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Examining homeless trajectories and health outcomes among young adults in Los Angeles County

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Community Health Sciences

by

Jessica Kathryn Richards

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ABSTRACT OF THE DISSERTATION

Examining homeless trajectories and health outcomes

among young adults in Los Angeles County

by

Jessica Kathryn Richards

Doctor of Philosophy in Community Health Sciences

University of California, Los Angeles, 2021

Professor Randall S. Kuhn, Chair

Homelessness is a pervasive and urgent social problem. Using a life course and socioecological framework, this dissertation examines how shelter status and homeless trajectories shape health outcomes. I present three studies.

1) To understand the impact of shelter status on health outcomes, I conducted a systematic review of 42 studies on unsheltered homelessness and health. Unsheltered populations experience higher rates of chronic disease, serious mental illness, and substance abuse compared to sheltered populations. Unsheltered homelessness is strongly associated with chronic homelessness that exacerbates serious mental illness and substance use, which is often co-occurring. Despite having large unmet health needs, unsheltered populations have lower health care utilization and often lack health insurance.

2) To understand the impact of duration and frequency of homelessness on health, I conducted secondary data analysis using the Los Angeles Homeless Services Authority (LAHSA) youth survey data from 2018 and 2019 for unsheltered young adults (aged 18-24). Rates of unsheltered homelessness for racial and sexual minority young adults were high relative to Los Angeles County's population. Young adults experiencing long-term homelessness had twice the odds of having a physical health condition, mental health condition, and substance use disorder and of having any health condition. Youth with multiple marginal identities may be especially vulnerable to poor health outcomes. Primary reasons for homelessness among young adults were financial insecurity, household conflict, and not having social support.
3) To explore antecedents and consequences of housing insecurity and homeless among young adults, I conducted 13 qualitative interviews with University of California, Los Angeles (UCLA) students. Structural and individual factors influence housing insecurity, which leads to poor health and academic outcomes. Social stigma and shame are barriers to help seeking for students. More research and high-quality data are needed to examine the relationship between homelessness and health and to identify causal mechanisms. Public health practitioners can advance unsheltered health by improving access to shelter and housing and expedite exits out of homelessness by connecting young adults to health and social services. Resolving structural constraints at the community and institutional level may be most effective at reducing young adult homelessness in Los Angeles County.

The dissertation of Jessica Kathryn Richards is approved.

David N. Myers

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Randall S. Kuhn, Committee Chair

University of California, Los Angeles

2021

Dedicated to my mother and father, who taught me the meaning of home.

Table of Contents

Figures

Tables

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Jessica Kathryn Richards

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Introduction and Overview

Homelessness is a pervasive and urgent social problem. People experiencing homelessness lack a fixed, regular, and adequate nighttime residence (Henry, de Souza, Roddey, Gayen, & Bednar, 2020). Of the 580,466 people who experienced homelessness in the U.S. in 2020, 28% reside in California and 11% are in Los Angeles County (Henry et al., 2020; Los Angeles Homeless Services Authority, 2020). The magnitude and visibility of homelessness have driven public demand for action and resolution. According to a 2019 statewide survey, homelessness is the most important issue facing California and Los Angeles (Baldassare, Bonner, Dykman, & Lawler, 2019).

Homelessness is strongly associated with poor health outcomes. People experiencing homelessness have poorer mental health and physical health and higher rates of substance abuse relative to the general population (Fazel, Geddes, & Kushel, 2014). Homelessness likely has a cumulative impact across the life course, and young adults who are homeless are especially vulnerable. Young adults (aged 18-24) comprise only 8% of those experiencing homelessness nationwide but 19% of those experiencing homelessness in Los Angeles County (Henry et al., 2020; Los Angeles Homeless Services Authority, 2020). Over 4,100 young adults were homeless in Los Angeles County in 2020, a 19% increase from 2019 (Los Angeles Homeless Services Authority, 2019, 2020).

There is an urgent need to address the growing problem of homelessness in the nation and in Los Angeles County. While programmatic efforts are being made to address homelessness, rigorous research on the effect of homelessness on population health is lacking. Most studies use cross-sectional designs making it difficult to infer cause and effect. As a result, it is not clear if poor health causes homelessness or homelessness leads to poor health.

Understanding the effects of homelessness on health over time is essential to develop impactful programs and policies.

A common community response to addressing homelessness is to provide temporary shelter. However, with the growing population of people experiencing homelessness nationwide and in Los Angeles County, resources for providing temporary shelter are lacking and an increasing number of people experiencing homelessness are unsheltered. The literature distinguishes between sheltered homelessness and unsheltered homelessness. Sheltered homelessness is defined as having shelter while being homeless, usually through emergency shelters or transitional housing programs (Henry et al., 2020). Unsheltered homelessness is defined as living in a place not meant for human habitation, such as in a car, tent, or other makeshift shelter (Henry et al., 2020).

Those experiencing unsheltered homelessness may be at substantially greater risk of health problems due to exposure to violence, weather, pollution, poor sanitation, and behavioral risk. Yet little research has investigated the impact of shelter status on health outcomes. Evaluating the impact of unsheltered homelessness on health has important implications for the allocation of housing and health services in states such as California, where more than half of the nation's unsheltered population lives (Henry et al., 2020). In Los Angeles County, the most populous county in the nation, 72% of the homeless population lacks shelter (Los Angeles Homeless Services Authority, 2020).

Young adults may be particularly vulnerable to the effects of homelessness and their developmental needs are often overlooked in efforts to address homelessness. They have less job security and are twice as likely to be underemployed than other age groups (Flaming, Orlando, Burns, & Pickens, 2021). Young adults with insufficient income are unable to pay rent and at

greater risk of becoming homeless. Young adults experiencing homelessness do so during a time when deprivation may lead to long-term consequences for development and functioning (Edidin, Ganim, Hunter, & Karnik, 2012). Homeless youth have high rates of substance use and risky sexual behaviors as well as irregular sleeping and eating patterns that can compromise physical and mental health (Edidin et al., 2012). However, it is unclear how the frequency and duration of homelessness may influence health outcomes among young adults. Addressing this gap would inform interventions to improve health outcomes and facilitate exits out of homelessness.

Early experiences of homelessness can increase the risk of homelessness later in life and longer durations of homelessness decrease the likelihood that young adults will exit homelessness (Milburn et al., 2009). Young adults who remain homeless are at risk of becoming chronically homeless, which refers to individuals with a disability who have been continuously homeless for one year or longer or have experienced at least four episodes of homelessness in the last three years where the combined duration of homelessness is as least one year (Henry et al., 2020). Longer durations of homelessness may make it more difficult for young adults to secure gainful employment that would protect against future homelessness.

Education remains one of the best ways to promote economic mobility, however homelessness is a significant barrier to academic success. A study of urban college students found housing insecure students were significantly more affected than housing secure students in their ability to attend and perform in class (Silva et al., 2017). College students who are doubled up or couch surfing do not meet the federal definition of homelessness. As result, we lack data on this precarious housed population that could be used to develop resources and support services. More research is needed to understand how college students become homeless and the consequences of homelessness to ensure student success.

This dissertation uses a life-course and socioecological framework to examine homeless trajectories and health outcomes among young adults in Los Angeles County. The goal of this dissertation is to address key gaps in homelessness research: 1) impact of shelter status on health outcomes, 2) impact of duration and frequency of homelessness on health outcomes, and 3) causal relationship between homelessness and health. I address these gaps using three studies:

Study 1 – Unsheltered homelessness and health: A literature review

- Objective: Review and evaluate the evidence to date on unsheltered homelessness and health

  Research question: What is the evidence to date on unsheltered homelessness and health?

Study 2 – Examining the role of duration and frequency of homelessness on health outcomes among unsheltered young adults

- Objective: Examine the relationship between duration and frequency of homelessness and health outcomes among unsheltered young adults in Los Angeles County

  Research question: Are longer durations and multiple episodes of homelessness associated with poorer health outcomes among unsheltered young adults in Los Angeles County?

Study 3 – 'I was more focused on surviving than growing': Experiences of housing insecurity and homelessness among university students

- Objective: Describe the antecedents and consequences of housing insecurity and homelessness among students at the University of California, Los Angeles (UCLA)
- Research question: What are the antecedents and consequences of housing insecurity and homelessness among students at UCLA?

1. Literature review

This section summarizes the causes of homelessness, defines key concepts including homelessness and housing insecurity, provides historical context for homelessness in Los Angeles County, outlines the evidence gap in homelessness research, and concludes with a review of literature on homelessness and health and homeless trajectories. Explaining the causes of homelessness and defining key concepts provides a background to address evidence gaps in homelessness research. It is necessary to reflect on the challenges and limitations of homelessness research prior to reviewing the literature as they affect how homeless populations are studied and they affect the conclusions drawn from homelessness research. A brief historical summary helps to trace the roots of homelessness in Los Angeles to where we are today. I then review literature on the relationship between homelessness and health. One of the main objectives of this dissertation is to examine the relationship between duration and frequency of homelessness and health outcomes among young adults in Los Angeles County. Health burdens will be operationalized by assessing whether an individual has a mental illness, substance use disorder, and/or physical health condition. For this reason, the literature review on homelessness and health is structured around these topics. Finally, I review the literature on homeless trajectories to better describe antecedents and consequences of homelessness among young adults.

1.1 Causes of homelessness

Structural and individual factors interact to cause homelessness (Byrne, Munley, Fargo, Montgomery, & Culhane, 2013; Fazel et al., 2014). The most critical structural determinant of homelessness is the supply of low-cost housing and housing costs (Fazel et al., 2014; Glynn,

Byrne, & Culhane). Other structural factors include poverty, a lack of available jobs, particularly for low-skilled workers, and policies that restrict access to disability, health, and pension benefits among vulnerable populations (Fazel et al., 2014; Grenier et al., 2016). Community-level factors that are positively associated with the rate of homelessness in the general population include rent level, and the proportion of single-person households, female-headed households, and recently moved households (Byrne et al., 2013). Mental health expenditures and homeownership rate are negatively associated with the rate of homelessness (Byrne et al., 2013). While people experiencing homelessness are more likely to be in poor health, they are less likely to be insured and have lower rates of health care utilization (Nyamathi, Leake, & Gelberg, 2000; Raven et al., 2017). Individual risk factors for homelessness include mental health and substance abuse problems, adverse early childhood experiences of victimization and poverty, lower levels of education, limited social support, precarious work history, personal or parental history of incarceration, and exposure to combat (Brakenhoff, Jang, Slesnick, & Snyder, 2015; Fazel et al., 2014; Grenier et al., 2016; van den Berk-Clark & McGuire, 2013).

1.2 Defining homelessness and housing insecurity

Definitions of homelessness vary and have a direct effect on securing resources for homeless individuals and families. The U.S. Department of Housing and Urban Development (HUD) groups homelessness into four categories: 1) literally homeless, 2) imminent risk of homelessness, 3) homeless under other Federal statutes, 4) fleeing/attempting to flee domestic violence (National Alliance to End Homelessness, 2012). Detailed criteria for each category are provided in Table 1.2.1. For this dissertation, homelessness refers to those who are literally homeless (Category 1).

Table 1.2.1 Criteria for defining homelessness

Category 1	Literally Homeless	(1) Individual or family who lacks a fixed, regular, and adequate nighttime residence, meaning: (i) Has a primary nighttime residence that is a public or private place not meant for human habitation; (ii) Is living in a publicly or privately operated shelter designated to provide temporary living arrangements (including congregate shelters, transitional housing, and hotels and motels paid for by charitable organizations or by federal, state and local government programs); or (Juul et al.) Is exiting an institution where (s)he has resided for 90 days or less and who resided in an emergency shelter or place not meant for human habitation immediately before entering that institution
Category 2	Imminent Risk of Homelessness	(2) Individual or family who will imminently lose their primary nighttime residence, provided that: (i) Residence will be lost within 14 days of the date of application for homeless assistance; (ii) No subsequent residence has been identified; and (Juul et al.) The individual or family lacks the resources or support networks needed to obtain other permanent housing
Category 3	Homeless under other Federal Statutes	(3) Unaccompanied youth under 25 years of age, or families with children and youth, who do not otherwise qualify as homeless under this definition, but who: (i) Are defined as homeless under the other listed federal statutes; (ii) Have not had a lease, ownership interest, or occupancy agreement in permanent housing during the 60 days prior to the homeless assistance application; (Juul et al.) Have experienced persistent instability as measured by two moves or more during in the preceding 60 days; and (iv) Can be expected to continue in such status for an extended period of time due to special needs or barriers
Category 4	Fleeing/Attempting to Flee Domestic Violence	(4) Any individual or family who: (i) Is fleeing, or is attempting to flee, domestic violence; (ii) Has no other residence; and (Juul et al.) Lacks the resources or support networks to obtain other permanent housing

Source: (National Alliance to End Homelessness, 2012)

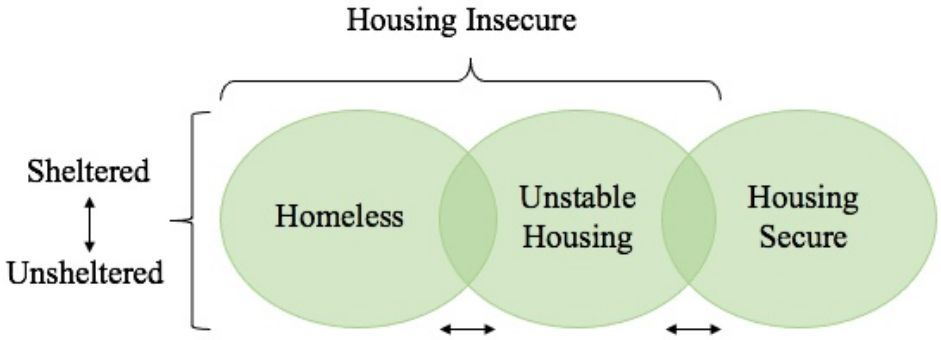
The McKinney-Vento Homelessness Assistance Act broadens the federal definition of homelessness. The McKinney-Vento Act applies to students up through high school and was extended in 2011 to include "people who share housing due to a lack of their own, couch surf, resort to camping, stay in motels, live in cars, or make do with substandard housing" (Bowers & O'Neill, 2019). This expanded definition strengthens resources for younger students but does not extend to college students, leaving them vulnerable to unrecognized forms of homelessness (Hallett & Freas, 2018).

The unsheltered homeless population is defined by sleeping in areas not meant for human habitation and includes but is not limited to sleeping on the street, in a car, or makeshift shelter. While nearly three-quarters of homeless persons in Los Angeles County and 58% of young adults lack shelter (Henry et al., 2020; Los Angeles Homeless Services Authority, 2020), they may be unsheltered in different ways. The most common unsheltered locations are in a car, van or camper/RV (37%), followed by the street (38%), and in a tent or makeshift shelter (25%) (Los Angeles Homeless Services Authority, 2019b). Living in a vehicle can provide a level of protection and security not afforded to other unsheltered homeless. However, vehicle related costs such as fuel, parking, and citations can add up over time. Increasing durations of homelessness are associated with higher rates of sleeping on the street (Flaming, Burns, & Carlen, 2018). Street dwelling varies by age, half of unsheltered children live in vehicles compared to 11% of young adults. Most unsheltered young adults (44%) reported living on the street or in alleyways (Flaming, Burns, & Carlen, 2018).

Housing insecurity is defined as the "availability of and access to stable, safe, adequate, and affordable housing and neighborhoods regardless of gender, race, ethnicity, or sexual orientation" (Cox, Henwood, Rice, & Wenzel, 2017). Definitions for housing insecurity vary and

other terms have been used to reference this concept including housing instability and housing insufficiency (Cox et al., 2017). Cox et al. (2017) recommends adopting "housing insecurity" based on conceptual commonalities between food insecurity and housing insecurity. Under this definition, housing insecurity exists on a continuum and is a multi-dimensional construct. Other main dimensions of housing insecurity have been proposed including "housing type, recent housing history, current housing tenure, financial status, standing in the legal system, education and employment status, harmful substance use, and subjective assessments of housing satisfaction and stability" (Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014). While housing insecurity is comprised of a combination of dimensions, researchers caution against focusing measurement on separate dimensions.

Figure 1.2.1 Housing continuum



A modified housing continuum developed by Crutchfield and Meyer-Adams (2019) for students in higher education is presented in Figure 1.2.1. Although Crutchfield and Meyer-Adams (2019) designed this continuum for college students, it can be applied to non-student populations and serves as a reminder that housing statuses are not fixed and mutually exclusive but rather are changeable states that exist on a spectrum (Crutchfield & Meyer-Adams, 2019).

The arrows indicate multidirectional movement, implying that housing status is dynamic and can become more or less secure over time. The overlay between the categories also indicates that housing situations can overlap and that gray areas exist. An otherwise housed student living in a resident hall may become homeless over break. Also, housing perceived to be safe and secure may become precarious. This diagram is helpful for identifying differences in homelessness definitions. For example, a student sleeping on a friend's couch would be categorized as homeless according to the McKinney-Vento definition but would be categorized as living in unstable housing according to the HUD definition. The modified continuum adds sheltered and unsheltered alongside homeless to indicate that like housing status, shelter status is also changeable. The bidirectional arrows illustrate that a person experiencing homelessness may be in a shelter one night and sleeping in a car the next night. It is useful to include shelter status since it is a key characteristic for defining homeless populations.

1.3 Homelessness in Los Angeles

The magnitude and visibility of Los Angeles homeless population begs the question: How did we get here? Los Angeles' history of homelessness can be traced back to the late nineteenth century when migrant laborers rode West by train to find seasonal work and cheap lodging (Moore Sheeley et al., 2021). The railroad station in downtown Los Angeles served as a hub for the growing population of predominantly White, single male workers. A community began to emerge in the surrounding area, a neighborhood that would later become known as Skid Row. Over time, the Los Angeles homeless population would become increasingly diverse and decentralized (Moore Sheeley et al., 2021). Generations of systemic racial discrimination in housing and employment have disproportionately impacted communities of color and shaped the

demographic composition of people experiencing homelessness in Los Angeles (Moore Sheeley et al., 2021). Within the economic context of high housing costs and a lack of affordable housing, structural barriers have left marginalized populations especially vulnerable to housing insecurity and homelessness. From the 1970s to now, the majority of those experiencing homelessness in Los Angeles are African American (Moore Sheeley et al., 2021). Shifts in the racial composition of homelessness were accompanied by changes in its social geography. Homelessness had been primarily limited to Skid Row but as the population continued to grow it became less centralized. Attempts to contain Los Angeles' unsheltered population to a fifty-block zone in Skid Row during the 1970s proved ineffective (Moore Sheeley et al., 2021). While Skid Row continues to be a hotspot for homelessness in Los Angeles County, homelessness has sprawled beyond downtown to the suburbs of the San Fernando and San Gabriel Valleys and beyond (Moore Sheeley et al., 2021).

Los Angeles voters have made it clear that addressing the homelessness crisis is a top priority. Passed in 2016 in Los Angeles County, Measure H provides $360 million in annual sales tax to finance new homelessness services. Measure HHH was passed the following year in Los Angeles City and provides a $1.2 billion bond to fund permanent housing (Kuhn, Richards, Roth, & Clair, 2019). However, both measures have received criticism. Pandemic-related sales declines will generate fewer taxes resulting in a $200 million shortfall in funding for homeless services (Moore Sheeley et al., 2021), and the expense and time needed to build housing have left some wondering if funneling HHH funds into permanent housing was the best strategy (Zahniser & Alpert Reyes, 2021). What further complicates matters is the City and County have different governing structures, the former is a mayor-council system and the latter is comprised of five elected county supervisors with shared legislative and executive authority (Sonenshein,

2021). The governance of homelessness is similarly split with the City overseeing housing and the majority of social services provided by the County. Together, this creates a disjointed system of governance that makes coordinated and collaborative approaches to homelessness difficult. A lawsuit between the City and County led to the creation of a joint powers authority in 1993, the Los Angeles Homeless Services Authority (LAHSA). LAHSA administers homeless programs and services and is responsible for the annual HUD mandated Point-In-Time (PIT) count. However, LAHSA has not solved homelessness and a recent analysis of homelessness governance in Los Angeles proposes that what Los Angeles truly needs is a "centering structure," an entity to align stakeholders and community around a common mission with shared and impactful outcomes (Sonenshein, 2021).

1.4 Evidence gap

The evidence gap in homelessness research stems largely from a lack of data. It is a significant challenge to collect homelessness data fit for research. The transient nature of homelessness is very difficult to capture in an annual survey or count as homeless populations fluctuate daily. Yet there are no widely implemented real-time measures to reflect shifts in housing status or location. Differences in how homelessness is defined can also lead to gaps in data. Data collection based on the HUD definition of homelessness misses non-traditional homeless populations such as those who are doubled up or staying on the couch with friends or family. This is particularly problematic for researching homelessness in college. Homeless college students are likely fall into this non-traditional category but are too old to be counted under the McKinney-Vento act and do not meet the federal definition of literally homeless. As a result, this precariously housed population is undercounted and under-resourced.

Data collection methods for the unsheltered population can compromise data quality. The PIT count conducted by LAHSA combines data on sheltered and unsheltered populations to estimate the number and demographic characteristics of people experiencing homelessness in Los Angeles. Data on sheltered populations (shelter count and shelter intake survey) is gathered using administrative data from the Homeless Management Information System (HMIS) and the MyOrg data collection system. Data on unsheltered populations is gathered over the course of 10-days in January using a visual-only street count of people experiencing unsheltered homelessness and the number of cars, vans, recreational vehicles, tents, and makeshift shelters assumed to be housing people (Henwood et al., 2018; Henwood et al., 2019). During the street count, families and youth are approached to participate in a demographic survey and a youth count is tallied using a stratified random sample of census tracts (Henwood et al., 2018; Henwood et al., 2019). Concerns have been raised about error and systematic bias and that inconsistent methodology yields inconsistent results thereby making it difficult to isolate changes in the unsheltered population (Schneider, Brisson, & Burnes, 2016). These are valid concerns given Los Angeles' large unsheltered population. Although the PIT count does not include a measure of uncertainty, a recent study estimated that street counts may underestimate the unsheltered homeless population by 30% on average, with a margin of error of ±10-15% (Glenn & Fox, 2019; Glynn et al.).

1.5 Homelessness and health

Poor health can lead to homelessness and homelessness can worsen health (Stafford & Wood, 2017). A recent audit of streets deaths in California found that the average age of mortality was 48 for women and 51 for men, a stark comparison to the life expectancy of

Californian women and men, which is 83 and 79 years respectively (Gorman & Rowan, 2019). Overall mortality rates are highest for individuals living on the street, followed by those in shelters, and lowest among housed individuals (Hwang, 2002). According to an analysis using Los Angeles County coroner's data, mortality rates have increased by 76% among homeless adults in Los Angeles in the last five years (Gorman & Rowan, 2019). Although the majority of deaths occur to men (80%), the rate of homeless women dying has more than doubled. When it comes to more specific health and disease outcomes, there is growing evidence on the health burdens of the homeless population, but few rigorous studies that look specifically at the unsheltered, particularly in Los Angeles County.

Mental health

Rates of mental illness are higher in the homeless population than the general population (Booth, Sullivan, Koegel, & Burnam, 2002). A meta-analysis estimates that up to 40% of homeless adults have major depression (Fazel, Khosla, Doll, & Geddes, 2008). Other estimates suggest that 25% of homeless adults in Los Angeles County have a serious mental illness (Los Angeles Homeless Services Authority, 2020). People experiencing chronic homelessness have a higher prevalence of serious mental illness compared to new entrants (Flaming et al., 2018). Although the prevalence of mental illness among sheltered and unsheltered individuals does not differ upon initial entry to homelessness, over time the gap widens such that after three years, the unsheltered are more than twice as likely to report mental illness (Kuhn et al., 2019). Although few studies have directly compared unsheltered and sheltered homeless populations, a study of homeless women in Los Angeles in 2000 found that unsheltered women had a 12 times greater risk of experiencing mental illness than sheltered women (Nyamathi, Leake, & Gelberg, 2000).

Mental illness often coincides with substance abuse, and estimates suggest that over 50% of chronically homeless adults experience both (Lincoln, Plachta-Elliott, & Espejo, 2009). LAHSA reported that the prevalence of comorbid mental health and substance use disorder among homeless adults is 29%. However, an analysis in the *Los Angeles Times* found this to be a significant underestimate due to a narrow interpretation of the data (Smith & Oreskes, 2019). They report that LAHSA's finding only counted those who had a serious mental illness and a permanent or long-term medical condition. This is problematic because the survey question indicating whether a respondent has a permanent or long-term condition does not specify which health condition is permanent or long-term. A positive response to having a disabling condition could correspond with another health condition indicated by a homeless respondent such as physical illness. The *Los Angeles Times*' analysis found that when disability was not included, 67% of the homeless population had a mental illness or substance abuse disorder (Smith & Oreskes, 2019).

Few studies have addressed the question of whether people become unsheltered because they are mentally ill or if they become mentally ill because they are on the street. A study of homeless adults in Los Angeles compared pathways into homelessness among unhoused mentally ill, unhoused non-mentally ill, and housed mentally ill people. The results illustrate that those who become homeless prior to becoming mentally ill had the highest rates of childhood poverty and disruption and were more likely to have been homeless as children (Sullivan, Burnam, & Koegel, 2000). Among this group, mental illness did not appear to be a sufficient risk factor for homelessness but rather reflects a pattern of ongoing deprivation. In comparison, those who become homeless after becoming mentally ill had a higher prevalence of substance dependence (Sullivan et al., 2000).

Substance abuse

Substance abuse is more prevalent among people experiencing homelessness than among their housed counterparts (Booth et al., 2002). Researchers estimate that in the U.S., the lifetime prevalence of alcohol use among homeless adults is between 29-63%; drug use disorders are found among 20-59% of the homeless adult population (Baggett et al., 2015), with higher rates among those who are chronically homeless (Kuhn & Culhane, 1998). Substance abuse contributes to premature mortality. Compared to the general population, deaths attributed to substance use are significantly greater for the homeless population by a magnitude of up to five times higher for tobacco-related deaths, 10 times higher for alcohol-related deaths, and 17 times higher for drug-related deaths (Baggett et al., 2015). Within Los Angeles County, an estimated 27% of homeless adults have a substance use disorder, and nearly all (94%) were unsheltered (Los Angeles Homeless Services Authority, 2020). However, these rates seem unreasonably low given higher estimates in other cities and given Los Angeles' high rate of chronic homelessness.

Patterns of drug abuse can vary widely between and within cities, making it difficult to establish simple programmatic responses. A random sample of emergency department users found that homeless patients were more likely to have used nearly all categories of drugs in the prior year, except for prescription stimulants (Doran et al., 2018). Although opioid abuse is a national public health crisis, a recent study of high risk youth found that whereas those in New York City were more likely to abuse heroin, oxycodone, and cocaine, those in Los Angeles had higher rates of codeine, marijuana, and methamphetamine misuse (Lankenau et al., 2012). Homeless service providers note that in the past few years, methamphetamine has surpassed cocaine as the drug of choice for homeless adults in Los Angeles (Lopez, 2019).

Chronic disease

Accelerated aging due to exposure while homeless leads to geriatric conditions occurring decades sooner than in housed older adults (Brown et al., 2016). Environmental exposure (e.g., weather, air pollution) combined with high rates of cigarette smoking can also worsen existing chronic health conditions and increase the risk of respiratory infections, which may lead to obstructive lung disease (Baggett et al., 2015; Crane & Warnes, 2010; Snyder & Eisner, 2004). Compared to their housed peers, homeless adults have higher rates of emphysema, chronic bronchitis, and asthma (Snyder & Eisner, 2004). Reduced lung function can compromise cardiovascular functioning and is linked to cardiovascular mortality (Sin & Man, 2005). Rates of diabetes and hypertension among U.S. homeless adults are similar to the general population, yet rates of *uncontrolled* hypertension are higher among homeless adults (Asgary et al., 2016; Bernstein, Meurer, Plumb, & Jackson, 2015). Homeless individuals lack safe spaces to store and refrigerate medication, which can exacerbate chronic illnesses like diabetes and hypertension (Elder & King, 2019). In addition to having higher rates of female reproductive and respiratory cancers, homeless adults also have poorer cancer-related survival rates (Holowatyj et al., 2019). Older homeless adults experience mental and physical conditions that make daily activities difficult, including dementia, arthritis, and dental disease (Crane & Warnes, 2010; van den Berk-Clark & McGuire, 2013).

1.6 Homeless trajectories

Studying homeless trajectories[1] can inform prevention to reduce the flow into homelessness and support services to help individuals and families exit homelessness. A homeless trajectory is a set of sequential events (often during key life stages) marked by transitions and precipitating risk factors/triggering events that lead to homelessness. Trajectories are a common analytic approach for life course studies and have been used to examine processes in employment, migration, and other areas. For the purpose of this dissertation, the concept of a trajectory will be applied to the experience of homelessness. Defining characteristics of a homeless trajectory include the timing, frequency, and duration of entry and exit. Trajectories are situated within a broader socio-ecological landscape that is constrained and contextualized by historical, political, and economic structural factors. While everyone has their own unique trajectory in life, the concept of a homeless trajectory is used to characterize patterns of entry into and exits out of homelessness among different groups. Groups are identified by shared traits, most often by their current life stage at the onset of homelessness but also by the type of trajectory (e.g., housing crisis). Each trajectory group responds to constraints and contextual factors differently, leading to different outcomes (Chamberlain & Johnson, 2011). Researchers claim that due to these differences, each trajectory requires separately tailored early intervention (Burns & Sussman, 2019; Chamberlain & MacKenzie, 2006; Woodhall-Melnik, Dunn, Svenson, Patterson, & Matheson, 2018).

Homeless trajectories are further identified by typology. Homeless typologies including transitional, episodic, and chronic, have been developed based on number of shelter episodes and

[1] The terms trajectory and pathway have been used interchangeably. It is more common for trajectories to be referred to as "careers" in the UK and Australia (Chamberlain & MacKenzie, 2006a; MacKenzie & Chamberlain, n.d.). However, Fopp (2009) argues that the term career is ambiguous and potentially misleading.

number of shelter days (Kuhn & Culhane, 1998). Kuhn and Culhane (1998) defined shelter episodes as distinct if they are separated by 30 days. Transitionally homeless individuals generally enter the shelter system once and stay for a short time, usually less than a few weeks. For this population, homelessness is typically triggered by a catastrophic event such as unemployment or separation and a brief shelter stay is needed to regain stable housing. This group makes up the majority of shelter users. The episodically homeless population cycles in and out of the shelter system leading to multiple episodes that vary in length, but total shelter use does not often exceed a few months. Unlike the transitionally homeless population, the episodically homeless often have mental and physical health conditions and substance use problems. The chronically homeless population is characterized by fewer stays than the episodically homeless, but length of stay is substantially longer and may last years. Although this group is relatively small, it accounts for a disproportionately large share of homeless services (Kuhn & Culhane, 1998).

Adverse childhood experiences are a common risk factor for nearly all homeless trajectories. Chronically homeless individuals or those with frequent episodes of homelessness are more likely to have experienced adverse events in childhood or adolescence (Woodhall-Melnik et al., 2018). Childhood risk factors for adult homelessness include neglectful or abusive parenting characterized by apathetic or controlling behaviors, household strain as a result of deprivation, and family conflict (Koegel, Melamid, & Burnam, 1995; Martijn & Sharpe, 2006). These risks are unevenly distributed by background characteristics including parental socio-economic status, sex, and race or ethnicity. Risk factors often cluster and lay the foundation for future instability. Individual risk factors such as early childhood trauma can lead to behavioral disorders affecting early education or leading to institutionalization, which reduces job prospects

and future earnings. A study examining the impact of negative childhood experiences on adult homelessness suggests that this population is between 2.5 and 8.1 times more likely to have experienced homelessness as children compared to the general population (Koegel et al., 1995). Earlier age of homelessness onset may be associated with experiencing key adverse events during certain life stages (Brown et al., 2016). Adverse events during childhood can be predictive of an earlier age at entry into homelessness (Woodhall-Melnik et al., 2018). A large study of homeless adults in Los Angeles found a linear relationship between an individual's first episode of homelessness and the number of reported childhood problems. The average age for an individual's first episode of homelessness is 33.6 years among participants who reported no childhood problems compared to 22.6 years for participants who reported five or more problems (Koegel et al., 1995). Additionally, evidence from a mixed methods study suggests that individuals who first become homeless before 50 compared to those who become homeless later in life differ in their life course experiences (Brown et al., 2016). Homelessness prior to age 50 is independently associated with a history of imprisonment, substance use and mental health problems (Brown et al., 2016). A study of substance use among older adults found becoming homeless before age 50 is associated with moderate or greater severity of illicit drug symptoms (Spinelli et al., 2017).

Youth trajectories

Trajectories for youth homelessness are marked by childhood trauma, family distress, and residential instability. Youth homelessness is associated with disruptions in family life and unstable housing, including leaving home voluntarily or involuntarily, and a history of juvenile detention (Chamberlain & MacKenzie, 2006; Woodhall-Melnik et al., 2018). Homeless youth

have described high levels of parent-child conflict, disciplinary problems, and parental neglect (e.g., lack of supervision and emotional support), often as a result of substance use problems (Hyde, 2005). Disruptive family relationships may be further strained by low socioeconomic status that leads to unstable home environments (Edidin et al., 2012). It is common for homeless youth to have a history of abuse and evidence suggests that many experience multiple forms of abuse. A study of homeless youth (aged 12-21) found that 71% of youth had histories of at least 3 different kinds of abuse and 18% of youth indicated that they had experienced more than 5 kinds of abuse (Edidin et al., 2012). Physical, sexual, and psychological abuse are associated with parental drug and alcohol use, which is a common reason for leaving home (Edidin et al., 2012; Mallett, Rosenthal, & Keys, 2005).

Substance use among parents of homeless youth may be more influential in homeless youth's trajectory than their own substance use. An Australian study of homeless youth found that only 20% of their sample indicated that youth's own drug and/or alcohol use was either the first or second link in the chain leading to homelessness (Mallett et al., 2005). This study described four pathways to youth homelessness, two of which begin with family conflict. Of these, family conflict may lead to youth homelessness and youth drug/alcohol use or vice versa. Pathways may also begin with youth's drug/alcohol use or family member's drug/alcohol use, which contributes to family conflict and culminates in homelessness (Mallett et al., 2005). A quasi-qualitative study of homeless youth (aged 14-25) identified five pathways to homelessness that are a combination of factors including drug and alcohol use, trauma with or without psychological problems, and family problems (Martijn & Sharpe, 2006). One study concludes that the disproportionately high prevalence of mental health disorders among youth prior to

homelessness indicates that mental health disorders should be included as a possible causal factor (Martijn & Sharpe, 2006).

For youth, the primary precipitating risk factors for homelessness are running away or getting kicked out of home and juvenile detention (Woodhall-Melnik et al., 2018). Up to 40% of homeless youth identify as lesbian, gay, bisexual or transgender (LGBT) and for many coming out leads directly to family conflict which prompted youth to run away or be kicked out (Edidin et al., 2012). Youth trajectories have also been described as having a tentative break or in-and-out stage where youth may return to their prior housing situation before a permanent break, which marks the onset of homelessness (Chamberlain & MacKenzie, 2006). A focus group of homeless youth in Los Angeles found the majority cited physical abuse and intense family conflict as the main reasons for deciding to leave home (Hyde, 2005). Family conflict and abuse was attributed in part to parental substance use problems but also disagreements arising from differences regarding youth's personal style, religious beliefs, sexual orientation, and academic performance (Hyde, 2005).

Once homeless, youth who are initiated into homelessness have greater difficulty exiting homelessness. A life cycle model of youth homelessness illustrates that upon entering street life youth will either return to the mainstream or begin initiation to street life (Auerswald & Eyre, 2002). Initiation is a process of acculturation where youth adapt to daily life on the streets (Auerswald & Eyre, 2002). Initiation requires youth to adapt to their new living situation by changing their behavior and social networks. Street mentors, experienced homeless youth, may help newly homeless youth acclimatize. Homeless youth who have integrated into street life enter a period of tenuous equilibrium where youth are able to meet their basic needs (Auerswald & Eyre, 2002). Periods of stasis alternate with episodes of disequilibrium or crisis. Multiple

episodes of disequilibrium may lead youth to extricate themselves from homelessness and return to mainstream society. If youth are unable to form a new identity in mainstream society, they may enter a period of recidivism and return to homelessness (Auerswald & Eyre, 2002).

The transition from homelessness to mainstream society is complicated by duration of homelessness and personal beliefs that exiting homelessness may not be a worthwhile trade-off. A qualitative study of homeless youth found that longer durations of youth homelessness were associated with greater difficulty establishing a sense of belonging in non-homeless communities (Kidd, Karabanow, Hughes, & Frederick, 2013). Homeless youth in Los Angeles have described leaving home with a sense of agency and empowerment (Hyde, 2005). Youth may be reluctant to exit because they believe moving into housing would compromise their independence, while others expressed doubt that they would be able to find adequate work with their limited employment history and education (Hyde, 2005). While programs to help youth exit the street are typically focused on reaching youth while in stasis, the life cycle model of youth homelessness suggests that youth in transitional states are most receptive to intervention, particularly when youth arrive on the street or during an episode of disequilibrium or crisis (Auerswald & Eyre, 2002).

Protective factors for homeless youth can buffer against poor outcomes and improve the likelihood of exiting successfully. While much research on homeless youth has applied a deficit-based approach, a growing body of work indicates a strength-based lens can inform support services. Evidence suggests that youth who fare better on the streets and exit more successfully have developed new attitudes and behaviors to navigate social relationships by becoming more considerate and responsible and learned to have more self-confidence, self-love, and a reliance on spirituality (Lindsey, Kurtz, Jarvis, Williams, & Nackerud, 2000). Other personal attributes

that appear to increase positive outcomes are sources of personal pride such as self-reliance, independence, motivation, and having an optimistic outlook about the future (Bender, Thompson, McManus, Lantry, & Flynn, 2007). Family reconciliation and being able to return home are key factors for exiting youth homelessness. Among homeless youth in Los Angeles, being able to return home and having not left home by choice (forced out, taken out by a government agency or other) may be the most important factors when determining if unsheltered youth will exit homelessness (Tevendale, Comulada, & Lightfoot, 2011). Youth who are unable to exit homelessness progress into adulthood and are more likely to become chronically homeless. Persistent homelessness from youth into adulthood is associated with traumatic childhood experiences, including family violence, substance abuse, institutionalization, and physical/sexual abuse (Chamberlain & Johnson, 2011). While childhood traumatic events often mark youth homelessness, researchers claim that experiences of trauma following the onset of homelessness become so universal that it is no longer a defining factor when examining youth trajectories out of homelessness (Martijn & Sharpe, 2006). Compared to entrances into youth homelessness, pathways following youth homelessness are more likely to include crime (Martijn & Sharpe, 2006). However, research suggests that once sheltered, homeless youth are likely to remain sheltered (Tevendale et al., 2011). This underscores the importance of intervening before homeless youth begin to sleep in unsheltered locations.

2. Theoretical framework

This research is informed by life course theory and a socio-ecological approach to homelessness. A life course and socio-ecological (socio-developmental) framework is used to provide context for homeless trajectories. Contextual factors influencing homelessness are

embedded within place and time and operate across ecological levels. Broader historic, economic, and social trends shape the structure surrounding trajectories, which constrain individual choice and agency. Processes within trajectories are multi-faceted and vary by life stage. The factors and ways in which social structure operate will differ as individuals transition through different phases of life (Elder & Shanahan, 2007). The benefit of trajectories is that they provide a temporal sequence of events to test causal theories.

A socio-developmental framework is helpful to understand how young adulthood can shape homeless trajectories. Young adulthood is a formative life stage that is critical to the development of identity and autonomy. Young adulthood is a transitional period between childhood and adulthood and is characterized by rapid psychosocial development. Life course studies of young adults have used subjective age and psychosocial maturation to examine identity development (Benson & Elder, 2011). Self-perceptions of age are based on how old young adults perceive themselves to be relative to peers of the same age and psychosocial maturation examines intra-individual characteristics including independence and responsibility. Findings indicate identity development varies by socioeconomic status and that economically deprived young adults are most likely to grow up quickly due to prematurely adopting adult household and financial responsibilities (Benson & Elder, 2011). Early adultification is associated with higher levels of stress and psychological strain among young adults and can increase the likelihood that a young adult will run away from home (Schmitz & Tyler, 2016). Leaving home at a young age and experiencing unsheltered homelessness forces young adults to prematurely assume adult roles, but they often lacked the financial or emotional capability needed to transition (Schmitz & Tyler, 2016).

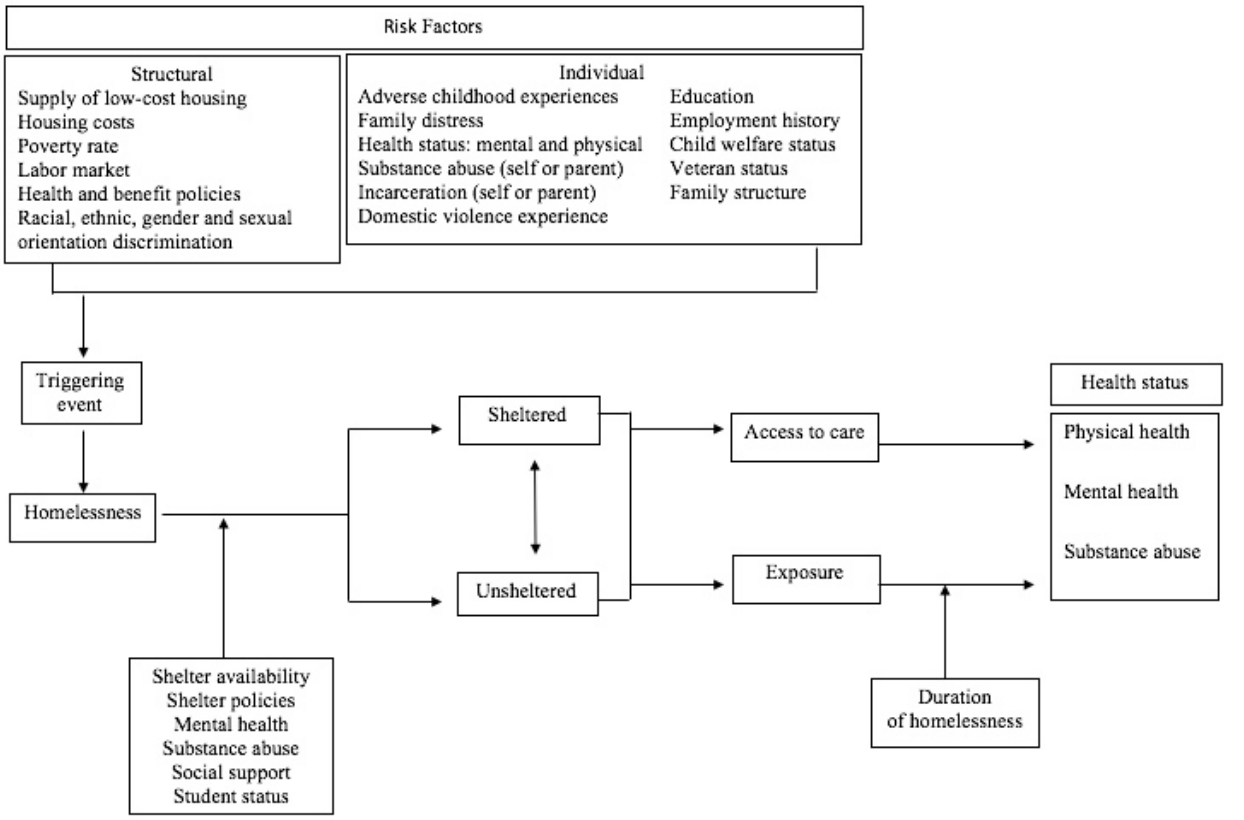
A life course perspective has been applied to other studies of homeless populations. Cumulative adversity and life course have been used to explore how formerly homeless older adults identify and rank life priorities (e.g., family, work, friends) (Padgett, Bond, Gurdak, & Henwood, 2019). Life course concepts have also been applied to in-depth interviews and case study analyses of individuals with serious mental illness and histories of substance use and homelessness (Padgett, Smith, Henwood, & Tiderington, 2012; Shibusawa & Padgett, 2009). Researchers have questioned if a cumulate model or a critical model best explain life events leading to homelessness, however there is evidence to support using a risk accumulation model (Brown et al., 2016).

Research suggests risks accumulate over time leading to homelessness. The strongest predictor that a young adult will become homeless is past homelessness (Flaming et al., 2021). Whether a youth was homeless before the age of 18 was the most important factor for determining if a young adult will become homeless for a year or longer. Multiple episodes of running away from home is also associated with increased risk of homelessness. Findings from a longitudinal study indicated that youth with repeated runaway episodes who ran away before the age of 17 had more than twice the odds of experiencing homelessness by age 25 compared to youth who never ran away (Brakenhoff et al., 2015). Longer durations of homelessness also decrease the likelihood that a youth will exit homelessness (Milburn et al., 2009). Risks accumulate and cluster in socially patterned ways that are unequally distributed across race, sex, and age (Koegel et al., 1995). Among a large representative sample of homeless adults in Los Angeles, 90% reported one or more serious problems during childhood such as family poverty, housing or family problems, physical or sexual abuse, while 64% reported problems in two or more of these categories, and 40% reported problems in three or more (Koegel et al., 1995).

Since homeless youth often experience a number of risk factors, researchers have proposed the need to asses risks collectively as a whole (rather than individually) to examine their cumulative effect (Martijn & Sharpe, 2006). It is unclear if risks are additive or multiplicative, though intersectional studies of homelessness among young adults suggest that experiences of homelessness are shaped by the interaction of race ethnicity, gender identity, and sexual orientation (Shelton et al., 2018).

The homeless trajectory conceptual model is presented in Figure 2.1. The model indicates that homeless trajectories are rooted in predisposing risk factors. Risk factors may be individual or structural (Bassuk et al., 1997; Susser, Moore, & Link, 1993). Research suggests that risk factors are influenced by socializing agents such as family and friends. Negative contact with socializing agents (e.g., street mentors) can increase risk of homelessness while positive contact (e.g., supportive peer relationships) can reduce risk of homelessness (Milburn et al., 2009). Vulnerability for homelessness increases when risks outweigh protective factors. Homelessness typically occurs when predisposing risk factors combine with a triggering event (Crane et al., 2005). Triggering events such as the loss of a parent or spouse, are a mechanism to move individuals beyond their tipping point and into homelessness. Individuals who are not otherwise vulnerable to homelessness, due to a lack of risk factors and/or strong protective factors, may still become homeless following a triggering event. This trajectory into homelessness is less common, but catastrophes such as war or natural disaster may serve as the sole cause of homelessness (Crane et al., 2005).

Figure 2.1 Homeless trajectory conceptual model



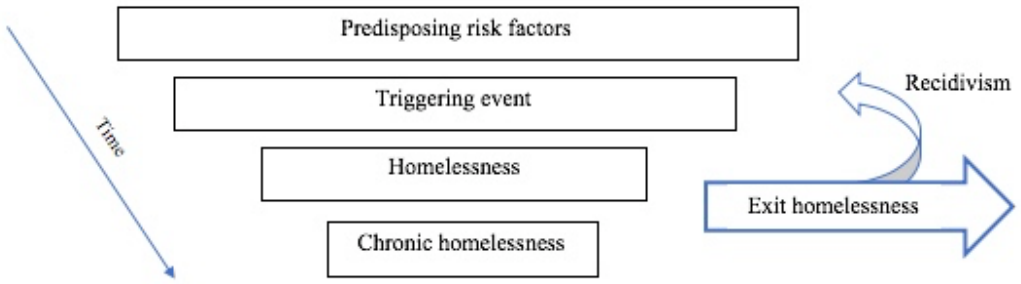
Once homeless, several factors influence whether an individual experiences sheltered or unsheltered homelessness. Sheltered homelessness depends on the availability of shelter beds and shelter policies. Young adults experiencing homelessness have identified attitudinal barriers (e.g., stigma, shame) and access barriers (e.g., restrictive shelter rules, lack of youth-focused services) to shelter utilization (Ha, Narendorf, Santa Maria, & Bezette-Flores, 2015). Mental health and substance abuse may predispose individuals to unsheltered homelessness. People in mental and emotional distress may be less able to navigate shelter systems and shelter services may be conditional upon sobriety (Douglass, Torres, Surfus, Krinke, & Dale, 1999; Nyamathi et al., 2000). Young adults may be able to avoid unsheltered homelessness by relying on their social support system for temporary accommodation. Schools may help buffer against

unsheltered homelessness if students receive housing, however, student status is not a guarantee of housing.

Lower rates of health care utilization have been associated with unsheltered homelessness (Yoon, Ju, & Kim, 2011). People experiencing homelessness are less likely to be insured and health insurance has been identified as an enabling factor for health care use. Poor access to primary and preventive health care can increase the likelihood of requiring emergency services (Amato, Nobay, Amato, Abar, & Adler, 2019). Furthermore, longer durations of homelessness, particularly unsheltered homelessness, have been link to worse health due to prolonged exposure to environmental and behavioral risks (Levitt, Culhane, DeGenova, O'Quinn, & Bainbridge, 2009).

Figure 2.2 illustrates the cycle of homelessness. Individuals who remain homeless over time continue into chronic homelessness (Cohen, 1999). This model underscores that homelessness is a transient state and young adults may exit permanently, exit temporarily, or remain homeless (Auerswald & Eyre, 2002). Temporary exits are identified by recidivism, which accounts for homeless and chronically homeless individuals who exited and returned. Recidivism is included to illustrate that homelessness may be episodic.

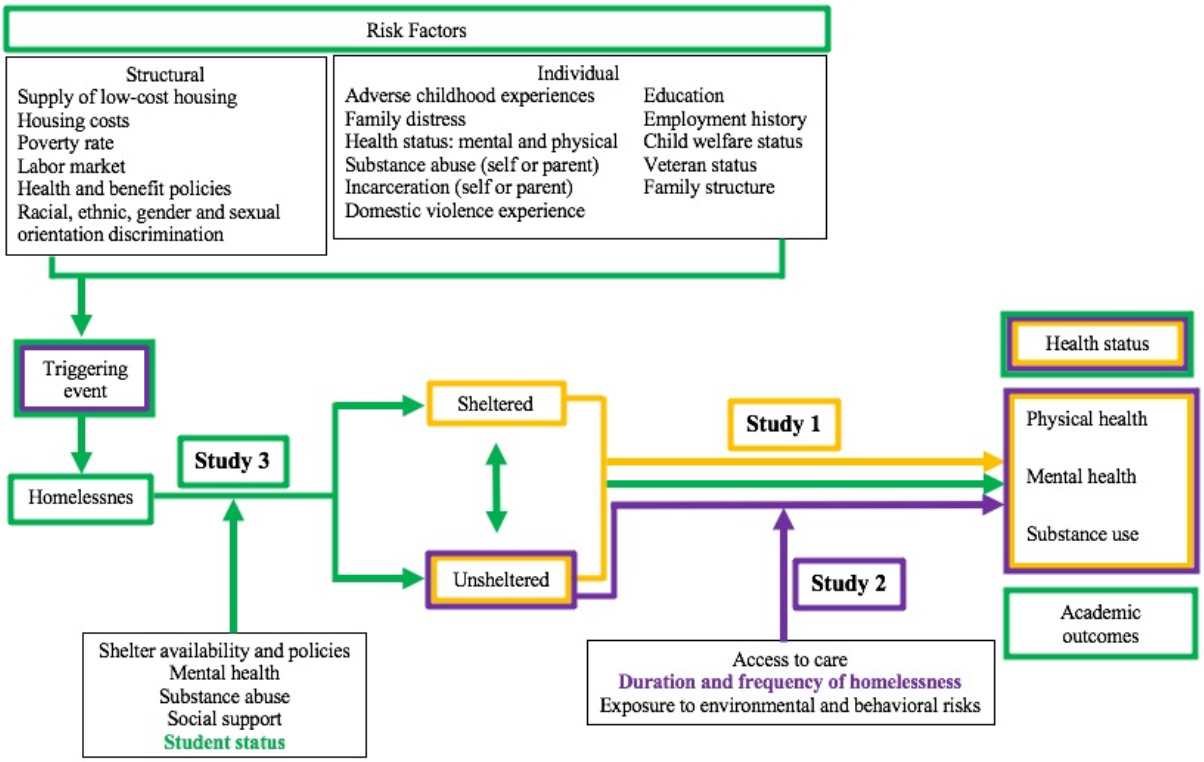
Figure 2.2 Homelessness cycle



3. Problem statement

Three key gaps in homelessness research will be addressed in this dissertation: 1) impact of shelter status on health outcomes, 2) impact of duration and frequency of homelessness on health outcomes, 3) causal relationship between homelessness and health. Each of the three studies will inform one or more research gap. Studies are mapped onto the conceptual model in Figure 4.1 to illustrate the connection between research objectives and gaps.

Figure 3.1 Homeless trajectory conceptual model by study



The impact of shelter status on health outcomes will be addressed in Studies 1 (Figure 3.1 Yellow) and 2 (Figure 3.1 Purple). High rates of unsheltered homelessness in Los Angeles County necessitate a foundational understanding of unsheltered homelessness and its relationship with health. There is a need to understand differential health outcomes among sheltered and unsheltered homeless populations. This gap is largely due to challenges gathering data on

unsheltered populations. As a result, unsheltered individuals are excluded from research studies altogether or aggregated with sheltered populations, which obscures potential variation between the two populations. This muddled body of literature makes it exceedingly difficult for researchers to identify relevant research questions that would guide interventions to improve health. I address this gap in Study 1 by conducting a literature review to evaluate the evidence to data on unsheltered homelessness and health. This gap is also informed by Study 2, which examines health outcomes among unsheltered young adults.

The impact of duration and frequency of homelessness on health outcomes is addressed in Study 2. Examining homeless trajectories among young adults will advance our understanding of how their health varies with increasing durations and episodes of homelessness, and by extension, opportunities to intervene for better health outcomes. Assessing health burdens among young adults is also important to identify vulnerable groups of young adults and to match them with appropriately timed services. Yet little quantitative research focuses on unsheltered young adults and frequency of homelessness is often not accounted for when assessing health outcomes. I address this gap by examining the relationship between duration and frequency of homelessness and health outcomes among unsheltered young adults in Los Angeles County.

The causal relationship between homelessness and health is addressed in Studies 2 and 3 (Figure 3.1 Green). Identifying the triggering event that leads young adults to experience homelessness is critical for developing prevention. Homelessness is caused by structural and individual risk factors that often intersect. However, with limited resources it is necessary to maximize impact and target the most influential drivers of young adult homelessness. Both studies identify primary reasons for young adult homelessness. Study 3 is informative because it examines processes that drive poor health and academic outcomes.

Data limitations are an underlying problem to addressing key research questions about homelessness and health. This dissertation uses mixed methods to mitigate data limitations and provide a more holistic understanding of young adult homelessness. I lay a foundation for examining homeless trajectories and health outcomes among young adults in Los Angeles County by conducting a review of the literature (Study 1). I conducted quantitative and qualitative studies to provide complementary perspectives on young adult homelessness. Qualitative methods are useful for examining the prevalence of unsheltered homelessness and the relationship between homeless trajectories and health (Study 2). It also informs primary reasons for young adult homelessness. However, cross-sectional data cannot be used to draw causal conclusions. On the other hand, qualitative methods address why and how young adults experience homelessness (Study 3). It provides a glimpse into processes that shape homeless trajectories and outcomes, which is missing in quantitative analysis.

One data limitation was unavoidable. While it would have been ideal to examine the same population using quantitative and qualitative methods, this was not possible. Despite having access to a dataset for unsheltered young adults it was not feasible to conduct qualitative interviews with this population during a pandemic. Additionally, although I was able to interview students via Zoom, UCLA does not collect detailed data on students experiencing homelessness. Students could complete the youth count survey, but the sample would not be large enough to conduct a meaningful analysis.

Study 1. Unsheltered homelessness and health: A literature review

1. Introduction

In recent years, cities across the world have seen widespread growth in unsheltered homelessness, in which a person sleeps "in a place not meant for human habitation" such as cars, parks, sidewalks, and abandoned buildings (Henry et al., 2020). It is now widely understood that people experiencing homelessness have poorer mental and physical health and higher rates of substance abuse relative to the general population (Fazel et al., 2014). Above and beyond risks associated with homelessness itself, unshelteredness may expose individuals to substantially greater health risks given more intense exposures to violence, weather, pollution, poor sanitation, and behavioral risk. Concern over the crisis of unsheltered homelessness has been reflected in recent court cases and high-level convenings (Oreskes, 2020). Yet few causal studies have established the extent or mechanisms of this effect, particularly the extent of excess health risks associated with unshelteredness (Petrovich, Hunt, North, Pollio, & Roark Murphy, 2020).

Evidence gaps stem from methodological difficulties gathering data on the unsheltered population, which is tied to a lack of longitudinal studies and preponderance of convenience samples that may neglect to include unsheltered individuals altogether, as well as aggregated analyses where potential variation between sheltered and unsheltered homelessness is obscured by collapsing the two populations. These challenges and concerns present obstacles to addressing key questions about homelessness and its relationship with health. Are differential health outcomes due to conditions predating homelessness or consequences of homelessness? These questions are not purely academic. The emphasis on proven but time- and capital-intensive solutions such as permanent supportive housing, combined with budget constraints, mean that many municipalities are implicitly tolerating unshelteredness by neither guaranteeing a right to shelter nor providing sufficient shelter for the affected population.

The purpose of this literature review is to evaluate and summarize the small but growing body of literature on health outcomes among unsheltered homeless adults. In the process, I will also track the evolution of the concept, methods, and the state of the science on unsheltered homelessness. This review addresses the research question: what is the evidence to date on unsheltered homelessness and health?

2. Background

For the purpose of this review, homelessness was defined according to HUD criteria as an individual who lacks a fixed, regular, and adequate nighttime residence (Henry et al., 2020). Homelessness is dichotomized by shelter status as unsheltered and sheltered. People who are experiencing homelessness who have a primary nighttime residence that is a public or private place not meant for human habitation (e.g., street, tent, or other makeshift shelter) are unsheltered. Homeless individuals who live in a publicly or privately operated shelter designated to provide temporary living arrangements (including congregate shelters, transitional housing, and hotels and motels paid for by charitable organizations or by federal, state, and local government programs) are sheltered. Beyond the difficulties of identifying a particular sleeping location as sheltered or unsheltered, many individuals may live in both sheltered and unsheltered locations at different points in time, or even at the same time. In addition to shelter status, homelessness is also defined by duration. The term chronically homeless refers to an individual with a disability who has been continuously homelessness for one year or longer or has had at least four episodes of homelessness in the past three years where the combined duration of homelessness is as least one year (Henry et al., 2020).

Definitions of homelessness and terms used to describe this experience vary by country. The concept of homelessness may extend to all unhoused populations or only certain unhoused populations. For example, in the U.S. homelessness includes both sheltered and unsheltered individuals while in Japan homelessness only includes street homeless (Okamura, Ito, Morikawa, & Awata, 2014). Other definitions incorporate duration of homelessness. Australia defines homelessness using three types: primary, which includes all people without conventional accommodation (most closely aligned with unsheltered homelessness), secondary homelessness, which includes people who frequently rotate between temporary housing such as shelters and doubling-up, and tertiary, which refers to people staying in boarding houses for 13 weeks or longer (Bevitt et al., 2015). Street homelessness, which is often synonymous with unsheltered homelessness, has also been applied to individuals who are temporarily staying in a shelter, healthcare facility, or correctional institution (Ramanuj, 2019). In addition to street homelessness, unsheltered homelessness has been referred to as 'absolutely homeless,' (Stergiopoulos et al., 2010) 'rooflessness,' 'sleeping rough,' (Fekadu et al., 2014) or 'long grassing' (Topp, Iversen, Baldry, & Maher, 2013) and in turn, individuals have been referred to as 'rough sleepers,' 'street/pavement dwellers,' and 'encampment residents.' These differences in conceptualizing and operationalizing homelessness will be considered when drawing comparisons across studies.

Where possible, I will focus on studies that disentangle the effects of unsheltered homelessness from confounding factors that are associated with unshelteredness. Compared to people experiencing sheltered homelessness, people experiencing unsheltered homelessness are more likely to be non-Hispanic White (Byrne, Montgomery, & Fargo, 2016; Levitt et al., 2009; Montgomery, Szymkowiak, Marcus, Howard, & Culhane, 2016; Petrovich et al., 2020) and male

(Byrne et al., 2016; Montgomery, Szymkowiak, & Culhane, 2017; Montgomery et al., 2016; Petrovich et al., 2020). Being a veteran, having a history of incarceration or foster care, and having lower educational attainment increase the odds of unsheltered homelessness (Montgomery et al., 2017; Montgomery et al., 2016). Unsheltered homelessness is associated with prolonged and more frequent episodes of homelessness (Levitt et al., 2009; Montgomery et al., 2017; Montgomery, et al., 2016; Petrovich et al., 2020). Given the interrelationships between sheltered/unsheltered status and duration, I searched specifically for studies that account for duration or chronicity.

While this review will address a range of physical and mental health conditions, I pay particularly close attention to chronic health conditions affecting older adults. The population of older homeless adults (aged 50 years and older) is growing in the U.S. This growth is attributed to a cohort effect that disproportionately affects people born from 1955-1965, many of whom were unable to enter the labor market and became increasing economically disadvantaged (Culhane et al., 2018). Recent studies such as the influential HOPE-HOME study have framed the long-term consequences of homelessness in terms of accelerated aging due to repeated exposure to deprivation and disease, as reflected in the early onset of geriatric conditions and surgical complication risks often occurring decades sooner than in housed older adults (Brown et al., 2017).

I organized the review following Fazel and colleagues' (2014) review of health outcomes for the broader homeless population. Results were grouped into the following health outcomes: mortality, non-communicable diseases, reproductive health, communicable disease, mental health, substance abuse, health services utilization, injuries, and aging.

3. Methods

3.1 Search strategy

A literature search was conducted (in May 2020) using PubMed to identify publications on unsheltered homelessness from 1990 through 2020. Combinations of relevant keywords including unshelter* and rough sleeper* and street homeless* were used to capture variations of unsheltered homelessness. A total of 13,415 publications were identified. The keywords used for each search are listed in Appendix A Table 1. PubMed publications were imported into EndNote to facilitate grouping and de-duplication. The reviewer (JR) consulted with an experienced biomedical staff librarian to translate PubMed searches into EndNote smart groups (Appendix A Table 2) and de-duplicate publications. Publications were de-duplicated using a method recommended by Bramer and colleagues (Bramer, Giustini, de Jonge, Holland, & Bekhuis, 2016). A total of 13,407 articles remained after de-duplication. Publications on unsheltered homelessness were identified as the intersection of publications identified using keywords for homelessness (Smart Group 1) and publications identified using keywords for unshelteredness (Smart Groups 2-5) (Appendix A Table 2). A total of 174 publications were identified for screening.

3.2 Study selection

The full text for all 174 publications were located and read to determine eligibility for review. Reference lists were also searched to identify relevant publications and an additional 31 publications were screened for review. The review included only studies addressing health-related outcomes, which were defined as measures of physical health (including oral health), communicable disease, mental health (including cognition), substance use, and health services

utilization. This definition is based on previous work reviewing health outcomes among people experiencing homelessness (Hwang, Tolomiczenko, Kouyoumdjian, & Garner, 2005). Comparative studies (sheltered vs. unsheltered) and studies with an exclusively unsheltered sample were included. Studies were excluded if they were not published in English, were not original research studies (e.g., meta-analyses, commentaries), were qualitative studies, did not sample adults[2] (aged 18 years and older), or did not include a health-related outcome. Since the focus of this review are unsheltered homeless adults, studies that predominately sampled children and youth were excluded. Studies that did not clearly meet the inclusion criteria were discussed with a second reviewer (RK) and resolved by consensus. For transparency, I provide the list of excluded studies and the reason for exclusion in Appendix A Table 3.

Included studies were grouped into two tiers: 1) comparative studies of unsheltered and sheltered homelessness and 2) studies with an exclusively unsheltered sample. Tier 2 evidence was only reported if it contradicted Tier 1 evidence or if Tier 1 evidence did not exist for a health domain.

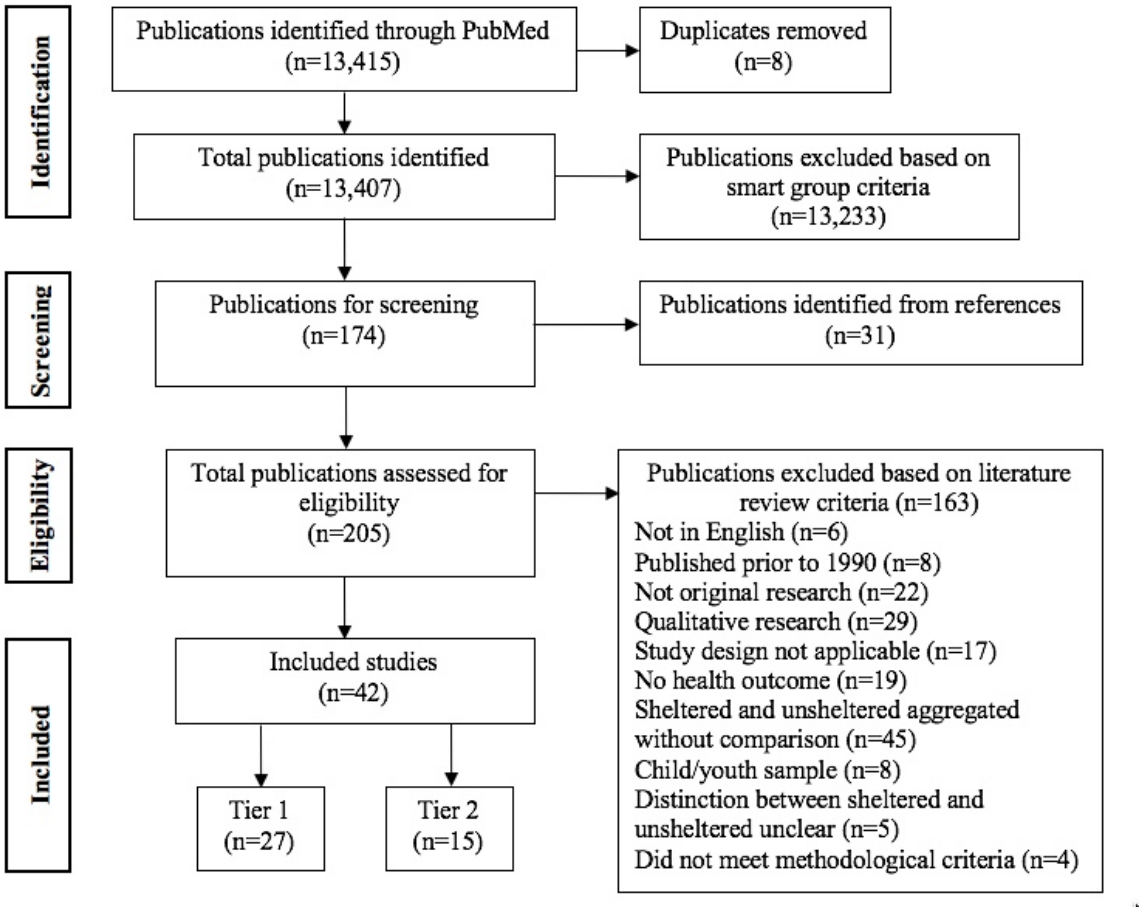
Due to a wide range of methodologic rigor within the included studies, a scoring system was developed to evaluate study quality within each tier. Specifically, papers were scored on: 1) the rigor of the sampling strategy, 2) the use of validated health measures, and 3) efforts to control for or otherwise account for (e.g., via standardization) the role of population composition. Initially, the intention was to score sampling strategies in terms of the use of probability sampling of a known population. Few studies met this requirement, however. Instead, I distinguished sampling strategies based on the mechanism of selection into the study according to the following distinctions: 1) probability sampling, quota sampling occurred at a mix of

[2] Adults are defined by the age of majority in their respective country.

known venues, and/or efforts were taken to compare sample to the population of interest, 2) convenience samples where the sample was not selected on the basis of health or health risk (i.e., certain neighborhoods of a city), and 3) convenience samples where the sample was selected on the basis of health risk (i.e., substance abuse program). Studies were independently scored by both reviewers (JR and RK) and discrepancies were resolved by consensus. Studies with a score of 1 were excluded from analysis. The inclusion criteria and scoring are listed in Appendix A Table 4.

In all, 42 publications were selected for review (Tier 1: 27, Tier 2: 15). The number of publications excluded by reason: not available in English (6), published prior to 1990 (8), not original research (e.g., literature review, meta-analysis, commentary) (22), qualitative research design (29), other not applicable study design (e.g., methodology, feasibility studies) (17), health outcome missing (19), aggregated homeless sample or does not compare sheltered vs. unsheltered populations (45), youth/child sample (8), distinction between sheltered and unsheltered unclear (5), and did not meet methodological criteria (4). Publications were sorted using a criteria hierarchy to identify the primary reason for exclusion, though certain studies had more than one reason for exclusion. The literature search strategy and study selection are summarized in Figure 3.2.1.

Figure 3.2.1 Summary of search strategy and study selection



4. Results

The review included 42 studies, 13 of them Tier 1 comparative studies with quasi-representative sample design, 14 Tier 1 comparative studies with convenience samples, and 15 Tier 2 studies with unsheltered samples only (Table 4.1).

Table 4.1 Included study characteristics for review of unsheltered homelessness

Author/s	Year	Title	Location	Study design	Sample	Tier	Quality score	Health outcome/s
Abbs, E. Brown, R. Guzman, D. Kaplan, L. Kushel, M.	2020	Risk Factors for Falls in Older Adults Experiencing Homelessness: Results from the HOPE HOME Cohort Study	Oakland, CA	Longitudinal cohort study with cross-sectional analysis	350 unsheltered (81.7% any night unsheltered) and sheltered homeless older adults (aged 50 years and older). Study population: Homeless adults aged 50 years and older in Oakland.	1	3	Falls
Brown, R. T. Hemati, K. Riley, E. D. Lee, C. T. Ponath, C. Tieu, L. Guzman, D. Kushel, M. B.	2017	Geriatric Conditions in a Population-Based Sample of Older Homeless Adults	Oakland, CA	Longitudinal cohort study with cross-sectional analysis	350 unsheltered (46.3% based on cluster analysis) and sheltered older adults (aged 50 and older). Study population: Homeless adults aged 50 years and older in Oakland.	1	3	Geriatric conditions
Cousineau, M. R.	1997	Health status of and access to health services by residents of urban encampments in Los Angeles	Los Angeles, CA	Cross-sectional	134 encampment residents (100% unsheltered). Study population: Homeless individuals in Los Angeles residing in encampments.	2	2	Health status, chronic disease, health services utilization, substance use, HIV/TB testing

DeMarco, A. Hardenbrook, R. Rose, J. Mendoza, D.	2020	Air pollution-related health impacts on individuals experiencing homelessness: Environmental justice and health vulnerability in Salt Lake County, Utah	Salt Lake City, UT	Cross-sectional mixed methods design	138 adults (19-76 years old) experiencing homelessness (49.3% unsheltered). Study population: individuals experiencing sheltered (currently residing within emergency shelters) or unsheltered (primarily residing outdoors) homelessness in Salt Lake City.	1	3	Medical visit, difficulty breathing, headache, mental health
Feske, M. L. Teeter, L. D. Musser, J. M. Graviss, E. A.	2013	Counting the homeless: a previously incalculable tuberculosis risk and its social determinants	Houston, TX	Retrospective cohort	3,344 housed and homeless individuals (primarily adults) with tuberculosis (7.4% unsheltered). Study population: belongs to the Houston Tuberculosis Initiative (Wenzel et al.) and is a subset of the 4,312 TB cases in Houston during the study period 1995 to 2004.	1	3	Tuberculosis

Lee, C. T. Guzman, D. Ponath, C. Tieu, L. Riley, E. Kushel, M.	2016	Residential patterns in older homeless adults: Results of a cluster analysis	Oakland, CA	Longitudinal cohort study with cross-sectional analysis	350 unsheltered (46.3%) and sheltered older adults (aged 50 and older). Study population: Homeless adults aged 50 years and older in Oakland.	1	3	Substance use, mental health, social support, institutional support, health services, suicidal thoughts
Linton, K. F. Shafer, M. S.	2014	Factors associated with the health service utilization of unsheltered, chronically homeless adults	Phoenix, AZ	Cross-sectional	260 unsheltered homeless adults (aged 19 to 77 years). Study population: individuals experiencing unsheltered homelessness during 3 consecutive nights in selected areas of the greater Phoenix, AZ metropolitan area.	2	3	Health service use: hospital use, mental health treatment, substance abuse treatment
Nyamathi, A. M. Leake, B. Gelberg, L.	2000	Sheltered versus nonsheltered homeless women differences in health, behavior, victimization, and utilization of care	Los Angeles, CA	Cross-sectional	1,051 homeless women (18.2% unsheltered) (aged 18 and older). Study population: homeless women in Los Angeles aged 18 and older.	1	2	Health status, substance use, sexual activity and pregnancy, adult victimization, health services utilization

Petrovich, J. C. Hunt, J. J. North, C. S. Pollio, D. E. Roark Murphy, E.	2020	Comparing Unsheltered and Sheltered Homeless: Demographics, Health Services Use and Predictors of Health Services Use	Tarrant County, TX	Retrospective cohort	740 unsheltered (9.3%) and sheltered adults (aged 18 years and older). Study population: Adults who resided in one of two emergency shelters or slept unsheltered during the 2015 PIT and for whom the CoC lead agency was able to provide identifying information.	1	3	Health service use
Raven, M. C. Tieu, L. Lee, C. T. Ponath, C. Guzman, D. Kushel, M.	2017	Emergency Department Use in a Cohort of Older Homeless Adults: Results From the HOPE HOME Study	Oakland, CA	Longitudinal cohort study with cross-sectional analysis	350 homeless older adults (50 years and older) (46.3% unsheltered). Study population: Homeless adults aged 50 years and older in Oakland.	1	3	Health service use
Santa Maria, D. M. Narendorf, S. C. Cross, M. B.	2018	Prevalence and Correlates of Substance Use in Homeless Youth and Young Adults	Harris County, TX	Cross-sectional	416 homeless and unstably housed adolescents. Sample is primarily young adults (87% of sample is aged 18-24 years old) (32.7% unsheltered). Study population: All Harris County youth 13-24 years old and either homeless or unstably housed.	1	3	Substance use: lifetime and past month

Tong, M. Tieu, L. Lee, C. T. Ponath, C. Guzman, D. Kushel, M.	2019	Factors associated with food insecurity among older homeless adults: results from the HOPE HOME study	Oakland, CA	Longitudinal cohort study with cross-sectional analysis	350 unsheltered (46.3% based on cluster analysis) and sheltered older adults (aged 50 years and older). Study population: Homeless adults aged 50 years and older in Oakland.	1	3	Food security, receipt of food assistance
Wenzel, S. L. Bakhtiar, L. Caskey, N. H. Hardie, E. Redford, C. Sadler, N. Gelberg, L.	1995	Homeless veterans' utilization of medical, psychiatric, and substance abuse services	Los Angeles, CA	Cross-sectional	429 homeless male veterans (25% had lived on the streets or in public areas in the month before). Study population: male veteran patients from the West LA VA Affairs Medical Center.	1	3	Health services use: medical/ surgical services, psychiatric/ substance abuse services
Baggett, T. P. Campbell, E. G. Chang, Y. Rigotti, N. A.	2016	Other tobacco product and electronic cigarette use among homeless cigarette smokers	Boston, MA	Cross-sectional	306 homeless smokers (16.3% unsheltered) (18 years and older). Study population: Adult homeless smokers using Boston Health Care for the Homeless Program clinical services.	1	2	Tobacco product and e-cigarette use

Bennett, A. S. Watford, J. A. Elliott, L. Wolfson-Stofko, B. Guarino, H.	2019	Military veterans' overdose risk behavior: Demographic and biopsychosocial influences	New York City, NY	Cross-sectional	218 opioid-using military veterans (aged 21-60 years) (7% unsheltered). Study population: Military veterans who served during the Iraq and Afghanistan conflict era, post 9/11 who reported any licit or illicit opioid use within the 30 days prior to enrollment.	1	2	Overdose risk behavior
Byrne, T. Montgomery, A. E. Fargo, J. D.	2016	Unsheltered Homelessness Among Veterans: Correlates and Profiles	U.S. (Nationwide)	Cross-sectional	35,897 homeless veterans (11.2% unsheltered) (aged 19 to 70 and older). Study population: Veterans with an electronic medical record (EMR) who screened positive for homelessness.	2	3	Health service use, behavioral and chronic health conditions, substance use, mental health
Douglass, R. L. Torres, R. E. Surfus, P. Krinke, B. Dale, L.	1999	Health care needs and services utilization among sheltered and unsheltered Michigan homeless	Michigan (Statewide)	Cross sectional	362 homeless adults (77% unsheltered) (aged 18 and older). Study population: homeless adults or adults at risk of homelessness in Wayne County, Michigan and sheltered homeless adults in Michigan.	1	2	Health services use, self-reported medical problems: chronic illness and substance use

Levitt, A. J. Culhane, D. P. DeGenova, J. O'Quinn, P. Bainbridge, J.	2009	Health and social characteristics of homeless adults in Manhattan who were chronically or not chronically unsheltered	Manhattan, NY	Cross-sectional	1,093 chronically unsheltered (67.4%) and not chronically unsheltered homeless adults. Study population: unsheltered individuals in Manhattan.	2	3	History of repeated trauma, lifetime mental illness and substance use, serious medical issue
Macnee, C. L. Forrest, L. J.	1997	Factors associated with return visits to a homeless clinic	Tennessee	Retrospective cohort	1,467 preliminary data forms (first clinic visit) (14% on street) (records from adults aged 18 and older). Study population: clients who received care at a nurse-managed primary care clinic located in Northeast Tennessee.	1	3	Health services utilization: return visit and duration between initial visit and most recent

Montgomery, A. E. Szymkowiak, D. Culhane, D.	2017	Gender Differences in Factors Associated with Unsheltered Status and Increased Risk of Premature Mortality among Individuals Experiencing Homelessness	U.S. (Nationwide)	Cross-sectional	25,481 homeless adults (aged 18 to 60 and older) (54.0% unsheltered). Study population: vulnerable or chronically homeless individuals participating in the 100,000 Homes Campaign.	1	3	Risk of premature mortality
Montgomery, A. E. Szymkowiak, D. Marcus, J. Howard, P. Culhane, D. P.	2016	Homelessness, Unsheltered Status, and Risk Factors for Mortality: Findings From the 100,000 Homes Campaign	U.S. (Nationwide)	Cross-sectional	25,481 homeless adults (54.0% unsheltered) (aged 18 to 60 and older). Study population: vulnerable or chronically homeless individuals participating in the 100,000 Homes Campaign.	1	3	Risk of premature mortality
North, C. S. Pollio, D. E. Thompson, S. J. Spitznagel, E. L. Smith, E. M.	1998	The association of psychiatric diagnosis with weather conditions in a large urban homeless sample	St. Louis, Missouri	Cross-sectional	900 homeless adults (19.9% unsheltered). Study population: Homeless individuals in St. Louis.	1	2	Mental health, psychiatric diagnoses

O'Connell, J. J. Roncarati, J. S. Reilly, E. C. Kane, C. A. Morrison, S. K. Swain, S. E. Allen, J. S. Jones, K.	2004	Old and sleeping rough: elderly homeless persons on the streets of Boston	Boston, MA	Prospective cohort	30 unsheltered high-risk older adults (aged 60 to 82 years at enrollment). Study population: chronically homeless individuals sleeping regularly on Boston's streets for 6 months or more and treated by the Boston Health Care for the Homeless Program's (BHCHP's) Street Team.	2	2	Morbidity and mortality, chronic disease
O'Toole, T. P. Freyder, P. J. Gibbon, J. L. Hanusa, B. J. Seltzer, D. Fine, M. J.	2004	ASAM Patient Placement Criteria treatment levels: do they correspond to care actually received by homeless substance abusing adults?	Philadelphia, PA and Pittsburgh, PA	Cross-sectional	531 homeless adults (31.3% unsheltered) (aged 18 and older). Study population: adults in Philadelphia and Pittsburgh who had been homeless for at least the majority of the previous three months.	1	2	Substance use prevalence, substance use treatment need and received substance use treatment
Roncarati, J. S. Baggett, T. P. O'Connell, J. J. Hwang, S. W. Cook, E. F. Krieger, N. Sorensen, G.	2018	Mortality Among Unsheltered Homeless Adults in Boston, Massachusetts, 2000-2009	Boston, MA	Prospective cohort	445 unsheltered homeless adults (aged 18 to 65 and older). Study population: adults living outside who were primary care patients of the Boston Health Care for the Homeless Program's (BHCHP's) Street Team.	1	3	Mortality rates and causes of death

Roncarati, J. S. O'Connell, J. J. Hwang, S. W. Baggett, T. P. Cook, E. F. Krieger, N. Sorensen, G.	2020	The Use of High-Risk Criteria to Assess Mortality Risk among Unsheltered Homeless Persons	Boston, MA	Prospective cohort	445 unsheltered homeless adults (aged 18 years and older). Study population: adults living outside who were primary care patients of the Boston Health Care for the Homeless Program's (BHCHP's) Street Team.	1	3	Mortality
Smereck, G. A. Hockman, E. M.	1998	Prevalence of HIV infection and HIV risk behaviors associated with living place: on-the-street homeless drug users as a special target population for public health intervention	U.S. (Nationwide)	Cross-sectional	16,366 active out-of-treatment drug users (7.0% unsheltered) (aged 18 to 80 years). Study population: NIDA respondents were eligible if they had self-reported injection, crack, or cocaine use within the past 30 days, were at least 18 years of age at the time of baseline, were not currently enrolled in treatment.	1	2	HIV infection prevalence, HIV risk behaviors

Sutter, A. Curtis, M. Frost, T.	2019	Public drug use in eight U.S. cities: Health risks and other factors associated with place of drug use	8 U.S. cities: Atlantic City, NJ, Boston, MA, Denver, CO, Los Angeles, CA, New York City, NY, Oakland, CA, Paterson, NJ, San Francisco, CA	Cross-sectional	575 adults who use drugs (35% street homeless). Study population: Adults who use syringe services in the U.S.	1	2	Public substance use
Tsai, J. Kasprow, W. J. Kane, V. Rosenheck, R. A.	2014	Street outreach and other forms of engagement with literally homeless veterans	U.S. (Nationwide)	Cross-sectional	70,778 literally homeless veterans (100% unsheltered). Study population: veterans who Veterans Affairs (VA) staff documented as literally homeless.	2	3	Physical health/health status, chronic conditions (HIV/AIDS, hepatitis C, TB, COPD, heart disease, stroke, diabetes, seizures, chronic pain, or other medical condition), mental health

Elwell-Sutton, T. Fok, J. Albanese, F. Mathie, H. Holland, R.	2017	Factors associated with access to care and healthcare utilization in the homeless population of England	England (Nationwide)	Cross-sectional	2,505 homeless individuals (12% rough sleepers) (aged younger than 25 to 66 and older). Study population: Non-statutory homeless individuals (i.e., single homeless people who did not fit the definition of being in "priority need") presenting for homeless services across 19 areas in England.	1	3	Health services use: GP registration, GP utilization, hospital care, A&E use, hospital admissions, ambulance use
Fountain, J. Howes, S. Marsden, J. Taylor, C. Strang, J.	2003	Drug and Alcohol Use and the Link with Homelessness: Results from a Survey of Homeless People in London	London, England	Cross-sectional	389 homeless people recently or currently sleeping rough (aged 17-72 years) Study population: unsheltered individuals in London.	2	3	Substance use: pre/post homelessness, by duration and while sleeping rough
Fountain, J. Howes, S. Strang, J.	2003	Unmet drug and alcohol service needs of homeless people in London: a complex issue	London, England	Cross-sectional	389 homeless people recently or currently sleeping rough (aged 17-72 years). Study population: Unsheltered individuals in London. Unsheltered status based on inclusion criteria which stipulates participants must have slept rough for at least 6 nights in the past 6 months.	2	3	Substance use, need for drug/alcohol services, health services utilization

Hynes, F. Kilbride, K. Fenton, J.	2019	A survey of mental disorder in the long-term, rough sleeping, homeless population of inner Dublin	Dublin, Ireland	Cross-sectional	16 entrenched rough sleepers (aged 20-79 years). Study population: Entrenched rough sleepers living in Dublin.	2	3	Mental health disorder prevalence
Richards, W. Keauffling, J.	2009	Homeless who accessed a healthy living centre in Swansea, South Wales: an assessment of the impact of oral ill-health	Swansea, South Wales	Cross-sectional	100 homeless and vulnerably housed people (aged 18 to 64 years) (26% rough sleepers). Study population: homeless and vulnerable adults using the services of the Cyrenians Community Center in Swansea.	1	2	Oral health
Yoon, C. Ju, Y. S. Kim, C. Y.	2011	Disparities in health care utilization among urban homeless in South Korea: a cross-sectional study	Seoul and Daejeon, Republic of Korea	Cross-sectional	203 homeless adults (23.2% street homeless) (aged 20 to 70 and older). Study population: individuals residing in the street, shelters, or drop-in centers in Seoul and Daejeon.	1	3	Health service use

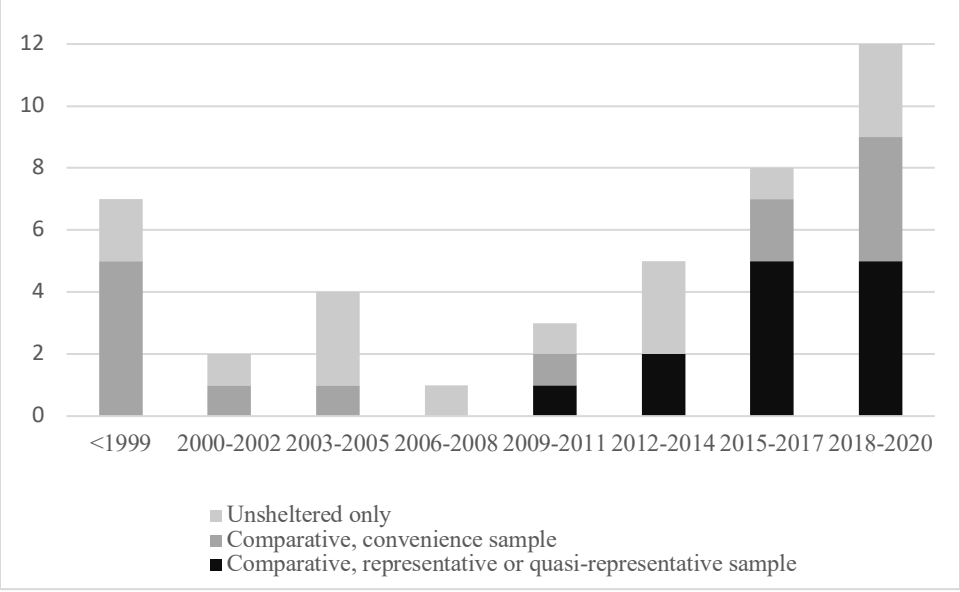
Fekadu, A. Hanlon, C. Gebre-Eyesus, E. Agedew, M. Solomon, H.	2014	Burden of mental disorders and unmet needs among street homeless people in Addis Ababa, Ethiopia	Addis Ababa, Ethiopia	Cross-sectional	217 street homeless adults (aged 18 to 78 years). Study population: individuals experiencing street homelessness (at least 24 hours on the street prior to the day of assessment) in Addis Ababa.	2	2	Mental health illness, suicidal ideation, substance use
Feleke, D. G. Wage, E. K. Getachew, T. Gedefie, A.	2019	Intestinal parasitic infections and associated factors among street dwellers' in Dessie town, North-East Ethiopia: a cross sectional study	Dessie town, North-East, Ethiopia	Cross-sectional	246 street dwellers (aged 15-36 years). Study population: street dwellers in Dessie town older than two years.	2	3	Intestinal parasites
Heckert, U. Andrade, L. Alves, M. J. Martins, C.	1999	Lifetime prevalence of mental disorders among homeless people in a southeast city in Brazil	Juiz de Fora, Brazil	Cross-sectional	83 unsheltered homeless adults. Study population: Homeless adults in the city of Juiz de Fora who had been living outdoors for at least 12 months.	2	3	Mental health illness, substance use drug/alcohol, cognitive impairment

Moges, F. Kebede, Y. Kassu, A. Degu, G. Tiruneh, M. Gedefaw, M.	2006	Infection with HIV and intestinal parasites among street dwellers in Gondar city, northwest Ethiopia	Gondar City, Northwest Ethiopia	Cross-sectional	404 street dwellers (aged 8-58 years). Study population: street dwellers in Gondar City.	2	3	HIV, intestinal parasites
Ray, S. K. Biswas, R. Kumar, S. Chatterjee, T. Misra, R. Lahiri, S. K.	2001	Reproductive health needs and care seeking behavior of pavement dwellers of Calcutta	Calcutta, India	Cross-sectional	463 street dwelling couples. Study population: Female street dwellers in Calcutta of childbearing age and their partners (eligible couples).	2	2	Reproductive health problems and fertility behavior, maternal and child health
Okamura, T. Ito, K. Morikawa, S. Awata, S.	2014	Suicidal behavior among homeless people in Japan	Tokyo, Japan	Cross-sectional	423 homeless adults (20.3% unsheltered). Study population: all homeless people who received help during the study period from two nonprofit homeless organizations in Tokyo.	1	3	Suicidal ideation/ behavior

Wakgari, N. Woyo, T. Kebede, E. Gemeda, H. Gebremedhin, S.	2020	Sexually transmitted disease among street dwellers in southern Ethiopia: a mixed methods study design	Southern Nation, Nationality and People Regional State, Ethiopia	Explanatory sequential mixed methods	842 street dwellers of reproductive age (aged 15-49 years). Study population: all street dwellers of reproductive age in the state.	2	3	Attitudes towards STDs, self-reported STD symptoms, health service utilization

Figure 3.2.2 shows that more than half of the studies, including all Tier 1 representative studies, were conducted in the past decade. Nearly ½ of the studies (20 of 42) were published since 2016, including 10 of the 13 comparative quasi-representative studies. Nearly ¾ of the studies took place in the U.S. (30/42), including 85% of studies published in the past five years (17/20) and 85% of comparative quasi-representative studies (11/13). The studies were heavily clustered under a small number of projects, none involving the author of this review. Studies were dispersed across a wide range of projects and data sources. Except for the HOPE-HOME study in Oakland, California (5 studies) and the Boston Health Care for the Homeless Longitudinal Study (4 papers), no data source accounted for more than two reviewed papers. The number of studies for each health outcome are: mortality (5), non-communicable disease (8), reproductive health (3), communicable disease (4), mental health (9), substance abuse (12), health services (13), injuries (3), and aging (6).

Figure 3.2.2 Included studies by year and quality



4.1 Mortality and cause of death

Mortality rates are significantly higher among those experiencing unsheltered homelessness. Compared to a sheltered homeless cohort, the standardized mortality ratio (SMR) for an unsheltered homeless cohort in Boston was nearly three (2.7 95% CI 2.3-3.2) times higher (Roncarati et al., 2018). After grouping the unsheltered sample by mortality risk factors, the SMR for unsheltered vs. sheltered was 4.0 (95% CI 3.0-5.2) times higher for a high-risk group and 2.2 (95% CI 1.8-2.8) times higher for the lower-risk cohort (Roncarati et al., 2020). A national study using data from the 100,000 Homes campaign found a significant but much smaller effect of unsheltered status on the odds of mortality (AOR=1.12 95% CI 1.05-1.19) (Montgomery, Szymkowiak, et al., 2016). A subsequent gendered analysis of the same data set did not find a significant association between unsheltered homelessness and increased risk of premature mortality among men or women (Montgomery et al., 2017).

Three papers addressed cause of death among the unsheltered (O'Connell et al., 2004; Roncarati et al., 2018; Roncarati et al., 2020). Common causes of death among the unsheltered are chronic disease, substance use, and injuries. A 10-year prospective cohort study of unsheltered adults found the most common causes of death were due to noncommunicable chronic diseases, substance use disorders and chronic liver disease (Roncarati et al., 2018). Compared to a sheltered cohort, non-poisoning injuries (e.g., motor vehicle accidents, falls, drowning) were high (SMR=7.1 95% CI 4.4-11.0) and associated with high rates of chronic substance use (SMR=4.2 95% CI 2.5-6.7) (Roncarati et al., 2018). Unsheltered adults classified as high risk had substantially higher mortality rates for HIV/AIDS (SMR=122.3 95% CI 44.8-271.1), chronic substance use (SMR=104.2 95% CI 38.1-231.0) primarily caused by alcohol

abuse, chronic liver disease (SMR=86.0 95% CI 45.0-150.0), and injuries (SMR=44.0 95% CI 17.8-91.6) compared to a sheltered cohort (Roncarati et al., 2020).

4.2 Non-communicable diseases and associated markers

Unsheltered populations often experience poor adult health outcomes. A cross-sectional study of homeless women in Los Angeles found that after controlling for sociodemographic factors (age, education, ethnicity, number of times homeless and length of time homeless) unsheltered women had greater odds of fair or poor physical health (AOR=3.40 95% CI 2.34-4.94 p=0.001) and more than twice the odds of experiencing pain in the last 6 months (AOR=2.28 1.54-3.37 p=0.001) than sheltered homeless women (Nyamathi et al., 2000). The association between unsheltered status and worse health status remained significant for women who used substances (AOR=3.0 95% CI 2.02-4.45) and women with poor mental health (AOR=2.24 95% CI 1.49-3.37) (Nyamathi et al., 2000). An observational study of encampment residents found that nearly 38% reported fair or poor health (Cousineau, 1997). Both sheltered and unsheltered cohorts reported problems with walking, vision, teeth, and high blood pressure (Douglass et al., 1999). Oral health-related quality-of-life was significantly poorer among rough sleepers compared to sheltered homeless adults (p=0.004) (Richards & Keauffling, 2009). Other common self-reported medical problems among the unsheltered include orthopedic problems and arthritis (Cousineau, 1997).

Though people experiencing unsheltered homelessness are often chronically homeless (Montgomery, Byrne, et al., 2016; O'Toole, Gibbon, Hanusa, & Fine, 1999; Tsai, Kasprow, Kane, & Rosenheck, 2014) and unsheltered populations have high rates of chronic illness, evidence is mixed regarding the impact of shelter status and chronic homelessness on chronic

health conditions. A study of veterans identified a small but significant difference based on shelter status, sheltered veterans were more likely to have a chronic health condition than unsheltered (43.4% vs. 40.8% p=0.001) (Byrne et al., 2016). While a comparative study of chronically unsheltered and not chronically unsheltered adults did not find significant differences in the rates of serious medical conditions, chronically unsheltered adults were significantly more likely to report tri-morbidity (serious medical issue, lifetime mental illness, lifetime substance abuse) than not chronically unsheltered adults (OR=1.65 95% CI 1.11-2.45) (Levitt et al., 2009). Due to the increased likelihood of environmental exposures while unsheltered, a study investigated air pollution-related health outcomes among people experiencing homelessness. Breathing difficulty and headaches did not vary significantly based on shelter status (shelter vs. unsheltered) or chronicity (chronic vs. non-chronic homelessness) (DeMarco, Hardenbrook, Rose, & Mendoza, 2020).

4.3 Reproductive and maternal health

Compared to sheltered women, unsheltered women had greater odds of having multiple sex partners (AOR=2.79 95% CI 1.93-4.03 p=0.001) and having a sexually transmitted disease (AOR=2.10 95% CI 1.05-4.21 p=0.036) in the past six months (Nyamathi et al., 2000) after controlling for demographics and homeless characteristics. Additionally, unsheltered women were more likely to have experienced an unwanted pregnancy (AOR=1.53 95% CI 1.07-2.19 p=0.021) (Nyamathi et al., 2000). A descriptive study of street dwellers in Ethiopia indicated that nearly 40% (39.4%) had experienced sexually transmitted disease symptoms in the past year and among those with symptoms, 38.9% sought treatment from health services (Wakgari, Woyo, Kebede, Gemeda, & Gebremedhin, 2020).

4.4 Communicable diseases

Two studies assessed the prevalence of HIV among the unsheltered homeless (Moges et al., 2006; Smereck & Hockman, 1998). A multisite study in the U.S. of active, out-of-treatment substance users found the prevalence of HIV infection was significantly higher among unsheltered participants (Smereck & Hockman, 1998). The HIV infection rate was 19% among individuals living on the street compared to 11.2% for the entire sample. Additionally, rates varied significantly by sex and gender. Among Hispanic males and Black females, HIV infection rates were highest for those living on the streets (28.8% and 38.4%, respectively). Currently living on the streets increased the odds of HIV infection for all subgroups and significantly for Black females (OR=2.66) after controlling for region (North or South – to adjust for climate and potential regional bias), work status, crack user status, drug injector status, having had multiple sex partners, engagement in unsafe sex and having ever used "HIV/AIDS-infected works." Having ever used HIV/AIDS-infected drug paraphernalia was a strong predictor of HIV status, increasing the odds for all subpopulations (Black male OR=3.96, Hispanic male OR=2.81, White male OR=4.19, Black female OR=3.02, White female OR=17.39) except Hispanic females. Injecting drugs was also a strong predictor increasing the odds of being HIV+ significantly for Hispanic males (OR=2.59), Black females (OR=1.57) and Hispanic females (OR=1.93). A cross-sectional study of street dwellers in Ethiopia found HIV infection prevalence was 6.9% (Moges et al., 2006) and concentrated among adults aged 16-45 years ($p<0.01$). One paper addressed unsheltered-sheltered differences in tuberculosis risk and treatment (Feske, Teeter, Musser, & Graviss, 2013). People living on the street had the greatest risk of tuberculosis compared to housed and other homeless groups (sheltered and transient) and the average days hospitalized

and required for follow-up care was four times as high compared sheltered homeless (Feske et al., 2013).

Two studies, both in Ethiopia, assessed the prevalence of intestinal parasites (Feleke, Wage, Getachew, & Gedefie, 2019; Moges et al., 2006). The first found 67.6% of street dwellers had one or more intestinal parasites and 27.7% had two or more parasitic infections (Moges et al., 2006). There were no significant differences between HIV+ and HIV- subjects regarding parasitic infections (Moges et al., 2006). A more recent cross-sectional study of chronic street dwellers in Ethiopia found 43.9% of participants had intestinal parasites – 35.8% had one parasite and 8.13% had two (Feleke et al., 2019). In an unadjusted analysis, educational status was highlighted as a key risk factor for intestinal parasites as those with less education had a significantly higher prevalence rate than those who had attained education equivalent to grade 7 or higher (Moges et al., 2006). After adjusting for other variables in multivariate analysis, individuals were significantly less likely to have intestinal parasites wore shoes (AOR=0.46 95% CI 0.22-0.95 p=0.035), and washed their hands after using the toilet regularly (AOR=0.18 95% CI 0.04-0.89 p=0.035) while individuals who frequently had contact with animals (AOR=2.04 95% CI 1.14-3.36 p=0.016) were significantly more likely to have an intestinal parasitic infection (Feleke et al., 2019). Educational status was not significantly associated with parasitic infections (Feleke et al., 2019).

4.5 Mental health

Unsheltered homelessness is often accompanied by high rates of mental health illness, including major depression. After controlling for sociodemographic factors (age, education, ethnicity) and homeless characteristics (number of times homeless and length of time homeless),

unsheltered women had much greater odds of being in poor mental health (AOR=12.69 95% CI 6.68-24.13 p=0.001) than sheltered homeless women (Nyamathi et al., 2000). A study of unsheltered adults in Japan found street homelessness was significantly associated (OR=2.64 95% CI 1.15-6.06 p<0.05) with recent suicidal ideation after controlling for depression (Okamura et al., 2014). Additionally, in a descriptive study of unsheltered adults in Ethiopia, 41.8% wished to die, 21.7% had persistent suicidal thoughts, and 14.8% had attempted suicide in the past month (Fekadu et al., 2014). Yet rates of lifetime major depression did not vary significantly between unsheltered and sheltered men (North, Pollio, Thompson, Spitznagel, & Smith, 1998). In a multivariate analysis to assess the impact of weather-related effects on mental health, amount of precipitation was significantly associated with a diagnosis of depression for sheltered men but not for unsheltered men (North et al., 1998).

In addition to major depression, schizophrenia and mood disorders are common mental health diagnoses among unsheltered populations. High prevalence rates have been found in descriptive studies across three countries. Most Brazilian unsheltered adults had a psychiatric diagnosis (98.8%), an Ethiopian study found 41.0% had psychosis, and among a small sample of rough sleepers in Dublin, 31.3 % had severe mental illness (Fekadu et al., 2014; Heckert, Andrade, Alves, & Martins, 1999; Hynes, Kilbride, & Fenton, 2019). Among those with mental illness, the most common diagnoses were schizophrenia (88% in Ethiopia, 25% in Dublin, 9.6% in Brazil) and mood disorders, including major depression (32.5% in Brazil) (Fekadu et al., 2014; Heckert et al., 1999; Hynes et al., 2019). Other reported mental illnesses include cognitive impairment (9.6%), neurotic disorders (8.4%), and personality and behavior disorders (8.4%) (Heckert et al., 1999) in addition to nonorganic psychotic disorders (9.0%) and psychosis related to bipolar disorder (2.2%) (Fekadu et al., 2014).

Chronicity may contribute to rates of mental illness among the unsheltered. Exploratory analysis indicated that those with psychosis were more likely to be older and to have longer durations of street homelessness (Fekadu et al., 2014). Chronically unsheltered individuals were more likely to have lifetime mental illness (defined as either a history of psychiatric hospitalization or current mental health counseling or treatment) (OR=1.57 95% CI 1.19-2.08) than not chronically unsheltered persons (Levitt et al., 2009). In contrast, a recent study found mental health illness did not vary by shelter status (shelter vs. unsheltered) or chronicity (chronic vs. non-chronic homelessness) (DeMarco et al., 2020).

Comorbid mental health and substance use disorder is common among unsheltered populations (Fekadu et al., 2014; Heckert et al., 1999; Hynes et al., 2019). Chronically unsheltered adults were more likely to have a dual diagnosis of mental illness and substance use (p=0.002) than not chronically unsheltered adults (Levitt et al., 2009). Additionally, veterans with a substance use disorder, alone or in combination with a mental illness, were significantly more likely to be unsheltered, though this did not apply to veterans with only a mental illness (Byrne et al., 2016). Evidence suggests that mental illness can increase the likelihood of substance use and in turn, substance use can increase the likelihood of poor mental health. After controlling for demographic factors and homeless characteristics, unsheltered women with poor mental health had more than twice the odds (AOR=2.21 95% CI 1.39-3.52) of using alcohol or non-injection drugs in the last 6 months than sheltered women in poor mental health (Nyamathi et al., 2000). Furthermore, unsheltered women with recent substance use had much greater odds (AOR=11.09 95% CI 5.62-21.88) of poor mental health compared to sheltered women with recent substance use (Nyamathi et al., 2000).

4.6 Substance use

Experiencing unsheltered homelessness can significantly increase the likelihood of substance use disorder and worsen existing substance use. Unsheltered women were more likely to use alcohol or non-injection drugs in the past 6 months (AOR=2.95 95% CI 1.94-4.50) than their sheltered counterparts, no significant differences were found regarding recent injection drug use (Nyamathi et al., 2000). Among opioid-using veterans in New York City, being unsheltered was a significant predictor (AIRR=2.08 95% CI 1.39-3.13) of greater engagement in opioid overdose risk behaviors after adjusting for demographics and prescription medications (Bennett, Watford, Elliott, Wolfson-Stofko, & Guarino, 2019). In an adjusted analysis, unsheltered smokers were significantly more likely to report using large cigars (AOR=2.35 95% CI 1.05-5.23) in the past month compared to shelter users, though little cigar, smokeless tobacco, and e-cigarette use in the past month were not significantly associated with unsheltered homelessness (Baggett, Campbell, Chang, & Rigotti, 2016). Also, sheltered young adults were significantly less likely to have used alcohol (OR=0.53 95% CI 0.34-0.82), marijuana (OR=0.53 95% CI 0.34-0.83), and synthetic marijuana (OR=0.46 95% CI 0.25-0.84) in the past month than unsheltered participants after controlling for other factors. Rates of stimulant and opioid use were also lower but were not statistically significant (Santa Maria, Narendorf, & Cross, 2018).

Among out of treatment substance users, a composite HIV risk score (number of times injecting drugs, number of days using crack, and number of days having sex) was significantly higher for all unsheltered subgroups (Black males, Hispanic males, White males, Black females, Hispanic females) except for White females ($p<0.05$) than sheltered participants (Smereck & Hockman, 1998). Another national study of substance users found unsheltered homelessness was strongly associated with frequent public drug use (AOR=17.44 95% CI 9.5-32.0) compared to

stably housed participants after controlling for age and use of heroin or injection drugs (Sutter, Curtis, & Frost, 2019).

The most used substance among unsheltered populations is alcohol (Cousineau, 1997; Fountain, Howes, Marsden, Taylor, & Strang, 2003; Fountain, Howes, & Strang, 2003). Rates of alcohol use were high, 68% of rough sleepers in London (Fountain, Howes, Marsden, et al., 2003) and 72% of encampment residents in Los Angeles (Cousineau, 1997) reporting using alcohol in the past month. Alcohol dependency ranged from 25% (Fountain, Howes, Marsden, et al., 2003) to 28.2% (Fekadu et al., 2014). Most (83%) individuals experiencing unsheltered homelessness in London had used a drug in the past month rising to 96% for alcohol and/or drug use (Fountain, Howes, & Strang, 2003). Other commonly used drugs among the unsheltered include crack cocaine, heroin, and cannabis (Cousineau, 1997; Fountain, Howes, Marsden, et al., 2003; Fountain, Howes, & Strang, 2003). Drugs are often used in combination with unsheltered individuals using an average of 3 or 4 drugs (Fountain, Howes, & Strang, 2003). Unsheltered individuals using heroin had high rates of dependency (Fountain, Howes, & Strang, 2003).

There is evidence that substance use may increase with duration of unsheltered homelessness. Longer durations of unsheltered homelessness were accompanied by increased daily substance use, injection drug use, and dependency (Fountain, Howes, & Strang, 2003). Substance use was a commonly reported cause of homelessness and 80% reported using at least one additional drug since homelessness onset (Fountain, Howes, Marsden, et al., 2003). While rates of lifetime substance use were higher among chronically unsheltered individuals compared to not chronically unsheltered individuals, differences were not statistically significant (Levitt et al., 2009).

4.7 Health services

Substance use and mental health treatment

Among current or past drug users, unsheltered women were less likely to have sought formal treatment in their lifetime than those sheltered (AOR=0.31 95% CI 0.21-0.47) (Nyamathi et al., 2000). In an unadjusted analysis, unsheltered homeless persons were significantly more likely to report not receiving needed substance use treatment compared to sheltered homeless persons (61.0% vs. 45.6% $p<0.001$) (O'Toole et al., 2004). In one case, treatment uptake was reflective of shelter policy. Though a sheltered cohort ranked drug and alcohol problems as the most frequent medical concern (it was not included among unsheltered medical concerns) shelter use was often conditional upon treatment for substance use (Douglass et al., 1999). Among unsheltered adults, treatment service rates varied by substance. Despite high rates of alcohol dependency, use of alcohol services was low while higher proportions accessed methadone treatment for heroin dependency and the most used service was needle exchanges for injection drug users (Fountain, Howes, & Strang, 2003).

Sleeping outdoors or in a public place was associated with a lower probability of using psychiatric/substance abuse services as opposed to veterans living in shelters or other arrangements (OR=0.424 p=0.003) (Wenzel et al., 1995). Unsheltered individuals who had graduated high school (AOR=2.11 95% CI 1.12-3.99) and those who had been in prison (AOR=3.07 95% CI 1.11-8.51) were more likely to use substance abuse services (Linton & Shafer, 2014). Those with a substance abuse disorder were more likely to report using mental health (AOR=2.15 95% CI 1.08-5.86) and substance abuse services (AOR=8.10 95% CI 3.32-19.75) compared to those without a substance abuse issue (Linton & Shafer, 2014). Mental health service utilization was more likely among older unsheltered individuals than younger

(AOR=0.96 95% CI 0.93-0.99) and among those with mental illness (AOR=4.78 95% CI 2.15-10.60) (Linton & Shafer, 2014).

Health care access and utilization

Unsheltered homelessness has been associated with lower rates of health care utilization. Not residing on the streets was significantly associated with recent health services utilization (AOR=11.39 95% CI 3.58-36.24) after adjusting for socioeconomic factors and other covariates in a study based in South Korea (Yoon et al., 2011). After adjusting for sociodemographic and homelessness characteristics, women experiencing unsheltered homelessness were less likely to have seen a dentist in the past year (AOR=0.34 95% CI 0.21-0.53 p=0.001) and to have received a pap test (AOR=0.40 95% CI 0.28-0.59 p=0.001) or a TB test (AOR=0.22 95% CI 0.15-0.33 p=0.001) compared to their sheltered counterparts (Nyamathi et al., 2000). After adjustment, unsheltered individuals in England were less likely to be registered with a general practitioner (AOR=0.45 95% CI 0.30-0.66) compared to sheltered participants but were not less likely to utilize primary care services (Elwell-Sutton, Fok, Albanese, Mathie, & Holland, 2017). Yet regarding follow up care, unsheltered clinic users were more likely (1.45 times) to return for care than those staying in a sheltered environment after controlling for other factors (Macnee & Forrest, 1997). No differences were found in seeking medical attention for air pollution-related illness by either shelter status or chronicity (DeMarco et al., 2020).

Findings for hospital-related health service use among unsheltered homeless individuals is mixed. Homeless veterans in Los Angeles with a history of sleeping unsheltered had lower odds of using inpatient services (OR=0.34 p=0.002) compared to sheltered veterans (Wenzel et al., 1995), while a bivariate analysis found no difference in use of outpatient services among

homeless veterans based on shelter status (Byrne et al., 2016). Another study found higher rates of outpatient services among an unsheltered cohort, but less use of emergency services and fewer hospital admissions compared to sheltered adults (Douglass et al., 1999). A descriptive study of unsheltered individuals found racial and ethnic disparities in health services use. Unsheltered Hispanic/Latino (AOR=3.92 95% CI 1.68-9.15), Native American (AOR=3.04 95% CI 1.39-6.67), and mixed ethnicity (AOR=5.17 95% CI 1.52, 17.52) participants were significantly more likely to report use of hospital services than unsheltered White participants (Linton & Shafer, 2014). One study found high rates of health services utilization among the unsheltered, however, shelter status was not a strong explanatory variable. Significantly higher rates of health services utilization, including emergency department and outpatient services, among the unsheltered was primarily explained by chronic health conditions (Petrovich et al., 2020). A study of rough sleepers in England also found no association between shelter status and use of hospital care, hospital admissions, emergency services, or ambulance use after adjusting for covariates (Elwell-Sutton et al., 2017).

Health insurance has been identified as an enabling factor for health care use. Unsheltered participants with health insurance were more likely to report using hospital (AOR=2.03 95% CI 1.11-3.69), mental health (AOR=2.73 95% CI 1.25-5.96), and substance abuse services (AOR=2.22 95% CI 1.12-4.40) than those without health insurance (Linton & Shafer, 2014). However, unsheltered populations are less likely to have health insurance (Byrne et al., 2016). In a study of encampment residents, 75% lacked health insurance (Cousineau, 1997).

4.8 Injuries

Individuals experiencing homelessness are vulnerable to injuries. Unsheltered women were more likely to have experienced victimization in the form of physical assault (AOR=2.74 95% CI 1.91-3.94 p=0.001) and robbery (AOR=5.37 95% CI 3.64-7.92 p=0.001) than sheltered women (Nyamathi et al., 2000). Though half of unsheltered homeless adults in Manhattan reported a history of repeated trauma, rates did not significantly vary between chronically unsheltered and not chronically unsheltered homeless adults (Levitt et al., 2009). A descriptive study of unsheltered adults in Ethiopia reported that among individuals experiencing psychosis, 20% neglected to avoid common dangers and 10% displayed self-injurious behavior (Fekadu et al., 2014).

4.9 Aging

Unsheltered homeless older adults experience advanced aging on the street while using less primary and more emergency care than sheltered older adults. People experiencing unsheltered homelessness tend to be older than their sheltered counterparts (Byrne et al., 2016; Levitt et al., 2009). A study of homeless older adults found significantly higher rates of vision impairment among unsheltered older adults (p=0.04) (Brown et al., 2017). However, mobility impairment (defined as self-reported difficulty walking) and other geriatric conditions (ADL impairment, IADL impairment, one or more falls in past 6 months, cognitive impairment, hearing impairment, urinary incontinence, or depression) did not vary significantly by living environment (Brown et al., 2017). Among unsheltered older adults, 34% reported falling once or more in the last 6 months (Brown et al., 2017). After adjusting for key factors, falls did not vary significantly by living cluster (Brown et al., 2017), however, spending any night unsheltered

(compared to none) was significantly associated with increased odds of falling (AOR 1.42 95% CI 1.10-1.83) (Abbs, Brown, Guzman, Kaplan, & Kushel, 2020). Unsheltered older adults had more than twice the odds of very low food security compared to older adults who were recently homeless, staying in a temporary accommodation, or institution (Tong et al., 2019). Unsheltered older adults had significantly lower rates of primary care services compared to older homeless adults in other residential categories (Lee et al., 2016) and had higher emergency department use rates (IRR=2.29 95% CI 1.17-4.48) compared to newly homeless participants who had been housed for most of the prior 6 months (Raven et al., 2017).

Among older homeless adults, 38.3% reported experiencing symptoms of major depression but rates did not vary significantly between unsheltered older adults and those in other living groups (Brown et al., 2017). Experiences of suicidal thoughts also did not vary significantly among unsheltered older adults compared to cohabiters or renters and were higher (AAR=2.27 95% CI 1.11-4.63 p=0.02) among multiple institution users than the unsheltered (Lee et al., 2016). Among homeless older adults, unsheltered homelessness was significantly associated with regular cocaine use prior to housing loss compared to multiple institution users but not compared to cohabiters or renters. Amphetamine use prior to housing loss was higher among renters than the unsheltered (ARR=5.14 95% CI 2.18-12.09) (Lee et al., 2016). A history of abuse prior to losing stable housing did not vary by living arrangement, except cohabiters were more than twice as likely to report abuse than unsheltered participants (ARR=2.18 95% CI 1.00-4.75) (Lee et al., 2016).

5. Discussion

A review of the literature on unsheltered homelessness and health indicates unsheltered populations experience high rates of chronic disease, serious mental illness and substance abuse compared to sheltered populations. Unsheltered homelessness is strongly associated with chronic homelessness that exacerbates serious mental illness and substance use, which is often co-occurring. Unsheltered populations are characterized by higher risks of premature mortality. Due to accelerated aging while unsheltered, older homeless adults are particularly vulnerable. Despite having large unmet health needs, unsheltered populations have lower health care utilization and often lack health insurance.

Evidence suggests a health gradient based on shelter status. Individuals experiencing homelessness have higher mortality rates than the general population. Among homeless populations, mortality rates are highest for high-risk unsheltered populations followed by lower-risk unsheltered populations and sheltered homeless populations. Evidence of significant differences in health and premature mortality by shelter status supports claims that unsheltered homelessness is an independent risk factor for increased mortality (Roncarati et al., 2020) and that unsheltered populations are distinct from sheltered populations in terms of sociodemographic characteristics and exposure to risk factors (Montgomery, Byrne, et al., 2016; Smereck & Hockman, 1998).

Studies exhibited substantial variation in defining, sampling, and measuring unsheltered homelessness, highlighting key uncertainties about researching unsheltered populations. Methodological questions arise on how to sample a population that lacks a clear definition and whose dynamic nature eludes enumeration. Given the challenges of identifying or sampling homeless populations, many our studies defied any easy conceptualization of probability or

convenience sampling. Based on the included studies, I have identified the following sampling typologies: full enumeration, probability sample based on full enumeration, and convenience samples. Convenience samples either attempted to ensure non-zero probability of selection, did not attempt to ensure non-zero probability of selection and were not selected on health, or were selected on health. The majority of excluded comparative studies used the general population for comparison, though other groups such as a sheltered cohort or Medicaid beneficiaries may yield more useful and appropriate comparisons.

A variety of measures have been used to determine shelter status. Unsheltered homelessness has been based on current living situation (Linton & Shafer, 2014), prior night location (Santa Maria et al., 2018), and having slept within a certain area (Wakgari et al., 2020). Other studies incorporate duration data by gathering residential histories to identify where participants sleep most of the time. Residential time windows range from within the past week (Baggett et al., 2016), month (Nyamathi et al., 2000), three months (O'Toole et al., 2004) to six months (O'Toole et al., 1999). Primary living environment can also be determined using cluster analysis (Brown et al., 2017). An alternative is to have a minimum duration period (i.e., have resided in their current living situation for at least 30 days) as a condition for inclusion (Heckert et al., 1999; Smereck & Hockman, 1998). Duration based on self-report is prone to recall bias and may differ significantly from administrative data, in which case separate analyses may be necessary to account for data limitations (DeMarco et al., 2020). Reconciling self-reported housing history with self-perceived homelessness may improve reliability (Smereck & Hockman, 1998).

Results indicate that unsheltered homelessness is associated with poor outcomes across most health domains, but more high-quality evidence is needed. Results are consistently positive

for most health conditions, but the evidence quality is mixed. Studies with consistently high-quality evidence have produced mixed results. Additional high-quality studies across health domains are needed to produce a robust body of evidence on unsheltered health.

6. Study limitations

Due to significant variation between studies, comparisons between sheltered and unsheltered populations should be interpreted with care. Although studies were grouped to improve comparability, in some cases, it was not feasible or advisable to draw direct comparisons because of different definitions and categories of homelessness and unsheltered homelessness. Additionally, the scope of this literature review excluded child and youth studies. While these populations undoubtably experience adverse health outcomes as a result of unsheltered homelessness, children and youth are fundamentally different from adults and older adults and require a separate review. Furthermore, the literature search and study identification were conducted by one reviewer. This limitation was offset by including a second researcher to assist with screening and improve scoring reliability.

7. Implications for future research

In terms of study design, longitudinal studies are needed that associate duration of sheltered and unsheltered homelessness to health via plausible mediating mechanisms. The potential for reverse causality underscores the need for longitudinal studies to explore temporal relationships. Additionally, current research fails to address which specific social-ecological exposures are higher among the unsheltered and how these exposures interact with shelter status. Only one paper in this review attempted to isolate a causal factor in the relationships between

health and sheltered/unsheltered homelessness (North et al., 1998). Future studies should leverage longitudinal data where possible and disaggregate people experiencing homelessness by shelter status to further explore mechanisms that drive poor health among unsheltered populations. Furthermore, homeless individuals with multiple marginalized identities (e.g., racial/ethnic, gender, and sexual minorities) may be at heightened risk of poor health (Verissimo, Henley, Gee, Davis, & Grella, 2021; Weisz & Quinn, 2018). More research is needed to understand how social inequalities by race, gender and sexuality interact to shape health outcomes among people experiencing homelessness.

8. Conclusion

Unsheltered populations experience high rates of chronic disease, serious mental illness and substance abuse compared to sheltered populations. Unsheltered homelessness is strongly associated with chronic homelessness that exacerbates serious mental illness and substance use, which is often co-occurring. Rates of premature mortality are high relative to sheltered populations and older adults are particularly vulnerable due to accelerated aging while on the street. Despite having high unmet health needs, unsheltered populations have lower health care utilization and often lack health insurance. Future research should examine mechanisms associated with poor health outcomes among unsheltered populations.

Study 2. Examining the role of duration and frequency of homelessness on health outcomes among unsheltered young adults

1. Introduction

A growing number of young adults (18-24 years old) in Los Angeles County are homeless. People experiencing homelessness lack a fixed, regular, and adequate nighttime residence (Henry et al., 2020). Over 4,100 young adults were homeless in Los Angeles County in 2020, a 19% increase from 2019 (Los Angeles Homeless Services Authority, 2019a, 2020). Of these young adults, more than half (58%) were unsheltered, living on the street, in cars, abandoned buildings, and other places not meant for human habitation (Los Angeles Homeless Services Authority, 2020). Although the 2021 Los Angeles homeless count was cancelled due to safety concerns related to the coronavirus pandemic, researchers estimate that the number of people experiencing homelessness will grow significantly as renter protections expire and the freeze on residential evictions is lifted (Blasi, 2020). Chronic homelessness – when an individual with a disability has been continually homeless for greater than or equal to one year or has experienced at least four episodes of homelessness in three years – is projected to increase by 86% in Los Angeles County over the next four years (Flaming et al., 2021). Young adults are at high risk of experiencing long-term unemployment in the coming years, which undermines their ability to become financially self-sufficient (Flaming et al., 2021). Unemployment and financial hardship exacerbate housing insecurity and are primary reasons for becoming homeless.

Unhoused people experience poorer health than their housed counterparts and evidence suggests that unsheltered homelessness, longer durations of homelessness, and more frequent episodes of homelessness may contribute to worse health outcomes (Fazel et al., 2014; Levitt et al., 2009; Whitbeck & Simons, 1990). Homeless trajectories have been used to examine health outcomes among people experiencing homelessness. A homeless trajectory is a set of sequential events (often during key life stages) marked by transitions and precipitating risk factors that lead

to homelessness. Duration and frequency of homelessness are defining features of a homeless trajectory. However, few studies of unsheltered young adults examine the role of duration and frequency of homelessness on health outcomes. This paper contributes to a growing body of literature by evaluating the research question: are longer durations and multiple episodes of homelessness associated with poorer health outcomes among unsheltered young adults in Los Angeles County?

The purpose of this study is to examine the relationship between homeless trajectories and health outcomes among unsheltered young adults in Los Angeles County. For this study, duration and frequency of homelessness were combined and operationalized as homeless trajectory groups. Young adults were classified into three homeless trajectory groups: 1) short-term – homeless less than a year and one time, 2) episodic – homeless less than 1 year and more than one time, and 3) long-term – homeless greater than or equal to one year. I hypothesize that rates of physical health conditions, mental health conditions, and substance use disorder will be highest among unsheltered young adults experiencing episodic and long-term homelessness. These groups will also be more likely to have all three health conditions and any health condition compared to young adults experiencing short-term homelessness. This research is guided by intersectionality theory, which posits that social inequities including class, race, gender, and sexuality are mutually constitutive (Veenstra, 2011). Intersectional approaches to young adult homelessness highlight that youth with multiple marginalized identities (i.e., racial/ethnic, gender, and sexual minority youth) may be especially vulnerable as race/ethnicity, gender, and sexual orientation identity interact to shape experiences of homelessness (Shelton et al., 2018). I hypothesize that the relationship between homeless trajectory and health outcomes will be moderated by race/ethnicity, gender, and sexual orientation.

2. Background

Homelessness is linked to risker behavior and poorer health outcomes among youth and young adults. Compared to housed youth, homeless youth become sexually active at an earlier age, are more likely to have multiple sexual partners, and to trade sex in exchange for basic needs such as food or shelter (Santa Maria et al., 2018). Homeless youth use substances at an earlier age (Moore, Astor, & Benbenishty, 2019; A. Nyamathi et al., 2010) and have significantly higher rates of substance use than their housed peers, which is associated with poor physical and mental health (Moore et al., 2019; Rhoades, Winetrobe, & Rice, 2014; Santa Maria et al., 2018). A study of homeless youth and young adults in California found that greater severity of drug use was associated with poorer self-rated health and maladaptive coping strategies (Nyamathi et al., 2010). After controlling for other risk factors, the odds of depression for homeless youth were seven times greater compared to housed youth (Ensign & Santelli, 1998). A gradient of risk is also evident as unsheltered young adults have higher rates of substance use than sheltered youth (Greene, Ennett, & Ringwalt, 1997; Moore et al., 2019). Compared to sheltered youth, unsheltered youth are more likely to report witnessing violence and to have been forced to have sex (Ensign & Santelli, 1997). Homeless youth who had not used shelters were less likely to report using medical/dental services and other services such as psychological services and substance abuse treatment than those who had used shelters (De Rosa et al., 1999).

Longer durations of homelessness negatively impact health behaviors and are associated with greater difficulty exiting homelessness. Newly homeless youth adapt to homelessness through a process of acculturation and during this time are introduced to risky behaviors from experienced homeless peers (Johnson & Chamberlain, 2008). For unsheltered young adults substance use is an integral element of initiation to street life (Auerswald & Eyre, 2002). A

cross-national study of homeless youth found that compared to newly homeless youth, more youth who had been homeless for greater than six months used intravenous drugs, engaged in sex work, had at least four sexual partners, and had a history of pregnancy after controlling for other factors (Milburn, Ayala, Rice, Batterham, & Rotheram-Borus, 2006). Youth with longer durations of homelessness also reported worse physical and mental health (Milburn, Rotheram-Borus, Rice, Mallet, & Rosenthal, 2006). Young adults who are homeless are also increasingly less likely to exit homelessness. A study of homeless adolescents found that for each additional year of age there was a 37% reduction in the likelihood of exiting homelessness (Milburn, Ayala, et al., 2006).

Evidence suggests that frequency of homeless episodes also shapes homeless trajectories and health outcomes among young adults. Runaway experiences during adolescence may be one of the strongest predictors of homelessness in young adulthood (Brakenhoff et al., 2015). The odds of experiencing homelessness were three times higher among adolescents who reported running away compared to those who had never run away and more frequent episodes of running away increased the odds that an adolescent would experience homelessness by young adulthood (Williams, Giano, & Merten, 2019). Homeless episodes may contribute to poor health since youth are more likely to be exposed to social and environmental risks including substance use and victimization (Heinz, Hernandez Jozefowicz, Toro, & Blue, 2012). Additionally, youth who frequently cycle between unstable living situations may find it more difficult to exit homelessness (Mayock, Corr, & O'Sullivan, 2011).

Categorizing homeless young adults by shared characteristics helps researchers identify distinct subgroups and target intervention. Young adults differ in how they enter, experience, and exit homelessness. Understanding differences between groups is key to developing effective

interventions. Homeless trajectories are commonly used to group people experiencing homelessness and are often defined by reason for homelessness, duration of homelessness, and frequency of homelessness. Pathways into homelessness vary (e.g., housing crisis, substance abuse) and respond to structural and contextual factors differently (Chamberlain & Johnson, 2011). Due to these differences, researchers claim that each homeless trajectory requires separately tailored intervention (Burns & Sussman, 2019; Chamberlain & MacKenzie, 2006; Woodhall-Melnik et al., 2018).

This paper builds upon research conducted by Kuhn and Culhane (1998) by developing distinct homeless trajectory groups for young adults based on their duration and frequency of homelessness. Kuhn and Culhane (1998) used number of shelter days and number of shelter episodes to cluster homeless adults into three groups: transitionally homeless who are homeless once for a brief time, episodically homeless who cycle in and out of homelessness, and chronically homeless who experience long-term homelessness. Most adults experienced episodic or transitional homelessness rather than chronic homelessness, but despite being relatively small, this subgroup used a disproportionate amount of homeless services (Kuhn & Culhane, 1998). These classifications created a framework that has since been used to develop policies and target services to those experiencing chronic homelessness.

I hypothesize that race/ethnicity, gender, and sexual orientation will moderate the relationship between homeless trajectory and health outcomes due to evidence that marginalized young adults are more likely to become and remain homeless. The disproportionate prevalence of youth of color and youth who identify as sexual or gender minorities experiencing homelessness reflects systemic processes that create and reproduce social and economic inequalities (Olivet & Dones, 2019). A nationally representative sample of youth found that

Hispanic, Black, and lesbian, gay, bisexual, transgender, queer and questioning (LGBTQ) homeless youth are at higher risk of experiencing homelessness (Morton et al., 2018). Black/African Americans are the most overrepresented racial group followed by American Indian and Alaska Natives. Recent research indicates that the prevalence rate of homelessness for American Indian and Alaska Native young adults is three times greater than non-Hispanic White young adults (Morton, Chavez, & Moore, 2019). The concept of multiple jeopardy is rooted in the foundational tenet of intersectionality that social identities are interdependent rather independent (Bowleg, 2008). Intersectional studies have found racial differences in duration of homelessness by sexual orientation and recommend disaggregating data to explore differential experiences among subgroups of young adults experiencing homelessness (Shelton et al., 2018). Structural barriers including discrimination in housing, employment, and policing, which influence the likelihood of homelessness also impact the likelihood that youth will remain homeless. Youth with longer durations of homelessness are more likely to be older, male, non-heterosexual, to have been in the child welfare system, and to have had been in jail or juvenile detention (Milburn, Rotheram-Borus, et al., 2006).

3. Methods

3.1 Study overview

I conducted secondary data analysis using the Los Angeles Homeless Services Authority (LAHSA) youth survey data from 2018 and 2019 for unsheltered young adults (aged 18-24). Weighted averages were used to adjust for survey design and make estimates representative of Los Angeles County's unsheltered young adult population. Sample characteristics are included, and multivariate logistic regression models were used to test the relationship between homeless

trajectory groups and summary health outcome measures. An interaction term was included to identify if health outcomes for homeless trajectories vary by race/ethnicity, gender, or sexual orientation.

Data source

LAHSA conducts an annual Point-in-Time (PIT) count. The PIT count combines data on sheltered and unsheltered populations to estimate the number and demographic characteristics of people experiencing homelessness in the Los Angeles Continuum of Care (CoC) geographic area, including Los Angeles County, and excluding the cities of Pasadena, Glendale, and Long Beach. This area encompasses the City of Los Angeles, as well as eight Service Planning Areas (SPAs), five Supervisorial Districts (SDs), and 15 City Council Districts (CDs) (Henwood et al., 2019). Estimates for youth are based on a youth survey, which also serves as the PIT count for youth.

Sampling and data collection

A stratified random sampling method was used for the youth survey (Henwood et al., 2018; Henwood et al., 2019). First, census tracts were stratified by a geographic stratum that was defined by the combination of CDs and SPAs and a hotspot stratum. The hotpot stratum was defined using observational data and historical data to target areas where homeless youth congregate. The number of census tracts to be sampled was then estimated using the average number of individuals per census tract in each geographic stratum and a proportional allocation method was used to define the final sample of tracts from each geographic/hotspot stratum. Youth were surveyed by street teams deployed in selected census tracts and by youth

homelessness providers at community organizations that served as designated survey sites (Henwood et al., 2019).

Screening

Street teams approached all homeless youth within selected areas to identify eligible participants. Youth were eligible to participate if they had stayed in an unsheltered location most of the last 30 days (stayed in an unsheltered location last night was added to the 2019 survey) and were younger than 25 years old.

3.2 Measures

Homelessness

Homeless trajectory categories were developed based on the length of one's current period of homelessness and total number of episodes of homelessness in the past three years. Homelessness was measured using two items: 1) "How long have you been experiencing homelessness this time?" and 2) "In the past three years, what about the number of separate times you experienced homelessness, on the street, in a vehicle or in shelters?" Current duration was converted to years homeless to facilitate analysis and data interpretation. Homeless durations equal to or greater than one year have been used to operationalize long-term homelessness. Survey respondents indicated the number of homeless episodes in the past three years: 1 time, 2-3 times, or 4 or more times. Duration and episode categories were combined to produce three homeless trajectory groups: 1) short-term – homeless less than a year and one time (n=473), 2) episodic – homeless less than 1 year and more than one time (n=356), and 3) long-term – homeless greater than or equal to one year (n=807). Reason for homelessness was

assessed using the choose all that apply question “what do you think are some of the main reasons or conditions that led to your loss of housing?”

Health

Outcome variables include ten health conditions which were collapsed into five summary health outcomes: physical health condition, mental health condition, substance use disorder, tri-morbidity, and any health condition. Health conditions were assessed using the question “do you have, have you ever had, or has a healthcare provider ever told you that you have any of the following health conditions?” Youth who reported a physical disability, developmental disability, physical illness, HIV, or brain injury, were identified as having a physical health condition. Youth who reported severe depression, serious and long continuing mental illness, or post-traumatic stress disorder (PTSD), were identified as having a mental health condition. Youth who reported problematic alcohol use or problematic drug use were identified as having a substance use disorder. Disabling condition was not used in conjunction with health outcomes due to an inability to identify which health condition was disabling. Tri-morbidity was defined as having a physical health condition, mental health condition, and substance use disorder. Having any health condition was defined as having a physical health condition, mental health condition, or substance use disorder.

Covariates

Demographic characteristics and structural risk factors for homelessness were included as covariates. Age, gender, sexual orientation, race, ethnicity, and veteran status have been associated with homelessness, chronic homelessness, or both. Transgender and gender non-

conforming categories were combined for gender but not sexual orientation. Although transgender people may identify as a sexual minority (i.e., LGBQ), researchers recommend including transgender young adults as a distinct category to avoid conflating gender identity-related experiences with minority sexual orientation (Shelton et al., 2018). Due to relatively small samples sizes, Asian (n=13), American Indian or Alaska Native (n=18), Native Hawaiian or Pacific Islander (n=8), and multiple race respondents (n=60) were combined with other race (n=44). Race and ethnicity were combined into race/ethnicity[3] where ethnicity supersedes race. For example, a positive response to Hispanic is reported as Hispanic regardless of race. An interaction term was included to identify if health outcomes for homeless trajectories vary by race/ethnicity, gender, or sexual orientation. Structural risk factors for homelessness were measured using the following variables: history of domestic violence, highest level of education completed, employment status, involvement with the justice system, involvement with the child welfare system, and receipt of government assistance. Young adults who reported physical abuse, sexual abuse, stalking, or dating violence were identified as having experienced domestic violence. Involvement with the justice system was defined as having selected "yes" to being involved in any of the following justice systems: juvenile detention or probation camp, juvenile probation group home/residential program, juvenile home probation, jail, prison, adult probation, or parole. Involvement with the child welfare system was defined as having selected "yes" to being involved in any of the following child welfare systems: foster care placement with extended family or nonrelative family, foster care residential or group home placement, extended foster care (AB-12), independent living program, or supervised independent living program (2019 only).

[3] I use "White" to refer to non-Hispanic Whites and "Black" to refer to non-Hispanic Black/African Americans.

4. Analysis

Analysis was conducted using Stata 16.0. Multivariate logistic regression models were used to test the relationship between homeless trajectory groups and summary health outcome measures. Weighted averages were used to adjust for survey design and make estimates representative of Los Angeles County's unsheltered young adult population. Sample weights were constructed for use with youth survey data and calculated by taking the inverse of the probability of census tract selection within each stratum. Interviewer-perceived characteristics (e.g., age, gender, race, ethnicity) were collected for all potential respondents and were used to adjust for non-response (unapproachable, refused or declined, or did not provide eligibility information) in final survey weights. Survey year and SPA are included in regression models to control for variation by year and geographic location (Appendix B). For multivariate analysis, responses of "not reported" were combined with responses for "yes" for domestic violence. Not reported respondents included those who declined to answer due to safety concerns, which was categorized as having experienced domestic violence. Young adults who were disabled or on disability were combined with unemployed young adults for employment status. Interaction terms were used to test whether race/ethnicity, gender, or sexual orientation moderate the relationship between homeless trajectory and physical health, mental health, and substance use disorder. Tri-morbidity and any health condition were not included in interaction models. Interaction results are presented using predicted margins.

5. Results

5.1 Sociodemographic characteristics

The sample included 1,672 unsheltered young adults. The final analytic sample used for multivariate analysis included 1,220 young adults. Data were missing for frequency of homeless episodes (n=36) and health conditions (n=114), the remainder of young adults were missing at least one covariate (n=302). Given the high level of missingness in the data, I first tested for differences between individuals with complete data who were included in the analysis versus those who were excluded. Sociodemographic characteristics did not differ significantly between included and excluded young adults except by gender (Table 5.1.1). A greater proportion of excluded young adults identified as transgender or gender non-conforming.

Table 5.1.1 Comparison between young adults included and excluded from analysis

	Excluded n=452	Included n=1,220	Total n=1672	Observations (n)	P-value
Age, years	22.38	22.58	22.52	1672	0.401
Gender, n (%)				1655	0.0155
Male	282 (64.3)	800 (64.4)	1082 (64.4)		
Female	115 (23.8)	347 (31.7)	462 (29.4)		
Transgender/ Gender non-conforming	38 (11.9)	73 (3.86)	111 (6.21)		
Sexual orientation, n (%)				1624	0.8516
Heterosexual	318 (21.7)	930 (56.3)	1248 (78.1)		
LGBQ	86 (6.37)	290 (15.6)	376 (21.9)		
Race ethnicity, n (%)				1621	0.2057
Hispanic	147 (10.7)	453 (29.4)	600 (40.1)		
Non-Hispanic White	53 (4.93)	246 (15.7)	299 (20.6)		
Non-Hispanic Black	154 (10.9)	378 (19.7)	532 (30.6)		
Other race	47 (28.4)	143 (6.86)	190 (8.68)		
Veteran, n (%)				1666	0.4003
No	434 (29.6)	1201 (68.3)	1635 (97.9)		

Yes	12 (0.451)	19 (1.62)	31 (2.07)		
Domestic violence, n (%)				1501	0.4456
No	165 (12.4)	556 (40.2)	721 (52.6)		
Yes	182 (13.6)	598 (33.8)	780 (47.4)		
Highest education, n (%)				1568	0.3003
Less than high school	119 (9.08)	416 (29.7)	535 (38.8)		
High school/GED	154 (9.28)	564 (34.4)	719 (43.6)		
Some college	75 (5.53)	240 (12.1)	315 (17.6)		
Employment status, n (%)				1610	0.1762
Unemployed/disabled or on disability	286 (18)	917 (58.4)	1203 (76.4)		
Employed	72 (5.85)	250 (13.4)	322 (19.2)		
None of the above	32 (1.87)	53 (2.53)	85 (4.41)		
Criminal justice system, n (%)				1577	0.7822
No	164 (11.4)	532 (30.5)	696 (41.8)		
Yes	193 (14.8)	688 (43.3)	881 (58.2)		
Child welfare system, n (%)				1500	0.8213
No	193 (14.8)	783 (52.1)	976 (66.9)		
Yes	87 (6.84)	437 (26.2)	524 (33.1)		
Receives public benefits, n (%)				1547	0.9344
Yes	111 (7.98)	409 (25.9)	520 (33.9)		
No	216 (15.2)	811 (50.9)	1027 (66.1)		

Source: 2018 and 2019 LAHSA Youth Count. Weighted t-test and chi-square test.

Sociodemographic characteristics by homeless trajectory are summarized in Table 5.1.2. The mean age of study participants was 22.6 years (SD=1.9). There were more males (64.4%) than females (31.7%) with a minority identifying as transgender or gender non-conforming (3.9%). Though most of the sample identified as heterosexual (78.3%), 21.7% identified as gay or lesbian, bisexual, or unsure/questioning (LGBQ). This finding is consistent with previous research that estimates between 20-40% of homeless young adults identify as LGBTQ (Shelton et al., 2018) and much higher than the estimated 4.6% of adults who identify as LGBT in Los Angeles (Romero, 2015).

Table 5.1.2 Sociodemographic characteristics by duration and frequency of homelessness in the past three years (weighted data)

	Short-term n=354	Episodic n=283	Long-term n=583	Total n=1220
Age	22.3 (2.1)	22.8 (1.6)	22.6 (1.7)	22.6 (1.9)
Gender				
Male	234 (59.9%)	180 (63.7%)	386 (67.6%)	800 (64.4%)
Female	107 (37.4%)	78 (30.1%)	162 (28.7%)	347 (31.7%)
Transgender	10 (1.7%)	15 (3.7%)	31 (3.3%)	56 (2.9%)
Gender non-conforming	3 (1.0%)	10 (2.5%)	4 (0.4%)	17 (1.0%)
Sexual orientation				
Heterosexual	279 (79.2%)	191 (75.8%)	460 (78.8%)	930 (78.3%)
Gay or lesbian	26 (4.7%)	35 (8.9%)	46 (9.5%)	107 (7.9%)
Bisexual	43 (15.2%)	47 (12.3%)	55 (9.5%)	145 (11.8%)
Unsure/questioning	6 (0.9%)	10 (3.0%)	22 (2.2%)	38 (2.0%)
Race/ethnicity				
Hispanic	147 (46.5%)	100 (37.8%)	206 (38.9%)	453 (41.1%)
Non-Hispanic White	63 (16.4%)	64 (27.6%)	119 (23.1%)	246 (21.9%)
Non-Hispanic Black/ African American	105 (29.2%)	78 (23.4%)	195 (28.0%)	378 (27.5%)
Other races	39 (7.8%)	41 (11.2%)	63 (10.1%)	143 (9.6%)
Veteran				
No	349 (99.2%)	280 (99.2%)	572 (96.1%)	1201 (97.7%)
Yes	5 (0.8%)	3 (0.8%)	11 (3.9%)	19 (2.3%)
Domestic violence				
No	186 (59.1%)	102 (42.5%)	268 (50.4%)	556 (51.6%)
Yes	151 (37.5%)	165 (53.6%)	282 (43.3%)	598 (43.5%)
Not reported	17 (3.4%)	16 (3.9%)	33 (6.3%)	66 (4.9%)
Highest level of education completed				
Less than high school	103 (36.7%)	101 (39.4%)	212 (40.3%)	416 (39.0%)
High school diploma /GED	179 (47.0%)	125 (43.8%)	260 (44.5%)	564 (45.2%)
Some college or higher	72 (16.3%)	57 (16.8%)	111 (15.2%)	240 (15.9%)
Employment status				
Unemployed	251 (80.3%)	203 (69.4%)	423 (75.7%)	877 (75.9%)
Employed part-time or full-time	49 (10.1%)	26 (14.7%)	50 (7.2%)	125 (9.6%)

Self-employed	25 (4.9%)	22 (7.5%)	40 (4.4%)	87 (5.1%)
Seasonal/temporary	10 (1.8%)	9 (2.8%)	19 (4.5%)	38 (3.3%)
Disabled or on disability	7 (1.1%)	9 (2.3%)	24 (3.8%)	40 (2.7%)
None of the above	12 (1.9%)	14 (3.4%)	27 (4.4%)	53 (3.4%)
Justice system				
No involvement	185 (53.4%)	129 (45.5%)	218 (31.9%)	532 (41.3%)
Involved in justice system	169 (46.6%)	154 (54.5%)	365 (68.1%)	688 (58.7%)
Child welfare system				
No involvement	258 (76.8%)	174 (58.5%)	351 (63.1%)	783 (66.5%)
Involved in child welfare system	96 (23.2%)	109 (41.5%)	232 (36.9%)	437 (33.5%)
Receives government assistance				
No	134 (37.7%)	83 (34.2%)	192 (31.1%)	409 (33.7%)
Yes	220 (62.3%)	200 (65.8%)	391 (68.9%)	811 (66.3%)

Most unsheltered young adults were people of color: Hispanic (41.1%), Black (27.5%), and other races (9.6%) compared to 21.9% of White young adults. Rates of unsheltered homelessness, particularly for American Indian/Alaska Native, Black, and multi-racial young adults, were high relative to Los Angeles County's population (Table 5.1.3).

Table 5.1.3 Race/ethnicity of homeless populations in Los Angeles County

	Unsheltered Young Adult Sample	Youth Homeless (LA CoC[a])	Total Homeless (LA CoC[a])	LA County Population[b]
Hispanic/Latino	41.1%	42.6%	36.1%	48.5%
Black/African American	27.5%	38.2%	33.8%	7.9%
White	21.9%	14.6%	25.5%	26.3%
American Indian/Alaska Native	1.0%	0.3%	1.1%	0.2%
Asian	0.7%	1.1%	1.2%	14.4%
Native Hawaiian/Other Pacific Islander	0.4%	0.5%	0.3%	0.2%
Multi-Racial/Other	7.5%	2.7%	2.1%	2.5%

[a] These numbers are 2020 estimates for the LA CoC, which is LA County excluding Glendale, Pasadena, and Long Beach CoCs
[b] U.S. Census Data

Very few young adults reported being a veteran (2.3%), but a large proportion (43.5%) reported domestic violence. Most unsheltered young adults had a high school degree or higher (61.1%). The majority were unemployed (75.9%), although 18% reported being employed either through full- or part-time work, seasonal/temporary work, or being self-employed. More than half reported involvement in criminal justice systems (58.7%) and a third reported involvement in child welfare systems (33.5%). Among the 66.3% of young adults who received government assistance, the most common assistance programs were Medicaid/MediCal/LA Care/Health Net (37.3%), food stamps/EBT/CalFresh (28.4%), and general relief/general assistance (25.2%).

Health conditions are summarized in Table 5.1.4. Rates of mental health and substance use were high among unsheltered young adults compared to national rates for young adults (aged 18-25). Nearly half of unsheltered young adults reported having a mental health condition (48.5%) compared to 29.4% of young adults in the U.S. (National Institute of Mental Health, 2019). Almost a quarter reported a substance use disorder (22.4%) compared to 14% of young adults in the U.S. (American Addiction Centers, 2020). The prevalence of comorbid mental illness and substance use disorder was 16.1%. Unsheltered young adults were more likely to report problematic drug use (19%) than alcohol use (11.1%). Rates of physical health conditions (20.9%) were lower than mental health conditions. These findings are consistent with other research that has found relatively high rates of mental health conditions and substance use disorder and lower rates of physical health conditions among homeless young adults (Tompsett, Fowler, & Toro, 2009). Most young adults had at least a physical health condition, mental health condition, or substance use disorder (60.5%) but only 5.6% reported all three.

Table 5.1.4 Health conditions and summary health outcomes by duration and frequency of homelessness in the past three years (weighted data)

	Short-term n=354	Episodic n=283	Long-term n=583	Total n=1220
Health condition				
Physical disability	19 (3.1%)	24 (6.4%)	59 (8.3%)	102 (6.3%)
Physical illness	21 (4.2%)	23 (6.0%)	46 (8.0%)	90 (6.4%)
Traumatic brain injury	10 (1.6%)	13 (3.3%)	27 (3.9%)	50 (3.1%)
Developmental disability	24 (8.2%)	18 (4.7%)	49 (6.8%)	91 (6.8%)
HIV	6 (1.5%)	11 (2.7%)	19 (5.7%)	36 (3.8%)
Serious and long continuing mental illness	80 (17.4%)	93 (26.9%)	206 (32.8%)	379 (26.8%)
Severe depression	74 (22.4%)	85 (33.2%)	165 (24.5%)	324 (25.5%)
PTSD	53 (18.8%)	67 (17.3%)	148 (26.6%)	268 (22.4%)
Problematic alcohol use	29 (10.3%)	34 (9.2%)	73 (12.4%)	136 (11.1%)
Problematic drug use	43 (15.3%)	55 (17.7%)	135 (21.9%)	233 (19.0%)
Summary health outcome				
Physical health condition	62 (15.6%)	63 (16.5%)	145 (26.0%)	270 (20.9%)
Mental health condition	132 (39.8%)	145 (50.5%)	309 (53.3%)	586 (48.5%)
Substance use disorder	59 (18.3%)	68 (21.3%)	159 (25.5%)	286 (22.4%)
Tri-morbidity	13 (2.5%)	21 (5.4%)	52 (7.6%)	86 (5.6%)
Any heath condition	173 (47.0%)	181 (60.0%)	391 (69.4%)	745 (60.5%)

The primary reasons unsheltered young adults reported for homelessness are presented in Table 5.1.5. The most common reasons reported by unsheltered young adults were unemployed or financial reasons (30.1%), conflicts with family or household members (17.1%), no friends or family available (10.0%), mental health issues (7.4%), and personal alcohol or drug use (6.7%). The top three reasons for homelessness were consistent across homeless trajectories, except for young adults experiencing episodic homelessness. Among this group, the third most common reason for homelessness was mental health issues.

Table 5.1.5 Reason for homelessness by duration and frequency of homelessness in the past three years (weighted data)

	Short-term (n=335)		Episodic (n=276)		Long-term (n=544)		Total (n=1155)	
1.	Unemployed or financial reasons	26.7%	Unemployed or financial reasons	29.1%	Unemployed or financial reasons	32.6%	Unemployed or financial reasons	30.1%
2.	Conflicts with family or household members	20.8%	Conflicts with family or household members	13.8%	Conflicts with family or household members	16.4%	Conflicts with family or household members	17.1%
3.	No friends or family available	12.8%	Mental health issues	12.3%	No friends or family available	9.9%	No friends or family available	10.0%
4.	Other reason	5.5%	Release from jail or prison	9.3%	Personal alcohol or drug use	7.4%	Mental health issues	7.4%
5.	Personal alcohol or drug use	6.0%	No friends or family available	6.4%	Mental health issues	7.0%	Personal alcohol or drug use	6.7%

5.2 Multivariate models

Multivariate logistic regression was used to model the odds of having a physical health condition, mental health condition, substance use disorder, all three conditions (tri-morbidity), and any health condition (Table 5.2.1 and Appendix B Table 1). Young adults experiencing long-term homelessness had double the odds of tri-morbidity (OR=2.12 $p<0.05$) and having any health condition (OR 2.18 $p<0.01$) compared to young adults experiencing short-term homelessness after controlling for sociodemographic characteristics and structural risk factors. Health outcomes did not differ for short-term and episodically homeless young adults. Being female was associated with lower odds of having a physical health condition (OR=0.58 $p<0.05$), substance use disorder (OR=0.34 $p<0.01$), and any health condition (OR=0.56 $p<0.01$) compared to males. Transgender and gender non-conforming respondents did not differ from male respondents on physical health, mental health, or substance use outcomes, but were significantly

more likely to have all three conditions (OR=3.45 p<0.01). LGBQ young adults had greater odds of having a physical health condition (OR=2.14 p<0.01), mental health condition (OR=2.26 p<0.05), substance use disorder (OR=1.85 p<0.1), and any health condition (OR=2.92 p<0.01) compared to their heterosexual peers. Being a veteran was associated with reduced odds of having a substance use disorder (OR=0.06 p<0.01), however there were few veterans in this sample. Compared to White young adults, young adults who identified as other races had greater odds of having a physical health condition. Young adults who identified as Black and other races had lower odds of having a mental health condition (p<0.01 and p<0.05) and substance use disorder compared to White young adults (p<0.01 and p<0.05).

Having experienced domestic violence was significantly associated with poor health outcomes. Respondents with a history of domestic violence had higher odds of substance use disorder (OR=1.70 p<0.05) and more than three times the odds of having a physical health condition (OR=3.64 p<0.01) or mental health condition (OR=3.65 p<0.01) than those who had not experienced domestic violence. Having a high school diploma/GED was associated with reduced odds of having a mental health condition (OR=0.63 p<0.1), substance use disorder (OR=0.62 p<0.05) and having any health condition (OR=0.57 p<0.05) compared to those with less than a high school education. Respondents with some college or higher did not fare significantly better on any health outcome. Being employed was associated with significantly reduced odds of having a physical health condition (OR=0.52 p<0.05), mental health condition (OR=0.49 p<0.01), substance use disorder (OR=0.52 p<0.05), tri-morbidity (OR=0.53 p<0.1), and any health condition (OR=0.43 p<0.01). System use was significantly associated with higher odds of poor health outcomes for young adults. Justice system involved young adults had greater odds of having a physical health condition (OR=1.78 p<0.05), mental health condition (OR=1.54

p<0.05) and substance use disorder (OR=2.09 p<0.05). Justice system involved young adults had twice the odds of tri-morbidity (2.09 p<0.05) and having any health condition (OR=1.94 p<0.01) than those without a history of criminal justice involvement. Young adults who reported child welfare system involvement had greater odds of having a mental health condition (OR=1.5 p<0.05) and to a lesser extent substance use disorder, tri-morbidity, and any health condition (p<0.1). Receiving public benefits was associated with greater odds of having a physical health condition (OR=2.17 p<0.01), mental health condition (OR=1.65 p<0.05), and any health condition (OR=1.84 p<0.01).

Table 5.2.1 Multivariate logistic regression models

	(1) Physical health	(2) Mental health	(3) Substance use	(4) Tri-morbidity	(5) Any health condition
Episodic	0.736	1.066	1.028	1.350	1.279
	(0.180)	(0.450)	(0.299)	(0.513)	(0.477)
Long-term	1.406	1.366	1.392	2.115*	2.177***
	(0.355)	(0.430)	(0.412)	(0.808)	(0.631)
Age (years)	1.030	1.019	0.933	1.095	0.964
	(0.0641)	(0.0576)	(0.0551)	(0.0787)	(0.0495)
Female	0.577**	0.783	0.342***	1.066	0.563***
	(0.137)	(0.175)	(0.0916)	(0.340)	(0.110)
Trans/Gender non-conforming	1.009	0.711	0.820	3.452***	0.430*
	(0.356)	(0.276)	(0.319)	(1.542)	(0.201)
LGBQ	2.139***	2.261**	1.853*	1.093	2.920***
	(0.534)	(0.752)	(0.607)	(0.351)	(0.912)
Hispanic	1.138	0.687	0.457***	0.616	0.512*
	(0.306)	(0.286)	(0.120)	(0.225)	(0.196)
Non-Hispanic Black/ African American	1.456	0.402***	0.242***	0.347**	0.369***
	(0.474)	(0.136)	(0.0820)	(0.168)	(0.120)
Other race	2.059**	0.449**	0.336***	0.796	0.449**
	(0.586)	(0.176)	(0.125)	(0.366)	(0.174)
Veteran	0.258	2.344	0.0556***	0.290	1.229
	(0.255)	(1.574)	(0.0533)	(0.252)	(0.792)
Domestic violence	3.635***	3.652***	1.697**	3.405***	4.596***
	(0.982)	(1.031)	(0.453)	(1.466)	(1.301)
High school diploma/GED	1.123	0.630*	0.622**	1.029	0.569**
	(0.247)	(0.151)	(0.144)	(0.401)	(0.129)
Some college or higher	1.151	0.938	0.905	0.926	0.797
	(0.267)	(0.242)	(0.302)	(0.345)	(0.223)
Employed	0.522**	0.487***	0.517**	0.529*	0.426***
	(0.137)	(0.104)	(0.163)	(0.196)	(0.0809)
None of the above	0.535	1.802	0.544	0.858	1.736
	(0.347)	(0.911)	(0.218)	(0.525)	(0.730)
Justice system involved	1.777**	1.543**	2.085***	2.091**	1.938***
	(0.403)	(0.322)	(0.497)	(0.744)	(0.396)
Child welfare system involved	0.989	1.500**	1.525*	1.653*	1.393*
	(0.221)	(0.285)	(0.371)	(0.472)	(0.257)
Public benefits	2.172***	1.648**	0.925	0.912	1.844***
	(0.489)	(0.377)	(0.253)	(0.364)	(0.420)
Constant	0.0140***	0.149	0.411	0.00189***	0.539
	(0.0201)	(0.225)	(0.655)	(0.00358)	(0.814)
Observations	1,220	1,220	1,220	1,220	1,220

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: Short-term (homeless less than 1 year and 1 time in the past 3 years). Male. 2018. SPA 1. Male. Heterosexual. Non-Hispanic White. Not a veteran. No experience of domestic violence. Less than high school education. Unemployed or disabled/on disability. No involvement in justice system. No involvement in child welfare system. Does not receive government assistance.

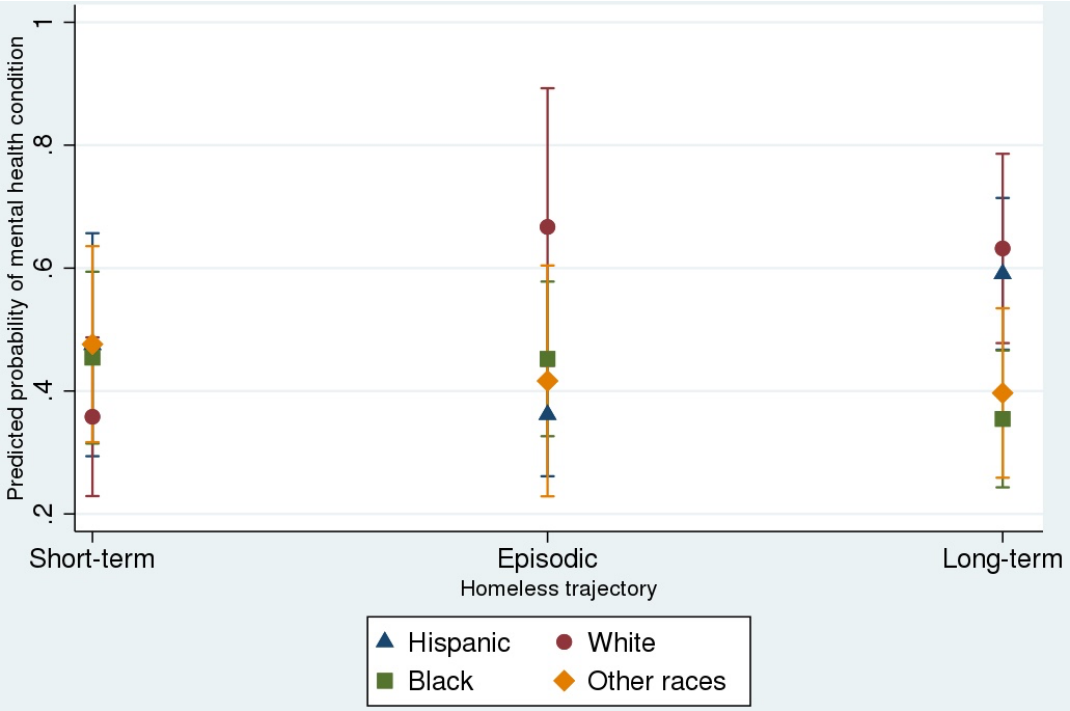
Significant two-way interactions are depicted in Figures 5.2.1 and 5.2.2. Full multivariate models with interaction terms are presented in Appendix B Tables 2-4. Interactions with homeless trajectory and race/ethnicity, gender, and sexual orientation were significant for mental health condition (Figure 5.2.1). The impact of frequency and duration of homelessness on mental health was greatest among White young adults (Figure 5.2.1A). Compared to those experiencing short-term homelessness, episodic homelessness had a significantly greater impact on the predicted probability of having a mental health condition for White young adults than other racial/ethnic groups. Among those experiencing long-term homelessness, the predicted probability of having a mental health condition was significantly higher for White young adults than Black and other race young adults compared to predicted probabilities for short-term homeless young adults. Long-term homeless Hispanic young adults had a similarly high predicted probability of having a mental health condition. Compared to those experiencing short-term homelessness, episodic homelessness had a greater impact on the predicted probability of female and transgender non-conforming young adults than male young adults (Figure 5.2.1B). Short-term homeless LGBQ had a high predicted probability of having a mental health condition, however, the predicted probability was lower among episodically homeless LGBQ (Figure 5.2.1C).

Interactions with homeless trajectory and race/ethnicity and sexual orientation were significant for substance use disorder (Figure 2.2.2). Among those experiencing long-term homelessness, the predicted probability of having a substance use disorder was significantly higher among White young adults (Figure 2.2.2A). The relative difference in the predicted probability of having a substance use disorder between heterosexual and LGBQ young adults is greatest among those experiencing short-term homelessness (Figure 2.2.2B). The difference is

smaller for episodically homeless and predicted probabilities are almost identical among long-term homeless heterosexual ad LGBQ young adults.

Figure 5.2.1 Predicted probabilities of mental health condition

A. Race/ethnicity



B. Gender

C. Sexual orientation

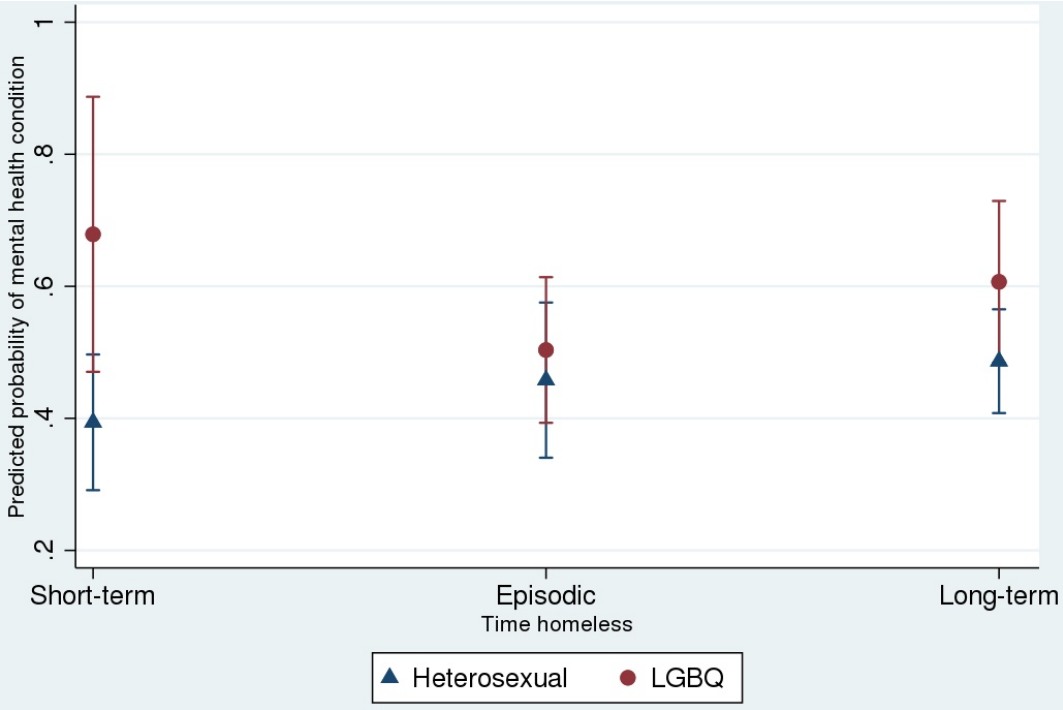
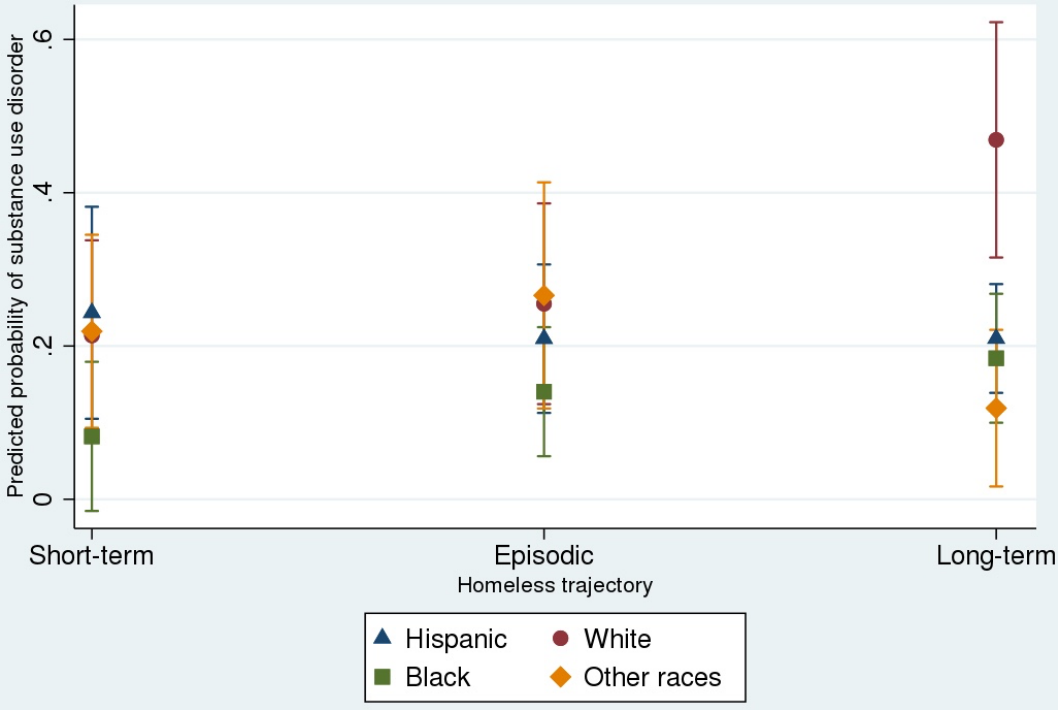
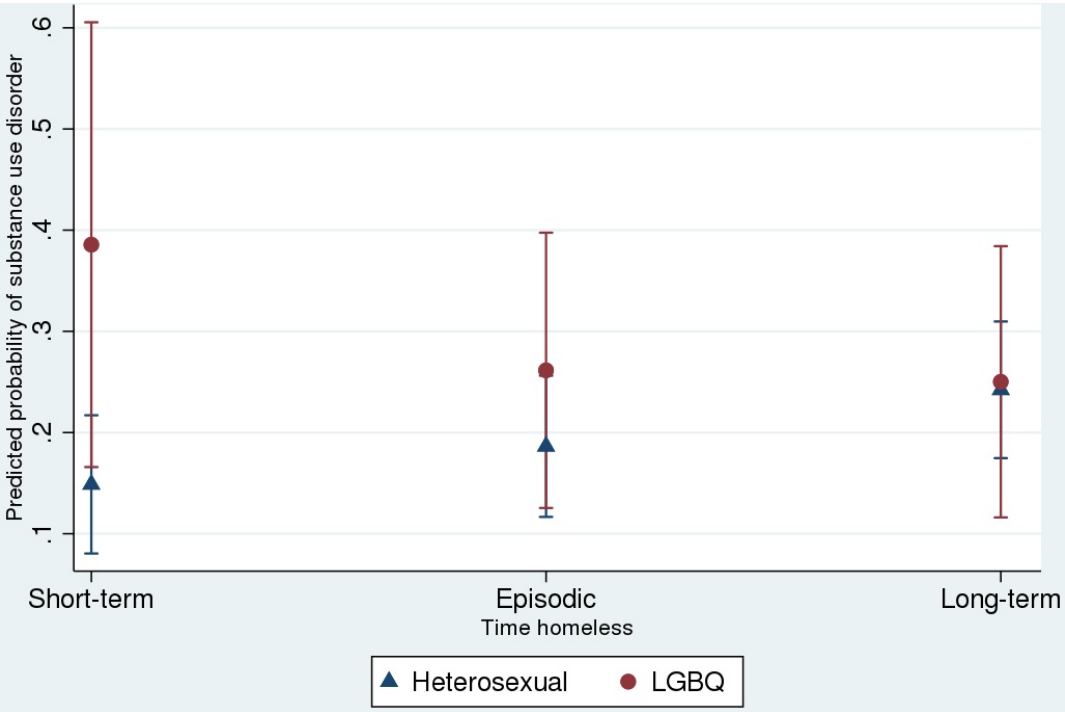


Figure 5.2.2 Predicted probabilities of substance use disorder

A. Race/ethnicity



B. Sexual orientation



6. Discussion

Results indicate that duration and frequency of homelessness are associated with poorer health outcomes among unsheltered young adults in Los Angeles County. Young adults experiencing long-term homelessness had significantly greater odds of having a physical health condition, mental health condition, and substance use disorder. Long-term homelessness was also associated with increased odds of having any health condition. Previous research has also identified that chronically unsheltered adults were significantly more likely to experience tri-morbidity and to have a health problem in at least one domain (i.e., serious medical issue, mental illness, or substance abuse) than not chronically unsheltered adults (Levitt et al., 2009). Although this study is unable to draw causal conclusions, evidence suggests that negative health outcomes increase with duration of homelessness among young adults.

The primary reasons for homelessness among young adults in this sample were financial need, conflict with family or household members, and not having friends or family available. LGBQ young adults identified the same top reasons for homelessness as other young adults, which is consistent with previous research (Cochran et al., 2002). Few young adults reported that substance use or poor health was a primary reason for housing loss. Overall, mental health issues were a precipitating factor for 7.4%, personal alcohol or drug use for 6.7% and medical, physical disability or illness for 0.7%. Most young adults experiencing short-term homelessness were homeless for the first time (94%) and personal alcohol or drug use was the fifth most common reason for homelessness (6%). The relatively low number of young adults citing health problems at the onset of homelessness compared to high rates of poor health outcomes among long-term homeless young adults suggests that exposure while unsheltered drives negative health outcomes. A longitudinal study of homeless youth in Australia also concluded that health

conditions (e.g., chronic health problems, mental illness) are less likely to cause homelessness and more likely to be the result of poor living conditions while unsheltered (Bevitt et al., 2015).

This study found differential health outcomes by race/ethnicity, gender, and sexual orientation among homeless young adults. White young adults had significantly greater odds having a mental health condition than other racial/ethnic groups except Hispanic young adults and significantly greater odds of having a substance use disorder than other racial/ethnic groups. It is difficult to contextualize differential mental health outcomes among young adults, surprisingly little research has explored the racial dimensions of mental health and homelessness (Olivet & Dones, 2019). A study of homeless adults found no difference in psychiatric disorders between White men and non-White men, but White women had significantly higher rates of all psychiatric disorders compared to non-White women (North & Smith, 1994). This partially supports findings of racial differences in mental health and suggests that differences may also be gendered. Evidence that White young adults have higher rates of substance use is consistent with previous research. The estimated prevalence of substance use in a national study of homeless youth was higher among White youth than Black and other youth (Greene et al., 1997). Although the odds of concurrent physical, mental and substance use conditions were more than three times higher among transgender/gender non-conforming young adults, unlike other research this study did not find that they experience poorer physical health or mental health (Choi, Wilson, Shelton, & Gates, 2015). It is notable that rates of substance use were high for transgender/gender non-conforming young adults, but this finding was not statistically significant due to even higher rates of substance use among men. This research supports evidence that LGBQ youth experience poorer mental health outcomes (Choi et al., 2015; Cochran et al., 2002; Gattis & Larson, 2016)

and engage in greater substance use (Santa Maria et al., 2018) relative to their non-LGBQ counterparts.

Interactions suggest that the relationship between homeless trajectories and health outcomes is moderated by race/ethnicity, gender, and sexual orientation. Lower rates of mental illness among Black young adults relative to White young adults is indicative of their trajectories into homelessness. Black young adults are almost four times more likely to experience unsheltered homelessness, a statistic that reflects selection into homelessness based on structural inequities more than personal attributes. White young adults with mental illness are likely better able to retain housing or access treatment and those that become unsheltered represent the most acutely mentally ill. Among short-term homeless young adults, the predicted probability of having a mental illness is higher among Black young adults compared to White young adults, although the difference is not statistically significant. However, the predicted probability of having a mental health condition is higher among episodically homeless White young adults and significantly higher among long-term homeless White young adults relative to episodically and long-term homeless Black young adults. It is possible the shift in predicted probabilities of mental illness among episodically and long-term homeless Black young adults is a function of resilience.

The effect of long-term homelessness on substance use for White young adults was significantly greater than other racial/ethnic groups. Homeless White young adults are more likely to engage in substance use and it is well established that longer durations of homelessness are associated with higher rates of substance use. This has been attributed to acculturation, where people experiencing homelessness adapt to it as a way of life by changing their behavior and social networks (Chamberlain & Johnson, 2011). However, researchers have suggested that

acculturation exaggerates the degree to which young people subscribe to a life of homelessness and that this pattern of habituation is largely due to a failure to connect young adults to services that meet their housing needs at the onset of homelessness (Mayock, Corr, & O'Sullivan, 2013). Evidence of high substance use rates, particularly among those experiencing long-term homelessness, indicate that the needs of young adults are not being adequately met. This finding highlights the need for street outreach, drug intervention, and treatment services.

Interactions for gender and sexual minorities hint at possible patterns between homeless trajectories and health but also introduce new questions. High predicted probabilities of having a mental health condition for episodically homeless female and transgender young adults relative to males may be indicative of trauma or victimization. Victimization has been identified as primary pathway to homelessness. A study of women experiencing homelessness in the U.S. and U.K. found that victims of violence were significantly more likely to experience multiple episodes of homelessness (Broll & Huey, 2020) and rates of victimization once homeless are high (Nyamathi et al., 2000; Whitbeck & Simons, 1990). Transgender youth experience discrimination and homeless transgender youth also report high rates of trauma including harassment and bullying, physical or sexual abuse, intimate partner violence, and sexual exploitation compared to homeless LGBQ (Choi et al., 2015). It's plausible that this would translate to high rates of mental illness, however, the predicted probability of mental illness among those experiencing short-term homelessness is lowest for transgender young adults. Additionally, short-term homeless LGBQ young adults have a relatively high predicted probability of mental illness. Why might short-term homeless transgender young adults have a lower predicted probability of having a mental health condition than short-term LGBQ? Further

investigation is needed to understand how experiences of homelessness shape health outcomes for gender and sexual minorities.

A key variable missing from this study is perceived discrimination. Research indicates that experiences of discrimination influence the relationship between racial and sexual minority status and poor mental health among homeless young adults. However, this information was not available. In conjunction with discrimination, information on immigration status or whether respondents were foreign-born may be particularly relevant for understanding mental health outcomes among Latino young adults. Newly homeless foreign-born Latinos had the highest incidence of discrimination and higher levels of emotional distress in a study of youth living in Los Angeles (Milburn, Ayala, et al., 2006). Higher levels of depressive symptoms were significantly associated with perceived homeless stigma and racial discrimination among a sample of Black adolescents and young adults (Gattis & Larson, 2016). Gattis and Larson (2016) found that having experienced unsheltered homelessness largely accounted for the association between homeless stigma and poor mental health, but not racial discrimination. Racial and ethnic pride may buffer the impact of racial discrimination on mental health. Racial/ethnic identification moderated the relationship between racial discrimination and emotional distress with higher levels associated with lower emotional distress in a study of newly homeless youth in Los Angeles (Milburn et al., 2010). Higher levels of homeless stigma and rates of mental health symptoms have been found among LGBTQ young adults experiencing homelessness compared to their heterosexual counterparts (Gattis & Larson, 2016; Shelton et al., 2018). Among newly homeless youth in Los Angeles, discrimination was significantly associated with being LGB and more than half reported discrimination due to being LGB (Milburn, Ayala, et al., 2006). LGB literature indicates that perceptions of discrimination based on sexual orientation

moderate the relationship between sexual minority status and poor mental health outcomes (Gattis & Larson, 2016).

Education and employment status had a moderately protective effect on health outcomes. Although this may be evidence of reverse causality since people with serious mental illness are less likely to be employed. A quarter of unsheltered young adults had a substance use disorder, which increases the likelihood of involvement in the justice system (Toros, Flaming, & Burns, 2019). It is unsurprising that involvement in the justice system was a strong predictor of poor health outcomes. Historically, policing and incarceration have been used to manage Los Angeles' homeless population diverting people with serious mental illness into the criminal justice system (Moore Sheeley et al., 2021). People experiencing homelessness with mental disabilities have reported being approached by the police at higher rates than those without (Herring, Yarbrough, & Alatorre, 2020). In addition to being more likely to experience homelessness, youth of color are also disproportionately policed once homeless. Criminalization disproportionately impacts youth of color, and a criminal record makes it more difficult to secure employment that would break the cycle of homelessness. Young adults in the child welfare system are also at heightened risk of persistent homelessness and had greater odds of having a mental health condition and substance use disorder. A study of adolescents leaving the child welfare system found 20% were chronically homeless after two years with greater housing instability associated with emotional and behavioral problems, high levels of victimization, and criminal conviction (Fowler, Toro, & Miles, 2009).

Early intervention is needed to prevent long-term homelessness among young adults. Almost half of young adults experiencing long-term homelessness (47.5%) were homeless for the first time. Persistent homelessness among young adults is associated with poor health

outcomes and reduced social and economic opportunities. Longer periods of homelessness erode resilience and young adults who continue along a homeless trajectory are more likely to develop physical health problems (Shelton et al., 2018; Tompsett et al., 2009), which further increases the likelihood that young adults will remain unsheltered. Compared to those without a chronic health condition, young adults with a chronic health condition spent more than twice as much time unsheltered (Bevitt et al., 2015). Breaking the cycle of homelessness is key as patterns of youth homelessness impact future homelessness. A study of youth found that those who were homeless in the six years prior to adulthood were more than three times as likely to become homeless as adults (Toros et al., 2019).

7. Limitations

This study is limited by its measures of homelessness. Although to be eligible for the youth count survey young adults had to be unsheltered during the previous night or most nights in the last 30 days, there is no measure for duration of unsheltered homelessness. Additionally, for young adults with one episode of homelessness, current time homeless is an adequate measure of duration. However, there is no measure of total duration for young adults with multiple episodes. Unlike duration of homelessness, episodes of homelessness in the past three years is a categorical measure. Measuring episodes as a continuous variable may prove more burdensome for survey administration but could yield more nuanced results. For example, unsheltered young adults with 4 episodes of homelessness may be distinctly different from those with 6 or 10 episodes, however I was unable to test this theory. Although multiple episodes of homelessness are suggestive of greater housing instability, it is possible that more episodes may not be as meaningful if the total duration of homelessness is short. Other researchers have

categorized newly homeless youth based solely on duration because it is a more critical indicator of homelessness severity than the number of homeless episodes (Milburn, Ayala, et al., 2006).

In terms of data quality, a point-in-time count cannot convey the vicissitudes of homelessness. People experiencing homelessness are characterized by housing instability, which is a fluid and dynamic phenomenon. A point-in-time count is only representative of people who are homeless during a 10-day window in January. Many young adults may cycle in and out of homelessness over the course of a year for a short period of time, but this is not reflected in a point-in-time count. Critically, there is a lack of longitudinal data that could be used to indicate causality. Although individuals may have participated in the 2018 and 2019 youth count, without a unique identifier it is not possible to track individuals over time. Cross-sectional data is unable to parse out temporal effects between duration of homelessness and health outcomes. Restricting analysis to unsheltered young adults, a vulnerable homeless subgroup, contributed to a greater likelihood of identifying poor health outcomes (Toro & Braciszewski, 2011).

8. Implications for future research

Although this study suggests that poor health is associated with long-term homelessness, more research is needed to examine the temporal relationship between unsheltered homelessness and health. This requires longitudinal data, which is difficult to obtain. One possibility is the use of mobile devices to collect real-time data. Homeless young adults are highly reliant on their phones and may be more open to participating in data collection via this method (Tyler & Schmitz, 2017). Furthermore, more research is needed to explore the interaction between multiple marginal identities, the risk for homelessness, duration of homelessness, and health outcomes. These findings suggest that marginal identities interact to shape poor health and have

important implications for tailoring outreach to subgroups of young adults experiencing homelessness.

9. Conclusion

Health outcomes among unsheltered young adults vary by duration and frequency of homelessness. Young adults experiencing long-term homelessness have greater odds of having a physical health condition, mental health condition or substance use disorder and having all three health conditions. Rates of mental illness and substance use among unsheltered young adults are high. Unsheltered young adults who identify as LGBTQ, those with a history of domestic violence, and system involved young adults (criminal justice and child welfare) had higher odds of having a health condition. Youth with multiple marginal identities may be especially vulnerable to poor health outcomes.

Study 3. ‘I was more focused on surviving than growing’: Experiences of housing insecurity and homelessness among university students

1. Introduction

College students experiencing housing insecurity are a vulnerable and often overlooked population. Housing insecure students have limited or uncertain access to stable, safe, adequate, and affordable housing (Cox et al., 2017). Housing insecurity can worsen over time or abruptly lead to homelessness, which is defined as lacking a fixed, regular, and adequate nighttime residence (Henry et al., 2020). However, housing statuses are not mutually exclusive but rather are changeable states that exist on a housing continuum (Crutchfield & Meyer-Adams, 2019). For example, an otherwise housed student living in a residence hall may become homeless over an academic break. Housing insecurity can jeopardize student health and well-being as well as academic success. Students experiencing housing insecurity have high rates of substance use and risky sexual behaviors as well as irregular sleeping and eating patterns that can compromise physical and mental health (Edidin, 2012). In turn, housing insecure college students are significantly more affected than housing secure students in their ability to attend and perform in class (Silva et al., 2017).

The purpose of this research is to explore underlying patterns of housing insecurity and homelessness among college students at the University of California, Los Angeles (UCLA). While much research has focused on the negative impacts of housing insecurity among younger student populations, there is less literature on the experiences of housing insecure students in higher education. It is essential to identify how college students become housing insecure and consequences of housing insecurity to develop interventions that ensure students can graduate on time, secure employment, and become financially stable. The primary research question of this study is: what are the antecedents and consequences of housing insecurity and homelessness for UCLA students?

This paper is a qualitative follow-up to the Rise survey of UCLA student homelessness. Rise, a 501(c)4 nonprofit student organization, recently surveyed UCLA undergraduate and graduate students as part of their LA2050 campaign for on-campus shelter for homeless students. I partnered with Rise to screen and recruit students for qualitative interviews. Students were asked to describe life experiences prior to and following housing insecurity or homelessness. Questions were tailored to explore specific areas of interest related to housing insecurity including student health and well-being, academic achievement, campus climate, and access to basic needs resources. Since interviews occurred during the COVID-19 pandemic, students were asked if and how COVID-19 influenced their housing status.

2. Background

Survey data provides important context on the consequences and prevalence of housing insecurity among UCLA students. The Undergraduate Experience Survey (UCUES) is conducted by the University of California (UC) at each UC campus and is a useful tool for assessing student basic needs and barriers to student success. Results from the 2020 UCLA UCUES indicate that undergraduates who have been homeless at any time in the past year, compared to those who were not homeless, were more likely to report that they experienced obstacles to their schoolwork all the time due to job responsibilities (4x higher), family responsibilities (3x higher) and poor study environment (3x higher). Unhoused students were also more likely to report health-related barriers to their academic success. Students who experienced homelessness had relatively higher rates experiencing obstacles due to physical illness (5x higher), sleep loss (2.5x higher) and depression (2x higher). Critically, unhoused students reported that not having food was an obstacle to their schoolwork all time at a rate twenty times higher than housed students.

The intersection between basic needs insecurity is evidenced by the high rate of food insecurity among those who have experienced homelessness. More than four times as many unhoused students experienced very low food security compared to housed students. Additionally, these findings suggest that students experiencing homelessness are not accessing support to the same extent as other students. Despite hurdles to their academic success, unhoused students were more than twice as likely to report being reluctant to ask for academic help when needed.

Evidence also suggests experiences of homelessness become more prevalent the longer a student is in school. Results from Rise's survey of student homelessness indicate a cumulative pattern of housing insecurity among undergraduates, with 2% reporting an episode of homelessness in the first year, rising to 9% among students in their 4th year and higher. Among graduate students, 7% reported experiencing homelessness since arriving at UCLA.

3. Theoretical framework

This study is guided by a socio-developmental framework. Homelessness is influenced by contextual factors that are embedded in time and place and operate across ecological levels. The likelihood that a student will experience homelessness is based on interactions between individual and structural factors. Individual characteristics that have been associated with youth/student basic needs insecurity include non-White race, Hispanic ethnicity, identifying as LGBTQ+, first generation student, transfer student, international student, parent of a child under 18, current or former foster care youth, student with disabilities, out-of-state student, student older than 24 years, and part-time student status (Haskett, Kotter-Gruhn, & Majumder, 2020). Previous research has found that individual trajectories into youth homelessness are shaped and constrained by structural factors such as access to university basic needs resources and support

services and public policies that define youth homelessness and eligibility for resources. Young adulthood (18-24 years) is a life stage that is typically characterized by changing roles and transitions. The type and number of transitions that homeless young adults experience will influence their developmental and academic trajectories. These transitions may be described as on time (e.g., entering college after high school graduation) or off time (e.g., being forced to leave home prior to graduating high school). Research suggests that young adults transitioning from home off time are likely to lack resources and life skills needed to transition successfully into adulthood (Kidd et al., 2013).

4. Methods

4.1 Study overview

This paper is a qualitative follow-up to the Rise survey of UCLA student homelessness. Rise survey data was used to screen and recruit potential participants for interviews. Qualitative interviews were conducted remotely with students who had experienced homelessness. Interviews were recorded and transcribed for analysis. Analysis was completed through a process of data coding and data theming. Themes are presented in chronological order to describe antecedents and consequences of student housing insecurity and homelessness.

Survey data collection

Rise surveyed UCLA undergraduate and graduate students (n=734) between February and April 2020 using an online survey (Appendix C Figure 1). The online survey was distributed by a team of five undergraduate student organizers who canvassed students on campus (prior to the coronavirus pandemic) and distributed the survey on social media, through student

organizations, and by requesting that faculty members share it with their students. Rise also offered an incentive for students to complete the survey by raffling off a $100 prepaid debit card.

Screening and recruitment for qualitative interviews

Rise survey data were used to screen potential participants. Using contact information collected in the survey, a Rise representative sent out a recruitment email to survey participants with one or more indicators of homelessness (Appendix C Figure 2). Homelessness indicators were based on student responses to "since arriving at UCLA, have you slept in any of the following places?" Response items included: (1) campus or university housing, (2) sorority/fraternity house, (3) in a rented or owned house, mobile home or apartment (alone or with roommates), (4) in a rented or owned house, mobile home or apartment with family, (5) in a shelter, (6) in an RV or camper, (7) temporarily staying with a relative, friend, or couch surfing until I find other housing, (8) temporarily at a hotel or motel without a permanent home to return to, (9) in transitional housing or an independent living program, (10) at a group home such as a halfway house or residential program for mental health or substance abuse, (11) at a treatment center such as detox or hospital, (12) outdoor location such as street, sidewalk, or alley, (13) in a closed area/space with a roof not meant for human habitation such as abandoned building, car or tent. Students who selected one or more items from items 5-13 were identified as having experienced homelessness.

Only students who experienced homelessness and gave permission to be contacted were invited to participate in the qualitative study. A recruitment reminder email was sent out two weeks later to a subset of students with more than one indicator of homelessness. Students were recruited and interviewed remotely due to COVID-19 safety precautions. Inclusion criteria for

enrollment required that participants must be a current UCLA student, 18 years or older, English speaking, and able to provide consent. Since interviewing occurred during the summer, recent graduates were allowed to participate.

Interview guide

The interview guide is provided in Appendix C Figure 3. I used a meta-synthesis of qualitative studies that examined the lived experience of homeless college students to identify relevant research questions (Bowers & O'Neill, 2019). All included studies were obtained and reviewed as potential sources for interview questions (Bowers & O'Neill, 2019). Interview questions were also drawn from a California State University study of basic needs that provides quantitative and qualitative survey instruments for researchers exploring basic needs insecurity in higher education (Crutchfield & Maguire, 2017). Interview questions related to student homeless trajectories (experiences prior to and following homelessness), academic achievement, campus climate, and help seeking, were considered. Questions were added to the guide to explore student health and well-being since available questions did not sufficiently address these outcomes. Prompts were included and students were encouraged to elaborate on their experiences. Students were also invited to share ideas or suggestions on how to improve their college experience at UCLA.

Interviewing

Students who agreed to participate in the study completed an online scheduling form to select an interview time and interview mode. Participants could choose between a phone or Zoom interview. Zoom is a viable tool for collecting qualitative data and research indicates many

participants who were interviewed via Zoom preferred it to other alternative interviewing mediums including face-to-face, phone, and other video conferencing services (Archibald, Ambagtsheer, Casey, & Lawless, 2019). The interviewer conducted the informed consent with potential study participants and obtained oral consent from participants. Interviews were audio recorded and transcribed. Participants were given a copy of the study information sheet and a $25 electronic Amazon gift card for their time. All students were given a pseudonym to protect their anonymity. Funding for the study was provided by the Semel HCI Center at UCLA. This study was approved by UCLA IRB (IRB#19-002130).

5. Analysis

Analysis was completed though a process of initial coding and data theming. I verified the accuracy of the transcripts and individually coded line by line for significant statements. All significant statements were initially treated equally and then grouped to form textual descriptions of what was experienced and structural descriptions of how it was experienced (Moustakas, 2011) with verbatim examples (Creswell, 2007). Codes were organized chronologically to identify antecedents and consequences of student housing insecurity. Themes were derived from the data to distill student experiences and facilitate interpretation. Data theming is especially appropriate for exploring a participant's emotional experiences (Saldaña, 2013). Coding and analysis of interview transcripts was conducted using ATLAS.ti version 9.0.6.

6. Results

Interviews were conducted during July and August 2020. A total of 13 interviews were conducted (10 phone and 3 Zoom) out of a total 81 students contacted for the study, for a

response rate of 16%. Interviews lasted an average of 39 minutes. Of those who participated, 62% selected one indicator of homelessness and the remainder selected multiple indicators of homelessness. More than a third (n=5) of participants reported ever experiencing unsheltered homelessness. Student characteristics are summarized in Table 6.1. On average, undergraduate students were 20.5 years old (19-24 years) and graduate students were 39.8 years old (27-53 years). Most participants were female (n=8), heterosexual (n=8) and undergraduate students (n= 8), two of whom had recently graduated. Three participants were Hispanic and 5 were non-Hispanic White. Other responses to ethnicity included Asian (n=3), Indian (n=1), and Middle Eastern (n=1).

There were 6 Pell grant recipients, 2 transfer students, 5 first generation students, and 1 international student.

Table 6.1 Characteristics of participants

	Undergraduate (n=8)	**Graduate (n=5)**	**Total (n=13)**
Age, years (SD)	20.5 (1.7)	39.8 (10.6)	27.9 (11.6)
Gender, n			
Male	2	2	4
Female	5	3	8
Queer	1	0	1
Sexual Orientation, n			
Heterosexual	4	4	8
LGBQ	4	1	5
Ethnicity, n			
Hispanic	3	0	3
Non-Hispanic White	3	2	5
Other	2	3	5
Pell grant recipient, n	6	0	6
Transfer student, n	2	0	2
First generation student, n	5	0	5
International student, n	0	1	1

Results are presented by theme following a chronological progression intended to mirror a student's trajectory into housing insecurity. A summary of themes and subthemes is presented in Table 6.2. First risk factors for housing insecurity are described followed by intervening factors that impact housing security, student strategies and methods for coping with housing insecurity including help seeking, and outcomes related to housing insecurity.

Table 6.2 Representative quotations supporting themes and subthemes

Theme	Sub-theme	Exemplar
Structural and individual factors influence housing insecurity	Housing costs	"Rent is, in my opinion, it's crazy in Westwood"
	Housing market	"I can't even believe I found it. I can't believe they'll charge you to apply and you may not get something."
	Rental application process	"I don't have a credit score. I don't have a co-signer. So, there's no way for me to get into those kind of places for housing."
	University policies	"My grades got so low they put me on some kind of...not a hold, but something else where they had to watch my grades and I had to pick them up, basically, and that was so freaking stressful because I almost lost not only my scholarship money and stuff like that, but literally my education itself, which was my only source of housing."
	Financial need	"I'm a low-income first-generation student, so my parents were having to figure out how to help me pay that, because I had nothing...no money to put towards that."
	Household conflict	"I don't even know why she kicked me out, honestly. After that, I didn't know where to go."
Personal and social resources to cope with housing insecurity	Personal attributes	"Maybe that attitude helped me to deal with it instead of crawling in a hole, "No I can't do it anymore."
	Cohabitating	"Am I actually with him because he's the person for me, or am I just this homeless person who needs a home, you know?"
	Social support	"I was fortunate that I had enough contacts and friends for that first quarter because I didn't stay in the same [place]. It was maybe I repeated twice with a few people. But on the whole, I just had enough of a network that they were able to support me."
Help seeking behavior and perceived barriers	Normalizing deprivation	"I feel like, in college, a lot of people are like that where they'll just kind of be like, "Oh, we're all broke college students, we don't have any money," and just kind of joke about it. But I think for some people it's definitely more serious of a concern"
	Stigma	"You shouldn't bring other people bigger problems and stuff like that. So, I would just internalize them and keep it to myself. "
	Self-perceived need	"I know that I considered myself a fighter. And I know that I could find food elsewhere. And I always thought that I should just leave it for those that cannot find food elsewhere because I knew I can and I always did. "
Housing insecurity leads to negative outcomes	Physical health	"I would have to decide whether I wanted housing or whether I wanted food. I could pay them the month's rent but I would be without food for the month.
	Mental health	"It's always that looming thing in the back of my mind, like, oh, how am I going to pay the rent, how am I going to get enough money, is there any, like, small job I can get? That was a big issue for me."
	Emotional health	"I have from time-to-time experienced housing insecurity; I have the fear that that will happen again. I have been living with that fear the entire time I've been at UCLA."
	Academic performance	"Academically, I know that I'm already not going to be able to focus on school as much as I would like because I have all of these competing things that I need to do in order to put a roof over my head."

Students described structural and individual risk factors for housing insecurity. At the structural level, student housing options are constrained by high housing costs, a competitive housing market, and burdensome application processes. High housing costs in Los Angeles make it difficult for students to afford housing. Living in university housing is an expensive option. Although UCLA is planning to expand housing, Howard feels that this is unlikely to ease the burden on students unless there is a substantial change in price:

> I know that UCLA is planning on building a whole new bunch of student housing but if it's going to be charging the same expensive rates that it is currently, I don't see how that's going to benefit any student because they'd rather just want to stay off campus.

Living off campus in nearby Westwood is also pricy, "rent is, in my opinion, it's crazy in Westwood." Kayla frames high rental costs as part of the price students must pay for the college experience, but at the same time an uncontrollable expense due to UCLA's proximity to wealthy neighborhoods:

> There's a part of me that's like, oh, like, this is college, like, you'll never get anything like this again, but also, it's kind of absurd the price that we have to pay in Westwood. Given that we're also between Bel Air and Beverly Hills is also part of the problem, but there's not a ton we can do about that.

Moving further from campus can cut housing costs but create lengthy commutes for students. Among participants, students reported commuting up to four hours one way to campus. COVID-19 has also influenced how students evaluate the cost-benefit of living in Los Angeles. With much of the city closed, Elizabeth weighs the decision to move back to the Bay Area.

> I'm just trying to figure out if it really makes sense for me to be spending $1500 a month on rent when I don't even really get to take advantage of Los Angeles. It doesn't make sense, but that's what I'm doing.

Students must navigate Los Angeles' competitive housing market and application process to secure housing. Finding housing is a resource intensive process, students often need to search multiple websites, network with friends, and cold-call housing properties to check for availability. Applying for housing can quickly become expensive due to application processing fees. Marlena described Los Angeles as "absolutely the hardest" place to find housing.

> When I would need housing in LA, I had a lot less resources and a market that was much more challenging. I can't even believe I found it. I can't believe they'll charge you to apply and you may not get something. And then you do it again and again. Like who's got $50 for every single apartment that's gone before they even see it? Yeah. No, LA is a city unlike one I've seen in this regard. And I've lived in a lot of cities in two countries at least. But yeah, I would put LA definitely at the top of the challenge list [for obtaining housing].

When applying for housing, students face potential barriers including obtaining necessary documentation and managing relations with property managers. Students require ample documentation (e.g., bank statement, credit score) to apply for housing. Meeting the general eligibility criteria can be difficult for students who often do not have a source of income and must identify a creditworthy co-signer. International students may face an additional hurdle in the application process, as one graduate student explains:

> I'm new in the country. I don't have a credit score. I don't have a co-signer. So, there's no way for me to get into those kind of places for housing… Or they wanted some...they wanted me to show a bank statement. Again, I've been in the country for less than a year so my bank statement or my bank records don't look that impressive. So, that was my difficulty in trying to find a house with these people.

Documentation does not guarantee housing, landlords use their discretion when vetting prospective student tenants, which can add stress to the housing search. Izzy said she struggled with her landlord from the beginning.

> When I first applied to rent that place, he [the landlord] asked not only proof of employment and paychecks but also student status and a class registration status and also bank statements and a copy of my driver's license. And he saw my age and he suggested that I was in a different age group than most of the people that he rents to and that wouldn't I be more comfortable if I lived somewhere else.

High housing demand and a short rental window creates time pressure for students in need of housing. Navigating the housing market can be especially difficult for students like Pat who have never hunted for an apartment before. He and his friends began by looking at UCLA housing fairs and then:

> We were looking at different housing management companies that manage properties in Westwood. We did a lot of apartment tours, and then, after a while, we started looking...because things were getting leased very quickly. January, February, that's the time that everyone is signing leases for fall. We were looking at apartments, and we have

> a big group of four people, so we didn't want to sign onto an apartment before everyone had gotten a chance to look, so we were really feeling like there was a lot of time pressure because everything was getting locked up.

University administrative policies can exacerbate student housing insecurity. Students reported that financial aid and student employment wages were insufficient to cover student basic needs. Mara receives Pell Grant and Cal Grant funding that covers tuition but not housing. "Both of those together are just enough to get by. But if I was trying to live off of it, it's honestly not. It's not sufficient." Following the pandemic, students described changes to their financial aid and the availability and prioritization of student housing. Two students revealed that their financial aid package had been cut, one by $10,000 and the other by $7,000. Both students had intended to use their funding to pay for rent. Kayla describes how administrative changes due to COVID-19 have impacted her financial aid and housing options:

> I think it's because everyone's remote now, but the financial aid offers for this school year have started to come out, and what happened is, unless you're confirmed to have a spot in the dorms, you are considered to be a commuter student, and the budget for a commuter student as opposed to an off-campus student, it's like a $12,000 difference in the budgets, because technically if you're commuting you're not paying for housing. So my financial aid was...there was, like, a $10,000 difference between the one that I got this year versus the one last year, just the award letter, and so I had to submit this housing adjustment form to confirm that I'm an off-campus person, but even then it was difficult because you need proof of a lease and a landlord and a contract and proof of payment, I think.

Mara, who moved in with her boyfriend after being kicked out of her family home, agrees that it is difficult to provide evidence of housing insecurity.

> It's just really stressing me out because I'm not on the lease, but you need to submit a lease agreement to get more financial aid, but my boyfriend's name is on the lease and I don't really know what to do about it, because I am paying him half the rent, and it's just, I feel like financially I'm not getting help from the school and it's frustrating.

Like other U.S. students in financial need, Tracy needs to complete the Free Application for Federal Student Aid (FAFSA) to determine her eligibility for student financial aid. This is an exceedingly difficult task, "I don't have parents, so right now I don't have income. I can't even reach out to my mom to get her taxes to report for my FAFSA. So it's almost impossible for me to do anything myself." Danny ultimately had to forgo financial aid after identifying as housing insecure on his FAFSA, which he thinks "raised a flag." To claim financial aid his parents would need to amend their taxes. He explains:

> But we weren't financially stable enough to pay for that. So, I just went the year without financial aid, 2019-2020, so that kind of like exacerbated the housing insecurity because it was just... Everything else came from my income. I had no help at all."

Student employment policies that limit student earning contribute to housing insecurity. Academic awards such scholarships or fellowships can help offset student costs but may also hinder student earning. Izzy remembers when she accepted her fellowship it came with a contract that she didn't fully understand. After signing, she realized that her fellowship contractually

prohibited her from taking additional work at UCLA, income that she needed to meet her basic needs.

> I couldn't work my entire second year otherwise I would lose my fellowship, which didn't make any sense. So, I was trying to live off of the fellowship… The other thing that I didn't understand is that $30,000 a year sounds livable but $18,000 of it went directly to tuition. And I never saw a penny of that and then they take out taxes. And so, I was left with, yeah, a little less than $1,200 a month to live off of.

Insufficient student wages and limited hours lead students to seek employment off campus. Working off campus was the only option for Tracy.

> I never worked on campus. I tried to, but a lot of the jobs were so few hours that it was almost impossible for me, because I would need to have worked six different jobs to have made the money from one of my jobs.

Academic policies intended to help bolster student performance may have unintended consequences for students who are housing insecure. Housing insecure students in academic distress may incur harmful penalties that exacerbate their housing insecurity. Burnt out from working three jobs her freshman year, Tracy's academic performance suffered:

> My grades got so low they put me on some kind of...not a hold, but something else where they had to watch my grades and I had to pick them up, basically, and that was so freaking stressful because I almost lost not only my scholarship money and stuff like that, but literally my education itself, which was my only source of housing.

Her ability to participate in class was further impeded by campus facility costs. She explained that after commuting three hours to campus:

> A lot of the times, I would show up to school and I wouldn't even have money to park, and I'd have to go back all the way home and miss school for a whole day because I couldn't park.

At the individual level, student trajectories into housing insecurity are marked by financial need and household conflict. All students indicated that financial need impacted their housing security. In some cases, students unable to afford campus housing were able to lean on family for financial support. "I'm a low-income first-generation student, so my parents were having to figure out how to help me pay that, because I had nothing...no money to put towards that." Family factors, including financial instability and a lack of familial support contributed to student housing insecurity. Household financial hardship and distress can compound one another creating a foundation for ongoing housing insecurity. Tracy traces her housing insecurity in college back to childhood.

> In 2016, I graduated high school, and literally a month before I graduated, my mom had basically left our family for some guy. We had always...I was homeless as a kid, so we grew up in government-funded buildings, project housing, stuff like that, so she wasn't around that much anyway, and by that time I was already working three jobs and we were all pitching in for rent. I had three other siblings. So, about a month before I graduated high school, my mom moved out with her boyfriend and, three days later, we get an eviction notice because apparently, she had kept the money for rent and stuff like that, so we couldn't come up with the money that quickly. We only had a week to move out, so

> we couldn’t come up with the money that quickly, and we ended up getting evicted right before I started college. At that time, I just stayed at a couple of my friends’ on couches and just moving around here and there wherever I could. I lost all of my belongings. I didn’t have anything anyways.

COVID-19 worsened housing insecurity for housing insecure students by exacerbating risk factors. Housing secure students reported greater stability during the pandemic. Most students moved because of COVID-19 with most students returning home. Student housing security was largely dependent on personal and family financial resources and household relationships, both of which may become strained during a pandemic. Many students were employed through UCLA. Kayla had an on-campus job lined up for the spring but lost it when campus closed. Her father was self-employed and losing her job meant that they didn’t have enough income. She recalls that, “Once we started realizing that we couldn’t really afford rent anymore, then we had to scramble to find somewhere significantly cheaper.” Howard is also under financial pressure because of COVID. His housing stability has been indirectly affected by his roommate leaving:

> He's left because he was a postdoc at UCLA and now, I think they have stopped his research funding or something, so he's done with UCLA so that's why he's leaving Westwood. Now, it's on me to find someone else to replace him on the lease or else I would have to pay the entire rent.

COVID-19 has also impacted household dynamics that underlie housing stability. For Mara, COVID-19 brought family conflict to a boiling point and left her without housing. She

explains that she was kicked out of her family home when the perceived risk of contracting COVID-19 escalated family tensions. “My mom didn’t want there to be so many people living at home, and it was just easier for me to leave than for my siblings.” For others, COVID-19 meant returning to housing with greater instability. Pat knew that “moving back to my home would be an unsafe environment for me, but I didn’t really have any other choice because I don’t know anyone in LA that I could stay with.” Moving home can be disruptive for students who have lived independently, “it was a difficult transition because I’m not used to living there anymore, and also my family situation isn’t the most stable, but it’s stable enough to live here.”

COVID-19 improved housing stability for one student and did not change household stability for students with greater housing security. Danny experienced acute housing insecurity prior to the pandemic but felt that COVID-19 improved his housing stability. “I personally believe that COVID made my housing situation more stable because I moved back home.” However, it is likely that this stability is temporary, “my parents are going through a divorce right now. So, when that happens, we don't really know where we're going to end up at.” Students who were housing secure at the time of the pandemic reported that COVID-19 did not significantly affect their housing status.

Students relied on personal and social resources to cope with housing insecurity. Students felt constrained by contextual factors that limit their ability to cope with housing insecurity. “Circumstances have really been out of my control,” said Mara. Others described their situation as unchangeable, “I was forced to stay there because I had no option” while Danny said, “I was really, really stuck.” In these circumstances, students leveraged personal attributes and social support to cope with housing insecurity. Students’ ability to utilize social support and basic needs resources was dependent on help seeking behavior and perceived barriers. Overall,

positive personal attributes (e.g., resilience) and social support were beneficial. Students who are reliant on romantic relationships for housing may be vulnerable since housing is often contingent upon the quality and duration of the relationship.

Belief in one's self and mental fortitude can help students manage housing insecurity. Students with high self-efficacy perceived themselves as more capable of coping with housing insecurity. Jake was confident that, "I have the resources, I have the flexibility, I have the skills. We're going to find something to eat. We're going to find what I need one way or another." He plays to his strengths as a problem-solving strategy to mitigate the effects of housing insecurity. "I take my many advantages seriously. I try to set myself up for them, and, often enough, I can't, but when I can, I really value them." Adopting a resilient mindset can also help students cope with housing insecurity. When reflecting on how she persevered, super commuter Marlena remarked that, "Maybe that attitude helped me to deal with it instead of crawling in a hole, "No I can't do it anymore."

Students who identified as resilient used experiences of housing insecurity as motivation to improve their academic performance and future opportunities. Having a sense of purpose can play a significant role in helping students persevere:

> A lot of my time would be allocated to finding shelter in comparison to where that time could be used for studying, in a sense. So, because I was allocating more time to finding shelter in some cases, that would take a lot of time and a lot of energy to do so. And I was more focused on surviving than growing. So, there is like a direct conflict between those. However, there was that conflict present while at the same time, my own housing insecurity made me want to do well academically even more because it made the opportunity to be at UCLA more valuable or more significant in my life. So, in some

> cases, it would make it more difficult. But in some cases, it will make it worth fighting for regardless. Oh, I guess, in essence, it did create more obstacles for academics that initially in the short run my grades and academic performance did go down. However, in the long run, it gave me more motivation and it helped me raise my... That motivation helped me raise my grades, yeah, overall.

Tracy expressed that she not only wanted better for herself, but for her future family:

> I don't know, just being in that environment [UCLA] still felt like I knew what I'm working towards. You know, I don't want to struggle like this, I don't want to worry about being homeless or where I'm going to sleep tomorrow or next week. It was more like, I want to be able to provide for my child for when they go to college and not have to worry about this crap.

Partnered students described high levels of uncertainty when housing is dependent on an unstable romantic relationship. Students who live with their partner may feel the need to be on their "best behavior" to maintain housing. Three students relied on cohabitating for housing. Since becoming a student at UCLA, Izzy said cohabitating has become "a bit of a pattern." She moved in with a partner during her first year knowing that she would not be able to pay rent and following that relationship, has spent the past few years renting a room in a house with other students. She is eager to leave the house because of a tense relationship with her landlord, however she continues to rent a small room in the house because she is concerned that the romantic relationship will end leaving her without housing:

> I've been sheltering in place with my partner. We have not been dating for very long. So, it was kind of a forced move in a little early in our relationship. Things are mostly going pretty smoothly but areas of conflict have come up. And in the meantime, I have been paying rent at my apartment. So, that's been a source of frustration for me. That if our relationship was in a more stable, reliable state then I wouldn't feel so bad about maybe taking my things and putting it into a storage unit and save a lot more money, but I keep paying rent… It would be so much easier if I felt comfortable where I was living and know that I wouldn't be turned out on the street but I'm not 100% sure about that and yeah. That keeps me paying for that small room just as a safety net.

The need for greater housing stability may accelerate transitions into cohabitation and supersede other reasons for cohabitating such as intimacy. Tracy felt forced into living with her boyfriend at the time and questioned, "Am I actually with him because he's the person for me, or am I just this homeless person who needs a home, you know?"

Help seeking behavior and perceived barriers influence students' ability to utilize social support and basic needs resources. Normalizing deprivation and social stigma discourages students from disclosing basic needs insecurity. The challenge of meeting basic needs as a student has become so ubiquitous that being a "broke college student" is arguably a rite of passage. However, the perception that being a college student means going without equates student status with deprivation thereby setting a harmful precedent that experiencing basic needs insecurity is a natural part of college life. Although students may use humor as a method to cope with adversity and connect with peers, making light of basic needs insecurity fails to acknowledge students who are truly struggling. One student explained that:

> I feel like, in college, a lot of people are like that where they'll just kind of be like, "Oh, we're all broke college students, we don't have any money," and just kind of joke about it. But I think for some people it's definitely more serious of a concern.

Despite having social support, students expressed that it is difficult to discuss their basic needs. Danny felt "bad about talking about these things with friends even though I knew my friends are extremely supportive." He attributed his reticence to his culture and upbringing:

> I would just keep it to myself, and that more reflects on how I was raised, I guess, because it was just more, like, you don't really tell your problems to others. You shouldn't bring other people bigger problems and stuff like that. So, I would just internalize them and keep it to myself.

Due to this mindset, Danny explained that it took a "very dire situation" for him to open up to a friend, but that experience has changed the way he thinks about asking for help:

> So, one time when my friend was opening up about her situation back at home, I guess that build enough confidence with me and then the courage to share something out about me. I wasn't expecting any help or anything. I was just like being vulnerable. And I've known her for a long time, I feel like now it's like I have to be vulnerable as well to continue growing this friendship. And by opening up, she's the one that helped me borrow. She lent me the money to pay that [academic] fee off. So, that really, I guess, rewired asking for help for me personally. I guess it really took a big barrier off. Even though, right, it's still difficult today, but that really showed me like a different side of people that I hadn't experienced for myself.

Social networks provide emotional and instrumental support for housing insecure students, but students are mindful of overburdening their social support. Most students were reluctant to disclose their basic needs insecurity to friends or family because they "didn't want to burden them" or make the issue "seem like a big deal." After moving permanently to Mexico, Marlena continued to commute three times a week to UCLA for classes, which was only possible because of her social support network:

> I had to spend the first quarter that year coming back couch surfing on friend's couches. So, I was able to... I can't believe I pulled it off. I had a whole plan for living in my car. I did research on it. I knew where people apparently did this a lot in LA. It is where I really learned about student homelessness… So, I was fortunate that I had enough contacts and friends for that first quarter because I didn't stay in the same [place]. I maybe repeated twice with a few people. But on the whole, I just had enough of a network that they were able to support me. And I was very grateful because there was no other way to do it.

Friends, followed by family, were the most common sources of social support. All but one student reported having a social support system. Of those students who talked to friends about meeting their basic needs, most did not discuss basic needs with their family. Students who did not disclose their basic needs insecurity to their family did not want to add to their stress, felt that their family did not have the ability to help or that they would be unsupportive, felt that they were too old to ask for help, or did not have a close relationship with their parents.

Despite having trouble meeting their own needs, three students limited their use of basic needs resources perceiving their need as less than others. Danny explains that his reluctance to use UCLA's food closet stems from seeing himself as self-reliant:

> Yeah, I've heard about CPO. And I would pass it like every single day. But I feel like it was more, again, a lot of these issues probably tied more to mental blocks in my mind where I would see it but then I would be reluctant to go in line or wait for the CPO closet because I felt like there was others and more in need than myself. So, I know that I considered myself a fighter. And I know that I could find food elsewhere. And I always thought that I should just leave it for those that cannot find food elsewhere because I knew I can, and I always did. So, that was kind of more like my thinking behind CPO food closet.

Kayla and Izzy also regulated their use feeling that they did not meet a certain self-defined benchmark. "I tried to limit how much I went just because I knew there were people that didn't have meal plans that needed the food more than I did." While Izzy avoided basic needs support altogether choosing to rely on savings, "I wouldn't want to take away resources or services for somebody, for a student who doesn't have money in the bank."

Nearly all students who reached out to staff or faculty about their basic needs insecurity had a positive experience but perceived barriers to asking for help. Staff and faculty helped direct students to basic needs services, suggested ways to look for housing, offered additional work hours, and created manageable deadlines. In some cases, staff and faculty were viewed as ineffectual but were still appreciated:

> They were like, "Let us know what we could do to help." But they know themselves that there's not much they can do to help. But it was just nice to know that at least they want to help, they had the thought in mind.

Student perceived barriers to asking for help from staff or faculty include unequal "power dynamics," a "live and let live" academic culture, and feeling that professors are either disinterested or unwilling to help. Danny spoke of the perceived divide between himself and faculty:

> Even if a professor, their work really excites me and they align with my passion, but then when it comes to meeting them in the office hours is like... There's a very evident power divide, I guess. The power dynamics influence the ability for me to open up about those type of things.

Marlena felt that faculty and staff did not fully comprehend her experience with housing insecurity despite knowing that she commuted eight hours a day.

> In the sense that they all knew I lived in Mexico. But it was easily explained because I'm doing my research there. But the undercurrent of that is don't they get that in a way, I'm also saying, "It's easier for me to do that than live here." Like, "Why am I not just living in LA and going down to [Mexico] to do my research?" I mean, obviously, I'm critiquing the whole housing culture of LA, I mean, just the unsustainability of it. But no, I never would come up like, "Oh, I know it's so hard to live here." No, they just would focus on, "Oh, she just wants to do her work in Mexico." Yeah. But don't you see how impossible it would be if I wanted to be here?

She notes that this dynamic may be even more difficult for younger students:

> I guess we get into age here too. I don't need them to hold my hand or tell me what to do. But if you're younger, you're an undergrad facing all of this. I can't imagine. You need more support.

Izzy describes how she felt dismissed when she approached faculty for help with funding:

> When I did talk to several people about the whole fellowship issue and having my income capped, the response was really negative. I was reminded over and over again that I was in a much more privileged place. I had a much more privileged position that other students and that I should really check myself.

Most students experiencing basic needs insecurity were unaware of university basic needs resources and explored other ways to meet their needs. As expressed by one student, "I haven't used any campus resources, just because I don't know where to look and what they could help me with." Others learned of resources after their need had passed. In retrospect one student noted, "I would have for sure utilized them if I knew they existed." She continues:

> I found out, if you donate blood, you get free parking, so I started donating platelets every two weeks so I could get a free parking pass, and I would get a meal voucher, so that would come in really handy. That was my resource, get lunch and parking that week.

Club meetings during the beginning of the year are a popular way to get free food, "I think 99% of freshman do this." Students who were aware of basic needs resources found out through a variety of sources: faculty, graduate services, student employment, counseling and psychological services (CAPS), and friends. The CPO food closet was the most used basic needs resource. One

student reported using the carpool, and another reported using the CPO computer lab and clothing closet.

Housing insecurity negatively affects physical health, mental health, emotional health, and academic performance. Students' physical health is impacted by inadequate sleeping accommodations, food insecurity, and unsafe housing. Students who rely on campus facilities to study and sleep described physical discomfort due to working for long periods in cramped spaces and sleeping in areas not intended for overnight accommodation. "I had no good place to work, I couldn't see on my little laptop. It was ruining my wrists. It was not good on my back." Sleeping in a library or an empty classroom can "create a lot of physical problems like back pain and neck cramps. And I would wake up pretty sore all over." Students must make difficult decisions about prioritizing their basic needs when housing insecurity and food insecurity co-occur. One student describes weighing his options:

> I would have to decide whether I wanted housing or whether I wanted food. I could pay them the month's rent but I would be without food for the month. Or I could crash at a friend's place but still afford food.

Housing insecure students may lack access to a kitchen to prepare healthy meals and their ability to make healthy meal choices are constrained by a limited food budget. Students look for food that will keep them full without overspending.

> I would have to struggle with finding food, always looking for the deals. And unfortunately, it would always be like fast food because that tended to be the cheapest available food. Anything else would be more expensive. But at the same time, even if the

> healthy foods were cheaper, it wouldn't be filling enough. So, I would typically go for the fast food.

Housing availability and living conditions can rapidly change, influencing personal safety and well-being. Tracy felt that her need for housing led to dangerous circumstances:

> I went to hang out with friends and that was another place I was going to crash out for the night. Things just went wrong fast. I'd definitely say housing insecurity does cause people to be unsafe… If I had housing, I don't think I would have been in that situation to where that would have happened.

All students described negative mental health effects due to housing insecurity. For most students housing insecurity is a source of constant anxiety. Students described the ever-present need to pay rent and find stable housing.

> It's always that looming thing in the back of my mind, like, oh, how am I going to pay the rent, how am I going to get enough money, is there any, like, small job I can get? That was a big issue for me.

Another student echoed this sentiment, "You're always thinking about how to change to a better place." Securing a place to crash for the night is an energy intensive and time-consuming "day-to-day struggle." Tracy attributed the stress to sleep loss and weight loss. "Not only was I on my feet 24/7, but I was sleeping maybe 4 hours a night, and I literally didn't have any time to eat." With all of her time focused on making ends meet, she was too overwhelmed to find support:

> I didn't have time to find any of that help. I didn't have time to be resourceful, you know? If I could just know how to manage my time a lot better and then know what classes I need to take and stuff like that...it was just navigating literally being a full-time student and being more than a full-time employee and still having to worry about where I was going to sleep and what I was going to eat.

Also working more than one job, another student implied that the negative effect on her mental health was unavoidable, "I have to stretch myself really thin in order to make this work, and that's just how it is." Household dynamics, including relationships with property managers and roommates, can create inhospitable living conditions. Izzy feels the stress of contending with an intrusive landlord, "He just lets himself in and sometimes I'll be in my pajamas or whatever, walk out into the kitchen and he's there or in the hallway. We get these surprise visits quite often and it's very intimidating to me." For another student, sleeping unsheltered was preferable to returning to an apartment he shared with inconsiderate roommates. "I just chose not to go back there because it was just... I knew that I could sleep better on the pavement than in the place I was at." For student parents, housing insecurity is a family matter. Jake described how commuting negatively impacts his relationship with his children:

> It's a strain not to be together all the time, so they're not with a parent, they're with other good, trusted adults who they liked and loved, but that's not the same, and it would be difficult if I'm out of the house before they wake up and I'm still on campus when they're going to sleep. They could go a whole day without seeing a parent. That was very hard.

The cumulative emotional toll of housing insecurity may be difficult to detect and process, particularly for those experiencing chronic housing insecurity. Students preoccupied with managing their housing insecurity may have limited emotional awareness.

> It's just we don't even realize the toll, right, sometimes, especially when it comes to our mental health, the stress of a situation. Like COVID, it's so easy to see the impacts mentally on people and emotionally because it's all happening in such an intense, short period of time. But when you take these stressors of inadequate or insecure housing and spread them out, you might not even notice how it's really affecting your sense of self stability. And then, of course, it affects your performance. It affects how you relate to others. Everything just stands out.

Compartmentalizing emotions may be viewed as a necessary means to an end. This may be especially true for students who experience long-term housing insecurity.

> I only started crying about this after three years. When it started to come to an end is when the stress hit me actually. The interesting thing is I just powered through it until I saw the ending. And when I got a Fulbright that's when I transitioned into not having to do this [commute] anymore. But in the few months leading up, I would have these moments where I would realize that it was almost ending. And I would feel how I was just holding it together to just get to the end.

The trauma and uncertainty may continue even after regaining housing. Izzy's history of homelessness has left a lasting emotional impact on her, "I have from time-to-time experienced

housing insecurity; I have the fear that that will happen again. I have been living with that fear the entire time I've been at UCLA."

Self-esteem and identity are tied to housing stability. Experiences of housing insecurity can alter a student's sense of self. "You have no stability. You have no place to call yours at the end of the day." He continues, "And also, in a way, it kind of relates to dignity, I felt less dignified compared to other years when I did have housing." Self-perception also influences how students self-identify. One commuter who described herself as "not technically homeless" and "pseudo homeless," shared that she prefers to refer to herself using a phrase she created, "LA homeless." "LA homeless" captures the dual nature of housing insecurity for those who have stable housing that is outside Los Angeles. "My living situation varies completely when I'm home compared to when I'm in at school. So, when I'm at home, it's like a normal living situation. But everything changes when I'm in Los Angeles." Additionally, students experiencing homelessness may not self-identify as such, "I don't think I ever thought of it that way. In terms of what nomenclature, like what identity words I would use, I definitely thought of myself as not having a stable place to live."

Students experiencing housing insecurity often lack living conditions necessary for academic success. Mara is feeling the effects after moving into a small apartment with her boyfriend. "I feel like I never have privacy, and it's starting to get to me even though I've only been here for two or three weeks. It's really made it hard to study, too, to focus on anything." Other students described having little time or bandwidth for academics. "In certain situations, a lot of my time would be allocated to finding shelter in comparison to where that time could be used for studying, in a sense." Elizabeth also described tension between meeting her basic needs and being a student:

> Academically, I know that I'm already not going to be able to focus on school as much as I would like because I have all of these competing things that I need to do in order to put a roof over my head.

Housing insecurity can delay or deter students from pursuing professional aspirations. Tracy reflects on what she might have accomplished had she had housing:

> If I had more stable housing and didn't have to worry about working so much just to afford living there, then I could have focused on school so much more and I could have graduated with who knows what kind of honors, and I wouldn't have to wait a couple years before going to law school.

Limited financial aid exacerbates housing insecurity and leads to poor academic outcomes. The intertwined relationship between financial aid, housing insecurity, and academic success was summed up by another student:

> I think that they [UCLA] think that $1,400 a month is somehow reasonable. But do they really expect to have students performing at a high level that are living in a living room with three other people so that they can afford to live off the amount they give them?

7. Discussion

The purpose of this study was to understand student housing trajectories among UCLA students and in doing so, examine how housing insecurity impacts student health and academic success. Overall, students described two primary paths into housing insecurity: financial need and household conflict. These individual factors are constrained by structural factors including

housing market dynamics, student housing application processes, and university policies that determine financial aid and student employment. It is evident that students experiencing housing insecurity demonstrate resilience and resourcefulness to make ends meet. It is a testament to their fortitude that many are able to endure and even grow as a result. Students who can cope and adapt successfully balance stressful events with protective factors such as social support (Rew, Taylor-Seehafer, Thomas, & Yockey, 2001). However, students experience distress when their need outstrips their resources, and employing short-term strategies to solve long-term, intractable problems can jeopardize student health, well-being, and academic success. Emotional distress was evidenced by feelings of anxiety, fear, and a sense of being "stuck." Literature on youth homelessness has also identified the experience of "being trapped" as a central aspect of emotional distress and is indicative of youth feeling that they are "unable to engage effective coping in the face of numerous personal, contextual and structural stressors" (Kidd & Shahar, 2008). Some strategies were effective for coping with housing insecurity; however even students with positive self-perceptions, resilience and social support described circumstances they felt were out of their control. These accounts illustrate that the ability to cope with housing insecurity changes over time and is situational.

Immediate solutions are needed to support students experiencing housing insecurity. The timing and duration of student housing insecurity are variable and students experiencing acute housing insecurity are especially vulnerable. To identify possible solutions to acute housing insecurity, pilot programs can be used to test tailored emergency housing interventions. Although UCLA has a student shelter, space is limited. Safe parking programs can be adopted as an interim measure as universities expand affordable housing options. Housing insecurity is most common in the fall and academic breaks may leave students without housing (UCUES, 2020).

University administration could consider adopting housing policies that allow a portion of on-campus housing to remain open year-round for students who are episodically homeless. Critically, this study suggests that current financial aid and student employment policies are inadequate and undermine students' ability to meet their basic needs and academic goals. Specifically, policies that cap a student's ability to earn income are especially harmful and instituting a cost-of-living adjustment could help improve students' ability to meet their basic needs. Additionally, it is crucial that students experiencing housing insecurity are not further penalized through academic probation that may disrupt or terminate a student's housing.

Future efforts to reduce housing insecurity may benefit from adopting a strengths-based approach that fosters student resilience while simultaneously improving access to basic needs resources. Identifying and strengthening protective factors can bolster student success. Although UCLA provides a range of services for students experiencing basic needs insecurity, few students were aware of these resources. The university can improve the uptake of basic needs resources by increasing student awareness. This could be accomplished by implementing a mandatory basic needs orientation for all incoming students. As evidenced by these interviews, students who qualify for services may avoid utilizing resources due to stigma related to basic needs insecurity (Haskett et al., 2020). Dismantling the "broke college student" narrative is essential to prevention efforts and to cultivate an environment where students feel comfortable asking for help. Based on this study, student testimonies may be especially effective to reach peers and can help normalize the use of basic needs resources. Though students often relied on friends, faculty and staff were also identified as sources of support. Trusting relationships have been identified as an essential component of effective interventions with homeless young adults and a "no wrong door" approach to accessing basic needs resources should be adopted at the

undergraduate and graduate level and across all schools (Thompson et al., 2013). Providing information or creating a central hub (i.e., website) for faculty and staff regarding campus basic needs services can help support this approach. More research is needed to develop interventions to strengthen resilience, but current evidence suggests that mindfulness meditation and art-based interventions may help build self-esteem and self-efficacy among youth experiencing homelessness (Cronley & Evans, 2017). Programs and counseling services can help empower young adults by recognizing individual strengths and capabilities such as resourcefulness and independence and helping youth adopt a positive life perspective, which has been identified as a source of resilience (Thompson et al., 2013). Ultimately, institutional changes that address structural constraints (e.g., financial aid and student employment policies) for all students may be most effective at reducing student basic needs insecurity.

Interventions may prove most beneficial when targeted to students at high risk of housing insecurity. Students of color, first-generation students, and LGBTQ students are disproportionately represented among students experiencing housing insecurity. Working with student groups on campus can help ensure that students in need of resources are well informed and community collaborations should be explored to identify new strategies to best support students. Also, students may benefit from resources tailored to life stage. For example, student parents experiencing homelessness may benefit from resources designed to improve access to reliable and affordable childcare.

8. Limitations

This research has a few key limitations. First, the sample did not include a student currently experiencing homelessness. Students experiencing homelessness have limited time and

resources available that makes participation difficult. Second, this study only included UCLA students and is not representative of all students experiencing housing insecurity at UCLA or within Los Angeles County. These interviews take place within the context of COVID-19, which has introduced new and unique barriers to housing for students. Study recruitment and interviews were planned to take place on campus. However, due to COVID-19, safety precautions necessitated closing UCLA's campus and research methods were adapted to allow for remote recruitment and interviewing. Additionally, data collection and analysis were conducted by one researcher.

9. Implications for future research

Better measures and data collection are needed to identify and assess housing insecurity and homelessness among UCLA students. Until this year, only one item has been used to assess homelessness among UC undergraduate students. UCUES has expanded to include eight housing insecurity items. Housing insecurity questions are essential to identify college students who couch surf and double-up since these individuals (with few exceptions) are not considered homeless (Curry et al., 2017). Among UCLA undergraduates, 85% reported sleeping overnight temporarily with a relative/friend, or couch surfing until they found other housing (2020 UCUES). Although couch surfing may be construed as a normative college experience, it may be indicative of long-term housing instability (Curry et al., 2017). More research is needed to understand how these often unrecognized forms of student homelessness contribute to patterns of housing insecurity.

10. Conclusion

Trajectories into student housing insecurity are marked by financial need and household conflict. Housing options are constrained by significant structural barriers including university policies that can exacerbate housing insecurity. Housing insecure students rely on resilience and social support to make ends meet; however, they experience personal and academic distress when their needs exceed their resources. Students may be deterred from asking for help due to narratives that normalize deprivation in higher education and stigma. University students described negative health and academic outcomes due to housing insecurity. Future efforts to reduce student housing insecurity may benefit from addressing institutional and individual risk factors while simultaneously improving access to basic needs resources.

Discussion

This dissertation examined how shelter status and homeless trajectories shape health outcomes. I conducted three studies to address key gaps in homelessness research: 1) impact of shelter status on health outcomes, 2) impact of duration and frequency of homelessness on health outcomes, and 3) causal relationship between homelessness and health. In Study 1, I reviewed and evaluated the literature on unsheltered homelessness and health to assess the impact of shelter status on health outcomes and to provide context for understanding homeless trajectories and health outcomes among unsheltered young adults in Los Angeles County. While it is well established that people experiencing homelessness have poorer health outcomes than those who are housed, my research contributes to a growing body of literature that indicates unsheltered populations have poorer health outcomes than sheltered populations. In Study 2, I built upon these findings by examining the relationship between duration and frequency of homelessness and health outcomes among unsheltered young adults in Los Angeles County. This study supports evidence that longer durations of homelessness are associated with worse health. In Study 3, I explored the experiences of UCLA students to determine the antecedents and consequences of housing insecurity and homelessness. My findings indicate that student homelessness is primarily driven by financial insecurity and household conflict and experiences of homelessness negatively impact health and academic performance among college students. In this chapter, I discuss study findings, including contributions to homelessness research, implications for public health practice, and directions for future research.

1. Summary of study findings

I assessed the impact of shelter status on health outcomes in Studies 1 and 2. In Study 1, I reviewed and evaluated the evidence to date on unsheltered homelessness and health. To my

knowledge, this is the first literature review of unsheltered homelessness and health. Comparisons between homeless and housed populations have consistently identified health inequalities by housing status (Fazel et al., 2014). Study 1 builds upon this body of research by establishing that unsheltered homelessness is worse for health than sheltered homelessness. Unshelteredness is strongly associated with poor health across a range of conditions including physical health, mental health, and substance use. The association between unsheltered homelessness and poor health was also evident in Study 2. Nearly half (48.5%) of young adults experiencing unsheltered homelessness in Los Angeles County had a mental health condition and almost a quarter (22.4%) had a substance use disorder. Unsheltered populations often have more than one health condition and comorbid mental health and substance use disorder is common. Despite large unmet health needs, people experiencing unsheltered homelessness have lower rates of health care utilization. Unsheltered populations are less likely to have health insurance, which is a primary barrier to accessing health services. Evidence of significant differences in health and premature mortality by shelter status supports claims that unsheltered homelessness is an independent risk factor for increased mortality (Roncarati et al., 2020) and that unsheltered populations are distinct from sheltered populations in terms of sociodemographic characteristics and exposure to risk factors (Montgomery, Byrne, et al., 2016; Smereck & Hockman, 1998).

In Study 2, I examined the relationship between duration and frequency of homelessness and health outcomes among unsheltered young adults in Los Angeles County. For this study, duration and frequency of homelessness were combined and operationalized as homeless trajectory groups. Young adults were classified into three homeless trajectory groups: short-term, episodic, and long-term. Young adults experiencing long-term homelessness had double the odds of having a physical health condition, mental health condition, and substance use disorder

(OR=2.12 $p<0.05$) and having any health condition (OR 2.18 $p<0.01$) compared to young adults experiencing short-term homelessness after controlling for sociodemographic characteristics and structural risk factors. These results are especially compelling given a sample of young adults. Similar results have been found among unsheltered individuals (Levitt et al., 2009); however, samples are significantly older on average. Other research has also found youth with longer durations of homelessness report worse physical and mental health (Milburn, Rotheram-Borus, et al., 2006).

Studies 2 and 3 inform the causal relationship between homelessness and health among young adults. In both studies, financial insecurity followed by household conflict were the most common reasons for homelessness. While personal substance abuse has been identified as a pathway into homelessness among young adults (Mallett et al., 2005; Martijn & Sharpe, 2006), few young adults in Study 2 indicated they were homeless because of health-related reasons. This was also the case in Study 3 for UCLA students who had experienced homelessness, none of whom identified poor health or substance use as reasons for housing insecurity. While household conflict is a primary pathway into homelessness among young adults, it is less clear what is causing household conflict. Based on Study 3, household conflict was due to parent-child relationships and disagreements between roommates (e.g., household responsibilities). While it is possible that substance use drives household conflict as suggested by other research (Mallett et al., 2005), only 10% of young adults in Study 2 who cited household conflict also indicated that substance use was a primary reason for housing loss.

Findings from Study 2 and 3 indicate that structural barriers including housing availability and costs, and employment are driving youth homelessness in Los Angeles County. In the case of employment, it is not simply that young adults are unemployed, it is the fact that

they are underemployed that puts them at heightened risk of homelessness (Flaming et al., 2021). This is true for young adults in Los Angeles County and was described by UCLA students who were unable to afford rent despite working multiple jobs. The risk for homelessness has been amplified during COVID as pandemic-related job loss has disproportionately affected low-wage workers (Flaming et al., 2021).

Although health-related reasons were not identified as a primary cause of young adult homelessness, homelessness contributes to poor health among young adults. In Study 2, the relatively low number of young adults citing health problems at the onset of homelessness compared to high rates of poor health outcomes among long-term homeless young adults suggests that exposure while homeless drives negative health outcomes. A longitudinal study of homeless youth in Australia also concluded that health conditions (e.g., chronic health problems, mental illness) are less likely to cause homelessness and more likely to be the result of poor living conditions while unsheltered (Bevitt et al., 2015). Housing insecurity contributed to poor physical, mental, and emotional health among UCLA students. Findings from Study 3 support research that housing insecurity tends to coincide with other health challenges like food insecurity and mental health symptoms (Crutchfield & Maguire, 2017). Students described that poor health and inadequate study environments due to housing insecurity caused poor academic outcomes.

Social stigma and shame are barriers to help seeking among students experiencing housing insecurity. It is evident that students go to great lengths to mitigate their housing insecurity by taking additional jobs, drawing on social support, and identifying workarounds. Despite significant adversity, some students exemplified resilience, and in certain cases, even felt that they were the better for having experienced housing insecurity. This highlights a precarious

balance between housing needs, resources, and student distress. However, distressed students may not access campus basic needs services, either because they are unaware of services or because it is stigmatized. The finding that stigma and shame contributes to the hiddenness of student homelessness and discourages students from asking for help is consistent with previous research among students experiencing basic needs insecurity in higher education (Crutchfield & Maguire, 2017; Crutchfield, Carpena, McCloyn, & Maguire, 2020). Feelings of shame are due in part to cultural expectations. American culture prides itself on self-reliance and the ability to 'pull yourself up by your bootstraps,' which sets the expectation that you can succeed without outside help. Except some people can't (often due to factors beyond their control) and the alternative – that you need help – becomes a source of shame. The notion that individuals must thrive unsupported against the odds is also central to the normalization of deprivation in higher education. The "broke college student" has been romanticized as a collegiate rite of passage but it sets a harmful precedent that experiencing basic needs insecurity is a natural part of college life (Crutchfield et al., 2020). These expectations reinforce one another: deprivation is part of the college experience; I should be able to do this by myself. As a result, accessing basic needs services is not only a matter of availability but acceptability.

A common theme across all three studies is the overrepresentation of racial, gender, and sexual minorities experiencing homelessness. Racial disparities that exist within Los Angeles' homeless population are also evident among homeless young adults and unsheltered young adults. Only 8% of Los Angeles' population are African American, yet African Americans account for 38% of homeless youth and 28% of unsheltered youth. Rates of unsheltered homelessness for American Indian/Alaska Native and multi-racial young adults were also high relative to Los Angeles' population. Among unsheltered young adults, 22% identified as LGBQ.

This finding is consistent with previous research that estimates between 20-40% of homeless young adults identify as LGBTQ (Shelton et al., 2018) and much higher than the estimated 5% of adults who identify as LGBT in Los Angeles (Romero, 2015). These findings suggest that systems of oppression significantly impact the likelihood that marginalized young adults will become homeless and that marginalized identities may interact to shape health outcomes.

2. Implications for practice and future research

Overall, this dissertation informs gaps in homelessness research by advancing our understanding of the relationship between homelessness and health. Although significantly more research is needed to understand the impact of unsheltered homelessness and patterns of homelessness on health, findings from this dissertation suggest there is an immediate need to reduce unsheltered homelessness and expedite exits out of homelessness. This need is supported by evidence that unsheltered homelessness is *more* harmful to health than sheltered homelessness and longer durations of homelessness lead to poorer health outcomes. Additionally, evidence that poor health does not lead to homelessness among young adults, but poor health follows once homeless, underscores the need for timely intervention that strengthens the connection between young adults and support services. Evidence of differential health outcomes among minority young adults experiencing homelessness warrants more investigation to determine how public health practice can best meet the needs of vulnerable subgroups. Based on these studies, financial insecurity is the leading cause of homelessness and resolving structural constraints at the community and institutional level may be most effective at reducing young adult homelessness. High-quality data is needed to further explore the relationship between homelessness and health and to inform homelessness policy and practice.

To improve population health, future efforts to address homelessness should prioritize providing shelter and housing to those who are unsheltered. That the unsheltered are sicker and experience substantial barriers to accessing health care is a strong rationale for street outreach. Street outreach teams play a vital role providing medical care and linking people to social services. This work is conditional upon trust and a street outreach worker may need to try multiple times before successfully making contact (Lee & Donaldson, 2018). The finding that nearly half of unsheltered young adults experiencing long-term homelessness were homeless for the first time suggests a disconnect between young adults and services and supports. It is crucial that homeless young adults are connected to appropriate support and services in a timely manner to expedite exits out of homelessness and prevent long-term homelessness (Mayock et al., 2013). Young adults experiencing unsheltered homelessness may be most receptive to intervention when they arrive on the street or during crisis (Edidin, 2012). Since young adults are deterred from accessing services due to stigma, it is important that shelters and other basic needs providers adopt a strength-based approach and provide services in a supportive and nonjudgmental manner (Ha, Thomas, Narendorf, & Santa Maria, 2018).

Prevention and intervention efforts may be most effective if targeted at the primary drivers of young adult homelessness in Los Angeles County: financial insecurity and household conflict. Young adults with access to affordable housing or financial assistance are most likely to exit homelessness (Mayock et al., 2013). Eliminating structural barriers to employment and education can help young adults improve financial stability and facilitate economic mobility (Huffman, Leier, Generous, Hinrichs, & Brenneman, 2021; Williams & Reppond, 2020). Potential programs to address structural constraints include vocational rehabilitation, transitional jobs, and customized employment (Huffman et al., 2021). A creative potential strategy would be

to restructure workplaces to allow for flex time and to accommodate young adults with unstable housing or transportation (Huffman et al., 2021). Based on a small number of qualitative interviews with UCLA students, evidence suggests that students are struggling to pay rent and meet their basic needs due to inadequate financial aid and student employment. The University of California is the largest employer in the state and for many students, also their landlord. The UC system commands significant market power that could be leveraged to improve student housing insecurity. Structural changes at the institutional level such as increasing affordable housing, subsidizing college tuition and student employment (Williams & Reppond, 2020), removing caps on student income, and instituting a cost-of-living adjustment could help improve students' ability to meet their basic needs. Revising academic probation policy to prevent the disruption or termination of student housing would likely reduce student housing insecurity.

Family reengagement programs may help resolve household conflict and by extension, young adult homelessness. Evidence suggests that interventions to reengage families of homeless young adults have significant benefits for reducing risky behavior and facilitating exits out of homelessness (Mayock et al., 2011; Milburn et al., 2012). Most young adults who run away from home return within the first three months and contact with parents can increase the likelihood of young adults returning and remaining at home (Milburn et al., 2012). Key elements of successful family reengagement include renewed trust and communication between young people and their parents (Mayock et al., 2011). While family reengagement is an evidence-based strategy to promote exits out of homelessness, this approach may not be appropriate for all young adults. It may not be possible or advisable to reconnect LGBTQ young adults with family due to identity-based family conflict or discrimination (Fraser, Pierse, Chisholm, & Cook, 2019). The high

proportion of LGBTQ young adults experiencing homelessness necessitates sensitive and inclusive interventions to expedite exits out of homelessness among LGBTQ young adults.

High-quality data on unsheltered homelessness and student homelessness are essential for future research. Data limitations are a substantial hurdle in homelessness research and restrict our ability to assess risks and long-term consequences. At the county level, duration of current episode of homelessness only tells part of the story. Total duration is needed to understand trajectories and health outcomes among young adults with multiple episodes of homelessness. A lack of longitudinal data is the greatest barrier to homelessness research and is required to examine temporal relationships between unsheltered homelessness and health. More research is needed to understand if health problems cause people to become unsheltered, if unsheltered homelessness causes health problems, or if preexisting health conditions are exacerbated by living on the streets. Although unsheltered populations are in worse health than sheltered populations, the mechanisms of this effect are unclear. Future research should identify mechanisms that account for the excess health risks associated with unsheltered homelessness. Additionally, more research is needed to explore how marginalized identities interact to shape health outcomes across the life course.

Homelessness and housing insecurity should be measured to provide a comprehensive understanding of student homeless. Indicators of high housing insecurity such as multiple moves in the past year can help identify students who are at greater risk of homelessness (Frederick et al., 2014). Health-related outcomes including mental health should also be assessed to help identify students in distress and connect them to support services. Couch surfing is common among college students and most homeless young adults couch surf (Curry et al., 2017). Though a considerable portion of these experiences are likely a normative part of young adulthood,

couch surfing may also be a precursor to homelessness (Curry et al., 2017). Recent projections that rates of couch surfing will increase within California and Los Angeles County highlight the need to understand this often invisible population (Flaming et al., 2021). Future research should explore how unrecognized forms of homelessness (e.g., couch surfing) contribute to experiences of housing insecurity and homelessness.

Appendix A

Appendix A Table 1 Keywords used for PubMed literature review searches

Keywords	Publications
1. (((roofless*) OR (houseless*)) OR (homeless*)) OR (unhoused)	12,995
2. (encampment*)	76
3. (“sleep* rough”) OR (“rough sleep*”)	143
4. ((“street homeless*”) OR (“street dwell*”)) OR (“street population*”)	71
5. (nonshelter*) OR (unsheltered)	130
Total	13,415
De-duplicated Total	13,407

Appendix A Table 2 Criteria used for EndNote smart groups

Endnote smart group	Criteria	Publications
1. Homelessness	Any field contains roofless* OR houseless* OR homeless OR unhoused	12,984
2. Encampment	Any field contains encampment*	76
3. Sleep rough	Any field word begins with sleep* AND rough*	140
4. Street homeless	Any field contains street dwell* OR street-dwell OR street*dwell* OR street population* OR street-population* OR street*population* OR street, population* OR street homeless* OR street-homeless*	68
5. Unsheltered	Any field contains unsheltered OR nonshelter* OR non-shelter* OR non-shelter-using	130
Total	(Homelessness) AND (Encampment) OR (Sleep rough) OR (Street homeless) OR (Unsheltered)	174

Appendix A Table 3 Number of publications excluded by reason

Not in English (6)	(de Oliveira, 2007; Drogoul, 1996; Gomes et al., 2002; Pinzón-Rondón, Briceño-Ayala, Botero, Cabrera, & Rodríguez, 2006; Rosa Ada, Cavicchioli, & Brêtas, 2005; van Laere & Buster, 2001)
Published prior to 1990 (8)	(Atkinson, 1988; Brickner et al., 1986; Burt & Cohen, 1989; Cohen, Teresi, & Holmes, 1988a; Cohen, Teresi, & Holmes, 1988b; Gelberg & Linn, 1989; Hannappel, Calsyn, & Morse, 1989; Ramsden, Nyiri, Bridgewater, & el-Kabir, 1989)
Not original research (22)	(Brush, Gultekin, & Grim, 2016; Christensen, 2009; Courtwright, 1998; Crane & Warnes, 2001b; Depp, Vella, Orff, & Twamley, 2015; Donaldson, 2010; Farrell, Reissing, Evans, & Taylor, 2004; Fielding, 1998; Goode, Hoang, & Crocombe, 2018; Hurrell, 1994; Incze & Katz, 2018; Johnson, 1998; Kirkland-Kyhn, 2020; Latkin, 1998; Leshner, 1998; Lilja, Hamilton, & Larsson, 1998; Liu, Chai, & Watt, 2020; Neto et al., 2020; Peate, 2019; Raines & O'Connor, 2019; Ramanuj, 2019; Thomas, 2019)
Qualitative (29)	(Attenborough, 1998; Cunningham & Slade, 2019; Dickson-Gomez, Convey, Hilario, Corbett, & Weeks, 2007; Ellsworth, 2019; Fordham, 2015; Ghose, Boucicaut, King, Doyle, & Shubert, 2013; Haile, Umer, Ayano, Fejo, & Fanta, 2020; Håkanson & Öhlén, 2016; Hino et al., 2018; Hodgetts, Radley, Chamberlain, & Hodgetts, 2007; Howe, Buck, & Withers, 2009; Jagpal, Barnes, Lowrie, Banerjee, & Paudyal, 2019; Johnsen, Cloke, & May, 2005; Jordan, 2013; Kirkman, Keys, Bodzak, & Turner, 2010; Kryda & Compton, 2009; Lloyd, Page, McKeganey, & Russell, 2019; Myburgh, Moolla, & Poggenpoel, 2015; O'Carroll, Irving, O'Neill, & Flanagan, 2017; Parsell, Clarke, & Vorsina, 2020; Petrovich & Cronley, 2015; Salem & Ma-Pham, 2015; Shah, Koch, & Singh, 2019; Sumerlin, 1996b; Swart-Kruger & Richter, 1997; Swigart & Kolb, 2004; Ungpakorn & Rae, 2020; Wright, Oldham, & Jones, 2005; Wusinich, Bond, Nathanson, & Padgett, 2019)
Study design not applicable (17)	(Berry, 2007; Bourgois, 1998; Bourgois & Schonberg, 2007; Eyrich-Garg & Moss, 2017; Farrell & Reissing, 2004; Hopper, Shinn, Laska, Meisner, & Wanderling, 2008; O'Connell, Mattison, Judge, Allen, & Koh, 2005; Payne, 2002; Peterson, Baer, Wells, Ginzler, & Garrett, 2006; Pierangeli & Lenhart, 2018; Shern et al., 2000; Smith & Hall, 2018; Stergiopoulos et al., 2010b; Timms & Perry, 2016; Uddin et al., 2012; Uddin et al., 2009; van Hest & Story, 2009)
No health or health-related outcome (19)	(Early, 2005; Eyrich-Garg, 2010; K. M. Ferguson, 2007; Fischer, Shinn, Shrout, & Tsemberis, 2008; Gabrielian et al., 2016; Gallaher, Herrmann, Hunter, & Wilkins, 2020; Gory, Ritchey, & Fitzpatrick, 1991; Henderson

	et al., 2008; Hewett, 1998; E. E. Johnson, Borgia, Rose, & O'Toole, 2017; Larsen, Poortinga, & Hurdle, 2004; Lettner, Doan, & Miettinen, 2016; Loopstra et al., 2016; Mogk, Shmigol, Futrell, Stover, & Hagopian, 2020; Montgomery, Byrne, et al., 2016; Sumerlin, 1995, 1996a; Tsemberis, 1999; Tsemberis & Eisenberg, 2000)
Sheltered and unsheltered aggregated without comparison (45)	(Amato et al., 2019; Barrow & Medcalf, 2019; Black et al., 1991; Brett et al., 2014; Bymaster, Chung, Banke, Choi, & Laird, 2017; C et al., 2017; Chondraki, Madianos, Dragioti, & Papadimitriou, 2014; Coyle et al., 2015; G. M. Craig et al., 2007; T. K. Craig & Hodson, 2000; Crane & Warnes, 2001a; Darling, Palmer, & Kipke, 2005; Doughty, Stagnell, Shah, Vasey, & Gillard, 2018; Ensign, 2001; Ensign & Santelli, 1998; Fallaize, Seale, Mortin, Armstrong, & Lovegrove, 2017; Ferguson & Xie, 2012; Fichter & Quadflieg, 2001; Fisher, Turner, Pugh, & Taylor, 1994; Fisher et al., 2013; Gelberg, Gallagher, Andersen, & Koegel, 1997; Goldade et al., 2012; Green, Tucker, Golinelli, & Wenzel, 2013; Harris et al., 2020; Lam & Rosenheck, 1999; Lane et al., 2018; Lewer et al., 2019; Lewis & Ferguson, 2014; Marshall & Gath, 1992; Milaney, Kamran, & Williams, 2020; North & Smith, 1993; North, Smith, & Spitznagel, 1994; A. Nyamathi, Keenan, & Bayley, 1998; O'Toole et al., 1999; O'Toole, Johnson, Borgia, & Rose, 2015; Patanwala et al., 2018; Pluck, Barajas, Hernandez-Rodriguez, & Martínez, 2020; Poulin, Maguire, Metraux, & Culhane, 2010; Reyes et al., 2005; Salomonsen-Sautel et al., 2008; Santa Maria, Padhye, Yang, Gallardo, & Businelle, 2018; Shaw, Dorling, & Brimblecombe, 1999; Stratigos et al., 1999; Thompson, 2004; Topp et al., 2013)
Child/youth sample (8)	(De Rosa et al., 1999a; Ensign & Santelli, 1997; Forde, Baron, Scher, & Stein, 2012; Ginzler, Garrett, Baer, & Peterson, 2007; Greene et al., 1997; Moore et al., 2019; Ray et al., 1999; Rhoades, Winetrobe, & Rice, 2014)
Distinction between sheltered and unsheltered unclear (5)	(Hofmeister et al., 2019; Hwang, 2002; Levitt et al., 2012; Stafford & Wood, 2017; Yun et al., 2003)
Did not meet methodological criteria (4)	(Ayano et al., 2017; Gambatese et al., 2013; Harney et al., 2019; Llerena, Gabrielian, & Green, 2018)

Appendix A Table 4 Inclusion criteria and quality scoring

	Points
Tier 1 – Do they use multivariate statistics to adjust the health difference in sheltered/unsheltered to account for demographic factors? Tier 2 – Does the study provide demographic background data that would make it possible to conduct adjustments?	Yes (1) No (0)
Tier 1 and 2 – Sampling: • Does the paper describe a sampling strategy or was it based strictly on convenience? • Does the sample consist of volunteers or people who were selected for interview? Specifically, is a sampling strategy given and applied? • Was any attempt made to have the sample be representative of the broader sheltered and unsheltered homeless population? Or was recruitment site selection strictly based on convenience? If selection took place at multiple sites, was thought given or were analyses conducted to assert the appropriateness of this approach? Tier 1 • Did the sampling mechanisms or selection probability differ for sheltered and unsheltered individuals without any effort to adjust for this bias?	Probability sample (1) Convenience sample not selected on health (1) Convenience sample selected on health (0)
Tier 1 and 2 – Measurement: • Were the health measures validated and collected with proper training and quality assurance?	Yes (1) No (0)

Appendix B

Appendix B Table 1 Multivariate logistic regression models

	Physical health	Mental health	Substance use	Tri-morbidity	Any health condition
Episodic	0.736	1.066	1.028	1.350	1.279
	(0.180)	(0.450)	(0.299)	(0.513)	(0.477)
Long-term	1.406	1.366	1.392	2.115*	2.177***
	(0.355)	(0.430)	(0.412)	(0.808)	(0.631)
2019	0.787	1.020	0.711	0.656	0.789
	(0.195)	(0.199)	(0.177)	(0.234)	(0.160)
SPA 2	3.345*	1.225	3.105	1.848	2.385
	(2.395)	(0.824)	(2.512)	(1.612)	(1.892)
SPA 3	2.435	0.934	17.28***	1.303	4.077
	(1.807)	(1.103)	(13.03)	(1.210)	(4.182)
SPA 4	1.460	2.680	4.258**	1.100	3.937*
	(0.874)	(1.681)	(2.897)	(0.785)	(2.972)
SPA 5	1.849	2.024	5.439**	1.879	3.080
	(1.105)	(1.262)	(3.653)	(1.357)	(2.287)
SPA 6	0.632	1.974	10.23***	0.541	3.792*
	(0.404)	(1.360)	(7.691)	(0.436)	(2.970)
SPA 7	0.366	1.799	8.509**	0.0832**	3.016
	(0.270)	(1.152)	(7.177)	(0.104)	(2.326)
SPA 8	2.454	0.555	11.98**	0.401	5.158*
	(2.556)	(0.450)	(11.96)	(0.415)	(4.632)
Age (years)	1.030	1.019	0.933	1.095	0.964
	(0.0641)	(0.0576)	(0.0551)	(0.0787)	(0.0495)
Female	0.577**	0.783	0.342***	1.066	0.563***
	(0.137)	(0.175)	(0.0916)	(0.340)	(0.110)
Trans/Gender non-conforming	1.009	0.711	0.820	3.452***	0.430*
	(0.356)	(0.276)	(0.319)	(1.542)	(0.201)
LGBQ	2.139***	2.261**	1.853*	1.093	2.920***
	(0.534)	(0.752)	(0.607)	(0.351)	(0.912)
Hispanic	1.138	0.687	0.457***	0.616	0.512*
	(0.306)	(0.286)	(0.120)	(0.225)	(0.196)
Non-Hispanic Black/ African American	1.456	0.402***	0.242***	0.347**	0.369***
	(0.474)	(0.136)	(0.0820)	(0.168)	(0.120)
Other race	2.059**	0.449**	0.336***	0.796	0.449**
	(0.586)	(0.176)	(0.125)	(0.366)	(0.174)
Veteran	0.258	2.344	0.0556***	0.290	1.229

	(0.255)	(1.574)	(0.0533)	(0.252)	(0.792)
Domestic violence	3.635***	3.652***	1.697**	3.405***	4.596***
	(0.982)	(1.031)	(0.453)	(1.466)	(1.301)
High school diploma/GED	1.123	0.630*	0.622**	1.029	0.569**
	(0.247)	(0.151)	(0.144)	(0.401)	(0.129)
Some college or higher	1.151	0.938	0.905	0.926	0.797
	(0.267)	(0.242)	(0.302)	(0.345)	(0.223)
Employed	0.522**	0.487***	0.517**	0.529*	0.426***
	(0.137)	(0.104)	(0.163)	(0.196)	(0.0809)
None of the above	0.535	1.802	0.544	0.858	1.736
	(0.347)	(0.911)	(0.218)	(0.525)	(0.730)
Justice system involved	1.777**	1.543**	2.085***	2.091**	1.938***
	(0.403)	(0.322)	(0.497)	(0.744)	(0.396)
Child welfare system involved	0.989	1.500**	1.525*	1.653*	1.393*
	(0.221)	(0.285)	(0.371)	(0.472)	(0.257)
Receives public benefits	2.172***	1.648**	0.925	0.912	1.844***
	(0.489)	(0.377)	(0.253)	(0.364)	(0.420)
Constant	0.0140***	0.149	0.411	0.00189***	0.539
	(0.0201)	(0.225)	(0.655)	(0.00358)	(0.814)
Observations	1,220	1,220	1,220	1,220	1,220

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: Short-term (homeless less than 1 year and 1 time in the past 3 years). Male. 2018. SPA 1. Male. Heterosexual. Non-Hispanic White. Not a veteran. Did not experience domestic violence. Less than high school education. Unemployed or disabled/on disability. No involvement in justice system. No involvement in child welfare system. Does not receive government assistance.

Appendix B Table 2 Multivariate logistic regression models with race/ethnicity interaction

	Physical health	Mental health	Substance use
Episodic	0.790	5.171**	1.308
	(0.389)	(4.172)	(0.748)
Long-term	1.227	4.255***	4.079***
	(0.490)	(2.267)	(2.086)
Hispanic	0.914	1.868	1.215
	(0.376)	(0.996)	(0.705)
Non-Hispanic Black/African American	1.253	1.674	0.289*
	(0.716)	(0.813)	(0.215)
Other races	3.168**	1.876	1.038
	(1.596)	(1.109)	(0.687)
Hispanic*Episodic	1.034	0.106***	0.611
	(0.677)	(0.0725)	(0.504)
Non-Hispanic Black/African American*Episodic	0.826	0.191*	1.482
	(0.654)	(0.178)	(1.359)
Other races*Episodic	0.678	0.141*	1.030
	(0.455)	(0.164)	(0.876)
Hispanic*Long-term	1.431	0.429	0.196**
	(0.808)	(0.342)	(0.145)
Non-Hispanic Black/African American*Long-term	1.357	0.138***	0.683
	(0.847)	(0.0998)	(0.610)
Other races*Long-term	0.478	0.155**	0.107**
	(0.316)	(0.117)	(0.0944)
2019	0.802	1.060	0.709
	(0.202)	(0.197)	(0.176)
SPA 2	3.437*	1.234	3.144
	(2.467)	(0.860)	(2.447)
SPA 3	2.469	1.006	20.35***
	(1.884)	(1.116)	(15.23)
SPA 4	1.513	2.613	4.226**
	(0.924)	(1.721)	(2.720)
SPA 5	1.862	2.095	5.522***
	(1.129)	(1.373)	(3.548)
SPA 6	0.656	1.791	11.08***
	(0.425)	(1.273)	(7.916)
SPA 7	0.378	1.481	8.710***
	(0.287)	(1.041)	(6.787)

SPA 8	2.612	0.540	10.51**
	(2.696)	(0.449)	(10.07)
Age (years)	1.039	1.015	0.941
	(0.0672)	(0.0577)	(0.0544)
Female	0.591**	0.791	0.333***
	(0.140)	(0.171)	(0.0909)
Trans/Gender non-conforming	1.010	0.777	0.848
	(0.348)	(0.296)	(0.299)
LGBQ	2.118***	2.502***	1.779*
	(0.531)	(0.788)	(0.561)
Veteran	0.282	2.722	0.0389***
	(0.290)	(1.695)	(0.0402)
Domestic violence	3.534***	3.388***	1.799**
	(0.967)	(0.810)	(0.481)
High school diploma/GED	1.095	0.654*	0.585**
	(0.242)	(0.160)	(0.132)
Some college or higher	1.110	0.927	0.817
	(0.262)	(0.246)	(0.265)
Employed	0.527**	0.530***	0.529**
	(0.139)	(0.105)	(0.156)
None of the above	0.615	2.040	0.632
	(0.400)	(1.110)	(0.234)
Justice system involved	1.798**	1.505**	2.094***
	(0.409)	(0.303)	(0.454)
Child welfare system involved	1.003	1.601***	1.554*
	(0.219)	(0.283)	(0.366)
Receives public benefits	2.147***	1.697**	0.961
	(0.492)	(0.388)	(0.263)
Constant	0.0123***	0.0593*	0.172
	(0.0185)	(0.0898)	(0.245)
Observations	1,220	1,220	1,220

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: Short-term (homeless less than 1 year and 1 time in the past 3 years). Male. 2018. SPA 1. Male. Heterosexual. Non-Hispanic White. Not a veteran. Did not experience domestic violence. Less than high school education. Unemployed or disabled/on disability. No involvement in justice system. No involvement in child welfare system. Does not receive government assistance.

Appendix B Table 3 Multivariate logistic regression models with gender interaction

	Physical health	Mental health	Substance use
Episodic	0.919	0.494**	1.023
	(0.257)	(0.166)	(0.403)
Long-term	1.712	1.028	1.108
	(0.573)	(0.300)	(0.399)
Female	0.883	0.392***	0.214***
	(0.370)	(0.138)	(0.0970)
Trans/Gender non-conforming	1.667	0.240	0.567
	(1.390)	(0.209)	(0.589)
Female*Episodic	0.395	7.812***	1.139
	(0.268)	(5.842)	(0.811)
Trans/Gender non-conforming*Episodic	0.829	14.07***	0.778
	(0.759)	(11.61)	(0.931)
Female*Long-term	0.598	2.060	2.263
	(0.332)	(0.961)	(1.365)
Trans/Gender non-conforming*Long-term	0.368	2.698	2.486
	(0.343)	(2.418)	(2.589)
2019	0.777	1.030	0.742
	(0.201)	(0.195)	(0.179)
SPA 2	3.310*	1.276	3.129
	(2.385)	(0.877)	(2.413)
SPA 3	2.505	0.960	16.77***
	(1.871)	(1.141)	(12.25)
SPA 4	1.477	2.685	4.021**
	(0.899)	(1.701)	(2.601)
SPA 5	1.844	2.096	5.252**
	(1.116)	(1.328)	(3.361)
SPA 6	0.664	1.846	9.326***
	(0.423)	(1.278)	(6.750)
SPA 7	0.368	1.703	8.481***
	(0.278)	(1.144)	(6.753)
SPA 8	2.351	0.571	11.48**
	(2.367)	(0.480)	(10.84)
Age (years)	1.028	1.019	0.941
	(0.0635)	(0.0605)	(0.0551)
LGBQ	2.168***	2.106**	1.812*

	(0.539)	(0.677)	(0.603)
Hispanic	1.159	0.713	0.455***
	(0.316)	(0.263)	(0.120)
Non-Hispanic Black/African American	1.464	0.415***	0.247***
	(0.479)	(0.129)	(0.0816)
Other races	2.155***	0.434**	0.339***
	(0.621)	(0.166)	(0.122)
Veteran	0.254	2.411	0.0618***
	(0.260)	(1.533)	(0.0566)
Domestic violence	3.732***	3.384***	1.701*
	(1.016)	(0.828)	(0.462)
High school diploma/GED	1.102	0.615**	0.656*
	(0.237)	(0.145)	(0.155)
Some college or higher	1.144	0.929	0.950
	(0.268)	(0.241)	(0.321)
Employed	0.525**	0.509***	0.494**
	(0.139)	(0.108)	(0.159)
None of the above	0.521	1.751	0.551
	(0.351)	(0.895)	(0.220)
Justice system involved	1.758**	1.669**	2.071***
	(0.403)	(0.338)	(0.490)
Child welfare system involved	0.974	1.607**	1.525*
	(0.213)	(0.298)	(0.365)
Received public benefits	2.218***	1.542*	0.905
	(0.504)	(0.349)	(0.241)
Constant	0.0124***	0.198	0.388
	(0.0179)	(0.304)	(0.620)
Observations	1220	1220	1220

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: Short-term (homeless less than 1 year and 1 time in the past 3 years). Male. 2018. SPA 1. Male. Heterosexual. Non-Hispanic White. Not a veteran. Did not experience domestic violence. Less than high school education. Unemployed or disabled/on disability. No involvement in justice system. No involvement in child welfare system. Does not receive government assistance.

Appendix B Table 4 Multivariate logistic regression models with sexual orientation interaction

	Physical health	Mental health	Substance use
Episodic	0.706	1.389	1.363
	(0.187)	(0.582)	(0.451)
Long-term	1.288	1.606	2.008**
	(0.390)	(0.503)	(0.631)
LGBQ	1.669	4.390***	4.509***
	(0.737)	(2.343)	(2.469)
LGBQ*Episodic	1.224	0.287***	0.369
	(0.686)	(0.133)	(0.257)
LGBQ*Long-term	1.454	0.421	0.233**
	(0.785)	(0.243)	(0.172)
2019	0.786	1.033	0.725
	(0.194)	(0.201)	(0.176)
SPA 2	3.350*	1.194	3.305
	(2.401)	(0.797)	(2.574)
SPA 3	2.463	0.962	18.00***
	(1.825)	(1.111)	(13.77)
SPA 4	1.462	2.639	4.462**
	(0.875)	(1.654)	(3.013)
SPA 5	1.862	1.994	5.538**
	(1.112)	(1.234)	(3.698)
SPA 6	0.635	1.933	10.69***
	(0.408)	(1.326)	(8.205)
SPA 7	0.385	1.574	7.606**
	(0.284)	(0.994)	(6.044)
SPA 8	2.486	0.541	11.57**
	(2.578)	(0.438)	(11.54)
Age (years)	1.030	1.032	0.943
	(0.0642)	(0.0581)	(0.0520)
Female	0.569**	0.850	0.381***
	(0.134)	(0.185)	(0.104)
Trans/Gender non-conforming	1.010	0.797	0.859
	(0.359)	(0.330)	(0.348)
Hispanic	1.132	0.712	0.463***
	(0.303)	(0.292)	(0.122)
	1.443	0.409***	0.246***

Non-Hispanic Black/African American	(0.464)	(0.138)	(0.0835)
Other races	2.060**	0.453**	0.330***
	(0.593)	(0.176)	(0.125)
Veteran	0.261	2.368	0.0517***
	(0.254)	(1.570)	(0.0515)
Domestic violence	3.614***	3.730***	1.780**
	(0.965)	(0.993)	(0.446)
High school diploma/GED	1.117	0.645*	0.628**
	(0.246)	(0.157)	(0.145)
Some college or higher	1.175	0.920	0.826
	(0.276)	(0.241)	(0.275)
Employed	0.518**	0.493***	0.546**
	(0.139)	(0.107)	(0.158)
None of the above	0.539	1.839	0.563
	(0.347)	(0.919)	(0.230)
Justice system involved	1.775**	1.573**	2.186***
	(0.402)	(0.334)	(0.509)
Child welfare system involved	0.988	1.509**	1.551*
	(0.220)	(0.291)	(0.361)
Receives public benefits	2.160***	1.637**	0.911
	(0.480)	(0.367)	(0.239)
Constant	0.0152***	0.0949	0.226
	(0.0221)	(0.145)	(0.330)
Observations	1,220	1,220	1,220

*** p<0.01, ** p<0.05, * p<0.1

Reference categories: Short-term (homeless less than 1 year and 1 time in the past 3 years). Male. 2018. SPA 1. Male. Heterosexual. Non-Hispanic White. Not a veteran. Did not experience domestic violence. Less than high school education. Unemployed or disabled/on disability. No involvement in justice system. No involvement in child welfare system. Does not receive government assistance.

Appendix C

Appendix C Figure 1 Rise survey of UCLA student housing insecurity and homelessness

Survey of UCLA Student Housing Insecurity & Homelessness

This survey is now closed. To sign Rise's petition demanding UCLA invest $1 million more this year to house homeless students, add your name here. To get involved in Rise's UCLA organizing, contact Saba@RiseFree.org.

Rise is leading a campaign to end college student hunger and homelessness in Los Angeles. As part of that effort, more than 1,000 UCLA students have signed Rise's petition urging UCLA Chancellor Gene Block to invest an additional $1 million this year in on-campus shelter for homeless Bruins. Every day, we hear stories of students struggling with housing insecurity and homelessness, but we need more research to understand how students are affected by these issues.

That is why we are launching our first ever "Shine a Light" survey. This survey is for all UCLA undergraduate and graduate students to complete whether they experience housing insecurity or not. Please complete the survey as best as you can and encourage friends, classmates, and peers to complete it as well (i.e., feel free to also share it on your social media accounts as long you make it clear that this survey is just for UCLA students). Entering this survey also gives you the chance of winning a $100 Prepaid Debit Card which will be randomly awarded to one student who completes the survey.
Note: All personally identifiable information will remain anonymous unless otherwise requested by the student.

Take future action with a single click.

fastaction

?

Log in or Sign up for *Fast*Action

Show your support now

Email

email@email.com

Remember me so that I can use *Fast*Action next time.

Shine a Light Survey

What is your class year?

- 1st Year Undergraduate
- 2nd Year Undergraduate
- 3rd Year Undergraduate
- 4th Year Undergraduate
- 5th / 6th Year Undergraduate
- Graduate Student

What is your major or primary field of study?

Do you live on-campus or off-campus?

- On-Campus
- Off-Campus

How many students do you know who have been homeless since starting at UCLA?

Homelessness includes living temporarily in a shelter, camper or car, couch surfing, outdoors or in a non-housing building such as the library. 0 Students: I have met zero students who I know have experienced homelessness.

- 1 Student Who Has Experienced Homelessness Since Starting at UCLA
- 2 - 5 Students Who Have Experienced Homelessness Since Starting at UCLA

5 or more students who have experienced homelessness since starting at UCLA.

Since arriving at UCLA, have you slept in any of the following places? Please check all that apply.

- [ ] Campus or University Housing
- [ ] Sorority / Fraternity House
- [ ] In a rented or owned house, mobile home or apartment (alone or with roommates)
- [ ] In a rented or owned house, mobile home or apartment with family
- [ ] In a shelter
- [ ] In an RV or camper
- [ ] Temporarily staying with a relative, friend, or couch surfing until I find other housing
- [ ] Temporarily at a hotel or motel without a permanent home to return to (not on vacation or business travel)
- [ ] In transitional housing or an independent living program
- [ ] At a group home such as a halfway house or residential program for mental health or substance abuse
- [ ] At a treatment center such as detox or hospital
- [ ] Outdoor location (such as street, sidewalk, or alley; bus or train stop; campground or woods, park, beach, or riverbed; under bridge or overpass; or other)
- [ ] In a closed area/space with a roof not meant for human habitation (such as abandoned building; car, truck, or van; encampment or tent; unconverted garage, attic, or basement; etc.)

Do you want to participate in advocacy efforts to end student homelessness at UCLA?

- [ ] Yes
- [ ] No

Is there any additional information you would like to share about student housing insecurity and homelessness? (Optional)

Submit

Appendix C Figure 2 Recruitment email

Hi,

I want to thank you for completing Rise's survey of UCLA student housing insecurity and homelessness back in February. Given COVID-19's impact on students' lives since then, collecting data like this is imperative to informing UCLA's actions to protect its housing insecure and homeless students.

I'm reaching out because you indicated that you'd be open to participating in advocacy efforts to end student homelessness at UCLA. As a UCLA student, you are invited to participate in a qualitative research study about living in unstable housing or experiencing basic needs insecurity.

The interview will take about an hour. You can choose whether you would like to be interviewed over Zoom or by phone. Participants will receive a $25 Amazon gift card for their time and effort.

Your story matters. Findings from this study may be used to advocate for emergency on-campus housing and to develop better measures for identifying and assessing housing insecurity and homelessness among UCLA students.

If you are interested in participating, please schedule a time here.

Participation is voluntary. To participate, you must be 18 years or older, currently enrolled at UCLA, speak English, and are able to provide informed consent.

If you have any questions about the study, please contact the principal investigator, Jessica Richards.

Thank you,
Marlene Lopez

Appendix C Figure 3 Interview guide

Interview Guide

- Introduction
- Oral consent
- Demographics
- Questionnaire
- Interview
- Closing

Thanks so much for agreeing to participate in this interview.
To begin, I'd like to start with a few background questions.

Demographics

1. How old are you?
2. What school year are you in?
3. What is you major?
4. What is your gender?
5. What is your sexual orientation?
6. What is your ethnicity?
7. Are you a Pell grant recipient?
8. Are you a transfer student?
9. Are you a first-generation student?

Lived experience and housing status

1. I'd like to get a better understanding of how you spend your time. Could you walk me through a typical day in your life?
2. How would you describe your current housing status?
    - Prompt: Do you identify as homeless? Or housing insecure?
    - If not, how do you prefer to be identified?
3. What were the circumstances that led to your current housing status?
4. Has COVID-19 influenced your housing status?
    - Prompt: If so, how?
5. Thinking back since you've become a college student, how has your housing status changed over time?
    - Prompt: For example, did you move?
6. How long is your daily commute to campus?
7. Can you tell me about a time during college when you struggled to meet your housing needs?
8. Have you used any strategies to navigate your college experience as a housing insecure student?

Health status

9. Does your housing status affect your ability to take care of yourself?
    - Prompt: How does it affect your physical health?

Academic achievement

10. Does your housing status affect your academic performance?
    - Prompt: If so, how?

Social support and services

11. Do you have a social support system?
    - Prompt: Do you talk to anyone in your social support system about trying to meet your basic needs like food and housing?
        1. If so, who do you talk to about meeting your basic needs?
12. Do you currently use any services to help meet your basic needs?
    - Prompt: If so, what services do you use?

Social experience

13. How would you describe your relationship with other students?
14. How would you describe your relationship with UCLA faculty and staff?
15. How do you feel about the campus climate at UCLA?
    - Prompt: Do you feel safe?
    - Do you feel included in the UCLA community?

Suggestions

16. Do you have any suggestions for how UCLA could help other students living in similar circumstances succeed in college?

Thanks again for sharing your experiences with me. I appreciate your time.

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