0.67]	0.02 (p=0.887)
Recent experience of being swept 2581 (428 IDs)			
Between-person effect	1.83 [0.60, 3.06]**	1.09 [-0.17, 2.34]	0.71 (p=0.401)
Within-person effect	0.32 [-0.05, 0.69]	0.38 [-0.01, 0.77]	0.05 (p=0.823)
Neighborhood exposure to camping laws 4250 (562 IDs)			
Between-person effect	-0.41 [-1.61, 0.80]	-0.25 [-1.41, 0.92]	0.04 (p=0.849)
Within-person effect	-0.09 [-0.51, 0.33]	0.12 [-0.24, 0.47]	0.57 (p=0.450)
Concern about camping laws 4692 (582 IDs)			
Between-person effect	2.82 [1.77, 3.86]***	1.42 [0.35, 2.48]**	3.56 (p=0.060)

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	Beta [95% CI]	Beta [95% CI]	
Within-person effect	0.52 [0.23, 0.80]***	0.27 [-0.03, 0.56]	1.46 (p=0.227)
Poor sleep quality	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police			
2921 (444 IDs)			
Between-person effect	0.74 [0.38, 1.11]***	0.42 [0.04, 0.80]*	1.56 (p=0.212)
Within-person effect	0.10 [-0.03, 0.24]	0.04 [-0.09, 0.17]	0.51 (p=0.473)
Recent move-along citation			
2912 (442 IDs)			
Between-person effect	0.56 [-0.13, 1.24]	0.80 [0.06, 1.54]*	0.23 (p=0.632)
Within-person effect	0.06 [-0.17, 0.28]	0.04 [-0.17, 0.24]	0.02 (p=0.880)
Recent experience of being swept			
2588 (430 IDs)			
Between-person effect	0.46 [0.16, 0.75]**	0.30 [0.00, 0.59]	0.59 (p=0.442)
Within-person effect	0.05 [-0.06, 0.17]	-0.08 [-0.20, 0.04]	2.44 (p=0.118)
Neighborhood exposure to camping laws			
2664 (428 IDs)			
Between-person effect	-0.15 [-0.50, 0.19]	0.13 [-0.18, 0.44]	1.42 (p=0.234)
Within-person effect	0.09 [-0.12, 0.30]	-0.10 [-0.26, 0.06]	1.83 (p=0.176)
Concern about camping laws			
2985 (449 IDs)			
Between-person effect	0.43 [0.15, 0.71]**	0.16 [-0.13, 0.45]	1.78 (p=0.183)
Within-person effect	0.00 [-0.11, 0.12]	-0.11 [-0.23, 0.00]	1.94 (p=0.163)
Loneliness	Beta [95% CI]	Beta [95% CI]	
Recent encounter with police			
4595 (577 IDs)			
Between-person effect	0.54 [0.22, 0.85]***	0.17 [-0.16, 0.50]	2.63 (p=0.106)
Within-person effect	0.04 [-0.04, 0.12]	0.10 [0.02, 0.18]**	1.27 (p=0.259)
Recent move-along citation			
4581 (575 IDs)			
Between-person effect	0.46 [-0.17, 1.09]	0.49 [-0.22, 1.21]	0.00 (p=0.944)
Within-person effect	0.07 [-0.07, 0.20]	0.11 [-0.01, 0.23]	0.25 (p=0.617)
Recent experience of being swept			
2571 (428 IDs)			
Between-person effect	0.39 [0.10, 0.69]**	0.35 [0.05, 0.65]*	0.04 (p=0.851)
Within-person effect	-0.05 [-0.13, 0.03]	0.09 [0.00, 0.17]*	5.61 (p=0.018)
Neighborhood exposure to camping laws			
4226 (560 IDs)			
Between-person effect	0.06 [-0.22, 0.34]	-0.10 [-0.37, 0.18]	0.60 (p=0.440)
Within-person effect	-0.03 [-0.13, 0.07]	-0.04 [-0.12, 0.04]	0.03 (p=0.872)
Concern about camping laws			
4661 (580 IDs)			
Between-person effect	0.66 [0.41, 0.91]***	0.43 [0.17, 0.68]***	1.77 (p=0.183)
Within-person effect	0.14 [0.07, 0.21]***	0.00 [-0.06, 0.07]	8.57 (p=0.003)

* p<0.05   ** p<0.01   ***p<0.001
CI= Confidence interval; IDs=Individuals

*F-statistic and its corresponding p-value were obtained from ANOVA tests that tests the significance of the interaction terms between the exposure variable and gender at the between- and with-person level. Degrees of freedom=1.

Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that had interactions between the exposure variable and race, used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-24. Estimates of the between- and within-person effects of experiences with policing and camping laws, lagged by one monthly observation, on poor health among the analytic sample

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	3944 (472 IDs)	3929 (468 IDs)	2400 (367 IDs)	3908 (467 IDs)
Between-person effect	**0.42 [0.13, 0.71]****	**1.95 [0.76, 3.15]****	**0.58 [0.27, 0.88]*****	**0.47 [0.18, 0.75]****
Within-person effect	-0.01 [-0.08, 0.05]	**0.26 [0.01, 0.52]***	0.01 [-0.09, 0.11]	0.02 [-0.04, 0.08]
Recent move-along citation	3935 (472 IDs)	3919 (468 IDs)	2395 (367 IDs)	3898 (467 IDs)
Between-person effect	**0.62 [0.10, 1.14]***	**3.29 [1.13, 5.45]****	**0.89 [0.35, 1.44]****	**0.85 [0.34, 1.36]****
Within-person effect	-0.06 [-0.17, 0.04]	0.24 [-0.18, 0.67]	0.13 [-0.03, 0.29]	**0.11 [0.01, 0.20]***
Recent experience of being swept	2080 (352 IDs)	2076 (351 IDs)	2079 (351 IDs)	2063 (348 IDs)
Between-person effect	0.14 [-0.10, 0.38]	**1.53 [0.53, 2.53]****	**0.33 [0.09, 0.57]****	**0.40 [0.16, 0.64]****
Within-person effect	-0.02 [-0.09, 0.05]	0.16 [-0.13, 0.45]	**0.11 [0.01, 0.20]***	0.05 [-0.01, 0.11]
Neighborhood exposure to camping laws	3589 (449 IDs)	3571 (445 IDs)	2156 (348 IDs)	3549 (443 IDs)
Between-person effect	0.13 [-0.11, 0.36]	-0.40 [-1.40, 0.60]	-0.05 [-0.32, 0.22]	-0.07 [-0.31, 0.16]
Within-person effect	-0.02 [-0.09, 0.05]	0.14 [-0.15, 0.43]	-0.06 [-0.20, 0.09]	0.04 [-0.03, 0.11]
Concern about camping laws	4021 (477 IDs)	4001 (473 IDs)	2462 (375 IDs)	3973 (472 IDs)
Between-person effect	**0.27 [0.06, 0.49]***	**2.38 [1.51, 3.24]*****	**0.33 [0.10, 0.56]****	**0.66 [0.45, 0.86]*****
Within-person effect	0.01 [-0.04, 0.07]	0.29 [0.07, 0.51]*	-0.02 [-0.11, 0.07]	0.04 [-0.01, 0.09]

* p<0.05   ** p<0.01   ***p<0.001
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. The exposure variables were lagged by one time observation. Estimates were obtained from multivariate hierarchical linear models that used listwise deletion to address missingness and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-25. Estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the sample of respondents who were unsheltered outside sometime in the past month

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	1919 (328 IDs)	1927 (330 IDs)	1390 (265 IDs)	1920 (331 IDs)
Between-person effect	**0.39 [0.10, 0.67]****	**1.73 [0.55, 2.90]****	**0.36 [0.06, 0.65]***	**0.32 [0.04, 0.59]***
Within-person effect	**0.16 [0.07, 0.26]****	0.22 [-0.13, 0.56]	0.02 [-0.12, 0.15]	**0.11 [0.03, 0.19]****
Recent move-along citation	1907 (325 IDs)	1914 (327 IDs)	1383 (263 IDs)	1907 (328 IDs)
Between-person effect	**0.59 [0.04, 1.13]***	**2.64 [0.36, 4.92]***	**0.63 [0.08, 1.18]***	0.47 [-0.06, 1.00]
Within-person effect	0.14 [-0.02, 0.29]	0.13 [-0.42, 0.67]	0.01 [-0.2, 0.22]	**0.16 [0.03, 0.29]***
Recent experience of being swept	1229 (251 IDs)	1238 (254 IDs)	1237 (254 IDs)	1233 (254 IDs)
Between-person effect	**0.30 [0.02, 0.58]***	**1.75 [0.63, 2.87]****	0.21 [-0.05, 0.47]	**0.41 [0.14, 0.68]****
Within-person effect	0.09 [-0.01, 0.18]	0.06 [-0.3, 0.42]	-0.05 [-0.17, 0.07]	-0.06 [-0.15, 0.02]
Neighborhood exposure to camping laws	1782 (315 IDs)	1787 (317 IDs)	1281 (250 IDs)	1777 (317 IDs)
Between-person effect	0.26 [-0.01, 0.54]	-0.23 [-1.34, 0.89]	0.23 [-0.06, 0.52]	-0.02 [-0.28, 0.25]
Within-person effect	-0.05 [-0.17, 0.07]	0.24 [-0.19, 0.67]	-0.09 [-0.27, 0.09]	-0.01 [-0.11, 0.09]
Concern about camping laws	1976 (333 IDs)	1981 (335 IDs)	1435 (268 IDs)	1968 (335 IDs)
Between-person effect	**0.40 [0.14, 0.66]****	**2.11 [1.02, 3.20]*****	0.23 [-0.05, 0.5]	**0.34 [0.08, 0.60]***
Within-person effect	**0.15 [0.06, 0.24]****	**0.45 [0.13, 0.78]****	-0.06 [-0.19, 0.07]	0.09 [0.02, 0.17]*

* p<0.05　　** p<0.01　　　***p<0.001
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models restricted to responses where the respondent indicated sleeping unsheltered outside at least one night in the past month, used listwise deletion to address missingness, and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter.

Appendix 3-26. Estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the analytic sample using imputed data from multiple imputation by chained equations

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.35 [0.13, 0.56]****	**2.31 [1.43, 3.19]*****	**0.52 [0.28, 0.76]*****	**0.39 [0.18, 0.60]*****
Within-person effect	**0.09 [0.04, 0.15]****	**0.43 [0.22, 0.64]*****	0.06 [-0.02, 0.15]	**0.07 [0.02, 0.12]****
Recent move-along citation	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.54 [0.12, 0.95]***	**3.78 [2.04, 5.52]*****	**0.68 [0.24, 1.12]****	**0.73 [0.31, 1.15]****
Within-person effect	0.07 [-0.03, 0.17]	0.24 [-0.12, 0.60]	0.01 [-0.12, 0.14]	**0.09 [0.01, 0.16]***
Recent experience of being swept	3808 (547 IDs)	3779 (550 IDs)	3830 (548 IDs)	3732 (547 IDs)
Between-person effect	**0.28 [0.08, 0.47]****	**1.14 [0.32, 1.97]****	**0.39 [0.19, 0.58]*****	**0.25 [0.05, 0.45]***
Within-person effect	0.05 [-0.01, 0.11]	**0.35 [0.1, 0.59]****	0.03 [-0.05, 0.11]	**0.06 [0.01, 0.11]***
Neighborhood exposure to camping laws	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	0.13 [-0.05, 0.30]	0.31 [-0.39, 1.01]	0.09 [-0.11, 0.28]	0.08 [-0.09, 0.24]
Within-person effect	0.01 [-0.05, 0.08]	-0.03 [-0.27, 0.20]	-0.01 [-0.12, 0.11]	-0.03 [-0.08, 0.03]
Concern about camping laws	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.23 [0.06, 0.41]****	**2.39 [1.70, 3.08]*****	**0.39 [0.20, 0.57]*****	**0.55 [0.38, 0.71]*****
Within-person effect	**0.06 [0.01, 0.11]***	**0.35 [0.17, 0.53]*****	-0.01 [-0.09, 0.06]	**0.06 [0.02, 0.1]****

* $p<0.05$ ** $p<0.01$ ***$p<0.001$
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter. The models were run on 5 imputed datasets produced from multiple imputation by chained equations, and model estimates were pooled using Rubin's rules.

Appendix 3-27. Weighted estimates of the between- and within-person effects of experiences with policing and camping laws on poor health among the analytic sample using imputed data from multiple imputation by chained equations

	Poor self-rated physical health score (range 0-4)	Psychological distress severity score (range 0-12)	Poor sleep quality score (range 0-4)	Loneliness score (range 0-3)
	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]	Beta [95% CI]
Recent encounter with police	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.37 [0.16, 0.59]****	**2.38 [1.53, 3.24]*****	**0.55 [0.31, 0.78]*****	**0.41 [0.18, 0.64]*****
Within-person effect	**0.10 [0.03, 0.16]****	**0.39 [0.17, 0.61]*****	0.06 [-0.03, 0.16]	**0.07 [0.02, 0.12]****
Recent move-along citation	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.48 [0.06, 0.89]***	**3.28 [1.13, 5.44]****	**0.65 [0.25, 1.06]****	**0.73 [0.29, 1.17]****
Within-person effect	0.07 [-0.05, 0.19]	0.15 [-0.25, 0.56]	-0.01 [-0.17, 0.15]	0.07 [-0.03, 0.16]
Recent experience of being swept	3808 (547 IDs)	3779 (550 IDs)	3830 (548 IDs)	3732 (547 IDs)
Between-person effect	**0.27 [0.08, 0.47]****	**1.01 [0.02, 2.00]***	**0.35 [0.16, 0.55]*****	**0.22 [0.02, 0.43]***
Within-person effect	0.05 [-0.02, 0.11]	**0.32 [0.03, 0.62]***	0.03 [-0.07, 0.12]	**0.06 [0.01, 0.12]***
Neighborhood exposure to camping laws	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	0.11 [-0.07, 0.29]	0.35 [-0.35, 1.04]	0.08 [-0.14, 0.29]	0.07 [-0.10, 0.24]
Within-person effect	0.01 [-0.05, 0.07]	-0.05 [-0.30, 0.20]	-0.01 [-0.14, 0.12]	-0.02 [-0.09, 0.04]
Concern about camping laws	6190 (722 IDs)	6108 (721 IDs)	3830 (548 IDs)	6035 (715 IDs)
Between-person effect	**0.24 [0.06, 0.41]***	**2.41 [1.73, 3.09]*****	**0.38 [0.18, 0.57]*****	**0.56 [0.39, 0.72]*****
Within-person effect	**0.06 [0.01, 0.12]***	**0.33 [0.13, 0.52]****	-0.01 [-0.09, 0.08]	**0.06 [0.02, 0.11]****

* $p<0.05$ ** $p<0.01$ ***$p<0.001$
CI= Confidence interval; IDs=Individuals
Note: Higher scores in the outcome indicate poorer health. Estimates were obtained from multivariate hierarchical linear models that used nonresponse weighting and controlled for sociodemographic characteristics, health status, indicators of structural vulnerability, knowledge about camping laws, unsheltered status, and survey quarter. The models were run on 5 imputed datasets produced from multiple imputation by chained equations, with non-response weights produced for each imputed dataset, and model estimates were pooled using Rubin's rules.

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