Homeless Encampments and the Access to Water, Sanitation, and Hygiene (WaSH)

Services in Los Angeles, CA

by

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Dedication

To my family, Larry and the teddy bear crew, and the unhoused community of Los Angeles

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Abbreviations

CoC	Continuum of care
GIS	Geographic information system
IRB	Institutional review board
LAHSA	Los Angeles homeless services authority
PIT	Point-in-time
SSI	Spatial Sciences Institute
UN	United Nations
US	United States
USC	University of Southern California
WaSH	Water, sanitation, and hygiene

Abstract

Access to water, sanitation, and hygiene (WaSH) are fundamental human needs. However, global water reports estimate that 2 billion people worldwide live without safely managed access to these WaSH services. The absence and inadequate access to WaSH result in WaSH insecurity experiences that increase individual exposure to preventable water-related health risks and illnesses. While most of the existing research focuses on WaSH insecurity experiences in the global South, this dissertation shifts the attention to the global North, specifically Los Angeles, California, USA. This dissertation aims to better understand how unhoused communities of Los Angeles navigate spaces and places that do not have safe, sufficient, accessible, and affordable access to WaSH services. The following work presents three studies that detail the difficulties unhoused communities encounter, each making a case for interim-level WaSH services that would help address people's unmet fundamental needs. The first study, integrates survey data from people with lived experience to identify the coping mechanisms people use to survive in places lacking access to WaSH. The second study uses spatial statistics and geographic information systems (GIS) to measure differences in accessibility based on individual and service-level factors that contribute to experiences of WaSH insecurity. The final study incorporates service providers' perspectives using qualitative descriptive interviews to understand the impacts of WaSH insecurity during the SARS-CoV-2 (COVID-19) global pandemic. Together the findings from these studies identify the critical needs of unhoused communities, and meeting these needs presents important policy implications. The findings suggest that addressing WaSH insecurity is crucial because WaSH insecurity reinforces a cycle of homelessness. In other words, WaSH insecurity exacerbates stigmatization, raises barriers in seeking out mainstream services, and negatively affects people's mental and

physical health. Therefore, interim-level services, specifically WaSH services, are needed to address the immediate unmet needs of unhoused residents of Los Angeles.

Chapter 1 Introduction

Safe access to water for drinking, sanitation, and hygiene (WaSH) are foundational human needs and human rights. The United Nations (UN) General Comment 15 on the right to water issued by the Committee on Economic, Social and Cultural Rights, declares that a person has the right to have sufficient, safe, physically accessible, and affordable water for personal needs without any form of discrimination (UN Committee on Economic Social and Cultural Rights (CESCR) 2003). Additionally, the Human Rights Council recognized in 2007 the equitable access to safe drinking water and sanitation as a human right (UN High Commissioner for Human Rights 2007). In 2020, through the Resolution 64/192, the UN's General Assembly also recognized the human right to water and sanitation (United Nations (UN) General Assembly 2010). While progress has been made through the declaration of these human rights, global water reports estimate that 1 in 4 people or 2 billion people around the world are living without safely managed access to these WaSH services (World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) 2017). The absence and inadequate access to WaSH result in WaSH insecurity experiences that increase individual exposure to preventable water-related health risks.

Experiences of WaSH insecurity are disproportionally in different parts of the global South (as seen in the work of (Alhassan and Kwakwa 2014; Sultana 2011; Truelove 2011). In this dissertation, however, I argue that experiences of WaSH insecurity also exist in the global North, specifically in unhoused communities of the United States (US). To understand the impacts of WaSH insecurity in unhoused communities, this dissertation utilizes survey data from people with lived expertise to identify coping survival strategies and measure accessibility based on geography, individual, and service level factors. At the same time, the dissertation integrates the perceptions of service providers using interviews that support the survey findings.

People experiencing homelessness do not have equitable access to essential WaSH services due to being housing displaced. In these global water reports, unhoused people are also excluded and or undercounted as the focus is the household as a unit of WaSH insecurity measurement (Capone et al. 2020; Meehan, Jurjevich, et al. 2020; Wescoat, Headington, and Theobald 2007). Therefore, this dissertation challenges the conception that wealthy nations like the US have universal access to WaSH by exploring the experiences of WaSH insecurity in unhoused communities. As the findings of the three studies in this dissertation suggest, there is no one-size-fits-all solution to addressing unmet service needs of unhoused communities. Meaning that solutions are not always available in the interim while people are experiencing homelessness. Therefore, interim solutions are needed to provide those stop-gap services for people to meet people's basic needs, one being access to WaSH. The three studies in this dissertation essentially argue that experiences of WaSH insecurity reinforce a cycle of poverty in unhoused communities.

This mixed-methods dissertation aims to examine the experiences of WaSH insecurity in unhoused communities of Los Angeles. An explanatory sequential mixed methods design is used, with first utilizing quantitative survey data to describe the coping strategies people use to access WaSH (Chapters 2) and to measure differences in accessibility to WaSH based on individual and service level factors (Chapter 3). The findings from these two chapters are then explained and validated by integrating the perspectives of service providers using in-depth interview data (Chapter 4). This examination could help highlight what effective programs are needed to address homelessness more significantly and how immediate WaSH interventions could reduce or prevent disease outbreaks while opening access to other homeless services. Ultimately, understanding the impacts of WaSH insecurity on communities experiencing homelessness will help bring a new understanding into what forms of inclusion are needed, including (1) connecting people to safe

and equitable WaSH services, (2) how access to these services can be improved, which would then lead to (3) the prevention of health inequities and systems of environmental injustices. The following sections of this introductory chapter provide an overview of the problem, contextualization of the study area, research aims, and study significance.

1.1. Research Problem

Homelessness is a social phenomenon, increasingly visible in many urban and rural settings. The pathways that lead individuals and families to experience homelessness result from structural, systemic, and individual risk factors (Katz 2013; Shelton et al. 2009; Wood et al. 1990). The rise of homelessness in the US, for instance, emerged from the deinstitutionalization of the 1970s and 1980s. The deinstitutionalization resulted in significant cuts in federal housing, Medicaid, social security, and other federal assistance programs designed to help low-income people (Foscarinis 2012; Moore Sheeley et al. 2021; Takahashi, McElroy, and Rowe 2002). At the same time, the deinstitutionalization of mental health care and reduction of mental health funding contributed to the rise of homelessness in Los Angeles for people coping with mental illnesses (Durham 1989; Moore Sheeley et al. 2021; Scott 1993; Wuerker 1997). Other factors such as gentrification, urban development, demolition of affordable housing units without replacement, and the conversion of low-rent apartments to high-rise loft apartments contributed to the displacement of people in Los Angeles (Geoff Deverteuil 2019; Moore Sheeley et al. 2021).

Aside from these structural factors, social and individual problems such as being unemployment, family conflict, divorce/separation, death in the family, domestic violence, immigration status, substance misuse, and criminal history record contribute to experiences of homelessness (Katz 2013; Shelton et al. 2009; Wood et al. 1990; Takahashi, McElroy, and Rowe 2002; Wong 2009). Understanding these different structural and individual contributing factors

that lead to housing displacement is essential to better address the rise of homelessness and the type of services needed. In this dissertation, the focus is on the interim level service needs as they relate to water, sanitation, and hygiene (WaSH) services in Los Angeles, which remains underexplored.

While the expansion of permanent and affordable housing is crucial in addressing homelessness in cities like Los Angeles, it should not be the only solution. The three studies that compose this dissertation address the interim level service needs, particularly the WaSH service needs of unhoused communities that remain underexplored in Los Angeles. These three studies also argue that WaSH insecurity negatively impacts unhoused people and reinforces poverty in the communities. A barrier in access to WaSH, for example, results in physical and mental health deterioration, increased stigmatization resulting from poor hygiene, and lack of motivation to seek job opportunities and social services. Efforts to improve access to WaSH services within the unhoused communities remain a contested arena. For instance, there are "not in my backyard" (NIMBYs) attitudes from communities that oppose homeless services and or public facilities (e.g., public restrooms and handwashing stations) near their homes. People view the provision of these essential WaSH services as too costly or as a way to enable homelessness and criminal activity (Green 2017; Los Angeles Community Action Network (LACAN) 2017). Unhoused communities generally also lack 24-hour access to public facilities (restrooms, showers, laundry), equitable municipal services (trash collection), and lack a sense of security, which in turn contributes to forms of environmental and social injustices (Demyers, Warpinski, and Wutich 2017; LACAN 2013; 2017). In the Skid Row community of Los Angeles, for example, an audit report found that in 2017 there were only nine restrooms publicly available for a population of 1,777 experiencing unsheltered homelessness (Los Angeles Central Providers Collaborative 2017). Furthermore, anti-

homelessness laws criminalize survival coping mechanisms (e.g., sleeping in tents/vehicles and public urination/defecation), leading to infraction notices and misdemeanors that can lead to incarceration (LACAN 2013; United Nations (UN) General Assembly 2018). Based on these factors, it is crucial to address the inaccessibility of essential WaSH services in unhoused communities of Los Angeles.

Barriers in the provision to WaSH are related to focusing on the Housing First model approach to homelessness. The Housing First (HF) model prioritizes housing people and connecting them to social services before treatment as it aids in housing retention (Guerrero, Henwood, and Wenzel 2014; Henwood et al. 2013). These housing models are essential in providing people with stability and safety, but the problem is that systemic barriers exist in getting people housed (ELC and EJWC 2018). While providing permanent housing leads to access to WaSH services, not everyone qualifies for these services, including undocumented homeless and people with felonies (Gilleland, Lurie, and Rankin 2017; Keene et al. 2018). In some cases, fear of their immigration status or stigma around formerly incarcerated people results in less engagement with service providers (Chinchilla and Gabrielian 2020; Keene, Smoyer, and Blankenship 2018). Immediate needs of people unable to qualify for social and housing services, including access to WaSH services, remains unaddressed when only focusing on one-tier solutions. According to the Environmental Law Clinic (ELC) in Berkeley, there is a need to diversify addressing the needs of unhoused communities. Thus, it is imperative to also focus on addressing the interim-levels needs of unhoused people.

In sum, the research problem of this dissertation is that interim level services, specifically WaSH services are needed to address WaSH insecurity experienced by unhoused communities of Los Angeles. The reason being that inaccessibility to WaSH creates barriers in exiting

homelessness, and negatively impacts physical and mental health deterioration, increases stigmatization of unhoused communities, and prolongation of homelessness as a result of joblessness.

1.2. Dissertation Context: Homelessness in Los Angeles

The focus of this study takes place in Los Angeles, a large metropolitan area that is struggling to address a housing crisis and a public health crisis. In Los Angeles, housing insecurity is pervasive, with the Homeless Services Authority (LAHSA) estimating that 555,105 people are at risk of being displaced of housing due to being severely rent-burdened (Los Angeles Homeless Services Authority (LAHSA) 2020b). On average, LAHSA also reports that 207 people are exiting homelessness each day, yet there is an inflow of 227 people entering homelessness (LAHSA 2020a). Los Angeles, both at the county and city level, have the largest number of people experiencing unsheltered homelessness. Based on the annual point-in-time (PIT) homeless count estimates, on a single night in January 2020, LAHSA estimated 66,436 people are experiencing homelessness across the county, 72% of whom live in tents, vehicles, and other forms of makeshifts (LAHSA 2020b). At the city level, LAHSA estimated that 41,290 people experience homelessness (LAHSA 2020b). These estimates may be a severe underestimation of the actual situation, as they do not consider homeless persons temporarily staying in motels, "couch surfing," and staying with family or friends (UN General Assembly 2018).

Los Angeles is also struggling to address a public health crisis. In this dissertation, the public health crisis refers to WaSH insecurity experiences that further increase health disparities in marginalized unhoused communities. The disinvestment in public infrastructure and inadequacy in addressing the needs of unhoused communities has contributed to notable health outbreaks seen in Los Angeles, including the 2013 tuberculosis, 2017 Hepatitis A, and the 2018 typhus outbreaks

(Center for Disease and Control Prevention (CDC) 2018; County of Los Angeles Department of Public Health 2018b; Karlamangla 2018; Liu, Chai, and Watt 2020). Considering these factors, Los Angeles is an ideal study area to examine how WaSH insecurity affects unhoused communities.

In addition, the passage of anti-homelessness laws in Los Angeles creates environments that reinforce a cycle of homelessness. Ordinances such as the Los Angeles Municipal Code (LAMC) 41.18(d) in the City of Los Angeles, for instance, prevent people from sleeping in public areas between the hours of 6 am to 9 pm. The LAMC 56.11 limits unhoused people to have personal property exceeding the equivalent of a 60-gallon container (Los Angeles Municipal Code 2016). A violation of this ordinance results in a citation ranging from $100 to up to $400 for their quality of life, justified by the fact that their belongings and encampments can create public health and safety hazard (LAMC 56.11 2016; Holland and Zhang 2018). Moreover, police enforcement criminalizes other coping behaviors, including public urination and defecation, perpetrated due to inadequate access to WaSH. These coping strategies can lead a person to be registered as a sex offender (Shure 2019). The passage of such laws creates targeted criminalization in Los Angeles. It produces a system that punishes a vulnerable population for their existence and a criminal justice system that views them as pollution and a threat while actively diminishing an unhoused person's ability to exist in public spaces (Bonds and Martin 2016; Mitchell 1997).

Ensuring access to adequate WaSH services for all is fundamental for sustaining life practices, improving public health, and living environments. In Los Angeles, the availability of safe and public WaSH services remains limited. In a 2017 audit of public restrooms, the Los Angeles Central Providers Collaborative (LACPC) reported nine restrooms available overnight for a total population of 1,777 unsheltered unhoused people in Skid Row (Los Angeles Central

Providers Collaborative 2017). As a result of WaSH scarcity found in unhoused communities of Los Angeles, programs focused at providing WaSH services have expanded. In 2016, LavaMae[x] (formerly known as Lava Mae) for example, expanded their mobile hygiene programs to serve unhoused communities of Los Angeles through "pop-up care villages" which provide people with access to showers and restrooms, while also connecting people to other continuum of care programs including, dental hygiene, health clinics, and hairdressers (LavaMaex 2021; Sommers-Dawes 2016). In 2018, the Skid Row ReFresh Spot operated by Homeless Healthcare Los Angeles (HHCLA) came to fruition and opened their doors to the community of Skid Row, advocating for human right to WaSH and the need to provide harm reduction services (Kekhtman 2019). The ReFresh Spot is a program funded by Mayor Eric Garcetti and one of the two 24-hour hygiene centers in the community of Skid Row, providing people with access to showers, restrooms, laundry services, and other essential services at no cost (Los Angeles Homeless Services Authority (LAHSA) 2020c). The People Concern, formerly known as LAMP Community is also another hygiene center operating 24-hours in Skid Row. Other non-profit WaSH organizations serving unhoused communities of Los Angeles includes, Shower of Hope, Project Ropa, and Laundry Truck LA, all of which aim to fill gaps in continuum of care through the provision of hygiene and sanitation services. In 2018, Safe Parking programs also emerged to not only provide unhoused people living in vehicles a safe place to rest but also provide people with access to hygiene and sanitation services (Los Angeles Homeless Services Authority (LAHSA) 2019). Furthermore, as a response to public health crisis associated with poor access to WaSH, in 2019 the City of Los Angeles worked towards addressing the dire needs of WaSH services in unhoused communities of Los Angeles through programs such as the Mobile PIT Stop program operated by Urban Alchemy and the Five Keys. The PIT Stop program provides access to mobile showers trailers and trains

formerly incarcerated and people with lived experience of homelessness to be ambassadors that monitor public restrooms (Five Keys Schools and Programs 2021; Yu 2019). Lastly, the current COVID-19 global pandemic contributed to the expansion of community driven effort to fills gaps in services, including Water Drop LA non-profit that delivers potable drinking water to different unhoused communities across Los Angeles (Kanbarian 2020). The Los Angeles Community Action Network (LA CAN) and the University of Southern California also worked towards creating do-it-yourself handwashing stations in Skid Row to ameliorate hygiene needs during the pandemic (DiGuiseppi et al. 2021). While all of these programs and community led efforts are not the only ones that exist in Los Angeles and are addressing the dire need of WaSH services, these are prominent organizations mobilizing in improving access to WaSH in unhoused communities. Having said that, there is still a lack of investment in more permanent and sustainable WaSH solutions, including additional access to 24-hour facilities across Los Angeles. The enforcement of anti-homelessness laws, including anti-loitering and anti-camping ordinances also contributes to added barriers including service disruptions making it more challenging to address the homelessness crisis and for providers to improve delivery of services.

1.3. Research Aims

In this dissertation, I argue that WaSH interventions are essential in addressing the immediate needs of unhoused communities of Los Angeles. Using surveys designed for and collected from unhoused people this dissertation identifies survival WaSH strategies and measures differences in accessibility (considering geography, individual, and service-level factors) which, combined with service provider interviews, reveal new policy perspectives for addressing interim-level WaSH needs. The dissertation is composed of three articles. The following sections provide an outline for each chapter and the research aims I attempt to from a WaSH insecurity lens.

The first study in this dissertation, entitled *Water, Sanitation, and Hygiene (WaSH) Insecurity Experiences in Unhoused Communities,* provides a descriptive overview of WaSH insecurity in Los Angeles. Building on the WaSH insecurity framework, the study expands the understanding moving beyond the household level by examining survey data collected pre- SARS-CoV-2 (COVID-19) pandemic from people with lived expertise of homelessness. This first study argues that WaSH insecurity is a deeply rooted social justice problem as unhoused people do not have adequate access to the necessary and essential WaSH services to sustain their physical and mental well-being. Furthermore, this study highlights the need for immediate WaSH interventions to meet the needs of unhoused communities. Overall, this study addresses two research aims:

Aim 1a: Explore the WaSH access challenges unhoused people encounter in Los Angeles

Aim 1b: Examine the different coping survival strategies unhoused communities used to gain access to WaSH services

Subsequently, the second study, *Measuring Individual and Institutional Level Accessibility to WaSH Services in Unhoused Communities of Los Angeles, CA*, digs deeper into the differences that occur in accessing WaSH services raised in the first study by examining the individual demographic and service level (geography, distance, affordability, accessibility, and quality) contributing factors to WaSH insecurity experiences. This second study examines the same survey data collected before the COVID-19 pandemic and integrates generalized linear regression models (GLM) and spatial analysis methods in geographic information systems (GIS) to explore heterogeneity in access to WaSH services. Addressing individual and service level factors is crucial because we need to seek more inclusive and equitable policies to address housing insecurity and homelessness. At the same time, also identify gaps in the services provided. This study addresses two main research aims:

Aim 2a: Identify population vulnerability factors that contribute to WaSH insecurity experiences

Aim 2b: Identify service-level factors that contribute to the high (or low) level of engagement by unhoused community members

The final study, entitled, *Identifying WaSH Service Needs in Unhoused Communities from the Perspective of Service Providers in Los Angeles, CA*, builds on the scholarship from the previous two studies. While the previous two studies examine data from people with lived expertise of homelessness, this third study integrates the perceptions and experiences of service providers. Using qualitative descriptive interviews with fifteen service providers from the private and public sector collected during the COVID-19 pandemic, this study explains the findings from the two quantitative studies by identifying five key areas: impacts of inaccessibility, impacts of identity, impacts of COVID-19, service design, and service advocacy that are for policy implications. This final study alludes to policy implications needed to improve access to essential WaSH services, including engaging with the community to receive feedback on service design and advocating for investment in providing more permanent and sustainable solutions. This study addresses the following research aims:

Aim 3a: Understand the ways WaSH insecurity impacts unhoused communities from the perspective of service providers

Aim 3b: Identify what service providers can do to improve access to WaSH services in unhoused communities

1.4. Significance of the Study

The significance of this study lies in examining experiences of WaSH insecurity beyond the household level to understand better the barriers unhoused people in Los Angeles encounter. The new knowledge and understanding from this study will also highlight inequities experienced

by homeless persons. Specifically, this dissertation sheds light underexplored impacts of WaSH insecurity in unhoused communities. Additionally, this dissertation explores the multiple factors of oppression that can make unhoused people vulnerable, including their gender identity, sexual orientation, age, disability status, race, and immigration status, among other factors. Additionally, current policies focus on ineffective street cleanups while still violating human rights and failing to meet minimum standards for access to WaSH as recommended by the UN for refugee camp settings (UN General Assembly 2018). Therefore, the studies shift the focus beyond the household level by identifying the forms of vulnerability unhoused people experience when navigating WaSH services. At the same time, the studies also help identify the type of services needed to serve the community improves their quality of life. Lastly, this study will generate knowledge that will be extensible for future studies studying homelessness and access to WaSH services in other parts of the world.

The three articles that form the composition of this dissertation are stand-alone manuscripts. As a result, each study contains a literature review, methodology, results, and discussion section. These three studies are also interconnected as each elaborates on a different aspect of WaSH insecurity experiences. Each study validates arguments made from a distinct analytical and data standpoint. The concluding chapter provides the key findings and connections across these three articles, including a future outlook on the research direction, limitations, and policy implications based on the three study findings.

Chapter 2 Water, Sanitation, and Hygiene (WaSH) Insecurity Experiences in Unhoused Communities of Los Angeles, CA

This study focuses on understanding the impacts of water, sanitation, and hygiene (WaSH) insecurity from people with lived expertise of homelessness. In addition, the study addresses the coping strategies unhoused people use due to inadequate or lack thereof access to WaSH services. This study contains six sections, and the structure is as follows: first, section 2.1 provides a brief introduction of the problem statement, followed by section 2.2 that reviews current literature and identifies the study contribution. Subsequently, section 2.3 describes the data and methodology of this quantitative study. Section 2.4 presents the results of the data, and section 2.5 provides a discussion of these findings. The study concludes with a summary of the essential findings and directions to future studies.

2.1. Introduction

Access to water, sanitation, and hygiene (WaSH) services represent foundational human needs; however, people who are unhoused lack access to equitable, safe, affordable, and sufficient WaSH services, resulting in WaSH insecurity experiences. In high-income countries like the United States (US), WaSH insecurity remains an underexplored area. In global water reports, specifically, the US claims to have universal access to safely managed drinking water and sanitation services (Jepson et al. 2017; Meehan, Jepson, et al. 2020; Wescoat, Headington, and Theobald 2007). The Joint Monitoring Programme (JMP) of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), for example, produce global estimates on progress made related to WaSH. The JMP broadly defines WaSH security as having safe access to uncontaminated drinking water, basic toilets that properly dispose of waste, and

availability maintain good hygiene practices (e.g., handwashing, menstrual hygiene management, and food hygiene) to reduce disease incidence (Alhassan and Kwakwa 2014; World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) 2019). WaSH security considers five broad factors: quality, quantity, accessibility, affordability, and reliability. A gap or absence of any of these factors is an indicator of WaSH insecurity. In JMP's recent assessment, the US reported that 99 percent of its population has access to a safely managed drinking water supply from acceptable sources and free of contaminants (WHO/UNICEF 2019). Simultaneously, the US estimated roughly 95 percent of its population has access to safely managed sanitation services, with no data provided for hygiene services (WHO/UNICEF 2019). However, this misconception of universal access to WaSH services is problematic because certain marginalized groups remain excluded from these global water estimates.

Reports such as the ones provided by the JMP are limited by the data countries share. In the US, water estimates come from the American Housing Survey (AHS) and the US Environmental Protection Agency's Safe Drinking Water Information System datasets (Capone et al. 2020; WHO/UNICEF 2018; n.d.; Wescoat, Headington, and Theobald 2007). The unit of measurement in these datasets is the household unit, which excludes unhoused people from these estimates.

The majority of WaSH insecurity research also tends to focus on the household as the unit of measurement, leaving out perspectives from unhoused individuals. In this cross-sectional study, we shift the focus of WaSH insecurity from the household to the houseless level to address unhoused communities' unmet needs in Los Angeles, CA. Specifically, this study addresses two main questions: (1) What WaSH challenges do people experiencing homelessness encounter in Los Angeles? and (2) How do unhoused communities cope and access WaSH

services in different spaces and places? Ultimately, this study seeks to advance the understanding

of WaSH insecurity for unhoused people to highlight the need for interim services that can help

improve people's lives and health through equitable, safe, sufficient, and reliable access to WaSH

services. We begin the study with an overview of the existing literature on WaSH insecurity in

the US. The third section explains the data collection methods and tools. Section four presents

the study findings based on survey data collected from 263 adults with lived expertise of

homelessness in Los Angeles. The paper concludes with a discussion of the impacts that WaSH

insecurity has on unhoused residents and ways to better address people's needs in a more

humane, significant, and equitable manner.

2.2. WaSH insecurity in the United States

This section will provide an overview of the current literature on WaSH insecurity to

identify the gaps in knowledge and the significance of this study. This section begins with 2.2.1,

which discusses studies exploring WaSH insecurity experiences at the household level across

communities in the US. Section 2.2.2 examines the current studies that move beyond the

household and examine how it impacts unhoused communities. This section concludes with

2.2.3, providing a contextualization of homelessness in Los Angeles, an underexplored study

area.

2.2.1. Household WaSH Insecurity

WaSH insecurity, or as water scholars often refer to as "water insecurity" for short, is

commonly measured at the household level (Jepson et al. 2017; Meehan, Jepson, et al. 2020;

Wutich et al. 2017). The literature on household water insecurity suggests it does exist in the US

and disproportionally affects migrant farming communities, Indigenous communities, and low-

income urban communities (Balazs et al. 2011; Balazs and Ray 2014; Jepson 2014; Deitz and

Meehan 2019; Meehan, Jepson, et al. 2020; Meehan, Jurjevich, et al. 2020). First, migrant

farming communities experience household WaSH insecurity, as seen in the work of Balazs et al.

(2012) and Jepson (2014). For example, in California's San Joaquin Valley farming

communities, Balazs et al. sampled community water systems at the household level. They found

that households of migrant workers are disproportionally exposed to high levels of arsenic-

contaminated drinking water (Balazs et al. 2011, 2012). These studies also found that race,

income, and homeownership all played a factor in WaSH insecurity experiences. In other words,

communities with lower homeownership, predominantly Latinx and lower-income, have higher

odds of being exposed to elevated arsenic levels in their household water systems (Balazs et al.

2012; Balazs and Morello-Frosch 2013). Such communities do not have the financial and

infrastructural capacity to reduce pollutant levels in their household water systems, resulting in

WaSH insecurity (Balazs et al. 2012).

Similarly, South Texas *colonias* (informal and often impoverished migrant communities)

along the U.S.-Mexico border experience household WaSH insecurity. In *colonias*, WaSH

insecurity has to do with water affordability, water quality acceptability, and water distress

(Jepson 2014; Jepson and Vandewalle 2016). Water distress in the study included emotions

attributed to the access, pricing of WaSH services, time and effort spent on WaSH services. The

study found that only those households that can afford water service connections experience

WaSH security. While residents living below the federal poverty line experience WaSH

insecurity, ad services get shut off due to the inability to pay for water utilities. In other

instances, even if water service connections are in place, families are confronted with drinking

water quality issues. As a result, families resort to purchasing drinking water from vending

machines and bottled water, creating additional economic burdens and psychosocial stressors (Jepson 2014; Jepson and Vandewalle 2016).

Indigenous communities worldwide also disproportionally lack access to essential WaSH services. In the global North, roughly half of American Indian and Alaska Native communities across the US experience some form of WaSH insecurity (Crepelle 2019). Alaska, for example, is home to 229 (out of 574 federally recognized) tribal nations. However, studies show communities of Alaska Natives are in remote, rural areas that lack the infrastructure to connect households to essential WaSH services (Cozzetto et al. 2013; Eichelberger 2018; Gessner 2008; Hennessy et al. 2008; Hennessy and Bressler 2016; Mitchell 2019; National Congress of American Indians 2020; Wenger et al. 2010). Studies also highlight that providing sanitation and hygiene services is challenging in remote Arctic communities that experience extreme weather conditions, including erosion and flooding, affecting 86 percent of Alaska Native villages (Hennessy et al. 2008; Mitchell 2019). Severe flooding caused by the thawing of permafrost in the communities contributes to sewage contamination in the drinking water supply (Mitchell 2019). The disparity in access to essential WaSH services also leads to health challenges, particularly increased risk of respiratory and gastrointestinal diseases as proper handwashing and other hygiene practices become challenging (Gessner 2008; Hennessy et al. 2008; Mitchell 2019; Wenger et al. 2010).

In other Indigenous communities in the US Southwest, the Navajo and Hopi tribal lands of Arizona, Utah, and New Mexico, similar WaSH insecurity experiences are reported. For example, residents in the Navajo Nation travel long distances, some driving as far as 40 miles to collect water using barrels in bordering towns to meet their basic needs (Cozzetto et al. 2013; Crepelle 2019; Deitz and Meehan 2019; Roller et al. 2019). Studies estimate that there are about

1200 mine sites abandoned in the Navajo Nation, which have exacerbated levels of arsenic, uranium, vanadium, and manganese in groundwater supplies, exceeding national standard levels (Crepelle 2019; Ingram et al. 2020; Roller et al. 2019). WaSH insecurity forced people to haul water or, considering the cost and time of hauling water, use unregulated water sources (Ingram et al. 2020; Mitchell 2019). In other instances, communities obtain water services from community tanker trucks that deliver water every month (McGraw 2016). Overall, studies estimate that 30 to 40 percent Navajo Nation households do not have access to running water (Deitz and Meehan 2019; Mitchell 2020). As a result of this inaccessibility to essential WaSH services, households in the Navajo Nation consume as little as three gallons of water per person, per day, compared to the 80-100 gallons of water that the average American household uses per day (Roller et al. 2019; the United States Environmental Protection Agency 2018). It is evident from these studies that access to WaSH insecurity at the household level also disproportionally affects Indigenous communities in the US.

Lastly, WaSH insecurity also significantly affects other communities of color. In their study, Deitz and Meehan (2019) argue that WaSH insecurity is a regionally clustered and racialized problem. Specifically, regions that experience a lack of water and sewage connections tend to disproportionally be in communities primarily composed of Black, Indigenous, and other people of color (BIPOC). The community of Flint, Michigan, is a well-known example of a water crisis disproportionally affecting the Black community (Butler, Scammell, and Benson 2016; Morckel and Terzano 2019). In Flint, since 2014, poor water governance and resource segregation contributed to the exposure of thousands of residents to elevated levels of lead in their drinking water supply (Butler, Scammell, and Benson 2016; Meehan, Jepson, et al. 2020). Despite addressing the water crisis, lingering distrust exists among residents regarding their

water quality and infrastructure (Morckel and Terzano 2019). In North Carolina, studies have found that residents in peri-urban Black communities also lack connection to regulated and monitored municipal water systems, exposing communities to elevated levels of bacterial contaminants and lead (Heaney et al. 2011; Heaney et al. 2013; Stillo and Macdonald Gibson 2017; Stillo et al. 2019). In Baltimore and Cleveland, WaSH insecurity is a problem of affordability. Families have their services shut off due to being unable to pay their water utility bills, which exceed two percent of Black median household incomes (Montag 2019). These studies show different experiences and aspects of WaSH insecurity studied at the household level and challenge the notion that water is, in fact, universal, safe, affordable, and reliable (Meehan, Jepson, et al. 2020). Nevertheless, as we advance knowledge on WaSH access, security, or lack thereof, it is also vital to further complicate the rhetoric by exploring communities that do not have a permanent and secure place to call home.

2.2.2. WaSH Insecurity Among the Unhoused

While studies have explored household WaSH insecurity in different marginalized communities across the US, as discussed in the previous section, WaSH access among unhoused populations remains an underexplored topic. In limiting WaSH insecurity to household-level analyses, we ignore individuals who do not have access to permanent housing options or available shelter from existing findings, as is the case for unhoused communities. People who are unhoused already live at the margins of society and face constant violations of their fundamental human rights, including the right to adequate housing, water, and health, which are inextricably connected (United Nations 2003). At the same time, unhoused communities are exposed to pollution, extreme weather conditions, and have limited access to adequate WaSH services, making individuals disproportionately at risk for infectious and contagious diseases (Bonds and

Martin 2016; Karlamangla 2018; Leibler et al. 2017; Los Angeles Central Providers Collaborative (LACPC) 2017; Popkin, D'Anci, and Rosenberg 2010). Furthermore, unhoused communities include vulnerable groups that encounter psychological trauma from living on the streets. This trauma perpetuates a cycle of poverty. It can lead to risk-taking behaviors (e.g., substance use and misuse), impacting mental health outcomes and making these issues contributors to and symptoms of homelessness (Devuono-Powell 2013; Flanigan and Welsh 2020; Harris et al. 2017). Therefore, to better understand the impacts of WaSH in our communities, we need to look beyond the household and examine the experiences of WaSH insecurity among unhoused communities.

WaSH insecurity for unhoused people exacerbates the marginalization they experience in their daily lives. For example, in Phoenix, Arizona, DeMyers, Warpinski, and Wutich's (2017) study examined how WaSH insecurity and heat exposure differ based on a person's living condition. In other words, WaSH insecurity is experienced differently based on whether a person is living in shelters, encampments, and or without a roof (Demyers, Warpinski, and Wutich 2017). The study is one of the first to highlight that WaSH insecurity creates environmental injustices and distinct barriers in a person exiting homelessness (Demyers, Warpinski, and Wutich 2017). Leibler et al. (2017, 2018) also suggest poor access to hygiene facilities and consequently poor hygiene practices lead to poor physical health. Poor access to WaSH also increases the risk of infectious diseases, most seen in unhoused people and coping with mental health problems and substance use (Leibler et al. 2017).

Furthermore, Speer (2016) argues that only focusing on a housing framework to address homelessness can be limiting. Instead, we need to understand the rights of unhoused people who cope with the lack of infrastructural access in cities that aim to marginalize, exclude, and sanitize

homeless encampments in public spaces (Speer 2016). In communities like Fresno, poor access to WaSH leads to further stigmatization of unhoused people. Lack of publicly available facilities forces unhoused residents to be unable to maintain daily hygiene practices and resort to open defecation (Speer 2016).

Similarly, Capone et al.'s (2018) study in Atlanta examined open defecation practices among unhoused people due to limited publicly available sanitation facilities. The study tested discarded human stool, which found enteric pathogens, posing an increased risk of infection by fecal-oral route in unhoused communities (Capone et al. 2018; 2020). Lastly, Flanigan and Welsh (2020) explore encampments along the San Diego River and show how people living along riverbeds tend to be more socially isolated and disconnected from services compared to encampments in downtown areas. The study found that living in waterways creates barriers to access safe WaSH services due to living in secluded areas that also pose a higher risk of exposure to contaminated water and disease outbreaks (Flanigan and Welsh 2020; Rose 2019).

2.2.3. Knowledge Gap and Study Contributions

Examining the experiences of WaSH insecurity among unhoused communities is essential. The existing studies address the impacts of poor access to water, sanitation, and housing on marginalized unhoused populations. While these existing studies have made significant contributions and provided new insights on a population that remains invisible and underserved, these studies briefly address the perspective of people with lived expertise of homelessness. In reviewing these studies, there are existing gaps in the scholarship of WaSH insecurity in the US and unhoused communities. First, there have been no studies that address homelessness and WaSH insecurity using a large sample size of survey data from people with lived expertise in Los Angeles.

Additionally, more studies should consider integrating data collected at different times of the day and encompassing all forms of WaSH access; these include drinking water, restrooms, showers, laundry services, and handwashing stations. Integrating these types of WaSH services is crucial as we aim to understand better the specific needs of unhoused communities, which can help facilitate immediate interventions that can improve health outcomes and living environments in unhoused communities. Furthermore, WaSH insecurity in Los Angeles remains underexplored. In 2019, Los Angeles had the second-highest number of homeless individuals in the US, roughly 56,257 people, in a single night (Henry et al. 2020). This study applies insights from the studies mentioned above to fill knowledge gaps (and observe similarities) by studying Skid Row's community in Los Angeles.

2.2.4. Los Angeles Homelessness Crisis

Homelessness is a social and humanitarian crisis, increasingly visible in many urban and rural areas. The pathways that lead an individual to be displaced of housing are complex and numerous. Still, it is a result of structural factors (i.e., criminal justice system, the housing market, and social policies) and individual factors (unemployment, formerly incarcerated, domestic violence, substance use disorder, mental health problems, immigration status) (Katz 2013; Piat et al. 2015). Furthermore, Flannigan and Welsh (2020) highlight that experiences of trauma, violence, and victimization while living on the streets can lead to substance misuse and mental health outcomes, making these both contributors and symptoms of homelessness (Flanigan and Welsh 2020; Huey 2016). As a result, this reinforces an endless cycle of poverty in the streets.

According to the 2019 Annual Homeless Assessment to Congress provided by the US Department of Housing and Urban Development (HUD), on a single night in January, 567,715

people (or 17 for every 10,000 people) experience homelessness across the US (Henry et al. 2020). These point-in-time (PIT) counts are estimates conducted annually in January and provide a snapshot of homelessness on one day in different parts of the nation. Based on the PIT estimates, New York and California are the two states with the largest estimates of people experiencing homelessness (Henry et al. 2020). The only difference is that at the Continuums of Care (CoC) level, 95 percent of New York City's unhoused population is sheltered, compared to only 25 percent of the unhoused residents in Los Angeles City and County (Henry et al. 2020).

In this study, the focus of WaSH insecurity shifts to the City of Los Angeles, an underexplored area, to challenge misconceptions that in the US, there is universal or near-universal access to safe WaSH services. Los Angeles is a city that has historically been struggling with a homelessness crisis (Holland 2019). In 2019, the annual PIT count estimates provided by Los Angeles Homeless Services Authority (LAHSA) reported roughly 59,000 people experiencing homelessness countywide (Los Angeles Homeless Services Authority (LAHSA) 2019). In 2020, this number increased by 13 percent countywide, with 72 percent of the population living in unsheltered conditions (LAHSA 2020). In Skid Row alone, an estimated 4,462 people experience homelessness in a single night, of whom roughly 2,100 are unsheltered and living in tents, vehicles, and makeshifts (LAHSA 2020). However, these estimates may be a severe underestimation of the actual situation, as they do not take into account the current global COVID-19 pandemic outcomes and other forms in which homeless individuals temporarily live, including using motels, "couch surfing," and staying with family and friends (UN General Assembly 2018).

The statistics of unsheltered homelessness in Skid Row are alarming. Unsheltered people live in increasingly marginalized positions, with insufficient access to essential services,

including WaSH services. Efforts to improve access to WaSH services within the homeless communities remain a contested arena. People often view the provision of these essential services as too costly or a way to sustain homelessness and criminal activity (Green 2017; Los Angeles Community Action Network (LA CAN) 2017; Rowe 2019). In other instances, the placing of services tends to be historically in "undesirable locations, a reflection of the placement of undesirable people in undesirable places" (Demyers, Warpinski, and Wutich 2017, p. 74).

Furthermore, Los Angeles Central Providers Collaborative (LACPC), a community-based group of Skid Row residents and organizations conducted in 2017, audits public toilets available in the community. The audit reported that only nine public toilets were available in Skid Row for a population of roughly 1,777 unsheltered individuals in 2017 (LACPC 2017). Skid Row generally lacks 24-hour access to public facilities restrooms, showers, laundry) and lack consistent municipal services (trash collection). The community also experiences a lack of access to equitable municipal services (trash collection), trees and vegetation that can provide shade, and a sense of security, contributing to environmental injustice (LACPC 2017; LA CAN 2013, 2017). As a result of not having these essential WaSH services, the reporting of health outbreaks attributed to poor living environments and hygiene has been more pronounced over the years (Center for Disease and Control Prevention (CDC) 2018; County of Los Angeles Department of Public Health 2018). Moreover, individuals are criminalized for survival coping mechanisms (e.g., sleeping in tents/vehicles and public urination/defecation), leading to infraction notices and misdemeanors, unpayable fines, and incarceration (Holland and Zhang 2018; UN General Assembly 2018). In turn, misdemeanors result in criminal records preventing people from qualifying for most housing services and essentially creating a cycle of existing poverty (Demyers, Warpinski, and Wutich 2017; LA CAN 2017; UN General Assembly 2018).

2.3. Materials and Methods

This is a cross-sectional descriptive study of 263 unhoused people in the Los Angeles area. All study participants were living in the Los Angeles region at the time of the interview. The surveys were collected in Spanish and English in two months (June and July) in the summer of 2019. Each survey took approximately 30-60 minutes to complete. All study activities, including data collection, were reviewed and approved by the University of Southern California Institutional Review Board (IRB) before data collection. Study participants that both consented and completed the questionnaire formed part of the final in the analysis. Participants were given a gift card and bottled water, regardless of whether they did or did not complete the survey interview. The study focused on the community of Skid Row (Figure 2.1). Participants enrolled in the study were interviewed within the boundaries stretching from 3rd to 7th Street (North and South) and Alameda to Main Street (East and West). However, participants reported sleeping locations at the interview time were located beyond Skid Row's borders, as seen in Figure 2.1.

2.3.1. Target Population

This study used a mixture of convenience and snowball or chain sampling to recruit participants. These including unhoused people who resided in Skid Row, passers-by within the designated study area, which on occasion extended to participants in nearby tents and friends of participants. The sample population also included Lava Mae[x] © non-profit organization guests in two locations of downtown Los Angeles: City Hall and St. Francis Center. This partnership with Lava Mae[x] helped provide the research team a safe space to conduct surveys. In exchange, the team provided hygiene kits and bottled water to guests regardless of study participation. This study defines an unhoused person as someone who does not have a safe, permanent, and stable housing location (e.g., "living on the streets" in encampments, tents, vehicles, or other forms of

makeshift housing). People living in emergency or temporary shelters also formed part of this study as these participants do not have a permanent and stable place to live. This definition is in alignment with the definition of homelessness provided by HUD (2012). The study team was aware that people are unhoused are a vulnerable population; therefore, participation in the study was anonymous, voluntary, and only adult participants over the age of 18 who gave oral consent were enrolled. The reasoning for only enrolling adults is because youth and children require parental or guardian permission to participate in a research study. However, unhoused youth and children may not have a parent or guardian to make these decisions, which raises concerns as to whether it is ethically justifiable. At the same time, the level of questions asked in this study, may trigger past traumas and complex emotional content that they could not foresee even during the consent process.
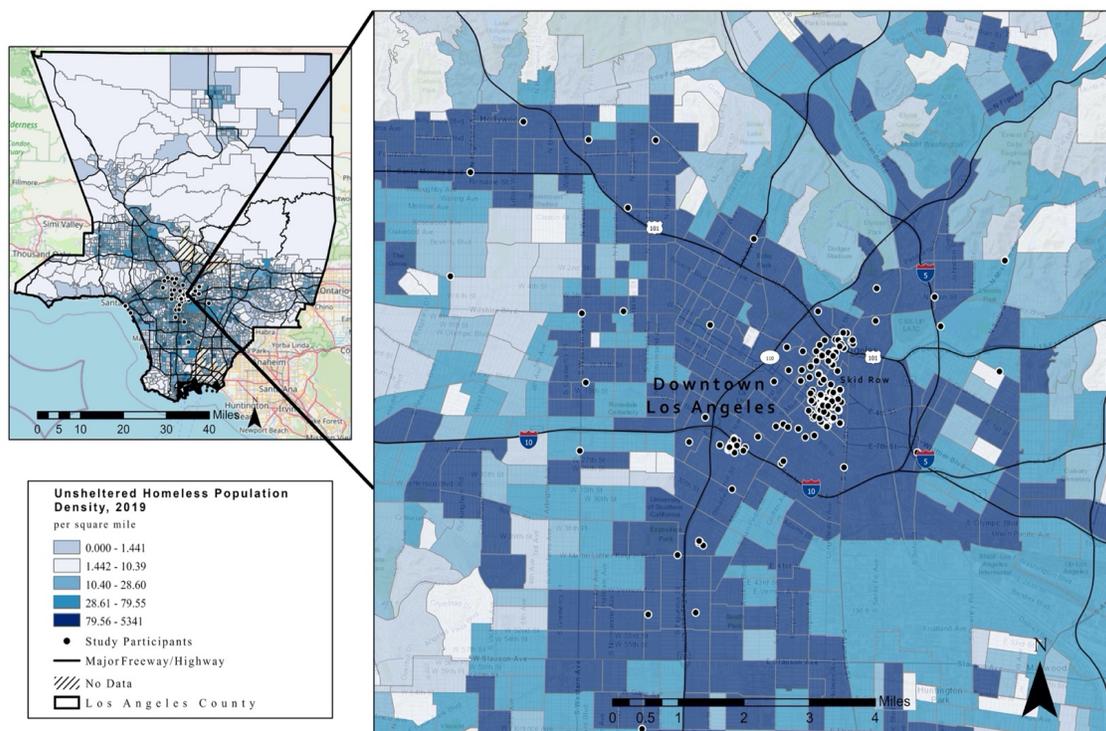
Figure 2.1. Study area and sleeping location of study participants overlapped with LA County's unsheltered homeless population density.
Source: Los Angeles Homeless Services Authority point-in-time estimates in 2019.

2.3.2. Survey Data and Data Analysis

      The overall goal of collecting survey data was to understand better the everyday lives of unhoused people in Los Angeles and how they cope with WaSH insecurity. The survey questionnaire contained categorical variables, including population demographics, living conditions, length of homelessness, and main reasons that led participants to their housing displacement. Additionally, binary variables were collected to represent different types of WaSH services utilized at different times of day (e.g., morning, afternoon, and night). To better measure access to WaSH services, the questionnaire also asked participants about their daily hygiene practices, including showering, handwashing, clothing change, and laundering. Lastly, health outcomes reported within 30 days from the interview are included in the analysis (Y/N) variables to understand better the health risks of people who are unhoused and possibly attributed to inadequate access to WaSH services. Data was collected using paper surveys, and each survey had a unique study identification. Each paper survey was abstracted and coded onto a database. Incomplete surveys did not form part of the final analysis. Each variable coded was verified using survey metadata. After completing the data abstraction and coding, it was reviewed and verified twice before entering the analysis phase. I then imported survey data into R Studio version 1.3.1093 to calculate descriptive statistics. Participants' sleeping locations at the time of their interview were geocoded using Esri Survey123, matched to the survey data, and then visualized using ArcGIS Pro version 2.7.

2.4. Analysis Results

      A total of 263 participants enrolled in the study; 33 lived in emergency shelter systems, and 230 lived in unsheltered conditions. Table 2.1 summarizes the study population demographics, with roughly 70 percent of the population reported being male. The majority of

the participants enrolled (n= 133) reported sleeping in Skid Row boundaries (7th and 3rd and

Alameda and Main streets). However, some participants also reported sleeping in other

communities outside of Skid Row boundaries, including downtown Los Angeles (n = 73) and the

greater Los Angeles area, including Santa Monica, Venice, Hollywood, and South Los Angeles

(n =57). The average age was forty-eight years. Only eight participants younger than 24 years

enrolled in the study. People of color overrepresented the sampled population, with

approximately 41 percent of the participants identifying as Black and 30 percent Latinx, with

only 15 percent identifying as White. In total, 84 percent of the study population was chronically

homeless, meaning that they have been continuously homeless for more than a year. The average

time the sampled population reported experiencing homelessness was sixty-five months (5.4

years), with only forty-one participants reporting to have less than a year of being unhoused.

Table 2.1. Frequency Distribution of Sample Population Demographics (N = 263)

Characteristic	Category	Count (%)
Gender identity	Cisgender male	180 (68.44)
	Transgender male	2 (0.76)
	Cisgender female	79 (30.04)
	Transgender female	1 (0.38)
	Missing	1 (0.38)
Age	18 to 24	8 (3.04)
	25 to 34	33 (12.55)
	35 to 44	55 (20.91)
	45 to 54	69 (26.24)
	55 to 61	60 (22.81)
	Greater than or equal to 62	32 (12.17)
	Missing	6 (2.28)

Table 2.1. Continued

Characteristic	Category	Count (%)
Race/ethnicity	Black/African American	109 (41.45)
	Latinx/Hispanic	80 (30.42)
	White	39 (14.83)
	Another group	17 (6.46)
	American Indian/Alaskan Native	11 (4.18)
	Asian and Pacific Islander	3 (1.14)
	Missing	4 (1.52)
Sexual orientation	Heterosexual	222 (84.03)
	Bisexual	18 (6.84)
	Gay or lesbian	13 (4.94)
	Asexual	1 (0.38)
	Other identity	1 (0.39)
	Missing	9 (3.42)

Table 2.2 highlights different contributing factors to a person experiencing homelessness in this study. The most commonly reported factor was unemployment or loss of their job with roughly 27 percent of the sampled population. Additionally, fifty-seven participants reported that their housing displaced resulted from the lack of affordable housing in Los Angeles or being evicted due to inability to afford to paying. Substance use and misuse was the third commonly reported cause of a person being unhoused (n=55), followed by family conflict (n=54). Furthermore, roughly 8 percent of the sampled population reported the cause for being unhoused is due to their immigration status or being formerly incarcerated. Lastly, a small percentage (3 percent) of participants reported to be unhoused due to experiencing domestic violence.

Table 2.2. Frequency Distribution of Variables Associated with Causes of Homelessness

Cause	Count (%)
Unemployment	95 (26.46)
Unaffordable housing/eviction	57 (15.88)
Drug/alcohol misuse	55 (15.32)
Family conflict	54 (15.04)
Other*	30 (8.36)
Mental health disorder	26 (7.24)
Family/spousal death	16 (4.46)
Physical disability	15 (4.18)
Domestic violence/sexual abuse	11 (3.06)

Note: The percentages represent 359 responses given by N = 263 since this was a multiple-response question. The "other" category includes immigration status and formerly incarcerated people/recently released from prison.

Table 2.3 provides a summary of reported personal WaSH-related practices in the study population. Overall, only 27 percent of the participants reported showering almost every day (4 days or more in the week). The majority of study participants (n = 189) reported showering at most three times a week, if at all. The most-reported sources that participants used to shower were non-profit organizations, including the ReFresh Spot, a community-driven project that provides restrooms, showers, and laundry services available 24-hours in Skid Row. In other instances, people used sinks in public parks to do a quick rinse with paper towels and water, also referred to by participants as a "bird bath" (n = 25). Participants also reported using buckets inside their tents to shower (n = 16). Participants reported available bathhouses inaccessible due to excessive wait times, an extensive waitlist system to access these facilities, or facilities being

out of order. A small fraction of participants also reported illegally opening fire hydrants to obtain water for bathing (n = 3).

The inaccessibility of laundry services in the community is also highlighted in Table 2.3. More than half of the population reported only washing their clothes at most three times a month. Almost 27 percent of the sample population reported not being able to do laundry at all. Inaccessibility of laundry services was one of the most reported complaints, with study participants citing a lack of structural facilities and being unable to afford to do laundry. The laundry locations most commonly used by participants were the ReFresh Spot, LAMP Community, Weingart Center, and Downtown Women's Center, all non-profit organizations. A small number of participants (a combined 14.43 percent) reported using buckets inside their tents or sinks from public parks to wash their clothes.

More than 60 percent of the study population reported washing their hands before preparing meals, before eating, and after utilizing the restroom in terms of handwashing practices. However, participants would wash their hands using hand sanitizer or rinse only using bottled water due to not having soap readily available.

Table 2.3. Frequency Distribution of Variables Associated with Personal Hygiene Habits

Characteristic	Category	Count (%)*
Showering	0-1/week	101 (39.00)
	2-3/week	88 (33.97)
	4 or more/week	70 (27.03)
Location for showering	Non-profit organization	204 (71.83)
	Other*	29 (10.22)
	Public restroom	25 (8.80)
	Tent/bucket	16 (5.63)
	Business establishment	10 (3.52)

Table 2.3. Continued

Characteristic	Category	Count (%)
Laundering	0-1/month	68 (26.67)
	2-3/month	138 (54.12)
	4 or more/month	49 (19.22)
Location for laundering	Non-profit organization	118 (47.40)
	Laundromat	90 (36.14)
	Tent/bucket	25 (10.04)
	Public restroom	9 (3.61)
	Business establishment	7 (2.81)
Handwashing (cooking)	Rarely	44 (17.60)
	Sometimes	48 (19.20)
	Always	158 (63.20)
Handwashing (eating)	Rarely	15 (5.98)
	Sometimes	55 (21.91)
	Always	181 (72.11)
Handwashing (restroom)	Rarely	11 (4.31)
	Sometimes	31 (12.16)
	Always	213 (83.53)

Note: The percentages for shower and laundry locations are based aggregated by multiple responses given by N = 263. Not all categories sum to the total sample size due to missing data not shown. Other places participants reported showering included the Los Angeles river, water from fire hydrants, hotels, motels, and friend/family's home.

In addition to collecting information on personal hygiene practices, participants also reported the different types of restroom facilities they used within a given day (Figure 2.2). We observed that access to restrooms was most difficult and unreliable at night-time, reducing the usage of restrooms from public facilities and non-profit organizations. As a result, 6 percent (n = 17) of the participants reported delaying restroom use until the next day (see Figure 2.2). The discussion section describes the implications of this on women's health. Overall, the most

common restroom places people utilized were buckets inside tents or public spaces (streets, sidewalks, and alleyways). The highest was at night time with 131 participants (50 percent of the population interviewed). The second highest restroom type used were public facilities, including restrooms in parks, libraries, and staffed Pit Stop program toilets, particularly in the morning (n = 96) and afternoon (n = 113) times. Non-profit organizations (e.g., shelters and mobile hygiene facilities) and business establishments were utilized more during the morning and afternoon due to hours of operation. Lastly, 71 percent (n = 184) of the study population reported that at some point in their day, they had to hold off from going to the restroom due to a lack of publicly available restrooms in the community.
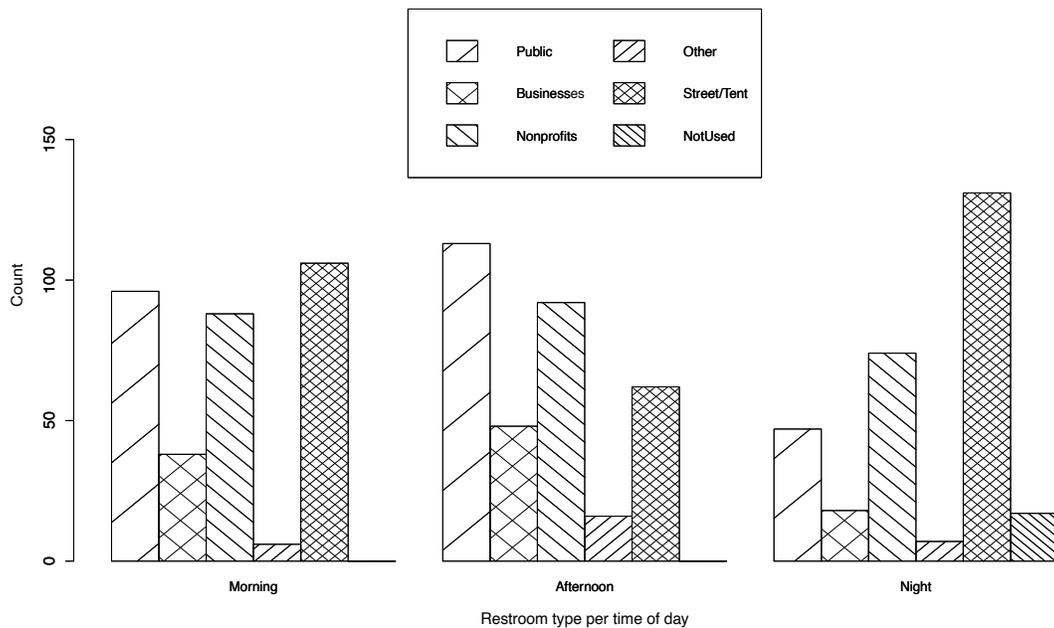
Figure 2.2. Access to different restroom facilities at different times of the day (N = 263). *Note*: The other category includes restroom sources include motels, friend/family's home, or workplace.

Other forms of WaSH insecurity experiences observed among study participants were poor accessibility to public fountains and drinking water. Half the study population self-reported sufficient drinking water, and the other half self-reported they do not drink enough water. However, when asked the total water intake in a day, more than half of the population (54 percent) reported an intake of one to three (16 oz) bottled water a day. Only 35 participants reported an intake greater than six bottled water per day. People reported obtaining drinking water from donations or self-purchasing at stores. Sixteen participants illegally opening fire hydrants for drinking water due to inaccessibility to drinking water fountains. Roughly 34 percent of the study population also reported using libraries and parks (Gladys, San Julian, and Grand Park, and Placita Olvera) to access drinking water and refilled bottled water. As a result of public facilities being closed at night-time, participants (n = 99) reported purchasing bottled water from supermarkets or refilled bottled water to store it for evening use.

Furthermore, this study collected health variables to capture health risks related to poor access to WaSH services. Table 2.4 represents a list of reported health outcomes that participants were coping with within 30 days from the interview. The most commonly reported health condition was skin infections (40 percent), migraine headaches (35 percent), followed by dehydration (34 percent). One thing to note is that the fieldwork and data collection took place during the hottest two months of the year in Los Angeles (June and July). Diarrhea was also a commonly reported health condition that people were coping with at the interview time (n = 55). In terms of menstrual cycle management, only 35 women reported having their menstrual cycle, and six women in their reproductive age reported experiencing amenorrhea. Still, more measures are needed to validate these findings.

Table 2.4. Frequency Distribution of Health Reported Outcomes Over a 30-Day Period

Category	Health Outcome	Count (%)
Hygiene practices related	Skin infection	64 (39.02)
	Diarrhea	55 (33.54)
	Fungus	27 (16.46)
	Head and body lice	9 (5.49)
	Typhus	5 (3.05)
	Hepatitis A	4 (2.44)
WaSH insecurity related	Migraine/headache	105 (35.12)
	Dehydration	103 (34.45)
	Constipation	59 (19.73)
	Urinary tract infection	32 (10.70)

Note: Total sample is N = 263; however, this was a multiple-response question. As a result, counts do not sum up the total sample size. Percentages as based on people who indicated a health condition experienced in the past 30-days from the interview time. Percentages aggregated per sub-section. Missing did not form part of the calculation.

2.5. Interpretation of Findings

WaSH insecurity impacts the lives of communities across the globe, including vulnerable communities experiencing homelessness in Los Angeles. Having affordable, safe, sufficient, and reliable access to WaSH services is not always an option for an unhoused person. In Skid Row's community, people cannot access a restroom, shower regularly, and wash their clothes. These WaSH insecurity experiences pose increased health risks to a population with weakened immune systems and lower life expectancies (Maness and Khan 2014; National Health Care for the Homeless Council 2011; Ngo and Turbow 2019). The study findings suggest that people embark on different survival coping mechanisms to access vital WaSH services. One of the survival

strategies people reported was relying on fire hydrants to access water for bathing and drinking. In other instances, participants relied on using buckets or plastic bottles inside their tents to urinate or defecate, exemplifying forms of inhumane survival mechanisms that people utilize due to the scarcity of services available in the community. Simultaneously, this sheds light on a water crisis experienced in Los Angeles that reduces individuals' ability to care for their health, improve their living conditions and social position. In the following sections, I leverage the critical findings from the survey data to provide insight into the challenges and implications of WaSH insecurity experienced by unhoused populations in Los Angeles.

2.5.1. WaSH insecurity in Unhoused Communities of Los Angeles

In Los Angeles, unhoused residents live in an environment that is scarce of essential WaSH services, which further degrades their physical and mental health and opportunities to seek employment (Demyers, Warpinski, and Wutich 2017; Leibler et al. 2017; Poremski, Whitley, and Latimer 2014). As seen in the work of DeMyers et al. (2017) study in Arizona and Leibler et al. (2017, 2018) in Boston, the inability to reliably find a safe shower and a change of clothes contribute to the stigma of homelessness that is deeply rooted in our society. Similarly, in Los Angeles, WaSH insecurity creates health barriers for exiting the cycle of homelessness. People trying to navigate essential services have no other choice but to use public spaces (such as sidewalks and buckets; the only available resources) to conduct personal necessities.

In this study, we also found temporal inaccessibility of services in the community of Skid Row. Specifically, the evening is the most challenging time to access a restroom that is both open and safe for many reasons. Business establishments typically close at 9:00 PM in the community, and most non-profit organizations are not available 24-hours, except the ReFresh Spot and Union Rescue Mission shelter. As a result, accessing WaSH services becomes a severe

limitation for an estimated 1,898 unsheltered homeless in the population of the community of

Skid Row (LAHSA 2019). In the morning and afternoon, participants reported utilizing public

restrooms in parks and libraries and restrooms from non-profit organizations (e.g., shelters, soup

kitchens, mobile showers, and religious organizations). These places tend to be free and be

open/available to the community until closure. However, while services may be more available

during the morning and afternoon, participants reported long wait lines, sign-ups for waitlists, or

out-of-service facilities. These factors discourage a person from maintaining hygiene practices,

where they resort to using survival strategies to conduct their necessities.

The survey findings suggest that most of the WaSH services people reported utilizing are

within the Skid Row area, the community at the epicenter of WaSH services compared to

downtown Los Angeles and the greater Los Angeles area. In total, fifty-seven participants

traveled to Skid Row by bus, metro, or foot to access services (mainly shower and laundry) that

are not available in the communities where they typically sleep. The average distance people

reported traveling was roughly four blocks (an estimated 5-minute walk), with the maximum

time a person spent trying to access services in Skid Row being 1-2 hours. The time it takes for

some participants to access WaSH services is beyond the JMP standards that state access to

essential drinking water and or other WaSH services should not be longer than 30-minutes

(WHO/UNICEF 2018). Participants reported sleeping in their tents and makeshift housing

outside of the Skid Row boundaries (near freeways, beaches, and greater downtown Los Angeles

area) due to a fear of violence associated with staying in Skid Row. Participants expressed they

commuted to Skid Row in the morning and afternoon to access services but leave the area at

night. Racialized groupings also exist on the streets, with Latinx communities residing near

downtown Los Angeles such as Placita Olvera, a historic Mexican heritage street.

In contrast, Skid Row is a predominantly Black or African American community. Furthermore, community members outside Skid Row boundaries reported constant policing, which Bonds and Martin (2016), in their study, state the removal of encampments are forms of environmental injustices, often seen in commercial, tourist, and residential areas. Bonds and Martin's findings also indicate that the law is selectively enforced, meaning that people tolerate homelessness within city limits, as long as they are not publicly visible (Bonds and Martin 2016). In Los Angeles, city ordinances exist to restrict unhoused people from building encampments at certain times of the day. For example, in Los Angeles, the Municipal Code (LAMC) 56.11, later amended as Ordinance No. 184182, allows the City to seize people's belongings and dispose of their belongings. This enforcement overlaps with street sweeps that sanitation workers conduct to remove encampments. Notices of encampment sweeps are required to be posted 24-72 hours in advance. Still, these are not always consistent and can happen based on community requests and or a weekly/biweekly basis depending on the community. In 2019, in the downtown community, outside Skid Row, during fieldwork and data collection, notices were seen indicating clean-ups as part of the LAMC 56.11 ordinance enforcement and conducted every Tuesday at 3 PM. But these types of services may not be currently the same due to disruptions during the COVID-19 pandemic and or increased enforcement.

2.5.2. Disparities in WaSH Accessibility

Although Los Angeles homeless populations all experience WaSH insecurity, different demographic groups do not experience the exact needs/challenges in access to WaSH, including women, elderly, sexual minority groups, to name a few. This study only captured a small sample of people who identified as LGBTQI+, yet they reported experiencing fear while waiting in line to use a shower and restroom. Additionally, the trauma of living on the streets and being exposed

to stressful environments can affect people differently. For instance, six women in reproductive age groups using no contraception reported no longer having their menstrual cycle in the sampled group. Women experiencing amenorrhea (which affects 1 percent of the general population) may result from trauma and stress-induced living on the streets. Still, more measurements are needed to validate this finding (Nawaz and Rogol 2020). Women also reported difficulty accessing feminine hygiene products. Generally, feminine hygiene products are expensive to purchase (as a result of gender-based pricing of products commonly known as the "pink tax"), and in unhoused communities, these are not provided consistently in safety-net programs and shelter systems (Crawford and Spivack 2017; Sebert Kuhlmann et al. 2019). In Sebert Kuhlmann et al. (2019) study, unhoused women in St. Louis, Missouri, encountered difficulty managing their menstrual cycle due to being able to afford hygiene products and difficulties with transportation (time and cost) reach stores that sell products at more affordable price. As a result, women utilized different coping mechanisms, including using rags, tissues, toilet paper, children's diapers, or paper towels were taken from public restrooms (Sebert Kuhlmann et al. 2019). In this study, homeless women experienced difficulty coping with their menstrual cycle and reported feeling "dirty" and "unable to find a shower." In addition to gender differences, this study found racial differences in the sample, with predominantly Black and Latinx homeless individuals experiencing forms of discrimination that prevented them from accessing public restrooms and restrooms from business establishments. But statistical measurements are needed to capture differences in these demographic factors better (see also Chapter 3).

2.5.3. Health Barriers

The barriers to health care access and maintaining good health are numerous for

unhoused people. For instance, the economic inability to access laundry services and the requirement of customer-only access to restrooms can drastically reduce a person's well-being and capacity to maintain good hygiene practices. According to the Los Angeles County Public Health Department, being unhoused is becoming increasingly deadly, with an overall steady increase in the all-cause mortality rate of 2.3 times greater than the general population (Los Angeles County Department of Public Health 2019). On average, three unhoused people die daily. Their life expectancy can be as low as 48 years for women and 51 for men, compared to the general population with a life expectancy of 83 and 79 years, respectively (Gorman and Blair Rowan 2019; Lopez 2019). This lower life expectancy can result from higher death rates, chronic illnesses, and disabilities that the homeless experience compared to the general population (Ngo and Turbow 2019; O'Connell 2005). Living on the street, specifically in tents, near river banks, in RVs or vehicles, and overcrowded homeless shelters increase a person's exposure to health risks. A particular health risk includes communicable diseases exacerbated by malnutrition, poor hygiene practices, and exposure to harmful weather conditions such as cold temperatures and rain (Lexis-Olivier Ray 2021).

Importantly, skin-related diseases are the leading cause for people experiencing homelessness to seek medical services (Leibler et al. 2017; 2018; Maness and Khan 2014; Popkin, D'Anci, and Rosenberg 2010; Raoult, Foucault, and Brouqui 2001). In this study, sixty-four participants reported experiencing skin infections. The type of skin lesions and infections, however, were not measured in this study. However, Leibler et al.'s (2017) study found that unhoused people experience a higher prevalence of nasal colonization of staph compared to the general population. Their study found 16 unhoused people with MRSA nasal colonization that resulted from limited hygiene and crowded living conditions (Leibler et al. 2017). Overall, skin

conditions are made worse by a lack of sanitation and poor hand and body hygiene practices, which puts homeless individuals at a higher risk of infection.

Other poor health outcomes that are endemic in unhoused communities are head and body ice, scabies, and secondary bacterial infections, all of which can be WaSH preventable diseases (Maness and Khan 2014). In this study, nine participants reported having body and head lice within a 30-day period. These numbers are much smaller than other studies, including Bonilla et al.'s (2014) study in San Francisco with 203 unhoused people, of whom ten people had head lice and 60 reported body lice. Lice infestation can affect unhoused residents as they do not have consistent and reliable access to clean changes of clothes or bathing facilities (Bonilla et al. 2009; 2014; Maness and Khan 2014). In this study, we only found that a total of five participants had typhus, which is relatively more minor compared to Badiaga et al.'s (2012) study in Marseilles, France, that detected sixty-three people with antibodies against *Rickettsia typhi*. This vector disease causes murine typhus. One of the reasons for these differences may be that more comprehensive testing is needed to measure the prevalence of this poor access to WaSH-related health outcomes.

Furthermore, dehydration and urinary tract infections were among commonly reported health conditions by the sampled population. In this study, 103 participants reported experiencing dehydration. The data collection took place in the two hottest months of the year (June and July), yet heat exposure and lack of available drinking water can result in heat exhaustion. In DeMeyers, Warpinski, and Wutich's (2017) study in Arizona found that lack of vegetation, urban heat island effect, and lack of WaSH services are all factors that increased risks of dehydration and heat exhaustion. Lastly, the findings note that a small number of people hold off from using the restroom, especially in the evening time when facilities are closed and

inaccessible. These coping strategies can lead people to encounter health problems such as kidney and vaginal infections. In this study, thirty-two people reported urinary tract infections within a 30-day period, of whom eighteen were women. Urinary tract infections may result from people being forced to delay restroom use, and not having adequate access to WaSH services raises the risk of contracting infections. Specifically, women are at risk of contracting kidney and vaginal infections, as shown in Wenzel et al.'s (2001) study that found that unhoused women in Los Angeles County encounter gynecological symptoms, and better health care support systems are needed for unhoused women.

2.5.4. Limitations and Recommendations

Overall, this study describes the different forms in which the unhoused cope with WaSH insecurity in different spaces and places. It is also important to note the study limitations. While this study only surveyed 263 participants, which accounts for less than one percent of the County and City of Los Angeles's total unhoused population. Yet, these findings are still representative of the lived experiences of those people in this study. The type of questions that we asked participants may have resulted in recall bias. Participants may not remember all of their daily habits and places visited to carry those personal habits. Lastly, since the population is mobile, there may have been duplicate interviewees. If recognized, a survey was either omitted from the final analysis or used to validate their initial survey responses.

More extensive mixed methods studies are necessary to disentangle these factors and include different cohorts to understand how poor access to WaSH services affects communities differently.

Homelessness is a multifaceted crisis. While there is no "one size fits all" solution, we can generate interventions that can better serve our unhoused community members, one being

increasing access to essential WaSH services. Addressing WaSH insecurity among homeless communities is essential because, as shown in studies, access to the most basic human needs can reduce health risk and transmission of infectious diseases. Reducing the risk of infectious diseases is crucial, even more so now during this global COVID-19 pandemic, where constant and reliable access to WaSH services reduces the risk of transmission. As a whole, access to WaSH services can create healthier communities, particularly in unhoused communities that live in open environments and have weakened immune systems (Ngo and Turbow 2019; Tsai and Wilson 2020).

There is a need to prioritize providing safe, affordable, equitable, and accessible WaSH services in vulnerable communities. To better understand and mitigate WaSH insecurity in the US and worldwide, there is also a need to move beyond the lens of household WaSH insecure and include people experiencing homelessness to provide more informed and interdisciplinary knowledge. Furthermore, in Los Angeles, a collaboration between service providers, policymakers, health care systems, and researchers is needed to develop inclusive and equitable solutions. Indeed, improving the way we are addressing homelessness requires an integrative process. Service providers, particularly in the non-profit sector, can play a vital role in this process as they work directly with the community and know their needs. As a result, advocating for the provision of housing with integrated immediate services can lead to a more comprehensive and successful way to address the needs of homeless populations. One of these inclusive recommendations includes developing WaSH service models that are humane, dignified, and available 24-hours in a day. The findings from this study highlight that providing safe and available services at all times of the day are needed the most to meet people's needs in the community. In Skid Row, the ReFresh Spot is an example of a successful model that works.

Community members use the ReFresh Spot because the facilities are well maintained, have friendly staff, clean, and are available when needed. City officials should consider allocating money to more permanent WaSH facilities like the ReFresh Spot rather than installing temporary portable toilets and conducting encampment sweeps. In 2019, the city spent 24 million dollars on street-clean ups. These types of services are not sustainable, humane, and target the root of the problem. Lastly, integrating the voices of unhoused residents at the decision-making tables can foster real change and improve communities' health and living environments because they are the ones with the lived expertise and know what services are more accessible.

2.6. Conclusion

The findings from this study suggest that while high-income countries like the US claim to have universal access to WaSH services, vulnerable and disadvantaged populations, including people experiencing homelessness, face WaSH insecurity daily. The access to public facilities, including restrooms and laundry services for homeless people, remains contested in the public sector, making it more challenging to address this vulnerable population's needs better. To this end, this study asks several questions: what challenges do people who experience homelessness encounter accessing WaSH services? What are the coping survival mechanisms people use to find access to these services? The results suggest that inaccessibility to WaSH results is not homogenous, with some groups in the population being more vulnerable than others in accessing services. Additionally, this study sheds light on people's daily challenges and coping strategies when living in places with insufficient, safe, affordable, and reliable access to WaSH services. Due to this inaccessibility of services, unhoused people have no other choice but to engage in different survival coping strategies such as utilizing buckets inside their tents to go to the restroom. In other instances, people use the sinks of public restrooms to do laundering and travel long

distances to access one of the few shower facilities in Skid Row. People engage in these survival strategies because they are safer than walking a few blocks or miles to a shelter at night. These practices are also more affordable and accessible as most public restrooms close early evenings. While these coping strategies are necessary for daily survival in unhoused communities, they also highlight the need for infrastructural investment of WaSH facilities that can provide a safe, clean, good quality, and dignified level of service. Otherwise, ignoring these immediate services can result in a cycle of poverty and prolonged homelessness due to people spending time and effort to access WaSH services. It could contribute to people's deterioration of their physical and mental well-being and further stigmatization.

Regarding accessibility within the three communities where people reported sleeping, the epicenter of resources allocated is Skid Row. On the other hand, communities outside of Skid Row's boundaries have fewer WaSH services available as reported available for unhoused community members. People choose to sleep outside of Skid Row's boundaries because they do not feel safe there at night-time. During the daytime, people residing in Venice, Santa Monica, and Hollywood travel up to a two-hour one-way commute to Skid Row, the area with the most access to services. Future studies should consider how to measure network analysis of WaSH facilities. For example, identifying the best location to provide WaSH services in the different communities and characteristics of effective interventions can be identified to make those services more accessible.

Additionally, future studies should consider measuring the psychosocial health outcomes (or water distress) attributed to WaSH insecurity in unhoused communities. Measuring water distress is critical to capture in both scholarly research and policy implementation as unsafe and inadequate access to essential WaSH services can lead to emotional stress and exacerbate mental

health diagnoses. Furthermore, studies should consider exploring the effects of WaSH insecurity on medication adherence in the Los Angeles unhoused population. Therefore, it is critical to examine how poor access to drinking water and or restroom may result in people not adhering to taking prescribed medications needed to sustain their (as seen in Coe et al. 2015; Wang, Dopheide, and Gregerson 2011).

WaSH insecurity among unhoused people connects to forms of environmental injustices, mental health problems, and other preventable poor health outcomes. While there is no "one-size" fits all solution, this work suggests that expanding water infrastructure provisions (e.g., restrooms, drinking fountains, and laundry services) and making these services available 24-hour can improve people's lives and health. Thus, tackling WaSH insecurity in homeless and other vulnerable communities can not only improve people's health but can lead to healthier living environments and communities.

Chapter 3 Measuring Individual and Institutional Level Accessibility to WaSH in Unhoused Communities of Los Angeles, CA

This second study delves deeper into the issues raised in the earlier study (Chapter 2) by expanding the analytical lens to the individual (demographics) and service (distance, affordability, safety, accessibility, and quality of service) factors that contribute to WaSH insecurity experiences. The overall structure of this chapter is as follows: the chapter begins with section 3.1, introducing the problem statement. Subsequently, section 3.2 provides a review of relevant literature and identifies the study contribution, followed by section 3.3 that describes the data and methodology. In the final sections, the chapter presents the study findings based on 263 surveys collected in 2019 before the current global COVID-19 pandemic using logistic regression models (GLM) and network analyst extension in geographic information systems (GIS) to measure the distance of facilities to participant's sleeping locations. Section 3.5 provides an interpretation of the analyses while also evaluating the landscape in WaSH accessibility in Los Angeles. Overall, this chapter outlines the importance of expanding WaSH services in communities of Los Angeles while also ensuring that services need to be accessible by all unhoused residents. Including services accessible to the elderly, people with disabilities, pet owners, and have staff that treats people with dignity can help improve people's access to these essential services and improve their living conditions and well-being.

3.1. Introduction

In the United States (US), unhoused people are impacted by the inaccessibility of access to water, sanitation, and hygiene (WaSH) services. The inaccessibility of these types of services creates barriers in people's livelihoods and increases health disparities in communities already

vulnerable to chronic illnesses and health outbreaks (County of Los Angeles Department of Public Health 2018a; Liu, Chai, and Watt 2020). For unhoused people, WaSH insecurity is an issue of availability, affordability, quality, and lack of public infrastructural investment in cities to provide marginalized communities access to reliable services (Ares et al. 2017; Avelar Portillo et al., n.d.; Los Angeles Community Action Network (LACAN) 2017; Speer 2016). In Los Angeles, as noted in chapter 2, WaSH insecurity experiences result from a lack of publicly available services. However, other significant factors at the individual and institutional level remain underexplored.

All in all, poor access to WaSH services forces unhoused people to resort to various survival strategies. These coping strategies include public urination, open defecation inside tents, and opening fire hydrants to obtain water for drinking, bathing, and laundering (Avelar Portillo et al., n.d.; Capone et al. 2018; 2020; Frye, Capone, and Evans 2019; Speer 2016; Wong 2009). None of these coping strategies utilize safely managed sources, and increases added health risks among unhoused communities.

While it is challenging to access safe, affordable, and consistent WaSH services among unhoused communities, little is known whether access to services is equitable. This study argues that there is not a one-size-fits-all solution in addressing homelessness and WaSH insecurity. More specifically, this study addresses two questions: (1) What individual level (gender identity, racial/ethnic, age, and length of homelessness) factors contribute to people's ability to access WaSH services in Los Angeles, CA, and (2) What institutional level (service providers) factors contribute to the way people choose to engage with WaSH services available in the community? The purpose of addressing these questions is to explore heterogeneity among unhoused people. Addressing the diverse experiences of unhoused residents is important because as we invest in

addressing housing insecurity and homelessness, we need to seek more inclusive and equitable policies that address all unhoused community members' immediate and interim needs.

Furthermore, exploring existing differences in access to WaSH services and people's level of engagement with different service providers can help identify unmet needs and service gaps in the community. While the long-term solution to homelessness is ensuring access to adequate and affordable housing, this study highlights the need for interim interventions, including increasing access to WaSH services in public spaces with large homeless encampments. The overall results from this study can lead to driven policy decisions. The results can help guide efforts to increase access to fundamental WaSH services needed to achieve health equity, improve our unhoused neighbors' quality of life, and living environments.

Los Angeles is a large metropolitan area struggling to address a housing crisis and a public health crisis. The Los Angeles Homeless Services Authority (LAHSA) annual point-in-time (PIT) homeless count estimates, estimated 66,436 people are experiencing homelessness across the county, 72% of whom live in tents, vehicles, and other forms of makeshifts (LAHSA 2020b). In Los Angeles, there is also disinvestment in public infrastructure and inadequacy in addressing the needs of unhoused communities have contributed to notable health outbreaks and increased risk of communicable diseases (Center for Disease and Control Prevention (CDC) 2018; County of Los Angeles Department of Public Health 2018b; Karlamangla 2018; Liu, Chai, and Watt 2020). Therefore, it is imperative to examine how WaSH insecurity affects unhoused people differently and identify gaps in the provision of services.

3.2. Background

This section encompasses a central review of studies that have focused on unhoused communities, particularly studies that have examined the existing vulnerabilities among these

communities and their intersections to WaSH insecurity. It begins with discussing the built

environment, particularly the role of public places and survival nexus of people experiencing

homelessness. The literature from this section sheds light that while unhoused people are

criminalized for using public spaces, they have a form of agency when it comes to the type of

services they choose to utilize. Additionally, section 3.2.2 explores the way population

characteristics contribute to vulnerability factors among unhoused communities. In reviewing the

current knowledge, this section highlights this study's potential gaps and contributions.

3.2.1. The Built Environment and Unhoused Communities

In communities across the US, public spaces are contested arenas. For a person

experiencing homelessness, public space is their sustaining environment, yet anti-homelessness

policies criminalize unhoused people's ability to exist in public spaces and places (Bonds and

Martin 2016; Marr, DeVerteuil, and Snow 2009; Mitchell 1997; Stuart 2015). Mitchell (1997)

argues that anti-homelessness laws intend to control the behavior and spaces utilized by people

experiencing homelessness. In other words, survival on the streets is criminalized through local

policies and laws aimed at "redefining what is [an] acceptable behavior in public space[s]" to

revitalize cities while in effect reducing the spaces unhoused people utilize to survive (Mitchell

1997, 305). Stuart's (2015) study also traces back the policing of homelessness in public spaces

of Los Angeles to the 1990s, where unhoused people were the primary targets of policies of

containment, "zero-tolerance," "quality-of-life" policing. Such policies aim to remove and

contain the expansion of "unkempt, unpredictable, and potentially mentally ill individuals in

newly coveted spaces" that inhibits the mobility of capital in urban cities (Stuart 2015, 943). The

criminalization of homelessness through quality-of-life legislates against basic life-sustaining

activities, such as sleeping in a car, sitting, or storing personal belongings in places where people

cope to exist without access to a shelter or permanent home (Robinson 2019). Central to these efforts exist local ordinances aimed at removing unhoused communities from public spaces.

While the criminalization of homelessness limits people's ability to exist in public spaces, Marr, DeVerteuil, and Snow (2009) argue that unhoused people do still possess a form of agency in the spaces and places that they choose to occupy as part of their survival mechanisms living on the street. Marr and colleagues infer there are different levels of engagement based on the availability of services across communities. For instance, in Los Angeles County, some places are heavily institutionalized, such as the community of Skid Row. By institutionalized, the authors refer to communities that provide an array number of services, including soup kitchens, shelters, Single Room Occupancy (SRO) hotel units, and other social services needed by unhoused people (Marr, DeVerteuil, and Snow 2009). At the same time, there are also those places that do not provide sufficient services to unhoused people, often beach cities or affluent neighborhoods (Marr, DeVerteuil, and Snow 2009). The distribution of services in different communities shapes the pattern of coping survival strategies engaged by unhoused people. Understanding the distribution of services is crucial to note, particularly regarding access to WaSH services. It can influence the decision-making process that people engage daily to access these services. In summary, unhoused people may be criminalized and stigmatized in public spaces. Nevertheless, they have autonomy when it comes to the utilization of services. People's agency needs to be explored more because people's level of engagement can inform us more on the existing quality of services and inform us on successful service models based on their experiences that are needed more in the community.

In Los Angeles, the criminalization and removal of unhoused people from public spaces are counterproductive towards addressing homelessness. Sleeping on the streets, for example, is

a facet of life for unhoused people, but only legal at certain hours of the day through the enforcement of the Los Angeles Municipal Code (LAMC) 41.18(d). This municipal code makes it illegal for people experiencing homelessness to sleep, sit, or lie in public spaces between the hours of 9 p.m. and 6 a.m. (L.A., Cal., Code art. I, § 41.18 1968). The LAMC 56.11(2016) is another ordinance that limits people sleeping in public areas. Specifically, it reduces the ability for unhoused people to occupy sidewalks and having personal property that exceeds a 60-gallon container because it may be considered a public hazard (L.A., Cal., Code art. VI, § 56.11 2016). Furthermore, the LAMC 41.47.2 makes it a misdemeanor for a person to urinate and defecate in public. In California, it classifies public urination as a sex offense (L.A., Cal., Code art. I, § 41.47.2 2003; Shure 2019). In some instances, a violation of these anti-homeless laws is accompanied by citations, with an average cost of $150 or more, contributing to compounded day-to-day survival challenges for unhoused people. Specifically, citations can be challenging for unhoused people who cannot afford to pay these fines, leading to added burdens of warrants and risk for incarceration (Holland and Zhang 2018; Herring 2016). These ordinances serve as forms of oppression that limit survival techniques in public spaces utilized by people without adequate access to housing. Instead, we need to be directing efforts to serve the community with permanent infrastructure that can meet their WaSH needs.

3.2.2. WaSH Insecurity and Unhoused Communities

It is estimated that 1.1 million people in the US live in households with no connection to water infrastructure (Meehan, Jurjevich, et al. 2020). However, these estimates of water poverty do not consider the number of people living without access to shelter and permanent housing. As a result, Meehan et al. (2020) argue that 2 million people are likely living without secure access to WaSH services in the US. Existing studies that address the experiences of WaSH insecurity

among unhoused communities argue that the lack of investment in public infrastructure in cities drives people to embark on public urination and defecation practices that increase public health risk in these vulnerable communities (Capone et al. 2018; Los Angeles Community Action Network (LACAN) 2017; Speer 2016). The study of DeMyers, Warpinski, and Wutich (2017) found that compared to living in shelter systems, people living in tents and without a roof disproportionally encounter more difficulty accessing adequate and sufficient WaSH services. Similarly, Flannigan and Welsh (2020) examine the hard-to-reach unhoused communities residing in riverbeds that choose to live in these precarious and unsafe places in efforts to avoid interaction with criminal justice systems. Flannigan and Welsh argue that due to being forced to live in unsafe spaces, people living near waterways encounter more barriers in accessing services, including access to WaSH services, putting these individuals at a substantially higher risk of poor health outcomes (Flannigan and Welsh 2020). Differences in WaSH access among unhoused populations, however, remain heavily underexplored.

Studies focusing on addressing homelessness have also noted that unhoused populations are not homogenous groups. Individual factors, particularly demographic and biographic factors, contribute to added vulnerability to navigating services, residing in public spaces, and exiting homelessness (Stuart 2015). Gender differences are one of these vulnerabilities. Compared to unhoused men, women experiencing homelessness have a higher risk of violence and harassment when living on the streets (Downtown Women's Action Coaliton 2020; Kuo 2019). A 2019 report made by the Downtown Women's Center highlighted that "women who reported most often sleeping on the streets were more likely to have experienced domestic violence (45.0%) and sexual assault (45.6%) than the general population" (Kuo 2019, 18).

Additionally, Rowe and Wolch's (1990) study, for example, found that women are more likely than men to seek a relationship for protection due to their vulnerability to physical abuse and attack in Skid Row. In some cases, these relationships or companionships can provide access to a safety net, emotional support, and resources, including access to food and water (Rowe and Wolch 1990). WaSH insecurity may also impose additional challenges to unhoused women when coping with their menstrual cycle. In shelters and bathhouses, a 2017 audit report found that these places not only do not provide inconsistent access to feminine hygiene products, but restroom facilities often lack privacy, forcing women to feel exposed and vulnerable (Los Angeles Central Providers Collaborative 2017). Furthermore, the inability to safely manage menstrual hygiene leads unhoused women to resort using unhealthy and unsanitary options to clean their bodies that may lead to gynecological health conditions, including urinary tract infections (Los Angeles Central Providers Collaborative 2017; Parrillo and Feller 2017; Rimawi, Mirdamadi, and John 2014; Wenzel et al. 2001).

In the same way that gender constructs intersect with WaSH insecurity, race, age, physical and mental disability are vulnerability factors that remain underexplored in unhoused communities. For example, in Los Angeles, the unhoused population is disproportionally overrepresented by people of color (LACAN 2017; LAHSA 2020b). Differences in access to WaSH services among unhoused communities have not been measured in existing studies. In the study of Chinchilla and Gabrielian (2020), although not explicitly connected to WaSH insecurity, the authors state that disparities in accessing services results from deeply rooted structural racism. Chinchilla and Gabrielian also found that the unhoused population that identifies as Latinx has lower rates of service use due to different social vulnerabilities in this group, including language barriers and citizenship or documentation status (Chinchilla and Gabrielian

2020). Age is also another contributing factor to vulnerability for unhoused communities that remains underexplored in the realm of WaSH insecurity. According to LAHSA's PIT count estimates from 2020, the rate of senior unhoused people has increased by 20 percent since 2017 (LAHSA 2020b). It is crucial to address age disparity because the elderly unhoused population continues to increase, and they have an accumulation of chronic disadvantages that impedes their ability to access services properly and exit homelessness (Applewhite 1997; Donley and Wright 2018; Kuhn, Richards, and Roth 2020; LAHSA 2021). Furthermore, Leibler et al. (2017) argue that WaSH insecurity negatively impacts the physical and mental health of people experiencing homelessness. In particular, chronically unhoused people coping with drug and substance misuse have more inadequate hygiene practices and, thus, more significant health risks exacerbated by the insecurity of services (Drake and Wallach 1991; Leibler et al. 2017; Riley et al. 2012; Rosengard et al. 2001). These individual factors are important to consider as we try to better address housing insecurity and provide immediate interventions needed in unhoused communities.

3.2.3. Knowledge Gap and Study Contributions

Based on the literature review, we know that public places are contested areas where unhoused people are not welcome. The literature also suggests that experiences of living on the street may differ per person and are not homogenous. In reviewing these studies, I recognize gaps in the scholarship and identify significant contributions. First, this study digs deeper into differences that occur in accessing WaSH in different communities. Marr, DeVerteuil, and Snow's (2009) study, for example, focus on the distribution and location of emergency shelters. Similarly, this study will take the concepts from Marr's study and explore the location and distribution of existing WaSH services. Second, this study explores individual vulnerability

factors among the sampled population, particularly exploring how population demographic factors can contribute to differences in access to WaSH. Specifically, by focusing on addressing the gender identity, racial/ethnic, age, and length of homelessness factors contributing to access disparities in these marginalized communities. Acknowledging heterogeneity among unhoused populations and their level of difficulty accessing WaSH services is important because it is an area that remains incredibly underexplored and can help address people's needs better. The last contribution of this study is advancing our understanding of WaSH accessibility by integrating service level factors that influence the level of engagement by community members. Measuring these service level factors can inform us of service quality to identify service gaps and unmet needs. Addressing disparity in access to WaSH at the community, individual, and institutional (service providers) level can help us identify the type of services needed to serve communities better.

3.3. Data and Methodology

This study utilizes survey data from adults with lived expertise of homelessness collected in June and July of 2019 (Avelar Portillo et al., n.d.). As stated in the introductory section, this study focuses on the experiences of unhoused people living in Los Angeles. Data collection took place in the four boundaries of Skid Row (7th and 3rd and Alameda and Main Streets) and parts of downtown Los Angeles. However, some participants enrolled in the study reported their primary sleeping location in other parts of the greater Los Angeles area, including Hollywood, Santa Monica Beach, Venice Beach, and South Los Angeles. Therefore, some of the study findings are presented at three community levels: Skid Row, downtown Los Angeles, and greater Los Angeles. In doing so, it illustrates the number of participants sleeping in these different communities and how these different spaces may elucidate different levels of engagement with

service providers. These divisions are also crucial because Marr, DeVerteuil, and Snow (2009) highlight that communities with different services shape survival patterns in unhoused communities. The sampling technique utilized to recruit study participants was a mixture of convenience and snowball or chain sampling, including unhoused people within the designated study area. Participants would invite other people from neighboring tents. Before the survey data collection, participants were screened, consented, and provided with the study objectives. All participants enrolled were adults over the age of 18. The Institutional Review Board (IRB) of the University of Southern California approved all study activities before the start of the study.

3.3.1. Survey Data and Processing

The survey tool utilized collected information on individual characteristics to understand better the distinct experiences of unhoused people navigating through services and public spaces that may not provide them with adequate access to WaSH. The type of questions captured in the survey instrument included demographics, such as a person's race/ethnicity, gender identity, sexual orientation, age, and educational level. Participants also reported their most recent sleeping location (only the main street intersections to protect participant's confidentiality), living conditions in the past 30 days (at the time of interview), causes that contributed to their displacement of housing, and length of homelessness. To measure forms of WaSH insecurity, participants reported on personal hygiene practices, frequency of those practices, and locations utilized to conduct their personal necessities, including laundering, showering/bathing, going to the restroom, and locations used to obtain drinking water. Additionally, participants reported on the reasons for choosing specific services and locations and whether they had encountered experiences of discrimination when accessing services. For the complete survey instrument utilized, see Appendix A.

Data collected from surveys did not contain any identifiable information to protect participant's confidentiality. Data was collected using paper surveys, each with a unique study identification. Each paper survey was abstracted and coding onto a database. Incomplete surveys were removed and not considered in the final analysis. Each variable coded was verified using survey metadata. After completing the data abstraction and coding, it was reviewed and verified twice before entering the analysis phase to double-check that the information entered was correct and reflected the information from the paper surveys. Participant's rough estimates of sleeping locations were collected at the time of interview utilizing only main street intersections and entered using the Esri Survey123 mobile application. These locations were matched to the survey data.

The data processing for the location of WaSH services utilized per participant was two-fold. First, only participants provided using a specific service or establishment formed part of the final study analysis. In other words, participants that included a specific name or location of a shelter, non-profit organization, or other business establishment formed part of the analysis. Second, the addresses of places utilized were found through a Google search and verified using the organization or business website. When no location was matched, I located public reports that identified the location of specific facilities, as was the case for finding the location of all public automated toilets in downtown Los Angeles. The addresses were then entered in Excel, imported into ArcGIS Pro version 2.7, and geocoded using the ArcGIS World Geocoding Service.

3.3.2. Analysis
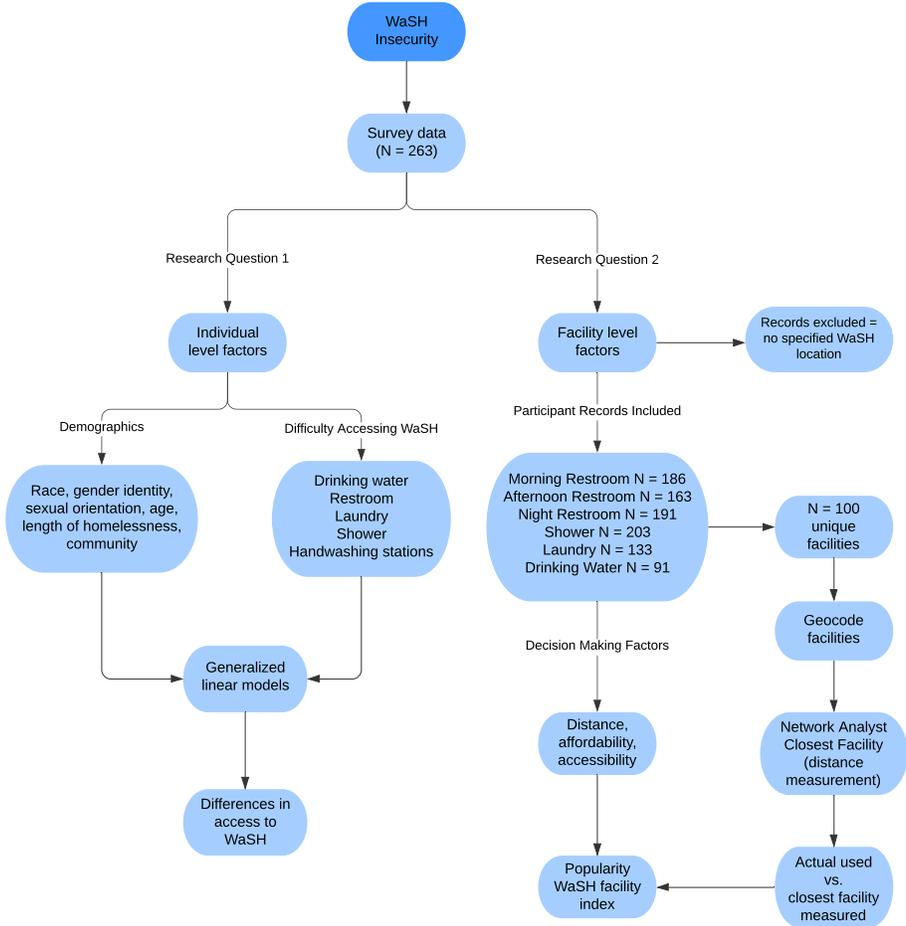
Figure 3.1. Flow chart of the quantitative data analysis.

The study's methodology and analytical framework are illustrated in Figure 3.1. I utilized R Studio 1.3.1093 and ArcGIS Pro to measure WaSH insecurity experiences in unhoused communities to analyze the survey data. To answer the first research question, I utilized generalized linear models (GLM) to measure the association between difficulty accessing different WaSH services and individual-level characteristics. The reasoning for choosing GLM was that it does not assume a normal distribution. Additionally, the outcome variable in the models, "difficulty accessing WaSH services," is a binary variable (Yes/No). The dependent

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variables are categorical (e.g., gender, race, age, sexual minority groups, community, and length of homelessness). Associations tested were chosen based on the review of relevant literature and observing the lack of studies that explore heterogeneity among unhoused groups as it pertains to differing experiences accessing WaSH services.

To measure the second research question, I utilized a geographic information system (GIS). More specifically, using ArcGIS Pro's Network Analyst extension to measure what factors contribute to the way people choose to engage with service providers. First, I measured the distance between participant's reported sleeping locations to the WaSH facility closest to them per type (restroom, shower, laundry, and drinking water), following a road network. The facilities considered were only the ones reported by the sampled population. I then compared the results to people's actual used facility to help identify whether the distance is a significant decision factor to people accessing specific services. In R, I created a table to organized the output data of the closest facility results to match participant's survey data with the actual utilized facility, the first closest ranked facility, and total distance traveled. In doing so, I created a popularity index of WaSH facilities that measure the most utilized facility. This popularity index is based on three assumptions: first, the effort people make to use a service, including the number of facilities skipped to get to use the facility, median distance traveled, and the total sum of participants that reported using the facility. Lastly, I matched this popularity index results with the different decision-making factors participants reported engaging when choosing to use a specific WaSH facility. These decision-making factors include distance, affordability, and accessibility. Accessibility is an aggregated factor that considers safety, availability at all times, pet friendly, cleanliness, accessibility for people with disabilities, and friendly staff. The following section outlines the study results.

3.4. Analysis Results

This section will describe the results from the regression models and the network analyst closest facility analyses. The section begins with subsection 3.4.1 that provides an overview of the sample population demographics, followed by section 3.4.2 that provides the generalized linear model results for the individual and community level factor differences in access to WaSH. This section concludes with the findings from the closest facility analysis to identify the service level factors that contribute to different community engagement.

3.4.1. Sample Population Demographics

In total, 263 participants consented and formed part of the final analysis. Table 3.1 summarizes the community-level demographics. Based on the participant's reported primary sleeping location, 134 people reported sleeping within Skid Row community boundaries (7th and 3rd and Alameda and Main streets). Additionally, 92 participants reported sleeping within downtown Los Angeles, whereas 37 reported sleeping within the greater Los Angeles area, including Hollywood, Santa Monica Beach, Venice Beach, and South Los Angeles. Examining across communities, it is predominantly male across all three communities. However, more female participants (38 percent) reported residing in Skid Row than the other two communities. The community of Skid Row was predominantly Black/African American (roughly 47 percent), whereas downtown and greater Los Angeles area were Latinx dominant (41 and 30 percent, respectively). The average time the sampled population reported experiencing housing insecurity was five years. Most of the elderly population resided in Skid Row in the sampled population, whereas those younger than 34 years old reported residing in downtown Los Angeles or greater Los Angeles area.

Table 3.1. Population demographics per community level

	Community		
	Skid Row	Downtown LA	Greater LA
Characteristic	n=134 (100%)	n=92 (100%)	n=37 (100%)
Gender identity			
Female	50 (37.60)	23 (25.00)	6 (16.22)
Male	81 (60.90)	68 (73.91)	31 (83.78)
Transgender	2 (1.50)	1 (1.09)	0 (0.00)
Missing	1 (0.75)	0 (0.00)	0 (0.00)
Age			
18 to 34	15 (11.20)	20 (21.74)	6 (16.22)
35 to 44	29 (21.64)	14 (15.22)	12 (32.43)
45 to 54	39 (29.10)	24 (26.09)	6 (16.22)
55 to 61	29 (21.64)	24 (26.09)	7 (18.92)
62 and older	18 (13.43)	9 (9.78)	5 (13.51)
Missing	4 (2.99)	1 (1.08)	1 (2.70)
Race/ethnicity			
Black/African American	63 (47.01)	29 (31.52)	17 (45.94)
Latinx	31 (23.13)	38 (41.30)	11 (29.73)
White	16 (11.94)	17 (18.48)	6 (16.22)
Other	20 (14.93)	8 (8.70)	3 (8.11)
Missing	4 (2.99)	0 (0.00)	0 (0.00)
Time homeless			
Less than 1 year	19 (14.18)	15 (16.30)	7 (18.92)
1-3 years	53 (39.55)	36 (39.13)	15 (40.54)
4-6 years	19 (14.18)	16 (17.40)	7 (18.92)
7 years or greater	36 (26.87)	23 (25.00)	6 (16.22)
Missing	7 (5.22)	2 (2.17)	2 (5.40)

Note: Percentages are based on total N per community.

Table 3.2 summarizes the reported living conditions from the sample population. Overall, most people reported sleeping in tents, particularly in Skid Row and downtown Los Angeles. Makeshift or rough living conditions, meaning sleeping without a tent, was the second-highest living condition reported in the sample. Both downtown and the greater Los Angeles area reported more makeshift living compared to Skid Row. Shelter living was higher for people living in Skid Row compared to the other two communities (N=40). In total, only 34 participants across all communities reporting sleeping in their vehicle and 22 staying in a motel or hotel. The primary reported factors that attributed to people being displaced from housing included unemployment or loss of a job (26 percent), unable to afford to pay rent (16 percent), drug and alcohol misuse (15 percent), and family conflict (15 percent).

Table 3.2. Reported living conditions per community level over a 30-day period

	Community		
	Skid Row	Downtown LA	Greater LA
Living condition	n=134	n=92	n=37
Tent	80 (30.89)	48 (32.21)	15 (22.06)
Makeshift	70 (27.03)	56 (37.58)	21 (30.90)
Shelter	40 (15.44)	7 (4.70)	5 (7.35)
Vehicle	18 (6.95)	9 (6.04)	7 (10.29)
Family/friends	15 (5.79)	7 (4.70)	6 (8.82)
Hotel/motel	10 (3.86)	5 (3.36)	7 (10.29)
Other[a]	26 (10.04)	17 (11.41)	7 (10.29)
Total Responses[b]	259 (100.00)	149 (100.00)	68 (100.00)

[a]Other category includes Single Room Occupancy (SROs), group home, rehabilitation facility, emergency rooms, and jail systems.
[b]This was a multiple response question, therefore the total count per community does not add up to N=263. Totals are based on the total number of responses received per community.

Figure 3.2 shows a map of the three communities people reported residing overlay with the unsheltered unhoused population density of Los Angeles County per square mile. The map also illustrates the locations of all WaSH facilities reported by the sampled population and the estimated sleeping location of all study participants. Participants reported using one hundred different facilities, most located downtown, and only nineteen facilities in Skid Row for an unsheltered population of roughly 2,000.
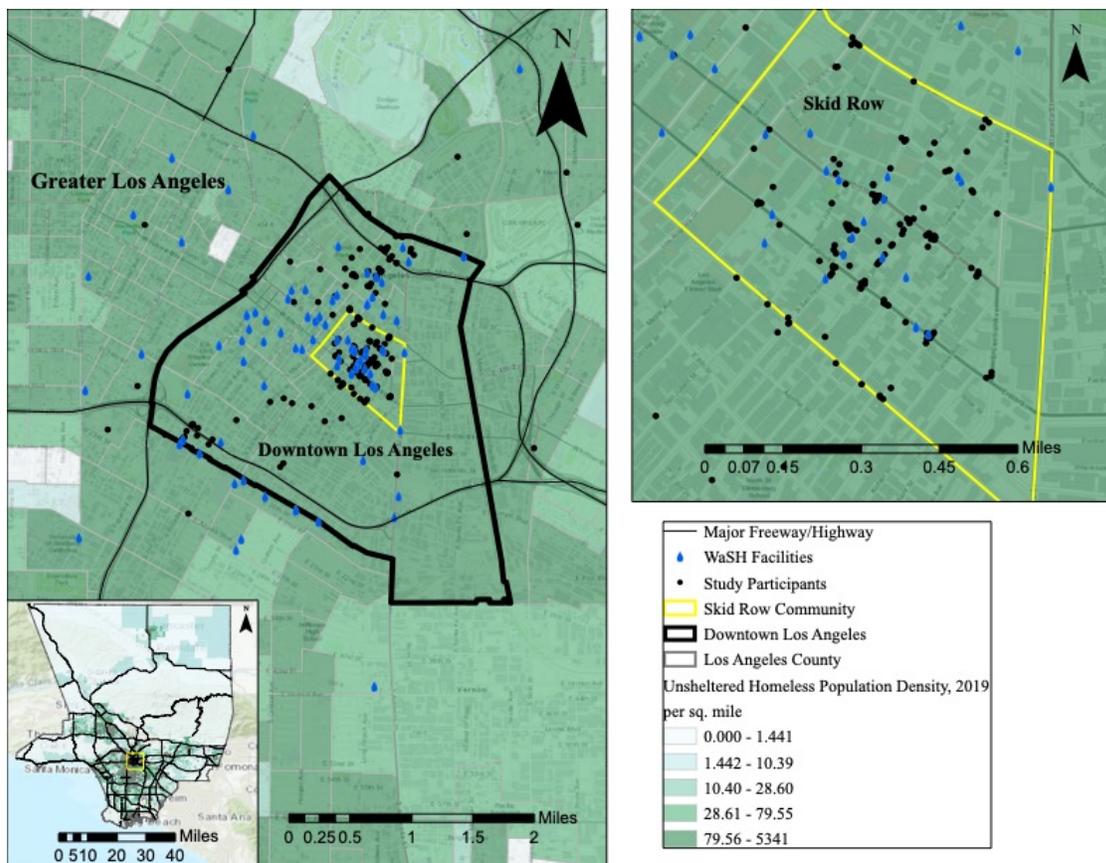
Figure 3.2. Population density map of the unsheltered population of Los Angeles County at the census tract level per square mile, 2019.
Source: Los Angeles Homeless Services Authority (LAHSA) point-in-time estimates in 2019.

Note: The darkest the shade, the higher the density of people experiencing unsheltered homelessness.

3.4.2. Individual-Level Differences in Access to WaSH

In the first part of this study analysis, I examine the individual-level factors that may lead to differences in the ability to access WaSH services. Table 3.3. summarizes the results from the generalized linear models. The reference groups in each of these models included: male, heterosexual, White, people between the ages of 18-34, length of homelessness less than a year, and the Skid Row community. In the first model, I tested the differences in difficulty accessing restrooms among the sampled population. The results from the model indicate that compared to all three communities, people living in the greater Los Angeles area, the odds of having difficulty finding restrooms was two times greater than people living on Skid Row and downtown Los Angeles (OR = 2.5, 95% CI: 1.05-6.23). Additionally, for people experiencing homelessness for more than 6 years, the odds of encountering difficulty accessing a restroom were three times greater than those who have less than a year of experiencing homelessness (OR = 3.3, 95% CI: 1.38-8.29). Regarding racial differences in access to restrooms, for people who identified as Black/African American and Latinx, the odds were 0.35 (95% CI: 0.14-0.86) and 0.3 (95% CI: 0.11-0.76), respectively, lower compared to White unhoused people.

Table 3.3 also illustrates the differences in accessing laundry places. The model shows that unhoused people identifying as a sexual minority were four times greater in encountering difficulty accessing laundry services compared to their heterosexual counterparts (OR = 4.07, 95% CI: 1.62-11.44). The odds of accessing handwashing stations in the greater Los Angeles area were two times more difficult than Skid Row (OR = 2.49, 95% CI: 1.09-5.85). Furthermore, people between the age group of thirty-five and forty-four have 2.6 (95% CI:1.04-6.53) times the odds of having more difficulty accessing handwashing stations than younger unhoused groups. No other statistically significant differences were observed for other WaSH services. In the discussion section, however, I will provide more detailed information to explain these models.

Table 3.3. Generalized linear model (GLM) output results for WaSH facilities, including all variable indicators

	Water, sanitation, and hygiene (WaSH) models								
	Restroom			Shower			Laundry		
Variable	OR	Lower bound (95% CI)	Upper bound (95% CI)	OR	Lower bound (95% CI)	Upper bound (95% CI)	OR	Lower bound (95% CI)	Upper bound (95% CI)
Intercept	1.16	.32	4.28	1.67	.49	5.75	2.27	.64	8.35
Female	.94	.50	1.75	.84	.45	1.54	1.07	.57	2.02
Sexual minority	1.80	.75	4.54	1.46	.63	1.50	4.07**	1.62	11.44
Race/ethnicity									
White	-	-	-	-	-	-	-	-	-
Black/African American	.35*	.14	.86	.96	.42	2.18	.51	.21	1.22
Latinx	.31*	.11	.76	.64	.27	1.50	.43	.17	1.04
Other	.48	.15	1.51	.60	.20	1.78	.38	.12	1.17
Age									
18-34	-	-	-	-	-	-	-	-	-
35-44	1.19	.48	2.96	.67	.28	1.62	.53	.21	1.30
45-54	1.89	.78	4.66	1.31	.55	3.11	1.31	.54	3.22
55-61	1.03	.41	2.54	.44	.18	1.10	.40*	.15	.98
≥ 62	.98	.35	2.78	.66	.24	1.79	.62	.22	1.71
Time (years)									
≤ 1	-	-	-	-	-	-	-	-	-
1-3	1.55	.69	3.59	.66	.29	1.47	.99	.43	2.27
4-6	1.58	.60	4.23	.79	.30	2.03	.54	.20	1.43
≥ 6	3.33**	1.38	8.29	1.02	.43	2.38	.93	.39	2.24
Community									
Skid Row	-	-	-	-	-	-	-	-	-
DTLA	.95	.51	1.77	1.14	.62	2.30	1.30	.69	2.43
Greater LA	2.50*	1.05	6.23	1.92	.84	4.50	.97	.41	2.28

Table 3.3. Continued

	Drinking water			Handwashing stations			Public fountains		
Variable	OR	Lower bound (95% CI)	Upper bound (95% CI)	OR	Lower bound (95% CI)	Upper bound (95% CI)	OR	Lower bound (95% CI)	Upper bound (95% CI)
Intercept	.63	.17	2.18	.36	.10	1.25	.62	.17	2.15
Female	.87	.47	1.61	.90	.44	2.25	.67	.36	1.23
Sexual minority	.76	.31	1.81	1.71	.73	4.10	1.23	.53	2.87
Race/ethnicity									
White	-	-	-	-	-	-	-	-	-
Black/African American	1.47	.63	3.50	1.10	.47	2.50	.90	.39	2.04
Latinx	1.20	.50	2.90	.64	.27	1.52	.47	.20	1.11
Other	1.66	.55	5.10	.76	.25	2.23	.60	.20	1.77
Age									
18-34	-	-	-	-	-	-	-	-	-
35-44	2.03	.83	5.10	2.56*	1.04	6.53	.82	.34	2.02
45-54	1.76	.73	4.31	1.77	.73	4.43	1.45	.61	3.47
55-61	.94	.38	2.34	1.88	.76	4.77	.79	.32	1.95
≥ 62	1.22	.43	3.46	1.56	.55	4.49	1.07	.39	2.95
Time (years)									
≤ 1	-	-	-	-	-	-	-	-	-
1-3	.67	.30	1.50	.98	.44	2.25	1.59	.70	3.77
4-6	.35*	.13	.91	1.11	.42	2.90	2.07	.79	5.58
≥ 6	1.24	.53	2.90	1.06	.45	2.52	2.17	.91	5.37
Community									
Skid Row	-	-	-	-	-	-	-	-	-
DTLA	.96	.52	1.80	1.36	.73	2.52	1.21	.65	2.23
Greater LA	1.40	.60	3.20	2.49*	1.09	5.85	2.04	.89	4.77

Note: OR = odds ratio; CI = confidence interval. *p< 0.05; **p< 0.01.

3.4.3. Facility-Level Differences in Access to WaSH

In conjunction with examining individual-level differences in access to WaSH services, I also wanted to capture different institutional-level factors that contribute to the way people choose to engage with WaSH services available in the community. The results from the closest facility analysis are shown in Tables 3.4 to 3.9 (See Appendix B). In total, there were 69 different restroom places the sample population reported using at different times of the day, not including their tent locations. In Table 3.4, for instance, we can observe that 91 and 114 unhoused people respectively reported relying on their tents both in the morning and night. In contrast, only 45 people utilized buckets inside their tents in the afternoon. In the afternoon, people reported utilizing public places like the Los Angeles central public library, which was the closest facility to only one person. However, seven participants reported using with a median traveled distance of a mile. The median distance is used in all of these models to avoid skewed results by the small sample size of respondents per facility. One of the common factors people reported for choosing their tent instead of using nearby facilities was distance and accessibility. At night time, for instance, 87 participants reported using their tent because it was easily accessible.

Compared to restrooms, the two types of services people reported traveling the most were for accessing showers and laundry services. For shower usage, people reported using 34 facilities other than their tent. Of these 34 facilities, the most utilized were non-profit organizations such as the ReFresh Spot, St. Francis Center, and Midnight mission. The ReFresh Spot facility was mainly measured to be the closest place for fourteen people, but eighty-four ended up utilizing their services with a median distance traveled of 0.34 miles. In Figure 3.3. it illustrates all of the shower facilities reported with the sampled population density. The size of the circles represents

the highest count, and the color represents the distance traveled; the darker the circle, the larger

the distance. Although the median distance was reported in these models, the longest distance

reported was 16 miles, with two participants residing in the Santa Monica area. The smallest

distance was that of 0.07 miles traveled observed in the Skid Row community.
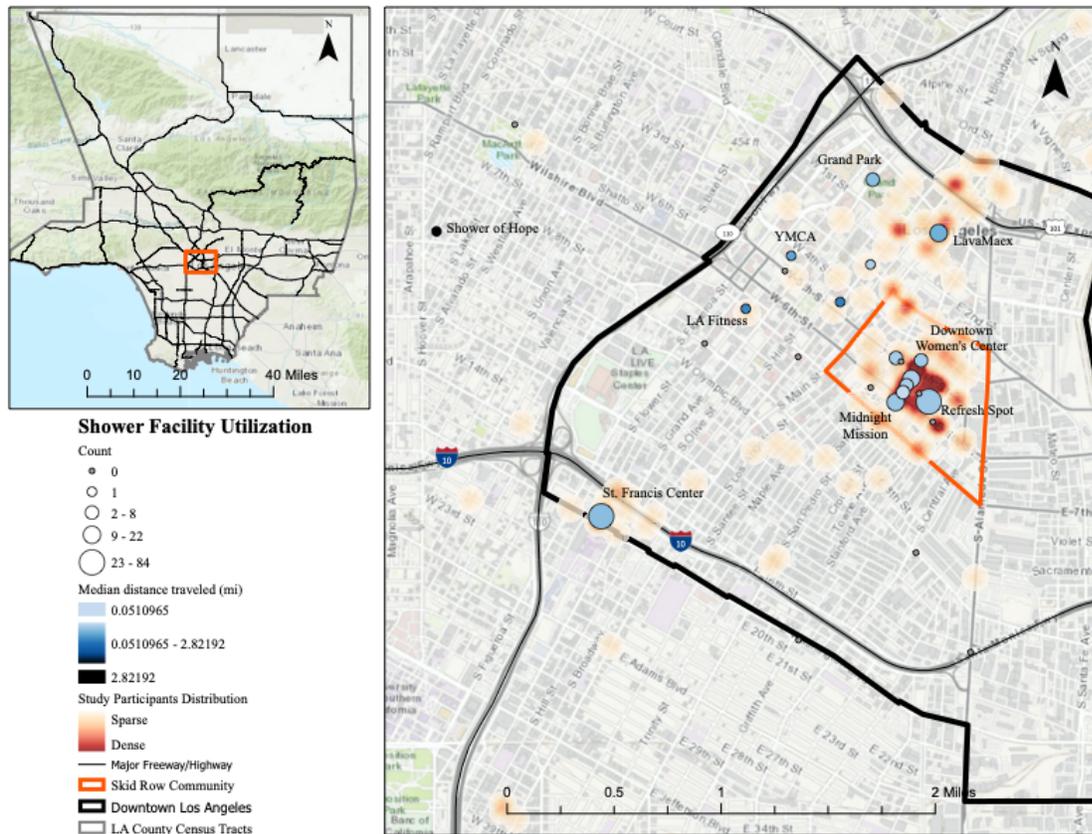
Figure 3.3. Shower facilities across different unhoused communities of Los Angeles.
Note: The size of the circles represents the number of participants that reported using those
facilities. The filled color of the circles represents the median traveled distances to different
shower facilities. The lighter to darker shades representing shorter to longer distances traveled.
These were overlaid with the density of all participants interviewed in this study.

There were only 22 places participants reported utilizing to do laundering compared to

shower services, not including people's tent locations. Table 3.8 highlights the three most

popular facilities: the ReFresh Spot, the People Concern, and tents. The ReFresh Spot, however,

resulted in being the most popular place. The model measured that the ReFresh Spot was closest

to eighteen people, yet eighty-one participants reported utilizing their services. Some factors

driving this high usage in places like the ReFresh Spot were predominantly due to its

affordability (n=56) and accessibility (n=41). For instance, in places like the People Concern,

people are charged to use their services; hence, more people reported that they choose to go to

the ReFresh Spot because it is accessible more than its affordability. Figure 3.4. illustrates the

different laundry places reported by the sampled population, predominantly located in the

community of Skid Row.
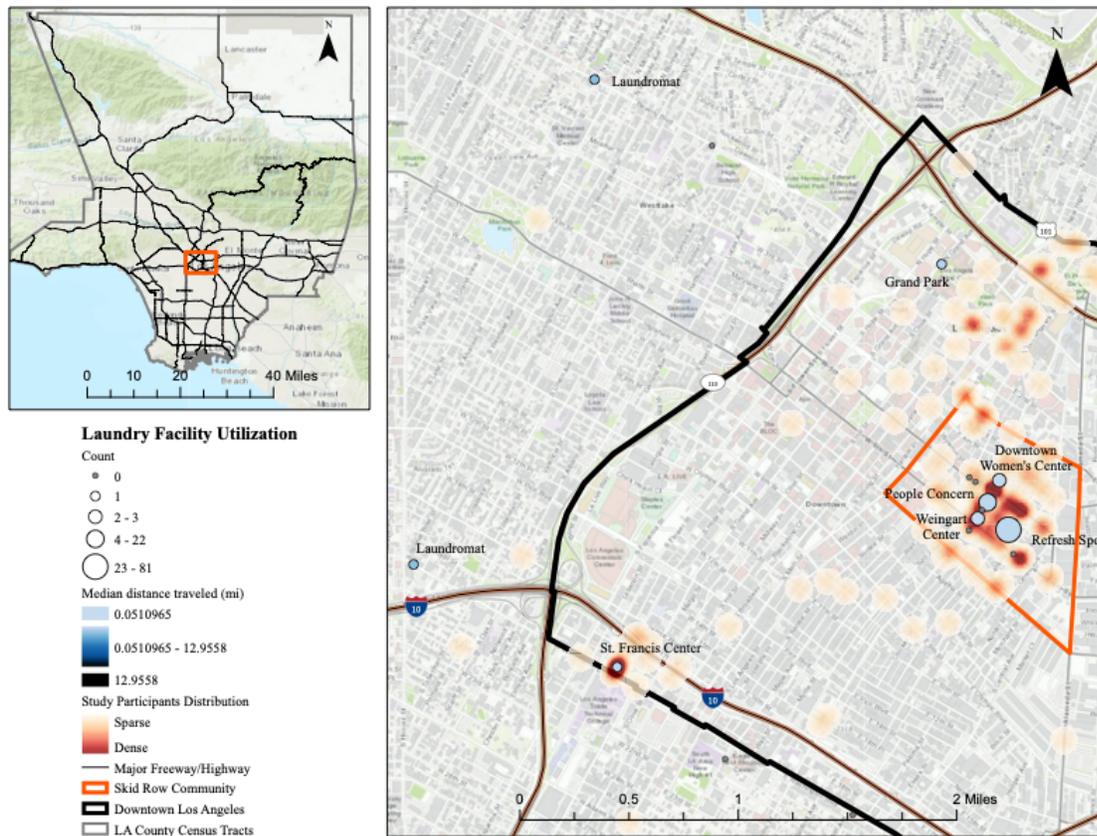
Figure 3.4. Laundry facilities across different unhoused communities of Los Angeles.
Note: The size of the circles represents the count of participants that reported using those
facilities. The filled color of the circles represents the median traveled distances to different
laundry facilities. The lighter to darker shades representing shorter to longer distances traveled.
These were overlaid with the density of all participants interviewed in this study.

Table 3.9 summarizes the results of the closest drinking water facilities. There were fifty-two places that the sample population reported to access drinking water. There was slightly more variation in the types of places utilized but significant distance differences. While the Refresh Spot was estimated to be the closest for nine participant's sleeping locations, thirteen ended up obtaining drinking water from there because it was accessible. Midnight mission was estimated to be the closest for four people, whereas nine participants reported obtaining water from this shelter. Establishments like McDonald's near Washington boulevard and Daiso in Little Tokyo and public places like libraries and parks were among other facilities used to obtain water due to being accessible and not based on distance.

Lastly, in this study, participants were asked whether they have experienced a form of discrimination while unhoused as a result of their race, gender identity, social status, legal status, age, and sexual orientation. Of the sampled population, 43 percent of the sample population reported gender-based discrimination accessing services due to their race or ethnicity. In addition, 23 percent reported gender-based discrimination benefiting women, whereas 19 percent reported experiences of discrimination as a result of their age. Forty-two participants reported discrimination in access to services based on their appearance/social status of homelessness and 23 percent based on a disability. In the following section, I will dig deeper into the implication of these findings.

3.5. Interpretation of Findings

Much of the academic work recognizes that differences in unhoused communities exist, but it remains heavily underexplored regarding the nexus of WaSH insecurity and housing insecurity. While it is evident that people experiencing housing insecurity do not have safe, affordable, and consistent WaSH services, the findings from this study help illuminate that

differences among groups also exist, which may contribute to people's inability to access them in the first place. In addition, navigating through different places that may provide access to these essential services may also provide people some form of agency as they decide on what places they engage to survive on the streets. Understanding these different experiences is important to better address unmet needs and existing disparities detrimental to a person's life, health, and living environment. In this discussion, the findings are interpreted and broken into three sub-categories. Subsection 3.5.1 details the community-level differences in access to WaSH services, followed by 3.5.2 that interprets the individual demographic factors contributing to differences in access to WaSH. Subsection 3.5.3 provides a further examination of the service level factors that influence community engagement. This section concludes by noting possible study limitations.

3.5.1. Public spaces and access to WaSH services

To first understand differences in WaSH insecurity experiences, it is important to understand the role of the built environment. According to Marr, DeVerteuil, and Snow's (2009) study, in Los Angeles, there are heavily institutionalized places providing various services, including shelters, soup kitchens, and other resources that may facilitate the survival of unhoused communities. The authors also make the argument that there are places that lack access of services entirely. The findings from this study elucidate this argument by examining three communities created based on people's reported sleeping areas. Most WaSH services reported in this study, for example, were located in the community of Skid Row compared to parts of downtown and greater Los Angeles. The disparity of access to adequate WaSH services can also be seen in the number of participants (n=37) that sleep in parts outside the Skid Row boundaries and that travel during the day to access services that may not be available in their sleeping areas. The placement and lack of services may result from heavier criminalization of homelessness in

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these public environments and opposition to bring these types of homeless services into communities outside Skid Row. As a result, it forces people to commute long distances to access essential services not available in their residing communities. In addition, different local laws are in place that restrict unhoused people from building encampments, which this study elucidates based on the reported living conditions in the sample population. For instance, tent living was more prominent in Skid Row than communities outside these boundaries in greater Los Angeles. Additionally, more people reported living in shelter systems available in Skid Row. As Bonds and Martin's (2016) study argues, these forms of anti-homeless and containment laws, particularly in places outside the "Skid Rows," serve as forms of environmental injustices. They note that it is often observed when the law is selectively enforced in specific communities, tolerating homelessness and homeless services in certain city limits. This is seen with the enforcement of the Los Angeles Municipal Code (LAMC) 41.18(d) in the City of Los Angeles, that reduces the ability for unhoused people to exist in public spaces. Furthermore, the placement or lack of services in communities of Los Angeles, or lack thereof in access to essential WaSH services, also further creates public health inequities.

3.5.2. Individual-Level Differences in Access to WaSH

While community-level differences highlight the availability and distribution of WaSH services, this section further explores the individual-level that contribute to differences in WaSH access. In other words, individual characteristics and vulnerabilities can shape adaptation patterns for people living in Skid Row, downtown, or greater Los Angeles communities. Specifically, demographic factors were utilized to measure whether it contributes to people's inability to access WaSH services. First, no statistically significant differences were found among gender groups for all types of WaSH services models. Nevertheless, participants did

report experiences of discrimination in accessing services based on their gender. In some instances, unhoused men stated that it is easier for unhoused women to access certain services. In Takahashi, McElroy, and Row's (2002) and Stuart's (2015) studies, they make a similar argument. These scholars state that people have more sympathy for women. Compared to unhoused men, women with children may have greater access to services that help them exit homelessness than single unhoused women and men. However, unhoused women do suffer additional burden and violence. Older women reported visiting Skid Row to access services in the sample population but not to sleep due to safety reasons. Although not measured well in this study, women also encounter added stigmatization and challenges, particularly coping with menstrual and body hygiene. Showers and bathroom facilities are difficult to come by outside homeless shelters and Skid Row boundaries, depriving women of managing menstruation with privacy, dignity, and cleanliness, often leading to poor health outcomes (Kuo 2019; LACAN 2017).

In addition to exploring gender differences, the length of a person experiencing housing insecurity did attribute to differences in accessing WaSH services. Prolongation of homelessness, particularly experiencing homelessness for more than six years, resulted in more difficulty accessing services. This finding is the opposite of what I assumed people entering homelessness or being unhoused for less than a year would encounter more challenges due to not knowing where services are located. In the model, prolongation of homelessness resulted in more difficulty accessing restrooms and drinking water. Older adults in the models did not show statistically significant differences in vulnerability. However, it is important to highlight that they are a vulnerable group among the unhoused, precisely because they have higher rates of chronic health problems. Older adults experiencing homelessness are particularly a vulnerable group as

they may face greater obstacles. These obstacles include age discrimination or discrimination in obtaining employment or stable housing, access to public services (including a bathroom in public businesses), which may further impede their ability to transition off the streets and exit homelessness (Tompsett, Fowler, and Toro 2009). In this study, 19 to 20 percent of the sampled population reported discrimination access services experiences because of their age and disability.

The regression models only estimated that people identifying as Black or Latinx have less difficulty accessing restrooms, but no other statistically significant differences were found. However, racial disparities do exist in unhoused communities when trying to navigate access to WaSH services. First, this study found that the community of Skid Row was predominantly overrepresented Black or African American compared to communities in downtown Los Angeles that were predominantly Latinx or White. These different racial landscapes may exist due to anti-Latinx sentiments in these communities and the fact that White unhoused people are an underrepresented group in Los Angeles, compared to other communities in the state. Second, 43 percent of the sample population reported experiences of discrimination accessing WaSH services because of their race. Discrimination in accessing services is critical to highlight because it also creates disparities in health outcomes due to inadequate access to WaSH services. Lastly, Suzanne Speak's (2010) and Chinchilla and Gabrielian's (2020) studies highlight the importance of examining immigration and homelessness. Speak argues that migrants arrive in the city to reach "the American dream," yet some arrive into a situation of urban poverty, homelessness, a loss of social networks, and deprivation of services (Speak 2010). Undocumented homeless may also encounter language barriers, in addition to economic barriers, which exacerbate discrimination (Chinchilla and Gabrielian 2020). In this study, a small

percentage of participants reported being undocumented, which may be an undercount due to the constant fear of deportation as a result of their legal status. Of those that reported their status, they identified the issue of not qualifying to receive public assistance (food stamps, housing services, and Section 8), further widening the gap in exiting homelessness and gaining access to services (Chinchilla and Gabrielian 2020; Gilleland, Lurie, and Rankin 2017; Speak 2010).

3.5.3. Facility Level Differences in Access to WaSH

Examining WaSH insecurity from the perspective of unhoused communities is important because it informs us of gaps in services and unmet needs. The second study aims to measure service-level factors that contribute to people's levels of engagement with available WaSH services. Specifically, I examined whether distance or proximity to facilities played a significant role in people's decision-making when accessing WaSH services. I also examined the reported differences in reasons for accessing particular services. In this study, the findings highlight that distance is important when accessing certain, but not all, services but not. In particular, distance is an important factor in the decision-making of using restrooms in the morning and evening. In Skid Row, for example, some of the facilities that exist are predominantly non-profit service providers, with a few publicly available restrooms. Many of these facilities close early in the evening or are out of order, unclean, or unsafe to use.

Furthermore, only a few facilities are open overnight, resulting in people resorting to using their tents instead of walking to the shelter in the evening and feeling unsafe. At night-time, in particular, a person reported utilizing the public restroom from the police department because they perceived it to be safe, but this is not the norm, particularly with the often criminalization that the unhoused communities experience. In the afternoon, however, distance is less of a determining factor. There is also less reliance on using tents as places are open,

including food establishments, public libraries, parks, and non-profit organizations that may provide safely managed restroom service.

In the facility models, the usage of shelter systems to meet their basic WaSH needs was minimal in the sampled population, compared to other types of non-profit organizations such as the Refresh Spot, St. Francis Center, and the People Concern. In particular, the Refresh Spot was the most popular facility for all types of WaSH services measured, based on traveled usage numbers, facilities skipped, and preference. In further examining the success rate of this facility, people attributed to using the Refresh Spot not only because the services they provide are free of cost (e.g., laundry loads) but it provides a quality of services that makes people feel safe and dignified. Participants reported that the Refresh Spot has friendly staff, it is accessible, even when there are wait times, the services are always clean and safe. Affordability is an essential factor, especially when navigating access to laundry services. The Refresh Spot is not one of the few, if not only facilities in Skid Row that provides access to these services for free. This is important to note as a few participants reported relying on private laundromats to wash their clothes, some of which traveled further distances.

Lack of adequate WaSH services in the community leads to people embarking on coping survival strategies that are not safe and dignified. For example, walking or commuting long distances to access services, utilizing the sink of a public park to do laundry or bathe, and being forced to pay for a gym membership to access the restroom and shower amenities. Overall, there is a need to provide better and improve access to WaSH services in unhoused communities needed to combat existing health disparities.

3.5.4. Study Limitations

      While this study has contributed to filling the knowledge gap in the nexus of WaSH insecurity and housing insecurity, it is also important to identify potential pitfalls and limitations in the study. First, the small sample size in this study may have resulted in less statistically significant results, not allowing us to see more heterogeneity among unhoused populations. There were also two assumptions in the closest facility models: walking was their primary mode of transportation for people navigating to and from different WaSH services. This may not be entirely accurate as unhoused people are mobile, and some do use public transportation. However, the distance between driving and walking to a location is the same, with the only main difference being the travel time. The other assumption made in the model was that since people reported using multiple facilities, only the first-mentioned WaSH service was utilized in this study analysis which may not represent all of the daily behaviors people engage in daily. Additionally, the format of the survey questions could have improved to validate some of the demographic questions better and WaSH insecurity experiences—for instance, better-capturing gender identities, particularly for people identifying as transgender. In terms of WaSH insecurity experiences, most public spaces were not part of the analysis. People only mentioned using "public parks" or "public toilets" but did not specify an exact location. Hence, I had to limit the sample size for the closest facility analyses, including those that provided an exact name or location to a WaSH facility. In the models, only one of the many places that people utilized was explored in this closest facility measurements. Lastly, these results would have benefited from an intersectional analytical lens to include other interaction factors in the models as there may be intersectional vulnerabilities among the unhoused in gaining access to WaSH services and in the agency of choosing what WaSH services people utilize.

3.6. Conclusion

The findings from this study contribute to the existing literature gap on the nexus of WaSH insecurity and housing insecurity in Los Angeles. In this study, I argue that WaSH insecurity is experienced in a wealthy city like Los Angeles and that it is experienced differently across communities. In particular, people with more prolonged housing insecurity, the elderly, and living outside dense service areas are more vulnerable to experiences of WaSH insecurity. In addition, I provide evidence that different decision-making factors exist that contributes to the way unhoused people choose to engage with different WaSH informal and formal service providers. Distance plays a role in the way people choose to access services, but it is not the main contributing factor. Different forms of accessibility, including the perception of safety, cleanliness, friendly staff, affordability, and availability when needed, played a more significant role in the ways people engage with different WaSH service providers.

Addressing both the heterogeneity among groups of people experiencing homelessness and the quality of services in unhoused communities is important as we move forward to better addressing homelessness and people's interim needs. Specifically, we need to seek more inclusive and equitable policies that can help improve and increase access to fundamental WaSH services. Furthermore, more models are needs like the Refresh Spot that can provide more dignified, affordable, and permanent access to WaSH services to unhoused communities, particularly in communities with large encampments. Existing facilities should also consider extending their hours of operation to improve access to services throughout the day, particularly with evening time being the most challenging for unhoused people to access restroom facilities. Additionally, communities across the larger metropolitan area of Los Angeles should invest in public WaSH infrastructure that will improve access in public spaces, which can help reduce the

risk of communicable diseases and help improve the lives of unhoused communities. Overall, the results from this study shed light on the need to prioritize better providing safe, affordable, equitable, and accessible WaSH services in vulnerable communities. These types of WaSH services can improve quality of life and break existing health disparities as people wait to be connected to housing services.

Chapter 4 Identifying WaSH Service Needs in Unhoused Communities from the Perspective of Service Providers in Los Angeles, CA

In the previous two chapters, the focus was on understanding the impacts of water, sanitation, and hygiene (WaSH) insecurity from people with lived experience of homelessness. Chapters 2 and 3 both highlight WaSH insecurity experiences among unhoused communities pre-pandemic, specifically the survival coping strategies, individual-level vulnerabilities, and service-level factors that determine the usage of services. In this chapter, however, the focus shifts to examining WaSH insecurity from the perspective of service providers. The complementary views of service providers in this dissertation can facilitate the development of effective interventions needed to improve the type of services needed in unhoused communities. The structure of this chapter begins with section 4.1 that provides a brief introduction of the problem statement. This is followed by section 4.2 that reviews relevant literature. Subsequently, section 4.3 describes the data and methodology used in this study. Then section 4.4 describes the interview results, and the remaining chapter provides an analytical interpretation of the findings, concluding with future recommendations.

4.1. Introduction

In Los Angeles, 555,105 people are severely rent-burdened and at risk of being displaced from housing (Los Angeles Homeless Services Authority (LAHSA) 2020b). On average, LAHSA reports that 207 people exit homelessness each day, yet 227 are falling into homelessness each day (LAHSA 2020a). As the pipeline inflow of people entering homelessness continues to rise, it is imperative to develop effective solutions that not only focus on the provision of housing but also address interim level services needed to meet people's basic needs.

Addressing interim-level needs, in particularly, the WaSH needs of unhoused people at that transitional period (from the time entering homelessness to somebody being connected to housing services) remains heavily underexplored from the point of view of providers. Therefore, the purpose of this cross-sectional qualitative descriptive study is to understand from the perspective of service providers, the ways in which WaSH insecurity impacts unhoused communities across Los Angeles.

This chapter study explores two main research questions. The first question centers on how do service providers perceive WaSH insecurity impacts unhoused communities? The second focuses on addressing ways in which service providers can improve access to services and address unmet needs in the community. The aim of addressing these two questions is to understand the perspectives and experiences of service providers serving unhoused communities so as to inform policy recommendations moving forward. Integrating the views of service provides can help identify the types of WaSH services needed and identify different aspects of services in need of improvement, including design, staffing, quality, and distribution. This is important because ensuring appropriate expansion of effective WaSH programs in unhoused communities can improve quality of life and health, which is even more so relevant now as a result of added risks from the current SARS-CoV-2 (COVID-19) global pandemic. The following section presents the current knowledge to identify gaps in the literature.

4.2. Background

This section provides an overview of the existing literature to present different studies that contributes to the understanding of WaSH insecurity, stigmatization, and challenges in addressing homelessness. This literature background section concludes with a description of gaps found in the literature to highlights this study's contributions.

4.2.1. Water, Sanitation, and Hygiene (WaSH) Insecurity

Access to WaSH services, including drinking water, toilets, showers, and laundry services, are essential for human dignity and personal and public health maintenance. Nevertheless, unhoused communities do not have safe and equitable access to these life-sustaining services (Avelar Portillo et al., n.d.; Demyers, Warpinski, and Wutich 2017; Flannigan and Welsh 2020). WaSH insecurity experiences of unhoused people remain underexplored, particularly in high-income countries of the global North that report universal access to WaSH (Meehan, Jepson, et al. 2020). However, a few studies like DeMyers, Warpinski, and Wutich (2017) shed light on the significant barriers that unhoused people encounter as a result of WaSH insecurity in Phoenix, Arizona. In their study, DeMyers, Warpinski, and Wutich integrate the perspectives of water distributors, service providers, and people experiencing homelessness to argue that WaSH insecurity is not a stand-alone phenomenon. In other words, WaSH insecurity creates added burdens in physical and mental health deterioration of unhoused people, prolongs homelessness, and joblessness. The authors also highlight that WaSH insecurity experiences differ based on living conditions, disproportionally affecting unsheltered unhoused people that are not part of large encampments or shelter communities, as they are hard to reach by service providers or live further away from services. Flannigan and Welsh (2020) study similarly argues that experiences of WaSH insecurity are greater for those harder to reach isolated populations living by riverbeds in San Diego, California. Flannigan and Welsh argues that as a result of people being pushed to precarious living environments due to criminalization of homelessness, people are less likely to be connected to essential services. In other instances, lack of WaSH services results in open defecation practices and in people embarking in different coping survival mechanisms to access these services (Avelar Portillo et al., n.d.; Capone et al. 2018; Frye, Capone, and Evans 2019)

4.2.2. WaSH Insecurity and Stigmatization of Unhoused Communities

WaSH insecurity creates added barriers among unhoused communities as it increases forms of marginalization and stigmatization, all of which reinforces a cycle of poverty. According to Phelan, Link, and Moore (1997) a number of aspects of homelessness results in greater social exclusion aside from their poverty level, including unkempt appearance of unhoused individuals, as well as the association of negative public attitudes towards unhoused people coping with mental illness and substance abuse that adds to their stigmatization. Similarly, the work of Clifford and Piston (2017) discusses these prejudicial attitudes towards unhoused people based on their physical appearance that characterize individuals as potential "pathogen threats" that then lead to exclusionary policies and further stigmatization that impacts people's ability to exists in public spaces and exit homelessness (Clifford and Piston 2017, 506). This can be seen in anti-homeless ordinances that serve as forms of oppression and seek to remove unhoused from public spaces in order to limit their visibility and potential disruptiveness of pristine cities. (Mitchell 1997; Stuart 2015). Poor access to WaSH services exacerbates these forms of stigmatization and exclusion among unhoused communities that are unable to access essential services to maintain a certain appearance and hygiene practices (Demyers, Warpinski, and Wutich 2017; Goodling 2020; Sebert Kuhlmann et al. 2019)

On the other hand, disinvestment in permanent and sustainable solutions results in added marginalization and health disparities. This is seen in Felner et al. (2020) study that examines health inequities shaped by public perception and the built environment through the perspectives of transitional aged youth experiencing homelessness in San Diego. This study in particularly focuses on the hepatitis A virus (HAV) outbreaks that occurred back in early 2016 to late 2017 in San Diego and across the US, predominantly affecting unhoused people. The findings from this study suggest that temporary public health interventions aimed to serve vulnerable unhoused

communities reinforced stigma and marginalization. This was seen in the lack of investment to long-term infrastructure and in the placement of temporary services such as handwashing stations that help reduce the spread of infectious diseases, which were physically located in restricted geographic regions, hidden from the public eye. Similarly, a report conducted in the city of Berkeley, California highlights on this aspect of uneven distribution and placement of publicly available restrooms in parks, with most restrooms located in communities where there are no unhoused encampments (The Environmental Law Clinic (ELC) and the Environmental Justice Coalition for Water (EJWC) 2018).

4.2.3. Challenges in Addressing Homelessness

Addressing the homelessness crisis is challenging with majority of efforts solely focused on the Housing First model approach, which overlooks addressing interim-level needs for unhoused people at that transitional period. The unresolved tension between housing and non-housing services remains. Understanding these realities is vital to break the barriers of service delivery and improve the quality of existing services. While providing permanent housing leads to access to the most essential services, including WaSH access, not everyone qualifies for housing, including undocumented homeless and people with felonies (Gilleland, Lurie, and Rankin 2017; Keene et al. 2018). In some cases, fear of their immigration status or stigma around formerly incarcerated people results in less engagement with service providers (Chinchilla and Gabrielian 2020; Keene, Smoyer, and Blankenship 2018). As such, interim level needs of people, including access to WaSH services, remains unaddressed when only focusing on one-tier solutions.

Additionally, the current global COVID-19 pandemic has contributed to added challenges in addressing the homelessness crisis. While the pandemic has raised awareness of the

importance of securing access to WaSH which can help reduce the risk and transmission of infectious diseases it is also important to highlight that unhoused communities do not have safe, affordable, and sufficient access to WaSH, creating added public health and human rights challenges (Howard et al. 2020; Loftus and Sultana 2020). According to the Centers for Disease Control and Prevention (CDC), people experiencing homelessness are at a higher risk than the general population of contracting infectious diseases, including COVID-19 thus addressing the needs of these communities is imperative to reduce health disparities (Centers for Disease and Control Prevention (CDC) 2021). Additionally, the pandemic has altered the way unhoused people can access essential WaSH services due to the closure of libraries, gyms, and restaurants or coffee shops not allowing restroom use. In San Francisco, for example, a report by the Coalition on Homelessness found that unhoused people experienced added challenges during the pandemic in obtaining and access drinking water at grocery stores or restaurants because of their appearance and closure of public places (Coalition on Homelessness 2021).

4.2.4. Knowledge Gap and Study Contributions

In reviewing these studies, the current knowledge suggests that WaSH insecurity heavily impacts unhoused communities, and the provision of these types of services remains a contested arena. While these studies integrate multiple perspectives to better understand the needs of unhoused communities, this chapter will shed light on the heavily underexplored experiences of Los Angeles, a city confronted with the highest count of unsheltered unhoused people in the nation (Henry et al. 2021).While existing studies have examine the impacts of WaSH insecurity among the unhoused in other cities in the state of California (Flannigan and Welsh 2020; Speer 2016; Verbyla et al. 2021), no studies have examine this phenomenon in Los Angeles through the perspective of service providers. The study of Verbyla et al. (2021), for example, integrates

the perspective of service providers to address WaSH insecurity impacts in unhoused communities living in riverbeds in San Diego. But while this study makes significant contributions in presenting the challenges of WaSH insecurity, it does not incorporates an intersectional lens in addressing these issues. Including an intersectional lens in addressing WaSH insecurity impacts is important as it sheds light to intersecting identities of individuals and intersecting vulnerabilities (Goodling 2020). Thus the purpose of this chapter study is to understand the different impacts of WaSH insecurity from the perspective of service providers. While also identify ways access and delivery of services can be improved so as to inform policy recommendations. The following section illustrates the methodology and describes the data utilized in this study.

4.3. Data and Methodology

This descriptive qualitative study addresses WaSH insecurity from the perspective of service providers. This data and methodology section will explicate more in-depth the research design, target population, sampling strategy, data collection procedures, and analysis integrated to address the primary study research questions. The remainder of this section outlines self-reflexivity integrated into this study to situate my positionality as a researcher and in the constructed knowledge of this study.

4.3.1. Research Design

According to Creswell and Creswell (2018), a qualitative study is an inquiry process of understanding a social phenomenon or human problem. In this study, the phenomenon examined is understanding how WaSH insecurity impacts unhoused communities in Los Angeles coming from the perspective of fifteen service providers. The framework and design of this study are using qualitative descriptions to describe the perspectives, perceptions, and experiences of

service providers and community organizations serving unhoused communities. While other

major theoretical frameworks exist, including grounded theory, phenomenology, narrative, and

ethnography, to name a few; utilizing qualitative description is appropriate in this study because

the main goal is to describe the "who, what, and where of experiences" that target at better

understanding human views and behaviors (Sandelowski 2000; 2010). Additionally, it is

important to acknowledge that this study does not integrate the views from unhoused people

experiencing the phenomenon (phenomenology), it does not grounded on existing theories

(grounded theory), nor is it based on oral histories and submersion in unhoused communities and

settings (narrative and ethnography). Instead, this study focuses on using qualitative description

to gain an understanding of how WaSH insecurity affects unhoused people from the point of

view and experiences of providers that serve these communities.

Sandelowski argues that "descriptions always depend on the perceptions, inclinations,

sensitivities, and sensibilities of the describer" (Sandelowski 2000, 335). Thus, qualitative

descriptive research draws on the specific responses given by the different study participants as

analyzed by the researcher. The analysis of the data also follows a natural inquiry form that

requires no commitment to a theoretical view. Majority of qualitative descriptive framework is

typically implemented in public health research (Chafe, Harnum, and Porter 2016; Isaacs 2014;

Neergaard et al. 2009; Roudsari and Latifnejad Roudsari 2019). In the work of Chafe, Harnum,

and Porter (2016), for example, qualitative description design was utilized to improve level of

care for patients in the emergency department (ED) by medical health care providers. The

knowledge gathered from this study was then reported back to the staff in the ED in hopes of

generating sustainable solutions to improve treatment and pain management in patients

presenting in an ED setting. Similarly, qualitative descriptive approach in this study will help

describe the phenomenon from the perceptions and views of service providers and community organizations to inform policy recommendations needed to address unmet WaSH needs in unhoused communities of Los Angeles. The following section will detail the sampling and target population used in this study.

4.3.2. Target Population and Sampling Strategy

The target population for this qualitative descriptive study included providers from the public and private sector serving (in)directly unhoused communities in Los Angeles. In total, fifteen providers were interviewed, three from the public sector and twelve private or non-profit organizations. Public sector service providers included individuals from the county or local government agencies such as the Los Angeles Central Public Library and Recreation and Parks department, which indirectly serve unhoused communities through access of public restrooms and water fountains. Private sector providers included non-profit organizations who have hands-on experience directly serving and advocating for unhoused community members. Some of the targeted organizations included those who directly provide WaSH services to the community, such as the ReFresh Spot, LavaMae[x], Water Drop LA, and the People Concern. Other non-profits recruited were ones who provide WaSH services in tangential to other main continuum of care services such as Safe Parking LA who provides unhoused people access to restrooms, but the main focus of this organization is in providing a safe parking space overnight for people living in vehicles. Additionally, legal aid and housing organizations were targeted for this chapter study to provide new perspectives on housing, service design, and gaps in addressing WaSH insecurity. But also these organizations can help identify better integrative solutions that can better address the unmet needs of unhoused communities. Table 4.1 provides a list of the organizations who formed part of the sample population.

Table 4.1. List of participating organizations serving unhoused communities in Los Angeles

Name of Organization (N=15)	Service(s) Provided
The ReFresh Spot	Shower, restroom, laundry, drinking water, phone charging station, car-sharing ride
LavaMae[x]	Mobile shower and restroom
Water Drop LA	Bottled drinking water and hygiene supplies
Project Ropa	Clean clothing, hygiene kits, and water
The Laundry Truck LA	Mobile laundry
The People Concern	Shower, laundry, and restroom
Safe Parking LA	Overnight parking, restroom, social services
Skid Row Housing Trust	Affordable housing
Lorcan O'Herlihy Architects	Architectural and design services
Los Angeles Central public library	Restroom, drinking water, and social services
City of Los Angeles Recreation and Parks Department	Restroom and temporary shelter
American Civil Liberties Union (ACLU) Southern California	Free legal aid and representation
Social Model Recovery Systems	Alcohol and drug prevention and wellness
Inner City Law Center	Legal aid on tenant defense, citations
Government agency[a]	Sanitation, hygiene, and trash collection

[a]Participant did not grant permission to disclose the name of the organization

Purposive sampling was utilized for this study because the focus was to include

organizations who serve unhoused communities directly or indirectly to learn from their

perspective how WaSH insecurity the communities they serve. The type of organization

contacted were based on prior knowledge gathered from survey data collected from people with

lived experienced who reported the services and organization names they utilize (see chapters 2

and 3). Additionally, organizations were contacted based on in-depth research done online to find services available in Los Angeles, including organizations involved in homelessness advocacy, housing services, and government agencies. Prior to recruiting service providers to be interviewed, study procedures and activities were reviewed and approved by the University of Southern California Internal Review Board (IRB). Based on guidelines provided by the IRB, only adults over 18 years of age formed part of this study.

Recruitment of service providers in this chapter study was done via email and phone. However, due to the limitations provided by the current global pandemic and the "Safer at Home" emergency COVID-19 orders in Los Angeles, majority of the staff and stakeholders were working from home and were reached via email (City of Los Angeles 2021). Contact information of the different service providers and community organizations was found through a Google search engine, in their social media platforms and organizational websites. In total, thirty-five different organizations were contacted but only twenty-two responded to email inquiries. Follow-ups were sent three times before lost to follow-up. In total, fifteen service providers consented, were interviewed, and formed part of the final analysis. Sample recruitment continued until a point of saturation had been reached, in other words, when no new themes emerged from the interviews.

4.3.3. Data Collection Procedures

The data collected in this study were semi-structured qualitative descriptive interviews with service providers and community organizations between March and April 2021. All interviews were conducted via a videoconferencing platform, either through Zoom or the provider's preferred choice of video conferencing technology. The length of the interviews ranged from 40 to 120 minutes. At the time of the scheduled interview, all participants were

provided with the study objectives and consent. Fourteen of the fifteen providers consented to use the organization's name in the study findings and to digitally audio record the interviews.

An interview guide tool was utilized to conduct the interviews. The guide included pre-determined themed questions that asked service providers to describe their point of view and perceptions, particularly: (1) how do service providers perceive WaSH insecurity impacts unhoused communities? and (2) what can service providers do to improve access and usage of services? The guided tool was tested and modified after conducting two interviews. The final guide consisted of thirty-five questions, each within a respective pre-determined theme (see Appendix C). In addition to the interview guide tool, follow-up questions formed part of the data collection. These follow-up questions came naturally from conversations during the interview.

To address the first research question focusing on the way service providers perceive WaSH insecurity impacts unhoused communities, some of the topic questions included, (a) where do you believe the biggest shortage is across the different types of water, sanitation, and hygiene facilities?, (b) who do you believe are the most vulnerable groups within the unhoused community in accessing WaSH services?, and (c) how has the COVID-19 pandemic impacted access to WaSH services in the community? (see Appendix C for the complete guide).

In order to address the second research question focused on important factors to consider to improve access of WaSH services in the community, providers and community organizations were also asked: (a) what do you believe are the main barriers that prevent unhoused people from gaining equitable and safe access to WaSH services?, (b) what do you believe is one of the best ways the City has addressed the WaSH needs of the community?, and (c) what are the different types of immediate strategies and interventions that can be provided to improve access to WaSH services in the community. Due to people's time constraints and availability, questions during

the interview were prioritized based on achieving the study objectives. Additionally, memo notes were taken during and after each interview and used to compare ideas with the research team during debriefing sessions following each interview. These memos provided an additional data source, including the researcher's and research team's main takeaways from the interviews, views, and emotions.

4.3.4. Data Analysis

Figure 4.1 illustrates the analytical process for this chapter study. First, interview transcripts were exported from Zoom onto a word document and reviewed for accuracy using the recorded audio files. Each transcript was verified twice by research assistants to ensure the transcript reflected the service providers' experiences and perceptions. After cleaning each transcript and memo notes, these were imported and iteratively analyzed using NVivo 12 (version 12.6.1) qualitative analysis software. NVivo helped organize all of the text data into one place to inductively identify themes from the data. Following the cleaning and verification process of each transcript, the data organization within NVivo was arranged based on generated categories and subcategories commonly referred to as "codes." Since qualitative data are text-based, one way to analyze the data is through a textual coding process. Creswell and Creswell (2018) refer to the coding process as "bracketing chunks" of words, phrases, sentences, or the entire paragraph into categories. In this study, a codebook was generated first by using an open coding strategy. In other words, the research team read through the transcripts and identified broad categories that were salient to understanding homeless service providers perspectives. In total, 34 initial codes consisted of segments or standard references from the raw interviews. For example, a code "WaSH services" was applied to interview transcript segments that referred to

the provision of WaSH services. A final codebook was generated based on feedback provided by the research team, based on group coding and discussion activities.
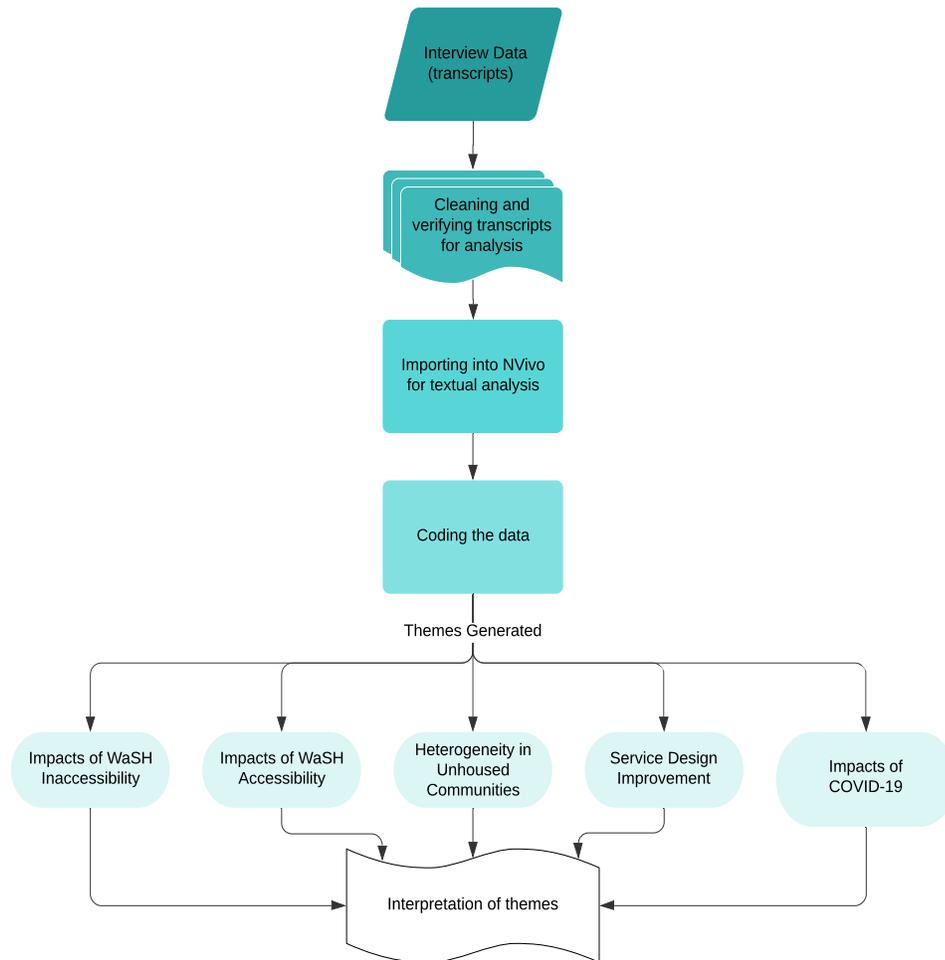
Figure 4.1. Flow chart of qualitative data and analysis.
Source: Figure adapted from Creswell and Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches Fifth Edition* (London: SAGE Publications, 2018), 192.

After all interview transcripts were transcribed and single coded, they were analyzed using thematic analysis to explore common patterns and themes related to impacts of WaSH insecurity, service design improvement, population vulnerabilities, and impacts of COVID-19.

These initial themes were re-grouped after comparing, contrasting, and sorting the codes that exemplified the perspectives and information shared from service providers. For example, an initial code category such as "impacts of WaSH insecurity" was re-categorized and re-grouped to distinguish between codes that highlight the benefits of WaSH accessibility and others that described the detriments of poor WaSH accessibility. In total five different major themes emerged from the data. The themes were revisited after receiving additional feedback to ensure completeness and high quality of transcription. The final themes that emerged from the final analysis will be discussed in detail in section 4.4 and interpreted further in section 4.5 to make meaning of the data and the phenomenon examined.

4.3.5. Trustworthiness, Validity and Reliability

To ensure the trustworthiness of the data and validate findings, prior to conducting the study, a quantitative survey study with 263 participants with lived experienced provided initial information on their experiences of WaSH insecurity. These conversations with unhoused people helped establish questions and familiarity with the subject before beginning interviews with service providers. In addition, the sampling utilized in this qualitative study was purposive to only include service providers that can offer a perspective communities they serve. The research team would also meet after each interview to discuss and further refine each set of themes, compared memo notes. To maintain reliability in the findings, interview transcripts were checked twice before coding them to ensure the text contained each participating service provider's actual and correct expressions and these transcripts re-coded after peer examination to ensure completeness in the analysis. Lastly, the findings presented in this study are considered a truthful and authentic reflection of the views and perceptions provided by participants.

4.3.6. Self-Reflexivity

To remain true to the methodology implemented in this study, it is important as a researcher to be consciously reflexive of one's positionality in the research process and mindful of how one's attitudes and beliefs make meaning and produce knowledge in this study to acknowledge any potential biases (Berger 2015). First, it is important to acknowledge my positionality in the research as a woman of color, an immigrant from El Salvador, and a person with no lived experience of homelessness. My role in this research process comes from that of an "outsider" who only has the experience of speaking to unhoused community members. However, it is also important to note that my personal and epistemological stances have largely shaped the focus of this study and allowed me to approach the study with some form of knowledge to be culturally sensitive in the ways of addressing specific topics during the conversations with service providers.

4.4. Analysis Results

The results presented in this section are based on fifteen interviews with homeless service providers. Table 4.2 provides a description of the major themes and categories that emerged from the ongoing review, refinement, and revisions in the analytical process. It is important to note that the findings presented in this section are predominantly based on responses from private-sector providers as a result of limited sharing of information from government and public based agencies. Additionally, participant responses and views were based on their different experiences, positionalities, and politics at play, including funding conflicts. The organization of this analysis section is as follows. First, this section provides a detailed description of the five major emergent themes: (1) impacts of inaccessibility, (2) impacts of accessibility, (3) heterogeneity among the unhoused community, (4) service design improvement, and (5) impacts

of COVID-19. The first three themes aim to answer the research question focused on understanding the way WaSH insecurity impacts unhoused communities from the perspective of service providers. This section concludes with a description of the two remaining themes, service design and impacts of COVID-19, that helps identify ways in which providers can improve access to WaSH services to better address the unmet needs of unhoused communities. Following the presentation of these results, section 4.5 provides a more in depth interpretation and meanings of these findings.

Table 4.2. Generated themes and descriptions presented in qualitative descriptive interviews

Research question	Major theme	Code category	Description
Question 1: How does WaSH insecurity impacts unhoused communities?	Impacts of (in)accessibility	Navigating limited access to WaSH	Recognizing the negative impacts of poor access to WaSH services
		Health deterioration	
		Social stigma and exclusion	
	Impacts of accessibility	Breaking cycle of homelessness	Recognizing the positive impacts in improving access to WaSH services
		Sustaining and protecting life	
	Heterogeneity among unhoused communities	Demographic differences	Individual level factors and intersectional identities that contribute to added vulnerabilities in unhoused communities
		Intersectional identities	
Question 2: What are ways in which service providers can improve access to services?	Service design improvement	Quality of services	Service level factors needed to address WaSH insecurity and other service needs
		Distribution of services	
		Maintenance of relationships	
	Impacts of COVID-19	Reduced access	The negative and positive outcomes that resulted from the global pandemic
		Restructure of service landscape	

4.4.1. WaSH Insecurity Impacts in Unhoused Communities

From the analysis of the qualitative descriptive data, the three strongest themes that emerged relevant to the first research question focused in addressing the way WaSH insecurity impacts unhoused communities includes: (1) impacts of inaccessibility, (2) impacts of accessibility, and (3) heterogeneity among unhoused communities. Each of these major themes contribute something different to answer this first research question. This is followed by a conclusion that ties all three themes and data relevant to answering this first research question.

4.4.1.1. Impacts of WaSH Inaccessibility

The first major theme that emerged from the data is the way inaccessibility of WaSH services impacts unhoused communities in Los Angeles. This first theme focuses on three categories including: (a) navigating limited WaSH access, (b) health deterioration, and (c) social stigmatization, all of which exemplify the detrimental impacts of WaSH inaccessibility from the perspective of service providers. First, providers describe that in the face of WaSH inaccessibility, people navigate to find ways in gaining access to these limited services. For instance, providers describe unhoused people utilize public spaces, including restrooms of parks and libraries to bathe and access drinking water. This was identified by the Los Angeles Central Library provider who expresses, "people experiencing homelessness gravitate towards public spaces, you know parks, libraries… it's pretty common knowledge they do come to libraries to try to bathe." In addition, lack of public water infrastructure forces people to navigate limited WaSH access by depending on gym memberships to obtain drinking water from fountains and access showers and restrooms. Providers also report that across the City, there are not enough WaSH services including drinking public fountains and hygiene centers. As a result of this inaccessibility to WaSH services, people walk and travel long distances to find access to these

services in more centralized service hub neighborhoods, such as the community of Skid Row. On the other hand, providers like the ReFresh Spot and Water Drop LA argue that while Skid Row has access to services, they are not enough to serve the large unsheltered population and that the community lacks in particularly clean and safe drinking water infrastructure which results in unhoused people having to travel long distances outside of the community to purchase bottled water that for many, it can be an added economic and physical burden.

Additionally, the inaccessibility of WaSH services contributes to the health deterioration of unhoused people. Service providers, for example, describe that inadequate access to WaSH services creates emotional distress. In particularly, the limited number of safe public facilities available overnight creates feelings of fear and anxiety. This is exemplified by the Inner City Law Center provider who describes, "just talking to a client I remember her saying, 'can we continue talking like I have to go use a public restroom at a park?' She just had me on the phone with her just because there was a lot of anxiety about those situations." In other words, the inability to safely access public restrooms in places like Skid Row can lead to psychosocial distress, particularly fear of sexual assault seen among unhoused woman navigating limited WaSH services at certain times of the day. The inaccessibility of WaSH services also creates public health risks in environments that unhoused communities occupy. Providers state that as a result of WaSH insecurity and infrequent municipal services, unhoused confront with constant pest infestations, which can increase their risk to infectious diseases such as typhus and hepatitis A outbreaks. The ACLU refers to this as a "state created danger" in unhoused communities. In which the poor investment in public WaSH infrastructure increases health disparities and risks of infectious diseases and other WaSH related illnesses, which is relevant with the current and ongoing COVID-19 pandemic. Furthermore, providers state that inadequate access to drinking

water, for instance results in other forms of health deterioration, such as heat sickness, dehydration, and poor medical adherence, more so prominent in the summer time. As the Water Drop LA provider frames it:

> You can survive without a shower, it impacts your health, but you can't survive without drinking water… people tap the fire hydrants and that's not clean and if not that, then they have to spend their own money on paying for gallons [of water] and especially in the hotter months…Shortage of drinking water is critical to health, especially for people that are on medications, if they are already struggling with addiction, and even aside from those health complications, just being outdoors.

Lastly, the inaccessibility of WaSH services in essence creates a cascading effect with limited access contributing to health deterioration, all of which further amplifies social exclusion and stigmatization in unhoused communities. This form of cascading effect is best exemplified by providers stating the longer unhoused people are not able to stay clean and look "presentable" to society, the more they are socially excluded from public spaces. Experiences of WaSH insecurity perpetuates social exclusion and stigmatization that unhoused people experience through the inability to maintain consistent hygiene practices and habits. The People Concern provider for example states, "when you're experiencing homelessness, one of the most common stereotypes, you know, [is that] people are smelly, people are dirty." On the other hand, Water Drop LA provider argues the reason people are not able to maintain consistent personal hygiene practices and are furthered stigmatized for being "dirty and unsanitary" by society is due to "the City that just perpetuates that and forces that upon them." Meaning that the disinvestment in water infrastructure in cities reinforces the social exclusion and stigmatization of unhoused people in public spaces. Unhoused people have irregular and inconsistent access to showers and other hygiene services needed to sustain their livelihoods. There is not enough public water infrastructure across communities in Los Angeles results in people engaging in different survival

strategies. Thus, forcing people to navigate in spaces that do not have adequate access to WaSH

services, increases their physical and mental health deterioration, all of which further exacerbates

social exclusion of unhoused communities in public spaces.

4.4.1.2. Impacts of Accessibility

In contrast to the negative impacts of WaSH inaccessibility, this second theme examines

the benefits attributed to the provision of WaSH services. Providers for example, describe the

positive impacts of WaSH accessibility in two ways: (a) breaking the cycle of poverty and (b)

protecting and sustaining life. First, providers describe that by providing access to WaSH

services, it can help in breaking the chain and cycle of homelessness, as these services empowers

people's self-esteem and motivates people to seek employment and other social services.

According to the Skid Row Housing Trust, having access to WaSH services is one of the most

basic necessities under Maslow's hierarchy of needs theory (Maslow 1943). In other words,

having access to WaSH can serve as a motivating factor, it can improve people's self-esteem and

mental health. Similarly, Project Ropa provider describes the access to clean clothes restores

people's dignity and optimism that can be pivotal in helping break the cycle of homelessness:

> You come out and you're clean you put on your clean clothes you have this you know not
> only have you restored dignity, but you have this optimism that you kind of feel like you
> can conquer the world in a way, and so within that bubble, maybe that's when you go and
> you actually look for employment, or you look for housing or you, you know you have a
> moment where you, you know you look dignified.

Access to WaSH services is also a critical component in the sustainment and protection

of life. For some providers, the ability to access WaSH services is all about protecting people's

lives, human rights, and providing people with their most basic necessities. The ACLU

organization, for instance argues the "narrative around water is necessary for life, you're going to

die, like in one or two days, if you don't have access to water…so we really need to pay attention

to people's inalienable right to water, right to life." Meaning, access to WaSH is needed to improve health outcomes in unhoused communities. But it is also connected to a broader narrative that access to these services are human rights that are essential to sustain life and daily activities. Similarly, providers such as Water Drop LA who discusses that "providing water infrastructure is less so about encouraging homelessness and more so about protecting life." In other words, contrary to the social misconception that providing services encourages homelessness, access to these stop-gap WaSH services instead helps sustain people's ability to survive while being unhoused. Furthermore, the access to services helps protect unhoused people's health during periods of time that they are living at their most vulnerable.

4.4.1.3. Heterogeneity Among Unhoused Communities

During the interviews, it also became evident from service providers' perspectives that certain groups among the unhoused are more vulnerable than others. The third emergent theme in this study is the existing heterogeneity among the unhoused. In other words, a person's identity can attribute to an added form of vulnerability and marginalization, on top of being unhoused, particularly in accessing services. Based on providers perspectives, two categorizations emerged from the data: (a) demographic characterization differences, and (b) intersectional vulnerable identities. Table 4.3 highlights the main characterizations mentioned in the interviews.

Table 4.3 Characterization of marginalized identities among unhoused communities

Characteristic	Category	Description
Gender	Women and transgender people[a]	Victims of violence
		Prolonged trauma and distrust
		Underutilization of services

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Table 4.3 Continued

Characteristic	Category	Description
Time of housing insecurity	Non-chronically unhoused (less than 12 months)	Unable to qualify for housing
		Underutilization of services
	Chronically unhoused (more than 12 months)	Health deterioration
		Struggle with disabling conditions
Age	Elderly	Victims of violence
		Cope with chronic illnesses
		Struggle with disabling conditions
		Higher risk of homelessness
Ability status	Person with a disability	Underutilization of services
		Victims of violence
		Health deterioration
		Higher risk of homelessness
Race	Black/African American and Latinx/Hispanic	Racial discrimination
		Overrepresentation
Immigration status	Undocumented	Language barrier
		Unable to qualify for services
		Underutilization of services

[a]While transgender women and men are a marginalized group among the unhoused as shown in existing literature, in this study they are not well measured and documented in this study. Of the fifteen providers, only three highlighted the needs of people that identified as transgender. But it is worth including in this table as transgender individuals experience stigmatization and high risks of poverty and unstable housing (Fletcher, Kisler, and Reback 2014).

Note: While these were prominent characterizations of marginalized identities service providers reported, these are not the only identities unhoused people occupy. Other identities, including sexual orientation, living conditions, history of incarceration, and other factors not examined are important to also consider when examining intersectional vulnerability among the unhoused.

The first categorization that emerged from the data is demographic differences among the unhoused community. This refers to the different marginalized identities that unhoused people occupy. Service providers in particularly, identified gender identity and time a person experiences homelessness to be the two most prominent factors of marginalization and vulnerability. In terms of gender identity, majority of service providers (N = 10) report unhoused women to be the most vulnerable group among the unhoused. Providers argue women are more vulnerable because they are often victims of abuse and physical violence, both in unsheltered and sheltered living conditions. Due to the amount of violence and trauma women experience, providers like LavaMae[x] describes, "it takes a lot to bring women [to use our services] because there is just less trust, because you know getting naked in the shower trailer and by taking a shower is a very vulnerable thing to do." Meaning that based on added trauma women experience while being unhoused, both their gender identity and lived trauma becomes a barrier in trusting and utilizing available WaSH services. Similarly, some service providers highlighted that temporary emergency housing programs are spaces where women also experience high levels of sexual assault and abuse. The ACLU organization, for instance shares the experiences of their clients by stating, "when women only are given the option between living unsheltered or being in a shelter, that puts an enormous amount of power in the hands of shelter staff because they can always threaten women with eviction, [and] the streets are dangerous so women will put up with sexual harassment. There is also very little oversight in the shelter system." Thus these places that are aimed to serve and provide a safe shelter for unhoused people overnight become places where trauma and violence is perpetuated and reinforced, particularly for women and other marginalized groups.

While majority of service providers identified women to be a particularly vulnerable group among the unhoused community, three providers suggest that being an unhoused women can actually be a protective and advantageous identity. One provider in particularly claims that when it comes to utilizing services, women have an advantage over men because "sometimes a male can come off as being intimidating as opposed to a young lady." Meaning that there often is less compassion and more stigmatization for an unhoused male compared to a woman. Another provider argues that women, in particularly women with children are often prioritized in housing entry systems as opposed to single males, the dominant group among the unhoused community. Furthermore, the vulnerability and differences of access to services based on gender identity are not black an d while. Violence between men is commonly seen on the streets, particularly between territory and intimidation, with men who are new to an area or look less intimidating are subjected to bullying while being on the streets. This type of violence between male to male is often seen by Project Ropa provider who discusses:

> We do see some men who are either new to certain areas and there's a lot of like people who are like this is my area, kind of vibe to it, like so someone new we've seen like will come into an area not aware of like what the situation is with whose area is might be, and we've seen fights because of that, and it's usually skinnier men, who are being bullied by just more intimidating looking men.

The other major categorization that service providers identified to be a vulnerability for unhoused people is the duration a person experiences homelessness. Some service providers highlight that a person experiencing chronic homelessness also cope with chronic illnesses and health deterioration. Project Ropa provider, for example explains, "you'll see a deterioration because we've like at the St Francis location we've been there for four plus years so I've seen certain people kind of the change in them over the course of four years. Not only mentally but physically." The same provider argues that for people who are entering homelessness, it can be a

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vulnerable point in their lives, in particularly "harder for people who are incarcerated and that are used to a prison system, as that's kind of a vicious cycle, you could be homeless and not have a record and then you stay homeless and you're going to get a record, you know just from something silly. And once that happens, like yes, most people are not going to hire you." Meaning that criminalization of homelessness not only reinforces a cycle of poverty but also prevents people from exiting homelessness and qualifying from services. Furthermore, providers argued that for people who are not chronically unhoused, it can also become a barrier in terms of qualifying for housing services and access to other resources. Safe Parking LA provider, for example explains, "the homeless sector is really made up of a system and it's called the Coordinated Entry System" mandated through LAHSA. This is a common universal assessment tool used to triage unhoused people in order to connect the most vulnerable and at risk of dying on the streets to supportive services, including housing. Safe Parking LA provider describes that "when you complete the assessment your scaled from you know zero to I think sixteen. The higher you are, the more vulnerability you have and the more access to resources that exists. When our clients are assessed with this assessment, they're scoring very low [because] this is the first time that they're homeless." Meaning that when people are for the first time experiencing homelessness and not chronically unhoused (more than a year consecutively), it disqualifies them from access to supportive services, including housing that can help them exit homelessness. Other providers like Water Drop LA also argue that for those people first timers, it is an added vulnerability as they may not know where services are available resulting in an underutilization of resources.

Another main demographic factor identified by service providers is age. In particularly, senior adults was a common group identified among all service providers to be a vulnerable

group experiencing homelessness. According to Safe Parking LA, "we're seeing the most of is seniors, we have a lot of clients that are 70-75 years old and they're living in their vehicles…folks don't have savings and are living on very low income with social security." Meaning that the elderly, particularly, low-income seniors are at risk of becoming unhoused, and once they enter homelessness, may not know where to go to seek for services and experience chronic health deterioration. In addition, people coping with disabilities is another vulnerable group among the unhoused. Providers argue that for people with disabilities, it can be particularly difficult to consistently access WaSH services and engage on personal hygiene practices. This is exemplified by ACLU's who describes, "the most vulnerable people are frail older adults. People dependent adults, which would be people with disabilities, they have to depend on others to engage like activities of daily living, like toileting or showering." In other words, adults struggling with a disabling conditions and chronic illnesses can become a barrier for them when conducting daily personal activities. Often depending on others to help with obtaining drinking water or bathing. Additionally, people coping with disabilities also limited by whether facilities are at close proximity to them and can provide services that are accessible to meet their basic needs.

Lastly, race and ethnicity, and legal status were other demographic characterizations of vulnerability among the unhoused. While surprisingly not a major factor reported, five providers highlight that race becomes a vulnerability factor for specific people, particularly for Black and Latinx communities that often experience discrimination against on the streets and when trying to access services. LavaMae[x] provider for instance states, "Black people in LA County are only 8 percent of the [general] population, but they're 34 percent of people who are homeless, so that's a huge disproportion." This provider alludes to the systemic racism that exist in communities and

that plays a role in the access to services available to serve these communities. In other instances, providers argue that race can be a protective factor depending on the location. For instance, a provider mentioned that in Skid Row, race can become a protective factor if you are the dominant race but a vulnerability if you are the minority. At the same time, a person's legal status can also become a barrier and vulnerability for unhoused people. Water Drop LA, for instance explains that undocumented unhoused people have trouble gaining access to housing stating, "no systems will support you and that no people, no shelters will take undocumented folks and … the only way that we've been able to support people in those situations is by connecting them to [our] personal network." In other words, a person who is both undocumented and unhoused encounters more barriers in exiting homelessness and in existing in public spaces that criminalizes them for their citizenship status.

In digging deeper into these demographic vulnerabilities from service providers perspectives, it was noted that these are not singular, rather unhoused people occupy multiple intersectional vulnerable identities. These intersectional identities are observed when examining gender and duration a person experiences homelessness. In particularly, elderly women with a prolonged time experiencing homelessness is a critical marginalized group among the unhoused. For example, the Water Drop LA organization states, "single women who struggle with mental health or with physical disability are especially targeted because they don't have any means of defending themselves." Similarly, Project Ropa describes the prolonged duration of people experiencing homelessness results in higher risk for chronic and disabling health conditions as one of the few women clients they serve progressively became blind. Project Ropa describes this added form of vulnerability stating, "being blind is a whole separate thing and being a woman, you know that's completely vulnerable you're literally dependent on everybody now." These

intersectional identities create further barriers for women, living in unhoused conditions and coping with disabilities to navigate access to services but also in exiting homelessness because they are not able to work and pay rent, forcing them to live on the streets exacerbating their health deterioration.

Other intersectional identities that emerged from the data is duration a person experiences housing insecurity and coping with a disability or a non-citizen status. Providers such as Safe Parking LA for example state, "it's a lot faster if they are chronically homeless and suffering from mental illness, suffering from substance abuse" to be connected in the coordinated entry system to access services. In other words, people that have less than two years experiencing homelessness and that do not have chronic illnesses are less likely to quality and be prioritized in permanent and supportive housing programs. At the same time, providers like Water Drop LA shed light to struggles for new arrivals, particularly undocumented unhoused families and individuals that "don't speak the language, don't know where to go, are fully disoriented and then there's also a significant amount of anti-Latinx sentiment that's on Skid Row." Legal status and first timers experiencing homelessness contributes to added vulnerabilities in accessing services and surviving living on the streets.

4.4.1.4. Research Question 1: Impacts of WaSH Insecurity

In examining each of the three major themes discussed above, impacts of inaccessibility, impacts of accessibility, and heterogeneity among the unhoused, different characterizations of WaSH insecurity impacts emerge. For one, these themes reveal that WaSH insecurity impacts people's mental and physical health, exacerbates social exclusion due to the inability to maintain consistent hygiene practices, and reinforces cycle of poverty. But these impacts are experienced differently among the community with providers highlighting that vulnerable groups exists

among the unhoused and while providers did not explicitly address the multiple intersectional identities unhoused people occupy, these issues emerged and became obvious during the thematic analytical process. In particularly, providers identified that elderly women coping disabilities and undocumented people experiencing homelessness for the first time are the most vulnerable in accessing services. Second, understanding these three themes also highlight the importance and need for safe spaces and improved access to services for vulnerable groups that remain underserved, particularly services catering for the elderly, women, and undocumented unhoused people. Lastly, from these themes we gather the importance of addressing interim level services to improve the living conditions and health of unhoused communities while also break a cycle of poverty that is reinforced with the inaccessibility to essential services.

4.4.2. Improving Access to Services

In the analysis of the data, two additional themes emerged relevant to addressing the second research question focused on what can service providers do to improve access to WaSH services. These two major themes includes: (1) service design improvement and (2) impacts of COVID-19 pandemic. These two themes describe the importance of creating intentional services that better cater to the different needs of the unhoused community, while also acknowledging existing challenges in the face of the current global pandemic. Following the description of these two major themes, this subsection concludes with a summary that connects these themes together to provide the answer to the second research question.

4.4.2.1. Service Design Improvement

In this study, providers identified service design improvement as a major factor to integrate in order to improve delivery of service to unhoused communities. Providers in particularly identified three key areas where improvements are needed including: (a) quality of

services, (b) distribution of services, and (c) maintenance of collaborations. The first area providers highlights needs improvement is the quality of existing programs serving unhoused communities. Different providers highlight that quality of services can be improved through community engagement to from relationships, build rapport, and receive input to better know the types of services people need and will actually utilize. The ACLU organization for example, argues about the importance of community engagement is to ensure unhoused people utilize the services that providers can offer. A lack of community engagement results in poorly executed interventions and ineffective services that people do not end up engaging. Water Drop LA provider for instance, argues "the City installed fountains, they dropped them across Skid Row in parts that are not densely populated and then didn't do outreach to actually tell people that they're allowed to use them." These fountains Water Drop LA describes are also not properly maintained resulting in people distrusting using these water fountains due to their cleanliness levels and not located in the proximity of encampments. On the other hand, when the community is involved in the design of services, it can lead to effective programs exemplified by the success of the ReFresh Spot, a community based advocacy project that included the voices and opinions from the community and that now provides access to 24-hour run WaSH facilities.

Improving the quality of services aimed to serve unhoused communities also requires the re-design and de-institutionalization of existing and future services. Providers highlighted that improving access to services requires a shift in the design. What this refers to is that in communities like Skid Row, shelter systems are often times reminiscent of "prisons" and "institutions" that historically were designed only to service men. According to Lorcan O'Herlihy Architects provider, some of the shelter systems that provide publicly available WaSH services are also "consistently are out of service" or have "open shower systems" that lack

privacy and reminiscent of institutionalized systems that discourages people from using them because it may be reminders of places they want to escape.

In contrast, the ReFresh Spot provider explains that involving and engagement with the community led to a more humane design process of the services they currently provide to the Skid Row community. For instance, the ReFresh Spot has greeters at the entrance of their facilities to make their guests feel welcome and "have the option to check their bicycles or large belongings…so that way they know their things are being held safely, while they're utilizing the services." The ReFresh Spot is also currently working towards developing women-only service hours to create safer spaces for women, a predominantly vulnerable group as mentioned in the first research question of this study. This is significant as in Skid Row there is only one organization (currently Downtown Women's Center) solely focused in providing women with services Furthermore, the ReFresh Spot, continues to be intentional with the way they serve the community by partnering with a ride sharing company to provide free and safe access to transportation to unhoused people, particularly helpful for people coping with physical disabilities and that need to constantly visit the doctor or commute to places. Similarly, Laundry Truck LA acknowledges that WaSH insecurity experiences affect women and families differently and as such the organization is working towards expanding their services to reach these vulnerable populations. Other mobile hygiene service providers also acknowledge language barriers and have modified the design of communicating to the community with some even translating flyers with information in other languages to break the language barriers that exist among some unhoused groups, particularly newcomers that are not aware where services are located.

In addition, service providers describe that design improvements are needed in the distribution of services across communities. In other words, there are service providers that are predominantly serving the community of Skid Row whereas others shy away from serving encampment areas and prefer to work in a collaborative manner with established organizations often located outside Skid Row. The Laundry Truck LA provider, for instance describes, "it's a little bit challenging at the moment because some of the encampments are dangerous and right now it's just a little bit, just a lot of things happening in that community [Skid Row] but anyway, that is my goal for the year and we will we will figure it out. We are right now in mostly on the east side and in downtown…servicing shelters and a combination of shelters and Project RoomKey sites." Thus for providers like Laundry Truck LA and other mobile hygiene providers, the distribution of their services are facilitated on safety measures, and other logistics including working with other providers that have already establish operations and can access drainage and water connections to provide their services.

The building of partnerships is also another pivotal strategy for improving delivery of services in unhoused communities. Providers such as Project Ropa explains the distribution of their services is intentional by stating, "with our mobile van, we're always in tandem with mobile showers, and so that's intentional…if you're taking a shower and you go back into your dirty clothes it defeats the point of the shower." In other words, the building of partnerships between providers is intentional in helping fill gaps in continuum of care services. In particularly, the provision of WaSH services becomes an additional service, auxiliary service for the community. Similarly, the ReFresh Spot partners with different organizations on site to fill gaps in services and to reduce transportation barriers by collaborating with legal clinics, needle exchange programs, and ride sharing companies. Safe Parking LA is another provider that not only

provides people living in vehicles with a safe space to park and sleep overnight, but also works with mobile hygiene services, libraries, and gyms to connect their guest to WaSH services overnight. The building of partnerships to distribute and fill gaps in services, however, is often challenging as experienced by the public Central Library of Los Angeles. Faced with opposition, the public library employee describes, "the downtown business improvement district was not happy with having LavaMae[x] at the library. They felt like we were going to draw people in from Skid Row that they didn't want there. which frankly made me, really, really upset. Very short sighted that particular group." This added challenges providers are confronted when trying to build partnerships alludes to problematic policy of containment and preventing expansion of services outside of Skid Row boundaries.

Lastly, service providers highlight the importance of maintaining relationships with the community to improve access to services. This refers to not only engaging with the community as mentioned earlier, but in preventing disruption of formed relationships. Specifically, providers describe that encampment sweeps are an example of a disruption of already formed relationships and connections between services providers and unhoused people. Ten of the fifteen providers mentioned that encampment street sweeps displaces people, causes people to further distrust systems, and disrupts people's access to mainstream services. Project Ropa, as an example highlights, "the City got rid of the encampments on the [Echo Park] lake, before that, we were serving 40-50 people…[now] it went down to 25 or so." In other words, street sweeps disrupts the formed connections between providers and the community. Additionally, LavaMaex provider argues, "when people are worried about their belongings and they're worried about people throwing their stuff away, they don't want to come, have access to showers because they want their stuff." This suggests that encampment sweeps disrupts people's abilities to access services

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due to induced fear of losing their belongings and needing to constantly protect their living spaces. In other instances, providers highlight the maintenance of relationships can be improved by diversifying the workforce and connecting with people at a human level to build rapport with the community. LavaMae[x], for instance, recommends for outreach workers and government agencies to diversity their staff to connect better with the communities they serve by stating, "that's really important to have somebody you can trust that looks like you."

4.4.2.2. Impacts of COVID-19

The recent global pandemic has also attributed to added resource stress and scarcity in unhoused communities which leads to the last theme in this study, impacts of COVID-19 pandemic. Service providers interviewed indicated both positive and negative impacts of COVID-19. First, the positive impact attributed to the pandemic has been the increased attention towards the importance to provide access to WaSH and has even forced organizations to be more creative in how these services are provided during a pandemic. LavaMae[x] provider reports, "do it yourself hand washing stations was born out of COVID, so it was an opportunity for us to be more creative and an opportunity for us to see how we can make access more accessible." At the same time, during the pandemic, public health organizations have made it clear that access to hygiene is a critical way to prevent the spread of the virus, thus important in improving access to WaSH services across vulnerable communities. These changes of attitude are also reflected in the Skid Row Housing Trust provider who describes, "the heightened hypersensitivity didn't come until COVID hit into where we have this concern now of whether folks are getting adequate water, adequate hygiene." In other words, WaSH insecurity has existed prior to the pandemic, but this public health crisis has increased awareness that those communities with less access to WaSH may have the most acute effects and thus important to address unmet needs of

people. The Recreation and Parks department provider also explains that as a result of the COVID-19 pandemic, they extended their hours of operation to address unmet needs. A similar expansion of hygiene services was seen in Laundry Truck LA provider that they received added support from the City to serve shelters and Project Roomkey sites to fill gaps in access to WaSH services during the pandemic.

While the COVID-19 pandemic raised awareness to the WaSH insecurity experiences of unhoused people, providers argued that for the most part it negatively them (service providers) in delivering services and the unhoused community in accessing them. For example, the pandemic caused a reduction of services available in the community through the closure of spaces such as libraries, restaurants, gyms, and other facilities that unhoused people typically resort utilizing to obtain their daily WaSH needs. The Water Drop LA provider states, "the missions [taped off their] water fountains" at the start of the pandemic to reduce risk of infection transmission. This severely restricted access to drinking water in a community with already confronted with scarce facilities. Similarly, LavaMae[x] provider states that at the start of the pandemic, "a lot of them initially didn't know what was going on. Initially during COVID, they just knew everybody was off the streets and because we went out and we were like what's going on? Can you get this? They're like no, we can't even get can we get some water like we can't even get water out here." The pandemic resulted is an abrupt disruption of access to WaSH in communities that already faced with so much deprivation, causing added trauma on top of the trauma experience while being unhoused. While some services were forced to reduce the capacity of services or shut down completely, the People Concern provider reported that they had to re-adjust their program to be able to continue to provide services to the community and was the only hygiene center available 24-hours in the community of Skid Row at the start of the pandemic.

4.4.2.3. Research Question 2: Ways to Improve Access to Services

To answer the second research question of this chapter study, focused on what can service providers do to improve access to services, two major themes emerged, service design improvement and impacts of COVID-19. For starters, these two themes reveal that the delivery and access to services can be improved through community engagement, de-institutionalization of services, and building of partnerships. Addressing these factors are crucial in facilitating the process of properly designing services that are both effective and utilized by the community. Some of the providers interviewed in this study are working to restructuring their services to allocate to serve vulnerable groups, including allocating women-only hours in order to provide safe spaces for unhoused women to access services. Providers also highlight that improving access to services requires creativity during times of a global health crisis and strong partnerships to work in tandem to fulfill continuum of care services needed in the community. Furthermore, improving access to services requires for decriminalization of homelessness and shifting away from encampment sweeps that result in disruptions of community-built networks and access to fundamental services.

4.5. Interpretation of Findings

In this descriptive qualitative study, the perspective and views of fifteen service providers are examined to better understand the way WaSH insecurity impacts unhoused communities and where is room for improvement in the provision and delivery of services. While majority of the views presented in this study come from private sector providers, the findings remain significant in raising evidence to support the need to improve access to WaSH services. From the five themes that emerged from the data, this discussion section begins with a contextualization of the findings that supports the first research question focused on impacts of WaSH insecurity. This is

followed by a discussion on the implications of service improvement. The discussion ends with informing policy recommendations and addresses the study limitations.

4.5.1. WaSH Insecurity Impacts in Unhoused Communities

In addressing the first research question focused on understanding the impacts of WaSH insecurity in unhoused communities from the point of view of service providers, three main themes emerged from the data. These three themes includes, impacts of inaccessibility, impacts of accessibility, and heterogeneity. In examining these three themes, findings from this study suggest that impacts of WaSH insecurity experiences among the unhoused may differ greatly based on individual-level characteristics. These individual level characteristics unveils the diverse struggles and vulnerabilities of unhoused people. In other words, unhoused people occupy multiple marginalized identities based on their gender identity, duration a person experiences homelessness, age, disability status, race, and citizenship status among other identities of difference. This is seen in existing studies that highlight the intersectional vulnerabilities of unhoused communities (Goodling 2020; Lurie, Schuster, and Rankin 2015; Otiniano Verissimo et al. 2021). In Goodling (2020) study, for example, using a national survey with unhoused commuity representatives, examines the cycle of criminalization that pushes unhoused people into hazardous spaces, highlighting that sweeps exposes people to hazards that are magnified based on people's identities. Similarly, Otiniano Verissimo et al. (2021) examines the intersectional vulnerabilities of unhoused communities using national surveys conducted with housed adults across the US. This study argues that that unhoused communities experience intersectional discrimination, particularly communities of color including, Black, Indigenous, and Latinx communities that not only have a higher risk of experiencing homelessness but have added challenges in accessing services and in exiting homelessness (Otiniano Verissimo et al.

2021). While these studies have focused on addressing intersectional vulnerabilities among the unhoused, this is one of the first to connect these issues with WaSH insecurity experiences in Los Angeles, an area that remains incredibly underexplored yet has one of the highest counts of unsheltered unhoused people across the nation (Henry et al. 2021). The findings from this chapter study also integrates the views and perceptions of service providers that have experience serving the unhoused community with the community and have seen the added challenges imposed by experiences of WaSH insecurity in the City.

In further understanding the impacts of WaSH insecurity, it is important to dig deeper into these intersectional vulnerabilities that impacts the way unhoused communities gain access to services and impacts their ability to exit homelessness. Goodling's (2020) work, for example exposes the exponential burdens for vulnerable groups, including the elderly with disabilities, women, transgender people, and people of color using the perspective of unhoused community leaders and grassroot organization. Goodling (2020) findings suggest that street sweeps results in elderly people with disabilities being at risk of losing their belongings including walkers and wheelchairs, contributing to added challenges in accessing WaSH services due to limited mobility (Goodling 2020). Similarly, providers in this chapter study highlight the vulnerability elderly unhoused people encounter, from risk of physical abuse, health deterioration, and inability to access services due to physical and mental health disabilities. In San Francisco, a report by the Coalition on Homelessness found added challenges during the COVID-19 pandemic for unhoused people to access drinking water at grocery stores or restaurants because of their appearance (Coalition on Homelessness 2021). This report highlights for older adults coping with physical impairments, fetching for water is a challenge due distance constraints and fear of losing their belongings in the process of commuting to access WaSH services (Coalition

on Homelessness 2021). In Los Angeles, the elderly is a growing group among the unhoused and addressing impacts of WaSH insecurity can ameliorate the added barriers this vulnerable group encounter to access services.

In addition to age and disability status vulnerabilities, unhoused people's access to services is impacted based on their gender identity. This is also evident in the work of Sommer et al. (2020) for example, that integrates the perspective of both people with lived experience and key informants to examine the impacts of inadequate access to WaSH services among unhoused women in New York City. This study suggests that WaSH insecurity results in women experiencing added stigmatization, particularly when managing their menstrual cycle, amplifying social exclusion due to not being able to feel and look clean (Sommer et al. 2020). In reviewing this study, commonalities are found with this chapter findings. While service providers did not highlight the challenges for unhoused women to manage their menstrual cycle, providers did argued that women do encounter added barriers from being victims of sexual assault that results in a distrust of systems of care, to women developing chronic health conditions that further impairs their ability to exist homelessness. These vulnerabilities are seen in Hanley et al. (2019) study that examines the perspectives of unhoused undocumented women in Toronto. Hanley et al. argues that migrant women with disabilities have a risk of experiencing homelessness, and once they are unhoused they are faced with added barriers when developing chronic health conditions that reinforces a cycle of poverty (Hanley et al. 2019). The added trauma and level of distrust that women develop while experiencing homelessness it is also seen in the work of Vickery (2018) that argues women coping with mental illnesses are a vulnerable population to serve due to the extended physical abuse and violence they experienced while living without a roof, making it difficult for women to seek services. These layers of vulnerability are

exemplified in this chapter findings with providers reporting that it takes great efforts for

unhoused women to trust service providers. As a result of this level of distrust, findings from this

chapter study suggests that WaSH insecurity diminishes people's mental and physical health and

can lead to a person experiencing long-term homelessness. The prolongation of homeless is seen

in the work of DeMyers, Warpinski, and Wutich (2017) in Arizona that highlights the views of

people with lived experience and key informants to argue that WaSH insecurity reinforces a

cycle of poverty. Thus it is important to address the multiple marginalized identities of unhoused

people because they unveil the unique disadvantages and disparities in not only exiting

homelessness but also in accessing services compared to people with a single marginalized

identity.

In contrast to the marginalization that unhoused women experience, undocumented men

that are non-chronically unhoused is also another group important to highlight in this discussion.

While unhoused women with multiple marginalized identities are the most vulnerable, men that

are experiencing homelessness for the first time and are undocumented also encounter

challenges. In particularly, undocumented unhoused men have added barriers in accessing and

qualifying for federal subsidized services, including housing. For new arrivals, there is also a

language barrier and lack of knowledge where services are located that results in underutilization

of services. This can be seen in the work Chinchilla and Gabrielian (2020), that integrates the

perspective of service providers in Los Angeles to highlight the compounded marginalization

that unhoused immigrants encounter in seeking services, intersecting with language barrier, fear

of deportation due to their legal status, and discrimination. Vickery (2018) through the lens of

people with lived experience and key informants, also emphasizes the added barrier

undocumented unhoused people encounter in Colorado. In particularly, this study acknowledges

undocumented unhoused people underutilize services as a result of fear of deportation, lack of knowledge of service availability, and discrimination encountered in less diverse cities. In this chapter study, providers serving unhoused communities also shed light to similar discriminations that Latinx unhoused communities experience, resulting in race becoming a vulnerable or protective factor for unhoused people depending on where they reside. For immigrants experiencing homelessness, Skid Row is a community where they fear violence and experience discrimination whereas a non-immigrant unhoused person may feel more protective in Skid Row. Both Goodling (2020) and Otiniano Verissimo et al. (2021), however provide a contrasting view in their respective studies, arguing that unhoused people of color, particularly Black unhoused people experience disproportionate levels of discrimination and different forms of survival mechanism as a result to services available to them. Goodling's study is the only one that provides both the perspective of community organizers and grassroot organizations across the US, whereas Otiniano Verissimo's study surveys the perspective of housed people across the US. That being said, depending on the location to which a person finds themselves experiencing homelessness, race plays a protective role whereas for others, race becomes a marginalized and vulnerable identity.

All in all, the three themes generated from this study emphasize that WaSH insecurity impacts unhoused communities through health deterioration, increasing stigmatization, and reinforcing a cycle of poverty. However, these impacts are experienced differently. Therefore, taking into consideration an intersectional framework is important in understanding that heterogeneity exist among the unhoused. Homogenizing unhoused groups erases and obscures the various converging identities that interact and intersect to create systems of marginalization or privilege (Crenshaw 1991; Goodling 2020; Vickery 2018).

4.5.2. Improving Access to Services

　　To address the second research question in this study focused on ways service providers can improve access to services, it is important to highlight the historical design pattern of services in Los Angeles that are not only increasingly institutionalized facilities but also were built to predominantly cater a transient male population (Geoffrey Deverteuil 2003; Moore Sheeley et al. 2021; Stark 1994). As a result, some of the services are not designed to properly address all of the needs among unhoused community members, including women, families, and people with disabilities. In thinking of service design improvement, several service providers stated that engaging with community members has facilitated the process of properly designing services that are highly utilized and effective. Other providers are working towards breaking language barriers that exist among some unhoused groups, particularly newcomers that are not aware where services are located.

　　Aside from some service providers paying attention to addressing the needs of vulnerable subgroups among the unhoused, findings from this study also suggest that the distribution of services plays an important role in improving access to services. The current COVID-19 pandemic has highlighted the importance of having WaSH access to protect people's health and disease prevention (McDonald, Spronk, and Chavez 2021). This raised awareness contributed to the start-up of community driven projects such as Water Drop LA non-profit organization to provide people with much needed access to potable drinking water, a major scarce resource throughout Los Angeles's unhoused community. At the same time, COVID-19 has also impacted how service providers can deliver essential services to unhoused communities. Therefore, providers in this study shed light to the importance of partnerships in order to fill gaps of services in unhoused communities. Providers in this chapter study highlight that the existing distribution of services is mediated through formed partnerships that allows unhoused people to

gain access to multiple services in one place, but these may be limited in number due to funding constraints and opposition from housed communities. In DeMyers, Warpinski, and Wutich's (2017) study in Arizona, for example highlights the constraints service providers have when serving unhoused communities. This study argues that service providers are limited in the ways they can operate, being less likely to visit encampment areas that are hidden due to being perceived as dangerous. This limits the capability of expanding access to essential services in hard to reach communities that live increasingly further away as a result of encampment sweeps as seen in Goodling's (2020) study discussed earlier in this discussion. Goodling's study also examines this aspect of accessibility to services, in particularly the author argues that forced displacement of unhoused people from public spaces and public eye results in people living in places that may be dangerous and or far from public water fountains and businesses that provide publicly accessible restrooms and donate water (Goodling 2020). All in all, the redesigning of services that not only integrates the diverse needs of the community but are also intentional in the way they operate, can help improve the level of quality and care that is provided to unhoused communities.

4.5.3. Policy Recommendations

The findings from this study underscores the importance of not only increasing access to WaSH services in unhoused communities but also in addressing service needs through an intersectional lens. In thinking of potential policy implications, first it is important to ensure the is a less fragmented system of care available to unhoused communities. As the findings from this study demonstrate, access to services can be improved through partnerships and increased collaborations between providers at both the public and private sectors. Guerrero, Henwood, and Wenzel (2014), study instance, integrate the perspective of multiple stakeholders in Los Angeles

to emphasize the importance of integrated care and access to housing in order to improve health outcomes in unhoused communities. Similarly, in thinking of redesigning care systems, particularly focused on providing WaSH services, it is critical encourage collaborations among service provides and government agencies to transfer knowledge, skillsets, and coordinate of care to effectively delivery services tailored to the diverse needs of unhoused communities.

It is also critical for continuum of care systems to recognize the right to WaSH. This is important as it can help fill gaps of existing services and help advocate for the expansion of more permanent and sustainable solutions, including water infrastructure needed in communities like Skid Row and across Los Angeles. While majority of the continuum of care in Los Angeles is focused on the delivery of housing and other specific needs, this study provides evidence that highlights the importance to also consider WaSH needs of unhoused communities as it perpetuates a cycle of homelessness and health deterioration. Hale's (2019) study highlights the problems with public water infrastructure in cities across the United States. Through integrative perspective of water experts, activists, and people experiencing homelessness, Hale's study suggests that it is not just about the expansion of water infrastructure but also in ensuring that unhoused people can access these services (Hale 2019). In Los Angeles, water infrastructure in unhoused communities tends to be temporary, as seen in the provision of public drinking fountains, often only a few placed in Skid Row and available in the summer time where there is a spike in temperatures (Hale 2019; Kanbarian 2020; Roy 2016). The problem with such type of temporary solutions is that there is no accountability, often lacking maintenance, and becoming unusable for the community. Similarly, unhoused communities lack access to overnight public restrooms and other sanitation and hygiene services, and this scarcity remains even during the current global COVID-19 pandemic (The Times Editorial Board 2021). The City instead is

considering expanding its Mobile Pit Stop programs (that provides access to restrooms and shower) so to reduce the cost and risk of vandalization (Ray 2021; The Times Editorial Board 2021). Yet these programs only provide temporary access to services that remain limited in unhoused communities. Thus, it is critical to invest in more sustainable and permanent solutions and work towards expanding WaSH services as part of the continuum of care agenda. Successes can be seen in the ReFresh Spot, LavaMae[x], and Project Ropa testimonies in this study that highlight the importance of working in tandem with other systems of care to fill gaps in provision of services needed in the community at the interim level.

Additionally, findings from this study suggest several other policy recommendations including the need of redesigning services. Specifically, in speaking with different providers, findings suggest there is a need for services that tailor to specific sub-groups in unhoused populations, particularly the most vulnerable. In seeking to expand access to WaSH services, it is crucial that any interventions engages with people with lived experience in both the design and implementation process of these program and solutions. In this study, findings demonstrate that emergency shelters do not adequately serve the community as some of these facilities are reminiscent of institutions people are trying to escape from, often unsafe for women, families, and people with disabilities. In the community of Skid Row, the fact that there is only one organization focused in providing women-only services speaks to the need to expand services to cater vulnerable groups, including women, elderly, people with disabilities, and undocumented people. The work of Dickins et al. (2020), for instance highlight the vulnerability of aging unhoused women, a fast growing group among the unhoused. Through an integrative review of existing studies, Dickins et al. argue that unhoused women in the US endure a disproportionate burden compared housed women, facing increased risk for injuries and illness, trauma, and

physical abuse (Dickins et al. 2020). In communities like Skid Row, the City should also expand efforts towards ensuring women the right to adequate living and access to WaSH as recognized in Article 14 of the Convention on the Elimination of All Forms of Discrimination Against Women (UN General Assembly 1979). Providers at both the public and private sector, alongside government agencies need to consider other barriers among unhoused people, including language barriers among undocumented unhoused people that limits their knowledge and access to services. This is exemplified in the work of Chinchilla and Gabrielian (2020) that argued Latinx communities in Los Angeles have distinct vulnerabilities related to their immigration status, language barriers, and socioeconomic status. Therefore, continuum of care services need to break language and cultural barriers to better service Latinx communities that are unhoused or at risk of entering homelessness (Chinchilla and Gabrielian 2020; Speak 2010; Tsai and Gu 2019). Other considerations includes diversifying the work force in order for unhoused people to be able to better connect and communicate with providers. Addressing these issues will result in more utilization and acceptability of existing services because while the number of WaSH facilities is clearly a key barrier, it is critical making access and use of these services less burdensome and safe for vulnerable groups.

Furthermore, the study highlights the importance of sustaining connections between providers and unhoused people. Specifically, this study emphasizes the need for programs that better serve unhoused communities, shifting away from those that criminalizes homelessness. In the City of Los Angeles, for example, there are not enough shelter beds for the total number of unsheltered people residing in the area (LAHSA 2021a). As such, cities should at the interim level allow for people to live in encampments while also providing them with access to fundamental services, instead of resorting to forms of intimidation through anti-camping

ordinances and encampment sweeps (Zahniser and Oreskes 2021). The National Coalition for the Homeless, also reports that across the nation, encampment sweeps have increased including in Dallas, Seattle, San Francisco, and Washington (National Coalition for the Homeless 2016). This report highlights that sweeps contribute to displacement instead of connections to services. Therefore, solutions that decriminalize homelessness are needed, particularly at the interim level, such as providing unhoused people with WaSH services needed and consistent access to municipal services. Investing in more humane solutions can also facilitate the development of effective programs such as the ReFresh Spot that is community driven and provide people with safe access to services that improves people's health.

4.5.4. Strengths and Limitations

This study has contributed to filling gaps in literature of WaSH insecurity affecting unhoused communities, particularly by including the perspective of service providers that directly and indirectly work with these communities. A strength of this study therefore includes the inclusion from different public and private sector providers in Los Angeles, an area that also remains underexplored. The issue focused in this study is also timely as the COVID-19 pandemic has changed the landscape of services available. At the same time, it is important to note some of the study limitations. First, challenges presented during the ongoing COVID-19 pandemic limited recruitment and interviews to be done online, which resulted in a small sample size. Additionally, the providers interviewed in this study only represent a fraction of the number of existing providers serving the Los Angeles area. As a result, some of the points of view of service providers were likely missed. Furthermore, majority of the knowledge generated in this study comes from the views of private sector providers, with some limited in sharing information due to depending on City funding to continue providing their services. Of the three public sector

service providers interviewed, one was unwilling to share much information due to ongoing litigations and to maintain their reputation. Therefore, it is important to recognize in this study the webs of relationships between service providers, with majority of the participating providers coming from the private and non-profit sector, with some not being comfortable with sharing criticisms on what the City and County are doing correctly to address WaSH insecurity and the homelessness crisis.

To further explore the experiences of WaSH insecurity in unhoused communities in Los Angeles, future studies should consider a longitudinal study design. A longitudinal study design can better characterize the fast-changing service landscape in the City. This is particularly important due to changes in laws and expiration of contracts with existing services both at the public and private sector. Lastly, future research should more explicitly integrate an intersectionality lens to consider the differing effects of WaSH insecurity to raise awareness to issues of equity, marginalization, and discrimination that exist at the individual and structural level. In particularly, it is important to highlight other marginalized identities and groups of people, including people that identify as transgender, as this study was limited in not capturing in more detail providers perceptions on this population. Examining the experiences of other marginalized groups not examined in this study is important as it can help us further understand and acknowledge the added vulnerabilities people experience in accessing services and in exiting homelessness.

4.6. Conclusion

The impacts of WaSH insecurity on unhoused communities remain an underexplored area of study, particularly in Los Angeles, a City with one of the highest unsheltered homelessness rates across the nation. As the demand for shelter beds and shortage of affordable

housing continues to increase, it is necessary to explore interim level services unhoused

communities need to sustain their livelihoods and reduce the risk of infectious diseases in a

COVID-19 pandemic era. As a result, the purpose of this qualitative study was to understand

service providers accounts and perspectives working with unhoused communities to identify

intervention developments to address WaSH insecurity. Main themes generated from these

descriptive interviews included: (1) impacts of inaccessibility, (2) impacts of accessibility, (3)

heterogeneity among the unhoused community, (4) service design improvement, and (5) impacts

of COVID-19. Within these themes, individual-level and structural-level characteristics emerged

that can significantly help better address the differential experiences of unhoused people while at

the same time help improve people's access to fundamental services.

Overall, the findings from this study shed light on factors that service providers perceive

to be important in addressing WaSH insecurity and the needs of unhoused communities. First,

interview results with service providers confirm that WaSH insecurity does impact unhoused

communities and that as a result of the pandemic, more attention has been given to the provision

of WaSH. Service providers also confirmed that population vulnerabilities exist in among

unhoused groups not only when accessing services but also when surviving living without a roof.

In particularly, women, the elderly, undocumented unhoused immigrants, non-chronically

homeless people are all marginalized groups in the community. Lastly, service providers shed

light on service-level factors that need to be accounted for to improve services, including the de-

institutionalization of services and the importance to engaging with the community to receive

feedback in the design of services. While housing is the end goal in addressing the homelessness

crisis, it is crucial to also advocate for interim level services needed by the community. The

findings from this study aims to provide additional data as to why safe, affordable, and equitable

access to WaSH services is essential for human dignity and the maintenance of personal and public health. At the same time, increasing access to these fundamental services also entails for providers to be intentional and take into consideration the multiple marginalized identities that exist among the unhoused. Homogenizing people experiencing homelessness erases the diverse identities and everyday struggles they are confronted while being on the streets. Thus, improving access to services requires a better understanding of the lived experiences of unhoused people and not only expand services but intentionality to accommodate the needs of diverse groups of people whose needs are not fully represented and being addressed. Incorporating an intersectional analysis thus challenges the status quo and can help us better understand underserved populations while also help improve access to fundamental services. That being said, providers are faced with numerous constrains to which they have to operate, including funding that restricts their ability to expand services, community opposition that restricts providers ability to serve communities, and anti-homelessness laws that disrupt connections with the community. Therefore, changes in the provision of services requires a change in city policies and County level support to give providers the ability to think more creatively and have the resources that enables them to accommodate the needs of diverse unhoused communities.

Chapter 5 Conclusion

In addressing homelessness, there is no "one size fits all" solution. While expanding access to permanent and affordable housing is crucial in tackling homelessness, it should not be seen as the only solution. There must be support at all levels of the spectrum of homelessness, from the time people are at risk becoming unhoused, to the interim level of when people are experiencing homelessness, up to point when people are exiting homelessness and are re-entering housing. In this dissertation, I addressed the interim level service needs as they relate to water, sanitation, and hygiene (WaSH) services in Los Angeles, which was previously underexplored.

Each section of this dissertation sheds light on how a reinforced cycle of poverty can be attributed to WaSH insecurity. WaSH insecurity is not phenomenon restricted to the global South as the literature suggests; it also disproportionally affects marginalized unhoused communities of Los Angeles, California, USA (Chapter 2). In seeking to understand the importance of WaSH insecurity, I dig deeper into differences that occur in accessing WaSH between the individual and service levels (Chapter 3). These barriers to access are validated by the perspectives and perceptions of service providers, which must also be incorporated when seeking to improve, (1) WaSH accessibility and (2) the quality and effectiveness of services (Chapter 4). Overall, findings from these chapter studies suggest that addressing WaSH insecurity plays a pivotal role in reinforcing the cycle of poverty and homelessness. In other words, WaSH insecurity exacerbates stigmatization, raises barriers in seeking out services, and negatively affects mental and physical health. These factors can each play a critical role in a person experiencing long-term homelessness. In the following sections of this conclusion, I will summarize the contributions and connections of each study, the broader implications, and future research/policy directions.

5.1. Contributions and Connections

Across these dissertation chapter studies, I identified commonalities that help deepen our understanding of the WaSH insecurity experiences among the unhoused communities and the struggles of access and service delivery found in these communities of Los Angeles. In Chapter 2, the study sheds light to coping strategies unhoused people use as a result of WaSH insecurity. Chapter 3 study digs deeper by examining differences in WaSH insecurity experiences using sub-populations of different unhoused communities of Los Angeles. Lastly, Chapter 4 recognizes the impacts of WaSH insecurity outlined in the first two studies from the perspective of providers, highlighting what improvements are needed to better serve unhoused communities. In examining these study contributions, four connections emerge including, the importance of interim-level WaSH services, reinforcement cycle of poverty, diverse needs among the unhoused, and implications of service design improvements moving forward.

First, each of these studies suggest that WaSH insecurity needs to be part of the continuum of care agenda in addressing homelessness. Specifically, each of these studies highlight the importance of providing interim-level WaSH interventions to better meet people's basic needs and improve public health, in communities that experience constant deprivations. This is exemplified in the first two studies (Chapter 2 and 3) in which both examine WaSH insecurity from the perspective of people with lived experience. Findings from these two studies suggest that in different unhoused communities across Los Angeles, there is no consistent, affordable, and safe access to WaSH services. Chapter 4 delves deeper into the issues raised in the earlier studies by expanding the analytical lens to include the perspective of service providers. The findings from chapter 4 also come to the same conclusion that WaSH services are

needed at the interim level of when people are experiencing homelessness and failure to address these needs could contribute to prolonged cycle of homelessness.

Second, findings from the three dissertation studies make this connection between WaSH insecurity and a reinforced cycle of poverty. This is seen through the perspectives of both unhoused people and service providers. In Chapter 3, for instance, the unhoused community surveyed reported being forced to spend time and energy trying to find access to WaSH services, particularly in areas where there are few if any overnight public facilities. All of which contributed to added barriers for unhoused people to move up the latter, seek other supportive services, and exit homelessness. Similarly in Chapter 4, service providers argued that unhoused people have to travel long distances to access WaSH services. Service providers in Chapter 4 also argued that the inability for unhoused people to consistently access services further marginalizes them by not being able to keep up with daily hygiene practices, look "presentable" and be employed, overall impeding their ability to exit homelessness. Providers in Chapter 4 also come to suggest that a cycle of poverty is perpetuated by the lack of investment in water infrastructure at the County and City level and this is seen in Chapter 2 and 3 with the lack of services in different parts of Los Angeles beyond the Skid Row community boundaries. The health deterioration that providers mentioned in Chapter 4 is also explored in the first chapter study with unhoused people reporting dehydration and other heat stress related illnesses that create added health deterioration and barriers in exiting homelessness.

Furthermore, the importance of heterogeneity among the unhoused is a recurring theme among all the three chapter studies, emphasizing that when seeking to effectively address homelessness, a one size solution will not fit all. This is particularly reflected in the last two studies (Chapter 3 and 4), that address individual level factors of vulnerability. While these two

chapters utilize different perspectives, one examining the experiences of unhoused people (Chapter 3), whereas the other examining the perspectives of service providers (Chapter 4), they both come to similar conclusions in that individual characteristics and vulnerabilities shape access patterns for unhoused people. While Chapter 3 did not find strong statistical evidence to suggest that gender differences exist in access to WaSH, providers in Chapter 4, do acknowledge gender differences exist among the unhoused, with women and undocumented unhoused people being two of the most vulnerable groups highlighted. Both studies do show that length of homelessness and age are added vulnerabilities when accessing WaSH services. Chapter 4, however, adds an extra layer of analysis by examining intersectional vulnerabilities among the unhoused, suggesting that non-chronically undocumented people and elderly women with disabilities being two major groups that encounter difficulties accessing services and exiting homelessness.

Lastly, the three chapter studies emphasize the importance of improving access to WaSH services. In particularly, the three study findings shed light to the need to not only expand services but also to be intentional in the design and delivery process. Chapter 2 for example, sheds light to the challenges and survival strategies people embark as a result of inaccessibility of services. Whereas in Chapter 3 and 4 examines, service level factors are examined more in depth to understand how to further improve access and delivery of services. In chapter 3, the findings of the study demonstrates the distribution, quality, and design of WaSH services perpetuates social inequalities by excluding access to services in public spaces that unhoused people inhabit (i.e., criminalizing people for their coping strategies in response to unjust environments). Specifically, the findings suggest that while distance of services plays a role in the way people choose to access services, it is not the main contributing factor. Other issues play

a role including, safety, staffing at the facilities, and affordability. Similarly, services providers in Chapter 4 study suggest that increasing access to services is only part of the solution. Meaning that for programs and services to be effective and useful, it requires a more thoughtful and integrative process with the unhoused community. Both of these chapter studies come to similar conclusions in that more programs like the ReFresh Spot are effective and needed more because they are intentional, safe, and involve the community in the development and design process.

While each of the chapters makes a separate contribution and integrate different perspectives (those of people with lived experience of homelessness and service providers), they come to similar conclusions in that WaSH insecurity has detrimental impacts in the community. Overall, findings from all three chapter studies seek to advocate for an investment of water infrastructure that can provide unhoused communities with safe, affordable, equitable, and reliable access to WaSH.

5.2. Policy Recommendations

Based on the findings of these three studies, in this section I outline different policy implications. First, in 2002 the UN's Committee on Economic, Social and Cultural Rights in adopted its General Comment 15 that recognizes the right to water, defined as the right to accessible, affordable, sufficient, and safe water for personal and domestic use (UN Committee on Economic Social and Cultural Rights (CESCR) 2003). This human right to water is recognized at the state level with California's Assembly Bill (AB) 685, which states, "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes" (The Environmental Law Clinic (ELC) and the Environmental Justice Coalition for Water (EJWC) 2018). While this bill recognizes this human right, it does not provide any concrete solutions as to how this can be fulfilled at the county and

local level. Specifically, this human right to WaSH remains unfulfilled by unhoused communities. At the county and city level, there are no clear guidelines and enforcement of this bill. Therefore, at the State level, there should be clear standards for local governments to comply with. A starting point could be the UN's guidelines for WaSH access in refugee camps. Under these guidelines, Skid Row would have one restroom per 20 persons, one shower per 50 persons, one water fountain per 80 persons, and one trash can per 50 persons. Additionally, the state and local government should be responsible for investing in permanent WaSH infrastructure.

Currently, local governments such as the City of Los Angeles, are investing in street sweeps that are both detrimental to the community and costly. In the fiscal year of 2019-2020, for example, the City allocated roughly 24 million dollars on street clean-up programs alone (City of Los Angeles 2019). A major factor that is driving this action is political pressure, as constituents are opposed to encampments in their neighborhoods. However, forcibly destroying encampments remains an unsustainable and ineffective solution, as tax payer funds are effectively paying for criminalization. Community residents, government agencies, businesses, service providers, and unhoused community members are better served by solutions that do not marginalize and stigmatize unhoused people, and instead focus on addressing the structural factors contributing to homelessness (United States Interagency Council on Homelessness (USICH) 2012). Other forms of anti-homelessness laws and policies (sweeps, Los Angeles Municipal Code (L.A.M.C.) 41.18(d), which outlaws sitting/sleeping on sidewalks; L.A.M.C. 56.11, limits the number of belongings a person is allowed to have) are costly and do not solve homelessness or address their service needs. Instead, funds should be invested into expansion of permanent housing, access to health care, permanent hygiene centers, and other social services

needed for people to meet their basic human rights. Specifically, the types of investments in sanitation services needed by the unhoused communities is the consistent collection of waste, biohazards, and debris so that residents can keep their own living areas clean. This is important because while services may be in place (as findings from chapter 4 reveals there are 5,500 receptacles in the City), these may not be equally distributed across communities, particularly in areas with unhoused people reside and are in need of these services.

Another policy finding from these studies is a problem in service design. In communities like Skid Row in Los Angeles, the focus has been on the expansion of congregate housing (shelter systems). In the most recent order by Judge David Carter, the City and County have been given 90 days to find shelter for unhoused community members on Skid Row, while also continuing enforcement of anti-camping laws to clear people off the streets (Oreskes and Smith 2021; Oreskes, Alpert Reyes, and Smith 2021). The problem with Judge Carter's court order, however, is investing in shelters and placing people in shelters does not address homelessness. Based on findings gathered from Chapters 3 and 4, there are service-level factors that influence the way people choose to engage with service providers, including shelter systems. These types of temporary housing are not only heavily institutionalized places, but are overcrowded, unsafe, and ineffective at meeting people's needs. Instead, the design of solutions and services needs to involve the community and be a collaborative engaging process of communication. This can be seen in the success of the hygiene center, the ReFresh Spot that is a community driven project funded by Mayor Garcetti. The ReFresh spot is a one-stop service center providing people with safe access to restrooms, showers, laundry, drinking water, phone charging stations, free clothing, ride sharing, health screenings, and other supportive services. Programs like the ReFresh Spot are successful models designed *by* the community, *for* the community.

Lastly, better housing policies and immigration reforms are needed to address the unmet needs of undocumented immigrants. Currently, any federally supported housing program, specifically permanent housing programs, exclude undocumented people experiencing homelessness from accessing their services. Additionally, immigrants experiencing homelessness are unwilling or unable to receive assistance due largely in part to fear of their immigration status and their perceived risk of deportation (Chinchilla and Gabrielian 2020). As a result of this exclusion and displacement, undocumented people risk prolonged experiences of homelessness, which is perpetuated due to an inability to find stable housing, job, and receive federal assistance.

5.3. Limitations and Future Study Recommendations

In this final section, I will highlight the limitations of my studies and identify future research directions. First, it is important to note one limitation in each study is sample size. The small sample size may have influenced the statistical outcome of some of the findings and may not be representative to the WaSH insecurity experiences of the total unhoused population of Los Angeles. In the last qualitative chapter study, only fifteen service providers were interviewed which resulted in five major themes. It should be noted that additional themes or ideas could have potentially emerged if more interviews were conducted. Future studies should employ a larger study size in order to confirm or challenge the results in this work.

Another potential source of limitations is the study design. The design of the three chapter studies was cross-sectional, meaning that participants were interviewed once at a specific point in time. This research design could be seen as a limitation because unhoused communities are not only mobile but a fast-paced, changing population. Additionally, the level of interventions and services can change rapidly over time, especially now in the tail-end of the

COVID-19 pandemic. In the third chapter, the closest facility models that measured accessibility based on distance had a major assumption: that walking was a person's main mode of transportation. This may not be completely accurate, as unhoused people are mobile, as some do report using public transportation. However, the distance between driving and walking to a location is the same, with the main difference being the travel time. Another major assumption made in the model was that people only use one main facility, or the one where an exact location was provided. This may not represent all the daily behaviors people engage in on a recurring, regular basis. Therefore, future studies should consider a longitudinal design, which would take into account a temporal scale when examining people's WaSH insecurity experiences, while at the same time capturing individual's daily activity space, patterns, and engagement of services.

Additionally, the format of the survey questions could be improved in order to better validate certain demographic questions and WaSH insecurity experiences. For instance, in capturing data on gender and sexual orientation, more transgender inclusive measures of sex and gender were needed in this dissertation. Bauer et al.'s (2017) study highlights the importance of inclusive measures for sex and gender, as this kind of error can lead to misclassifications and degrade the quality of data captured in surveys. Most importantly, inclusive measures of gender and sex are needed for transgender (trans) persons, as their gender identities differ from their birth-assigned sex (Bauer et al. 2017; The GenIUSS Group et al. 2014). Furthermore, it is important that future studies consider incorporating an intersectional and environmental justice framework in examining experiences of WaSH insecurity among the unhoused. This is important as findings from these dissertation studies suggest that unhoused people occupy multiple intersectional vulnerable identities that may exacerbate their access to services and in existing homelessness.

Another limitation during the data collection process is recall bias. In other words, participants may not remember all of their daily habits and/or the places they visit when carrying on their personal routines. Lastly, since the population is mobile, there may have been duplicate interviewees. To mitigate this, duplicate surveys (if identified) were either omitted from final analyses or used to validate initial survey responses. More extensive mixed methods studies that include different cohorts are necessary to disentangle these factors and understand how poor access to WaSH services affects communities differently. That said, one particular strength of this work is that the willingness of both people who are unhoused and service providers to share their stories and perceptions. Their inclusion has led to rich and meaningful data, and novel insights into the WaSH needs of this vulnerable community.

Overall, future studies should measure the time spent in accessing WaSH services and cost over time. To better understand the temporal aspect of accessibility, studies should compare and contrast different seasons, not only with respect to the availability of services, but when more services should be targeted to serve the population (e.g., summer time, increase of mist stations to reduce heat exposure illness as seen in Demyers, Warpinski, and Wutich 2017; Popkin, D'Anci, and Rosenberg 2010). Additionally, future studies should consider capturing water affect experienced in unhoused communities. Specifically, the psychosocial stressors that result from a lack or poor access to WaSH, as seen in studies that focus on household water insecurity. Capturing WaSH affect among unhoused communities will shed light to the mental and well-being impacts of WaSH insecurity. Unfortunately, my dissertation studies could not measure these and other factors due to the disruption of data collection during COVID-19 stay at home orders. However, it is important to note that service providers report that gaining access to fundamental WaSH service motivates people to seek out additional social services, seek out job

opportunities, and boosts people's self-reflection, self-esteem, and confidence. All of these factors can play a role in reducing length of homelessness, and thus, validates the importance of WaSH as an effective, immediate intervention.

Lastly, it is important for researchers to acknowledge and document vulnerabilities in the research process and in studying marginalized populations. This is not a limitation, but rather an observation based on experiences from this dissertation. In other words, researchers need to be aware of their positions and their roles in the research process, while also understanding that there will be challenging and vulnerable situations to maneuver. The difficulty associated with recruiting hard-to-reach populations also needs recognition in the research process, as these challenges require researchers to actively seek out certain individuals from the population, which requires a certain level of trust, safety, comfort level, and the ability to manage conversations. In their studies, Heller et al. (2011) and Latham (2003) suggest integrating diary journaling as a practice of reflexivity, which includes noting reflections and moments of struggle. Reviewing these reflections can strengthen research rigor while also providing a place for the researcher to vent and document frustrations, fears, and struggles.

5.4. Dissertation Takeaways

To conclude, in this dissertation, I have argued that WaSH insecurity negatively impacts unhoused communities of Los Angeles, contributing to multiple barriers for people to exit homelessness. As seen in the introduction, WaSH insecurity is not a phenomenon restricted to the global South but also invisibly present in the US. Chapter 2 highlights the coping strategies unhoused people use to survive in spaces and places that lack WaSH services. Chapter 3 expands the analytical framework by integrating GIS and spatial statistics to measure differences in access to WaSH while also considering geographic, individual, and service contributing factors

to WaSH insecurity experiences. In contrast, Chapter 4 uses qualitative descriptive interviews from service providers to untangle other factors that play a role in reinforcing WaSH insecurity experiences in unhoused communities. The findings from this dissertation suggest that WaSH insecurity is a deeply rooted form of environmental and social injustices would like to highlight the main takeaways. Providing and expanding access to interim-level WaSH services can improve unhoused communities' health and living environments while also discontinuing a reinforcing cycle of poverty.

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Appendix A Survey Tool

Interviewer Instructions: Please read the following statement to participants

My name is _____ and we are from the Spatial Sciences Institute at USC. We were wondering if we could have a few minutes of your time to ask you a couple of questions. We are conducting a study that is trying to understand the ways you cope with water scarcity and how you access water for drinking, bathing, using a toilet, and laundry services. We are interested in learning about the challenges you face in finding these basic human needs, as we hope in the future to advocate to increase the access to these services in public areas in Los Angeles County.

*Would you like to participate in this study? [If Yes] Before we begin, I want to remind you that your participation is based on a survey and that it is completely voluntary. We will not be collecting any identifiable information and everything in this survey will be kept **confidential**. If at any point in this survey there is a question or statement that you do not wish to answer or feel embarrassed to answer, please let me know and we will skip it and move on to the next question. The survey will take around 15-30 minutes. Lastly, I want to let you know that handwritten notes will be taken during this survey.*

Have you been interviewed by a USC student in the past week?
- ☐ Yes → **STOP** interview. Thank them for their time and continue with the next person
- ☐ No → Continue with Survey

Are you over the age of 18?
- ☐ Yes → Continue with Survey
- ☐ No → **STOP** interview. Participant does not qualify. Thank them for their time and move on to the next person

Do you consider yourself to be homeless or unstably housed?
- ☐ Yes → Continue with Survey
- ☐ No → **STOP** interview. We want to interview homeless individuals
- ☐ Other→Do you have a place to sleep? **If the answer is not a home/apartment, then it's YES, unstably housed.**

Participant's ID:

Interviewer:

Today's Date:

Today's Weather:

Survey Completed:
- ☐ Yes
- ☐ No

Where do you usually stay/sleep?
(Refer to street intersections/ or shelter)

First Street — [DROP PIN IN MAP]

Second Street

Study Area:
- ☐ Skid Row
- ☐ Greater DTLA Area
- ☐ Freeway/Bridge

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OR include name of Sleeping Location/Shelter: _____

Section I. Mobility and Financial Information

This first section contains statements about your living situation, financial support, and personal constraints accessing basic water resources. Our goal is to get an idea of how far you may have to walk to access services and your biggest needs and services of value to you. Please answer the statements to the best of your ability.

1. How many months/years have you been homeless or unstably housed?
   - ☐ _____ months
   - ☐ _____ years
   - ☐ Don't know
   - ☐ Prefer not to answer

2. In the past **30 days**, let me know if you have stayed in any of the following types of places, even for one night? (Check all that apply)
   - ☐ Tent
   - ☐ Outdoors (not in a tent)
   - ☐ Vehicle
   - ☐ Own house, apt, hotel room
   - ☐ Temporary hotel
   - ☐ Rented room in someone's place
   - ☐ With family, friend
   - ☐ Shelter
   - ☐ Hospital
   - ☐ Jail or prison
   - ☐ Residential treatment
   - ☐ Group home
   - ☐ Other: _____
   - ☐ Don't know
   - ☐ Not applicable
   - ☐ Prefer not to answer

3. What do you think are some of the main reasons or conditions that led you to you losing your home?
   - ☐ Unemployment
   - ☐ Divorce, Separation, or Break-Up
   - ☐ Domestic Violence
   - ☐ Sexual Abuse
   - ☐ Conflict with Family/Friends
   - ☐ Family/Spousal Death
   - ☐ Physical Disability
   - ☐ Mental Health Issues
   - ☐ Drug or Alcohol Use
   - ☐ Rising Housing Cost
   - ☐ Eviction or Foreclosure
   - ☐ Other: _____
   - ☐ Prefer not to answer

4. In the past 30 days, **did you move** your tent/belongings to a different location (including across the street or down the block) and **how many times**?
   - ☐ Yes, _____ (number of moves) ➔ **Go to PARTS A and B**
   - ☐ No/ Not applicable
   - ☐ Don't know/Remember
   - ☐ Prefer not to answer

   If Q.4 is equal to NO, then skip to the next question.
5. In the past **30 days**, how many of these moves were because of police, security guards, or other city/county officials?
   - ☐ _____ (number of moves)
   - ☐ Don't Know/Remember
   - ☐ Not Applicable
   - ☐ Prefer not to answer

6. In the past **30 days**, how many of these move were because of sanitation workers and street clean-ups?
   - ☐ _____ (number of moves)
   - ☐ Don't Know/Remember
   - ☐ Not Applicable
   - ☐ Prefer not to answer

7. In the past 12 months, have you ever been **given a citation/ticket** and how many times?
   - ☐ Yes, _____ (times) ➔ **Go to PART A-C**
   - ☐ No
   - ☐ Don't Know/Remember
   - ☐ Prefer not to Answer

   If Q.5 is equal to NO, then skip to the next question.
8. Do you remember the amount of those citations/tickets?
   - ☐ Yes, _____ ($ amount)
   - ☐ No
   - ☐ Don't know/Remember
   - ☐ Prefer not to Answer

9. Was the citation/ticket for public urination?
   - ☐ Yes
   - ☐ No
   - ☐ Don't know/Remember
   - ☐ Prefer not to Answer

10. Did you had to go to jail for this citation and or marked as a sex offender?
   - ☐ Yes
   - ☐ No
   - ☐ Don't know/Remember
   - ☐ Prefer not to Answer

11. Do you receive any public assistance and what is the **amount**? (DO NOT read options)
   - ☐ Yes, Public Housing
   - ☐ Yes, Food Stamps/Cal Fresh/SNAP: _____ ($ amount)
   - ☐ Social Security: _____ ($ amount)
   - ☐ Medicaid/Medi-Cal
   - ☐ General Relief: _____ ($ amount)
   - ☐ Section 8
   - ☐ Other: _____
   - ☐ None
   - ☐ Prefer not to Answer

12. Do you have difficulty accessing any of the following services? (Select all that apply)
   - ☐ Restrooms (toilets)
   - ☐ Showers
   - ☐ Drinking Water
   - ☐ Water Fountains
   - ☐ Laundry Services
   - ☐ Sinks for Handwashing
   - ☐ Hygiene supplies (soap, toothpaste, razor, tampons/pads, toilet paper, etc.)
   - ☐ Health supplies (needles, overdose kit, medicine, etc.)
   - ☐ None of the Above – all these resources are easily available to me
   - ☐ Prefer not to Answer

Section II. Discrimination
This brief section contains statements about your perceived experiences in accessing services

13. Have you ever felt discriminated in any way when trying to access any of these resources?
   - ☐ Yes, when trying to use a **restroom**
   - ☐ Yes, when trying to use a **shower**
   - ☐ Yes, when trying to get **drinking water**
   - ☐ Yes, when trying to **wash my clothes**
   - ☐ Yes, when trying to **wash my hands**
   - ☐ Yes, when trying to get **hygiene supplies**
   - ☐ Yes, when trying to get **health/medical supplies**
   - ☐ No, never
   - ☐ Prefer not to answer

14. Have you ever felt discriminated because of the following reasons?
   - ☐ Age
   - ☐ Race
   - ☐ Gender
   - ☐ Sexual Orientation
   - ☐ Disability Status
   - ☐ Citizenship Status
   - ☐ Religion
   - ☐ Other/more detail: _____
   - ☐ None of the Above – never felt discriminated
   - ☐ Prefer not to answer

Section III. Personal Hygiene
*The next series of questions are about **your personal hygiene**. Some of these questions could be embarrassing to answer. If at any point in this survey there is a question that you do not wish to answer, please let me know and we will skip that question or conclude the survey.*

RESTROOM ACCESS:

15. When you need to **urinate**, how easy or hard is it for you to find a toilet? (Mark an X)

Very easy	Easy	Neither easy or hard	Hard	Very hard	Prefer not to answer

16. When you need to **defecate**, how easy or hard is it for you to find a toilet? (Mark an X)

Very easy	Easy	Neither easy or hard	Hard	Very hard	Prefer not to answer

17. Upon waking up in the **MORNING**, where do you go to use a **RESTROOM**?
    - ☐ Refresh Spot
    - ☐ Shelters/Missions (include name/s): _____
    - ☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
    - ☐ Streets, Sidewalk, or Doorway
    - ☐ In Tent using a bucket or other equipment: _____
    - ☐ Inside restaurants, stores, etc. (include name/s): _____
    - ☐ Other/more detail _____
    - ☐ Prefer not to answer

    If Q12. is equal to Shelters/Restrooms/Restaurants, then skip to the next question.
18. What do you do to dispose of the waste? (DO **NOT** READ OPTIONS)
    - ☐ Dispose in drainage
    - ☐ Dispose in trash bin/can
    - ☐ Dispose in bag
    - ☐ Dispose in the street
    - ☐ Other: _____
    - ☐ Prefer not to Answer

19. In the **MORNING**, **how many blocks** does it take you to **walk** to find a **RESTROOM**?
    - ☐ 1-2 blocks
    - ☐ 3-4 blocks
    - ☐ 5-6 blocks
    - ☐ Other: _____ (estimated number of blocks)
    - ☐ Don't Know/Remember
    - ☐ Not Applicable
    - ☐ Prefer not to answer

20. In the **MORNING**, **how long** does it take you to **walk** to find a **RESTROOM**?
    - ☐ 1-2 minutes
    - ☐ 3-5 minutes
    - ☐ 6-10 minutes
    - ☐ 11-15 minutes

☐ Other: _____ (estimated number of minutes)
☐ Don't Know/Remember
☐ Not Applicable
☐ Prefer not to answer

21. In the **MORNING**, **how long** do you have to **wait** to use a **RESTROOM**?
☐ No wait
☐ 1-2 minutes
☐ 3-5 minutes
☐ 6-10 minutes
☐ 11-15 minutes
☐ Other: _____ (estimated number of minutes)
☐ Don't Know/Remember
☐ Prefer not to answer

22. Why do you go to these places in the **MORNING,** rather than somewhere else?
☐ It's free/affordable
☐ It's open when I need it
☐ It's not crowded/I don't have to wait a long time
☐ It's close to where I stay
☐ It's clean
☐ I feel safe there
☐ It's wheelchair accessible
☐ It's child/pet friendly
☐ The staff/security guards are friendly and welcoming
☐ Other/more detail: _____
☐ Prefer not to answer

23. In the **AFTERNOON**, where do you go to use the **RESTROOM**?
☐ Refresh Spot
☐ Shelters/Missions (include name/s): _____
☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
☐ Streets, Sidewalk, or Doorway
☐ In Tent using a bucket or other equipment: _____
☐ Inside restaurants, stores, etc. (include name/s): _____
☐ The same place/s as in the morning
☐ Other/more detail _____
☐ Prefer not to answer

24. In the **AFTERNOON, how many blocks** does it take you to **walk** to find a
RESTROOM?
☐ 1-2 blocks
☐ 3-4 blocks
☐ 5-6 blocks
☐ Other: _____ (estimated number of blocks)
☐ Same as the morning-time
☐ Don't Know/Remember
☐ Not Applicable
☐ Prefer not to answer

25. In the **AFTERNOON**, **how long** does it take you to **walk** to find a **RESTROOM**?
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

26. In the **AFTERNOON**, **how long** do you have to **wait** to use a **RESTROOM**?
- ☐ No wait
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Prefer not to answer

27. Why do you go to these places in the **AFTERNOON,** rather than somewhere else?
- ☐ It's free/affordable
- ☐ It's open when I need it
- ☐ It's not crowded/I don't have to wait a long time
- ☐ It's close to where I stay
- ☐ It's clean
- ☐ I feel safe there
- ☐ It's wheelchair accessible
- ☐ It's child/pet friendly
- ☐ The staff/security guards are friendly and welcoming
- ☐ Other/more detail:_____
- ☐ Prefer not to answer

28. During the middle of the **NIGHT**, where do you go to use the **RESTROOM**?
- ☐ Refresh Spot
- ☐ Shelters/Missions (include name/s): _____
- ☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
- ☐ Streets, Sidewalk, or Doorway
- ☐ In Tent using a bucket or other equipment: _____
- ☐ Inside restaurants, stores, etc. (include name/s): _____
- ☐ The same place/s as in the morning time
- ☐ Other/more detail _____
- ☐ Prefer not to answer

29. At **NIGHT, how many blocks** does it take you to **walk** to find a **RESTROOM**?
- ☐ 1-2 blocks
- ☐ 3-4 blocks
- ☐ 5-6 blocks

- ☐ Other: _____ (estimated number of blocks)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

30. At **NIGHT**, **how long** does it take you to **walk** to find a **RESTROOM**?
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

31. At **NIGHT**, **how long** do you have to **wait** to use a **RESTROOM**?
- ☐ No wait
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Prefer not to answer

32. Why do you go to these places at **NIGHT,** rather than somewhere else?
- ☐ It's free/affordable
- ☐ It's open when I need it
- ☐ Other facilities are closed/out of service
- ☐ It's not crowded/I don't have to wait a long time
- ☐ It's close to where I stay
- ☐ It's clean
- ☐ I feel safe there
- ☐ It's wheelchair accessible
- ☐ It's child/pet friendly
- ☐ The staff/security guards are friendly and welcoming
- ☐ Other/more detail: _____
- ☐ Prefer not to answer

33. Have you ever been denied access to use a **BATHROOM** service, and if so, where did this happened?
- ☐ Yes, _____(locations)
- ☐ No, I have never been denied access to use a bathroom
- ☐ Prefer not to answer

34. Why were you denied access to a **RESTROOM**?
- ☐ I have to be a customer

- ☐ It cost too much and could not afford it
- ☐ It was closed [out of service/outside hours of operation/in use/other
- ☐ I was turned away by staff, a guard, etc. because of my appearance
- ☐ It wasn't child/pet-friendly
- ☐ Other/more detail: _____
- ☐ None of the Above/ Not Applicable
- ☐ Prefer not to answer

35. Do you ever have to hold your pee at any time of the day because of a lack of public restrooms available and how often?
- ☐ Yes, all the time
- ☐ Yes, sometimes
- ☐ Yes, rarely
- ☐ No, never
- ☐ Don't know/Remember
- ☐ Prefer not to answer

SHOWER ACCESS:

36. In the last week, how often have you changed your clothes?
- ☐ 1-2 times
- ☐ 3-4 times
- ☐ 5-6 times
- ☐ Everyday
- ☐ When I can wash my clothes
- ☐ Don't Know/Remember
- ☐ Prefer not to Answer

37. How many times have you had a **BATH/SHOWER** in the week?
- ☐ 1-2 times
- ☐ 3-4 times
- ☐ 5-6 times
- ☐ Everyday
- ☐ Don't Know/Remember
- ☐ Prefer not to Answer

38. Do you prefer to shower in the morning, day, or night-time?
- ☐ Morning
- ☐ Day/Afternoon
- ☐ Night
- ☐ Not applicable
- ☐ Prefer not to Answer

39. At that time of the day is it more difficult to use take a **SHOWER**?
- ☐ Morning
- ☐ Day/Afternoon
- ☐ Night
- ☐ None
- ☐ Prefer not to answer

40. What places do you visit regularly to **SHOWER**?
- ☐ Refresh Spot

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- ☐ LAMP/People's Concern
- ☐ Lava Mae/Other Mobile Showers
- ☐ Shelters/Missions (include name/s): _____
- ☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
- ☐ In Tent (using a bucket or other equipment:_____
- ☐ Inside restaurants, stores, etc. (include name/s):_____
- ☐ Church/Religious organizations (include name/s):_____
- ☐ Other/more detail_____
- ☐ Not Applicable
- ☐ Prefer not to answer

41. How **many blocks** does it take you to **walk** to find a **SHOWER**?
- ☐ 1-2 blocks
- ☐ 3-4 blocks
- ☐ 5-6 blocks
- ☐ Other: _____ (estimated number of blocks)
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

42. How **long** does it take you to **walk** to find a **SHOWER**?
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

43. How **long** do you have to **wait** to use a **SHOWER**?
- ☐ No wait
- ☐ 5-10 minutes
- ☐ 15-30 minutes
- ☐ 60-90 minutes
- ☐ Other: _____ (estimated number of minutes/hours, please specify)
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

44. Are these places available 24 hours or at what time do these places stop running/close for the day?
- ☐ Yes, available 24 hours
- ☐ No, _____ (time)
- ☐ Don't know/Remember
- ☐ Prefer not to answer

45. Why do you go **SHOWER** in this place/these places rather than somewhere else?
- ☐ It's free/affordable
- ☐ It's open when I need it

- ☐ It's not crowded/I don't have to wait a long time
- ☐ It's close to where I stay
- ☐ It's clean
- ☐ I feel safe there
- ☐ It's wheelchair accessible
- ☐ It's child/pet friendly
- ☐ The staff/security guards are friendly and welcoming
- ☐ Other/more detail:_____
- ☐ Prefer not to answer

46. Have you ever been denied access to use a **SHOWER** service, and if so, where did this happened?
- ☐ Yes,_____(locations)
- ☐ No, I have never been denied access to use a shower
- ☐ Prefer not to answer

47. Why were you denied access to a **SHOWER**?
- ☐ I have to be a customer
- ☐ It cost too much and could not afford it
- ☐ It was closed [out of service/outside hours of operation/in use/other
- ☐ I was turned away by staff, a guard, etc. because of my appearance
- ☐ It wasn't child/pet-friendly
- ☐ Other/more detail: _____
- ☐ None of the Above/ Not Applicable
- ☐ Prefer not to answer

48. Of the places you frequent to shower or use the toilet, do they provide the following?
(Mark each box that applies)

Supply	Yes	No	Sometimes	Maybe	Prefer not to answer
Toilet Paper					
Soap					
Hand Sanitizer					
Seat Cover					
Paper Towels/Air Dryer					
Trash Can					
Feminine Hygiene Products **(Females only)**					
Toilet that flushes					
Functioning Sink					
Doors with Working Locks					
Well-Lit					
Toothpaste/Toothbrush					
Towel					
Other: _____					

DRINKING WATER ACCESS:

49. What places do you visit regularly to get **DRINKING WATER** in the **MORNING?**
    - ☐ Donations
    - ☐ Public Water Fountains
    - ☐ Fire Hydrant
    - ☐ Supermarket/Liquor store (self-purchase)
    - ☐ Restaurant, stores etc. (include name/s):_____
    - ☐ Shelters/Missions (include name/s):_____
    - ☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
    - ☐ Church/Religious organizations (include name/s): _____
    - ☐ Other/more detail:_____
    - ☐ Not Applicable
    - ☐ Prefer not to answer

50. In the **MORNING,** how many blocks does it take you to **walk** to find **DRINKING WATER**?
    - ☐ 1-2 blocks
    - ☐ 3-4 blocks
    - ☐ 5-6 blocks
    - ☐ Other: _____ (estimated number of blocks)
    - ☐ Don't Know/Remember
    - ☐ Not Applicable
    - ☐ Prefer not to answer

51. In the **MORNING**, how long does it take you to **walk** to find **DRINKING WATER**?
    - ☐ 1-2 minutes
    - ☐ 3-5 minutes
    - ☐ 6-10 minutes
    - ☐ 11-15 minutes
    - ☐ Other: _____ (estimated number of minutes)
    - ☐ Don't Know/Remember
    - ☐ Not Applicable
    - ☐ Prefer not to answer

52. What places do you visit regularly to get **DRINKING WATER** in the **NIGHT?**
    - ☐ Donations
    - ☐ Public Water Fountains
    - ☐ Fire Hydrant
    - ☐ Supermarket/Liquor store (self-purchase)
    - ☐ Restaurant, stores etc. (include name/s)_____
    - ☐ Shelters/Missions (include name/s):_____
    - ☐ Public Restrooms (PIT Stop, libraries, parks, etc.)
    - ☐ Church/Religious organizations (include name/s): _____
    - ☐ Other/more
      detail:_____
    - ☐ Not Applicable
    - ☐ Prefer not to answer

53. During the **NIGHT,** how many blocks does it take you to **walk** to find **DRINKING WATER**?
- ☐ 1-2 blocks
- ☐ 3-4 blocks
- ☐ 5-6 blocks
- ☐ Other: _____ (estimated number of blocks)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

54. During the **NIGHT**, how long does it take you to **walk** to find **DRINKING WATER**?
- ☐ 1-2 minutes
- ☐ 3-5 minutes
- ☐ 6-10 minutes
- ☐ 11-15 minutes
- ☐ Other: _____ (estimated number of minutes)
- ☐ Same as the morning-time
- ☐ Don't Know/Remember
- ☐ Not Applicable
- ☐ Prefer not to answer

55. Why do you go to these places to get **DRINKING WATER**, rather than somewhere else?
- ☐ It's free/affordable
- ☐ It's available when I need it
- ☐ It's not crowded/I don't have to wait a long time
- ☐ It's close to where I stay
- ☐ The water is clean
- ☐ I feel safe there
- ☐ It's wheelchair accessible
- ☐ It's child/pet friendly
- ☐ The staff/security guards are friendly and welcoming
- ☐ Other/more detail:_____
- ☐ Prefer not to answer

56. What is your **MAIN** source of drinking water?
- ☐ Bottled water from shelters/missions
- ☐ Bottled water from street donations
- ☐ River/Creek
- ☐ Water Fountains (from parks and libraries)
- ☐ Fire Hydrant
- ☐ Neighborhood Sprinkler/Water hose
- ☐ Free Water from Restaurants
- ☐ Other: _____
- ☐ Not Applicable
- ☐ Prefer not to answer

57. Have you ever been denied access to **DRINKING WATER**, and if so, where did this happened?
- ☐ Yes,_____(locations)
- ☐ No, I have never been denied to drinking water

☐ Prefer not to answer

58. Why were you denied access to **DRINKING WATER** there?
☐ I have to be a customer
☐ It cost too much and could not afford it
☐ It was closed [out of service/outside hours of operation/in use/other
☐ I was turned away by staff, a guard, etc. because of my appearance
☐ It wasn't child/pet-friendly
☐ Other/more detail: _____
☐ None of the Above/ Not Applicable
☐ Prefer not to answer

59. Do you think you drink sufficient water throughout the day?
☐ Yes
☐ No
☐ Other: _____
☐ Prefer not to answer

60. On a daily basis, on average, how much drinking water do you **actually consume**?
☐ 0-3 bottles
☐ 4-6 bottles
☐ Greater than 6 bottles
☐ Don't Know
☐ Prefer not to answer

LAUNDRY SERVICES

61. What places do you visit regularly to do **LAUNDRY**?
☐ Refresh Spot
☐ LAMP/People's Concern
☐ Public Sink (PIT Stop, parks, libraries, etc.)
☐ Sinks in restaurants, stores, etc. (include name/s): _____
☐ Shelters/Missions; include name/s:_____
☐ Private Laundromat (self-pay); include name/s:_____
☐ Other/more detail:_____
☐ Prefer not to answer

62. Why do you go to **WASH YOUR CLOTHES** in this place/these places?
☐ It's free/affordable
☐ It's open when I need it
☐ It's not crowded/I don't have to wait a long time
☐ It's close to where I stay
☐ It's clean
☐ I feel safe there
☐ It's wheelchair accessible
☐ It's child/pet friendly
☐ The staff/security guards are friendly and welcoming
☐ Other/more detail:_____
☐ Prefer not to answer

63. How often do you **WASH YOUR CLOTHES**? (Mark an X)

Everyday	Twice a Week	Once a Week	One a Month	None	Other	Prefer not to Answer

64. Have you ever been denied access to **WASH YOUR CLOTHES**, and if so, where did this happened?
- ☐ Yes,_____(locations)
- ☐ No, I have never been denied to laundry services
- ☐ Prefer not to answer

65. Why were you denied access to **WASH YOUR CLOTHES** there?
- ☐ It cost too much and could not afford it
- ☐ It was closed [out of service/outside hours of operation]
- ☐ I was turned away by staff, a guard, etc. because of my appearance
- ☐ It wasn't child/pet-friendly
- ☐ Other/more detail: _____
- ☐ None of the Above/ Not Applicable
- ☐ Prefer not to answer

HANDWASHING / SINKS

66. How often do you wash your hands? (Check box that applies for each category)

Situation	Soap or Sanitizer	Always	Often	Sometimes	Rarely	Never	Prefer not to answer
Before Preparing Food							
Before Eating Food							
After Using The Toilet							

67. Where do you go to **WASH YOUR HANDS**, when possible?
- ☐ Refresh Spot
- ☐ LAMP/People's Concern
- ☐ Public Sink (PIT Stop, parks, libraries, etc.)
- ☐ Sinks in restaurants, stores, etc. (include name/s): _____
- ☐ Shelters/Missions; include name/s:_____
- ☐ Church/Religious Organizations (include name/s): _____
- ☐ Other/more detail:_____
- ☐ Prefer not to answer

68. Why do you go to these places to **WASH YOUR HANDS,** rather than somewhere else?
- ☐ It's free/affordable
- ☐ It's open when I need it
- ☐ It's not crowded/I don't have to wait a long time
- ☐ It's close to where I stay
- ☐ It's clean
- ☐ I feel safe there

☐ It's wheelchair accessible
☐ It's child/pet friendly
☐ The staff/security guards are friendly and welcoming
☐ Other/more detail:

_____

☐ Prefer not to answer

HYGIENE SUPPLIES

69. What **HYGIENE SUPPLIES** do you need the most but are **difficult** to obtain?
☐ Supplies needed:_____
☐ None, I can easily access everything I need
☐ Don't know/Remember
☐ Prefer not to answer

70. Where do you obtain **HYGIENE SUPPLIES** when possible?
☐ Shelters/Missions; include name/s:_____
☐ Church/Religious Organizations (include name/s):_____
☐ Self-bought in stores/pharmacies
☐ Non-profits (include name/s):_____
☐ Clinics (include name/s):_____
☐ Other/more detail:_____
☐ Prefer not to answer

Section IV. Demographics
*In this section, you will be asked **basic demographic** questions. If at any point in this section there is a question that you do not wish to answer, please let me know and we will skip the question.*

71. What is your age? _____ (Write actual age)
☐ Prefer not to answer

72. What is your gender identity? (DO NOT read options)
☐ Female
☐ Male
☐ Transgender female
☐ Transgender male
☐ Do not identify with any
☐ Other: _____
☐ Prefer not to answer

73. What is your sexual orientation? (DO NOT read options)
☐ Heterosexual
☐ Bisexual
☐ Homosexual
☐ Asexual
☐ Queer
☐ Not Sure/Questioning
☐ Other: _____
☐ Prefer not to answer

74. Are you a U.S. citizen/permanent resident?
If you do not feel comfortable answering them, we would skip these questions.
☐ Yes
☐ No
☐ Prefer not to answer

75. What is your nationality? _____
☐ Prefer not to answer

76. What race/ethnicity do you identify yourself with? (DO **NOT** READ OPTIONS)
☐ White/Caucasian
☐ Black/African American
☐ Latino/Hispanic
☐ Asian
☐ American Indian/Alaska Native
☐ Native Hawaiian/Pacific Islander
☐ Other _____
☐ Prefer not to answer

77. What is your preferred language? _____
☐ Prefer not to Answer

78. What is your current marital status? (DO **NOT** READ OPTIONS)
☐ Single
☐ Married
☐ Separated
☐ Divorced
☐ Widowed
☐ Prefer not to answer

79. What is your highest level of education completed? (DO **NOT** READ OPTIONS)
☐ No Education
☐ 8th Grade or Less
☐ Some High School, Did Not Graduate
☐ High school diploma or GED
☐ Technical or vocational school
☐ Some college
☐ 4-Year college degree (Undergraduate)
☐ More than 4-year college graduate degree (Master's, Doctoral, M.D. degree)
☐ Other _____
☐ Prefer not to Answer

80. Are you currently employed?
Yes → **Go to PART A**
No → **Go to PART B**
Prefer not to answer
If "YES," complete the following question

80A. What is your current estimated **monthly** income? (Refer back to Q.6 Public Assistance)

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☐ Answer: _____ ($ monthly income)
☐ Prefer not to answer
☐ *If "NO" complete the following question*
☐ What is your current status?
☐ Retired
☐ Disabled
☐ Other_____
☐ Prefer not to answer

81. Have you ever served in the military?
☐ Yes → **Go to PART A**
☐ No
☐ Don't Know
☐ Prefer not to answer
If "NO," skip and move on to the next question (DO **NOT** READ OPTIONS)

   81A. What is your status?
   ☐ Active
   ☐ Reserve
   ☐ Honorable Discharge
   ☐ Dishonorable Discharge
   ☐ General Discharge
   ☐ Other Than Honorable Discharge
   ☐ Retired/Disabled
   ☐ Prefer not to answer

Section V. Health

The next questions are about your health conditions and access to health services. We understand that these questions could be embarrassing. If at any point in this survey there is a question or statement that you do not wish to answer, please let me know and we will go on to the next question.

82. In the past **12 months**, have you visited the Emergency Department and how many times?
   ☐ Yes: _____ (times in the past year AND **reason** for visit)
   ☐ No
   ☐ Prefer not to Answer

83. How often do you access health care services?
   ☐ Not Often
   ☐ Rarely
   ☐ Sometimes
   ☐ All the time
   ☐ Do not access health services
   ☐ Other: _____
   ☐ Prefer not to answer

84. What is your **biggest** health concern at the moment? _____

85. In the past **MONTH** (30 days), have you ever experienced or been diagnosed or any of the following health conditions? (Check all that applies)
    ☐ Dehydration
    ☐ Migraines/Headache
    ☐ Difficulty having bowel movement
    ☐ Skin infections (including staph, cellulitis)
    ☐ Urinary tract infections
    ☐ Head and or body lice
    ☐ Diarrhea/Loose stool
    ☐ Scabies
    ☐ Fungus
    ☐ Typhus
    ☐ Hepatitis A
    ☐ Other: _____
    ☐ None of the above
    ☐ Prefer not to answer

86. In the past **YEAR** (12 months) have you ever experienced or been diagnosed with any of the following health conditions? (Check all that applies)
    ☐ Dehydration
    ☐ Migraines/Headache
    ☐ Difficulty having bowel movement
    ☐ Skin infections (including staph, cellulitis)
    ☐ Urinary tract infections
    ☐ Head and or body lice
    ☐ Diarrhea/Loose stool
    ☐ Scabies
    ☐ Fungus
    ☐ Typhus
    ☐ Hepatitis A
    ☐ Other: _____
    ☐ None of the above
    ☐ Prefer not to answer

87. In the past **30 days,** how often have you had a bowel movement (able to poo)?
    ☐ 2 or more times a day
    ☐ Once a day
    ☐ 2 or more times a week
    ☐ Once a week
    ☐ 1-3 times a month
    ☐ Never
    ☐ Don't know/Remember
    ☐ Not applicable
    ☐ Prefer not to answer

88. Have you ever received the **Hepatitis A** vaccine (it is a vaccine usually given to children and consist of 2 doses, administered 6 months apart)?
    ☐ Yes
    ☐ No
    ☐ Don't know/Remember

☐ Prefer not to answer

89. In the past **MONTH** (30 days), have you ever stopped taking any prescribed medications because of the inability to cope with side effects (such as diarrhea, frequent urination, etc.) and difficulty accessing restrooms and other water services?
☐ Yes
☐ No
☐ Not applicable, not taking any medications
☐ Prefer not to answer

90. In the past **MONTH** (30 days), did you stopped you stopped taking any **psychiatric** medications because of the inability to cope with side effects?
☐ Yes
☐ No
☐ Not applicable, not taking any medications
☐ Prefer not to answer

91. In the past **30 days** have you taken hormonal therapy?
☐ Yes→ **GO TO PART A**
☐ No
☐ Prefer not to answer
If "YES" answer the following question

91A. Did you had access to a restroom and proper hygiene services when taking hormonal therapy?
☐ Yes, how so: _____
☐ No
☐ Not Applicable
☐ Prefer not to Answer

FOR FEMALE STUDY PARTICIPANTS.
92. Do you still experience your menstrual cycle?
☐ Yes → **Answer Questions A-C**
☐ No
☐ Not Applicable, Male Participant
☐ Prefer not to Answer
If "NO" skip the following questions

92A. Do you have concerns or difficulties regarding hygiene during your periods? If so, what are your concerns?
☐ Yes, Answer: _____
☐ No
☐ Prefer not to Answer

92B. Do you ever have issues acquiring feminine hygiene products? (For example: tampons, pads, wipes, etc.)?
☐ Yes, Answer: _____

☐ No
☐ Prefer not to Answer

92C. Do you take birth control?
☐ Yes, which kind: _____
☐ No
☐ Prefer not to Answer

93. In the past **30 days**, where have you obtained your meals and what kind of foods did they served/did you purchased?
☐ Market (self-bought)_____
☐ Sit down Restaurant_____
☐ Fast-food Restaurant_____
☐ Mission/Soup kitchen_____

94. On **average**, do you sleep in the day or night and how many hours of sleep?
☐ Morning, _____hours
☐ Night, _____ hours
☐ Prefer not to answer

95. Have you ever been arrested/incarcerated?
☐ Yes, _____ (number of times AND reason)
☐ No, never
☐ Prefer not to answer

96. Do you have solid waste piles near your living area?
☐ Yes
☐ No, never
☐ Prefer not to answer

97. How frequently is trash collected in the area?
☐ Everyday
☐ Once a week
☐ Twice a week
☐ Rarely/Not Enough
☐ Other: _____
☐ Prefer not to answer

98. How often do you drink alcoholic beverages?

Don't Drink	Monthly or less	2-4 times per month	2-3 times per week	4+ times per week	Prefer not to Answer

99. Have you ever used drugs other than those required for medical reasons? (**such as, marijuana, cocaine, heroin, hallucinogens, and inhalants, as well as the misuse of opioids, prescription pain relievers, tranquilizers, stimulants, and sedatives**)
☐ Yes, which ones:_____

☐ No, never
☐ Prefer not to answer

99A. How long has it been since you last used these drugs, in any form?
☐ Last used: _____ (**enter number of days, weeks, months, or years**)
☐ Not applicable, do not uses drugs
☐ Don't Know/Remember
☐ Prefer not to Answer

99B. Did you started using drugs when you became homeless or before?
☐ Started before I became homeless
☐ Started after I became homeless
☐ Not applicable, do not uses drugs
☐ Don't Know/Remember
☐ Prefer not to answer

99C. How expensive is it to get these drugs?
☐ Price: _____ (**insert $ amount**)
☐ Not applicable, do not uses drugs
☐ Don't Know/Remember
☐ Prefer not to answer

100. If you had the opportunity, would you consider moving into permanent housing?
☐ Yes
☐ No
☐ Don't Know/Remember
☐ Prefer not to answer

101. Is there anything else that you would like to share with us?
Answer:_____

Appendix B Closest Facility Analysis Tables

Table 3.4. Closest restroom facility model results for morning time of the day (N=186, not all responses shown)

Facility	Morning time restroom					Factors driving usage[a]		
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Tent	0	91	0	.00	.00	38	13	51
Refresh spot	13	32	349	17.31	.22	10	10	35
The People Concern	1	8	54	2.19	.20	5	2	8
Midnight mission	8	6	57	1.64	.30	2	2	4
St. Francis center	9	6	117	5.76	.66	4	2	3
Los Angeles mission	2	4	34	.77	.17	0	0	4
Union station	2	4	68	2.51	.51	3	2	1
Placita Olvera	11	4	19	1.25	.25	3	0	5
Grand park	1	4	46	2.08	.52	3	1	4
Union Rescue mission	0	3	7	.06	.01	1	1	2
City hall	6	3	9	.46	.15	1	0	3
McDonalds #3	1	3	8	.73	.21	1	0	3
Downtown women's center	4	2	9	.18	.10	0	1	1
Weingart	10	2	2	.05	.02	1	0	2

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Table 3.5. Closest restroom facility model results for afternoon time of the day (N=163 not all responses shown)

Facility	Afternoon time restroom					Factors driving usage[a]		
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Tent	0	45	0	.00	.00	16	8	36
Refresh spot	11	29	309	17.34	.22	13	10	31
Midnight mission	7	12	135	3.54	.32	2	2	12
The People Concern	1	9	117	4.10	.29	0	1	7
Union station	2	8	249	17.08	1.48	4	1	5
LA Central library	1	7	283	15.78	1.16	0	3	6
Los Angeles mission	2	6	88	3.01	.22	2	0	7
Grand park	0	6	130	4.54	.62	6	1	5
Union Rescue mission	0	5	20	.35	.03	1	1	4
Placita Olvera	11	5	61	2.19	.24	2	1	6
McDonalds #3	1	4	67	3.96	.20	3	0	3
St. Francis center	7	3	49	1.31	.10	2	1	1
Downtown Women's center	3	1	37	7.22	7.22	2	1	2
Weingart	11	2	2	.05	.02	1	0	1

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Table 3.6. Closest restroom facility model results for evening time of the day (N=191, not all responses shown)

Facility	Night time restroom					Factors driving usage[a]		
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Tent	0	114	0	.00	.00	50	12	87
Refresh spot	13	32	272	15.29	.18	14	12	31
Midnight mission	6	10	86	3.00	.20	2	3	11
Union Rescue mission	0	7	24	.38	.01	1	1	3
The People Concern	1	6	36	1.47	.20	2	0	5
Union station	2	6	91	6.54	.31	3	1	4
PIT Stop #4	22	2	17	.42	.21	2	1	2
Los Angeles mission	2	2	8	.76	.38	0	0	2
Weingart center	11	2	2	.05	.02	1	0	2
McDonalds #3	2	2	42	1.24	.62	1	0	1
Grand park	2	2	11	.73	.36	0	0	2
Downtown women's center	4	1	2	.05	.05	1	0	0
Little Tokyo mall	2	1	21	.47	.47	1	0	1
Police department	4	1	27	3.29	3.29	1	1	1

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Table 3.7. Closest shower facility model results (N=203, not all responses shown)

Facility	Shower					Factors driving usage[a]		
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Tent	0	8	0	.00	.00	2	1	5
Refresh spot	14	84	844	93.10	.36	26	24	81
St. Francis center	26	26	183	41.44	.51	11	4	20
Midnight mission	6	22	183	14.87	.37	8	4	22
The People Concern	2	19	113	14.43	.24	6	4	22
LavaMae[x]	32	11	112	25.6	.70	2	1	8
Downtown women's center	19	8	72	10.71	.32	3	3	10
Los Angeles mission	4	8	42	3.60	.28	1	3	8
Union Rescue mission	6	7	41	3.07	.25	1	2	7
Weingart center	6	3	6	.21	.05	1	0	3
Grand park	5	2	4	.51	.36	2	2	0
YMCA gym	1	1	14	.85	.85	0	1	0
Planet Fitness	3	1	7	1.28	1.28	0	1	1
Shower of Hope	0	1	29	2.82	2.82	0	0	2

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Table 3.8. Closest laundry facility model results (N=133, not all responses shown)

| Facility | Laundry | | | | | Factors driving usage[a] | | |
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Tent	0	16	0	.00	.00	4	6	14
Refresh spot	18	81	503	65.21	.34	24	56	41
The People Concern	2	22	99	18.43	.33	8	7	11
Weingart center	12	3	9	.27	.05	2	2	3
Downtown women's center	20	2	6	.31	.15	1	1	1
Laundromat 1	0	2	39	8.28	4.14	1	0	3
St. Francis center	11	1	1	.33	.33	0	0	1
Grand park	24	1	1	.66	.66	0	0	1
Laundromat 2	3	1	16	2.25	2.25	0	0	1
Burbank aid center	0	1	22	12.95	12.95	0	1	0
Laundromat 3	2	1	15	2.17	2.17	0	0	0
Union Rescue mission	3	0	0	.00	.00	NA	NA	NA
Midnight mission	1	0	0	.00	.00	NA	NA	NA
Los Angeles mission	16	0	0	.00	.00	NA	NA	NA

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Table 3.9. Closest drinking water facility model results (N=91, not all responses shown)

Facility	Drinking water					Factors driving usage[a]		
	Closest to n people	Total actual use	Total facilities skipped	Total distance traveled (mi)	Median distance traveled (mi)	Distance (n)	Free/ affordable (n)	Accessible[b] (n)
Refresh spot	9	13	113	5.33	.12	5	2	6
Midnight mission	4	9	115	7.80	.37	2	2	4
St. Francis center	8	9	111	14.82	.03	5	2	3
Hippie soup kitchen	9	5	13	.87	.16	3	2	2
Placita Olvera	7	5	16	1.45	.22	1	4	6
Downtown women's center	6	4	51	3.81	.24	1	0	4
The People Concern	2	4	15	.65	.20	1	0	1
LA Central library	1	4	84	17.00	.97	2	1	5
Los Angeles mission	3	3	20	.63	.25	1	1	2
McDonalds #1	1	3	95	4.60	1.50	0	0	4
Gladys park	0	3	19	.70	.20	1	0	2
San Julian park	1	3	23	.95	.33	1	0	0
Daiso store	0	3	84	4.71	.96	0	2	2
Weingart center	7	2	2	.05	.02	1	0	3

[a]Factors included in this model based on people's responses as to why they utilized these specific services.
[b]Accessibility is an aggregated factor measured in terms of safety, open, ADA accessible, friendly staff, pet friendly, and clean.

Appendix C Interview Tool Guide

Homelessness and Water Insecurity in Los Angeles
Service Provider Interview

Interviewer Instructions: Please read the following statement to study participants

My name is _____ and we are from the Spatial Sciences Institute at USC. We are conducting a study that aims to better understand the lives of homeless people in our communities. Specifically, we wish to study the forms of water, sanitation, and hygiene (WaSH) insecurity experienced by homeless people on a daily basis in your community. The purpose of this meeting is to learn from you about the services your organization provides to the community. We are also interested in learning about your perspectives on this matter of water security and exchange knowledge in what policies and solutions are needed to better address homelessness in our communities.

*I want to remind you that this interview is completely voluntary and your answers will be kept **confidential**. If at any point in this interview, you have a question or statement you do not wish to answer, please let me know and we will go on to the next question. The **interview** will take about 30-60 minutes. With your permission, we would like to audio-record this interview for transcription purposes to analyze the common themes generated in the answers. If you do not want to be recorded, handwritten notes will be taken.*

Are you over the age of 18?
- ☐ Yes → Continue with Survey
- ☐ No → **Stop interview**. Participant does not qualify. Thank them for their time and move on to the next person

Interview Recorded:
- ☐ Yes
- ☐ No

Interview Completed:
- ☐ Yes
- ☐ No

Participant's Study ID: ☐

Interviewer Initials: ☐

Today's Date: _____

Address of Service Provider/Organization:

_____

1. Name of study participant: _____ (if participant feels comfortable disclosing)

2. Name of organization participant work: _____

3. How many **years** have you been working in [name of organization]?
   _____

4. Can you tell me about the specific services provided by your organization?

5. How does your organization prioritize the delivery of services to homeless members of your community?

6. Can you describe models of community engagement within your organization? In other words, are homeless people involved in the decision/planning process?

WaSH Access

7. How does your organization decides **where** services are allocated?

   [**Note**: if this is a WaSH service provider, then services specify, where WaSH services are allocated (e.g., water = drinking water; sanitation = restrooms; hygiene = showers, laundry and handwashing stations)

8. To what extent do you believe increasing access to water, sanitation, and hygiene services is part of the current homeless crisis agenda? Can you say a little bit more about that?

9. Where do you believe the biggest shortage is across the different types of water, sanitation, and hygiene facilities? In other words, which is/are in shortest supply in the community? (e.g., restrooms?, laundry services?, showers? or public fountains?)

10. What do you believe are the **main barriers** that prevent people experiencing homelessness from **gaining access** to safe and equitable water, sanitation, and hygiene services?

11. What do believe are the **main obstacles** to **providing** water, sanitation, and hygiene (WaSH) services to the community **at all times of the day**?

12. What do you believe is one of **the best thing** the City has done to address the water needs of the community of Skid Row? Why is that?

13. What do you believe has been an **unsustainable/detrimental** way in which the City has addressed the needs of people experiencing homelessness? Why is this a bad example to follow? What positive learning can we take from this?

Prevention

14. How might the access of water, sanitation, and hygiene services help reduce the cycle of poverty/homelessness or does it sustains it?
[**Note:** Criticism that I have received is that if we were to provide these services, people will not want to transition to permanent housing]

15. What are different types of **immediate strategies/interventions** that can be provided to **increase** access to water, sanitation, and hygiene services in the community?

16. Who do you believe has the responsibility or is best placed to address the scarcity of water services in the community?

17. Are there other organizations that would be more appropriate to carry out this type of work?

Vulnerability Among Homeless Populations

18. Who do you believe are the **most** vulnerable groups within the homeless community in accessing WaSH services?

19. What role do you think race plays in gaining access to different types of water services in the community of Skid Row?

20. How about gender identity and sexual orientation, how do you believe it impacts one's access to water services in Skid Row?

Health

21. How has COVID-19 impacted the way your organization provides services to the community?

22. How has COVID-19 pandemic impacted access to WaSH services in the community as a whole? Have you noticed the impact?

23. With the current pandemic, have you seen if there are any **new temporary or permanent WaSH facilities** set up for the homeless community?

24. In what ways can the access of water services impact people's health and well-being?

25. How have you seen lack of restrooms and hygiene services impacts women's health?

26. What is the most commonly reported health condition by people experiencing homelessness?

Criminalization

27. Are there any criminalization strategies that you consider detrimental in addressing homelessness in Los Angeles? (e.g., street clean-ups, public urination, encampments ticketing, loitering)

General

28. How do you believe we can break the stigma of homelessness?

29. Who do you believe bears the cost of both the provision of homelessness services and for homelessness crisis?

30. Is there anything else that you would like to share with us today?

31. Are there any service providers that you would recommend us reach out that may be interested in helping us with this project?

Other:

32. **[To LAPD only]** As a result of the COVID-19 pandemic, are there any new protocols to address emergency calls in Skid Row?

33. **[To LAPD only]** How are homeless outreach police officers critical to connecting people experiencing homelessness to services?

Housing Services

34. **[To Housing Services only]** How long does the process take for a housing project to be completed? From start to finish?

35. **[To Housing Services only]** What are the roadblocks in speedy the development process and get housing approved?