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Unmet needs of individuals experiencing homelessness near San Diego waterways: The roles of displacement and overburdened service systems

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Abstract: Homelessness is among the most urgent crises facing the United States. In addition to tents or sleeping bags on urban sidewalks, many people experiencing homelessness exist outside of public view, along rivers and other waterways, and elsewhere “out in nature.” This paper explores reasons individuals live near waterways, specific health and human service needs of this population, and why these needs remain largely unmet. We conducted in-depth, semi-structured interviews with 84 individuals experiencing homelessness, 56 of whom were currently residing or had previously resided near the San Diego River or in nearby canyons, as well as seven key informant interviews with homelessness services and environmental conservation organizations. Our findings reveal that people live near urban waterways for several reasons, including the competing influences of systems designed to ameliorate the impacts of homelessness, such as criminal justice systems, public health systems, and the emergency shelter system.

Introduction

Homelessness is among the most urgent crises facing the United States. California is home to the largest number of people experiencing homelessness in the country, accounting for nearly a quarter of all unhoused people and almost half of those who are unsheltered (Henry et al., 2018). In addition to tents or sleeping bags on sidewalks, many people experiencing homelessness exist outside of public view, along rivers and other waterways, in canyons, and elsewhere “out in nature.” In California, many unsheltered individuals live along waterways, such as the American River near Sacramento (Gonzalez, 2018), the San Diego River (Anderson, 2017; Smith, 2017), and the Santa Ana River in Orange County (Pimentel, 2017). Little is known about the toll this takes on the people existing in this context, the natural environment, and public health overall.

This article is drawn from a broader study exploring the ways in which social and ecological systems interact when people experiencing homelessness live near waterways, the specific health and human service needs that unsheltered people identify, and how conflicting systems cause these needs to remain largely unmet. This research was driven by a broader set of systems questions generated in collaboration with environmental engineering researchers: Are high levels of fecal contamination in the San Diego River related to the sanitation practices of individuals living in the riverbed, related to other infrastructure concerns (e.g. leaking sewer pipes that run adjacent to the river), or related to multiple factors? If homeless encampments have an impact on water quality, what practical solutions might ameliorate fecal contamination and other environmental impacts? Driven by these questions, this project took an inductive approach to understanding why some people experiencing homelessness live in waterways, and their sanitation and hygiene survival strategies once they are there.

In this article, we do not address these underlying environmental and water quality concerns, but present findings from the human subjects portion of the study. We draw on in-depth, semi-structured interviews with 84 individuals experiencing homelessness, 56 of whom were currently residing near the San Diego River or in nearby canyons at the time of the interview, or who had at some point previously stayed along the river or in canyons. These interviews are complemented by informational interviews with seven staff members of local homelessness services and environmental conservation organizations. The findings generated through this inductive approach reveal that unsheltered people live near urban waterways for a number of reasons, many of which are driven by the competing influences of systems designed to ameliorate the impacts of homelessness. These include criminal justice systems' criminalization of homelessness, displacement due to public health systems' cleanup efforts in downtown San Diego following a Hepatitis A outbreak, and a desire by some individuals experiencing homelessness to avoid the emergency shelter system.

As Miller and Page (2007) so eloquently note, "Adaptive social systems are composed of interacting, thoughtful (but perhaps not brilliant) agents" (p. 3). As we analyzed our data, we found that some systems designed to address homelessness further marginalize people experiencing homelessness, making this population less accessible to other systems that seek to provide assistance. The value of understanding system dynamics and applying complex system analysis has received some acknowledgement by scholars in the realm of homelessness (see for example Fowler et al., 2018, 2019) and in public health research more broadly (see for example Diez Roux, 2011, Luke & Stamatakis, 2012, Shiell et al., 2008). Our data-driven, inductive approach has illuminated the value of a systems-focused analysis. This article does not attempt to model complex systems at this early stage, but rather, attempts to identify the systems people

experiencing homelessness view as impacting their day-to-day lives, and how these systems interact in a larger complex system. The perspectives of those who exist within these interacting systems contributes to future system analyses of the dynamics of health and homelessness. Our study also contributes to the very limited academic research that gives (often brief or tangential) attention to the subpopulation of individuals experiencing homelessness who live in waterways (exceptions being DeMyers et al., 2017; DuVuono-Powell, 2013; Loftus-Farren, 2011; Palta et al., 2016; Vickery, 2017), a group that is important due to its marginality, its environmental impacts, and its impacts on the broader health and safety of community residents (Given et al., 2006; Plummer, 2019; Soller, et al., 2017).

Literature review

Homelessness in California

Homelessness has been an ongoing social problem in the United States, although rates of homelessness have varied over time (Bonds & Martin, 2016; DeVuono-Powell, 2013; Hopper, 2003; Kusmer, 2001). Economic causes of homelessness such as a lack of affordable housing (Herring & Lutz, 2015) and lack of access to regular employment at a living wage (Bonds & Martin, 2016) are made more complex by issues of substance dependence and mental illness, and their corresponding health and social policy regimes (Bonds & Martin, 2016; Markowitz, 2006; National Coalition for the Homeless [NCH], 2009; Treatment Advocacy Center [TAC], 2016). Reduction of federal anti-poverty programs, destruction of and a decline in the building of low-income housing, and deinstitutionalization of the mentally ill all contributed to a rise in homelessness in recent decades (Dear & Wolch, 1987; DeVuono-Powell, 2013; Herring & Lutz, 2015; Markowitz, 2006; Murphy 2009; TAC, 2016, Zlotnick et al., 2013). A substantial reduction in government provision of affordable housing since the late 1970s has been

accompanied by an exponential increase in provision of emergency shelters and specialized housing for people experiencing homelessness (Herring & Lutz, 2015). Among individuals experiencing homelessness, veterans and formerly institutionalized individuals such as former foster youth, individuals with mental illness, individuals identifying as LGBTQ+, and formerly-incarcerated people are overrepresented (Call et al., 2019; DeVuono-Powell, 2013; Greenberg & Rosenheck, 2008; National Alliance to End Homelessness [NAEH], 2015; Schinka & Byrne, 2018; Shah et al., 2015; Szymkowiak & Montgomery, 2019; TAC, 2009; Zlotnick et al., 2013). The trauma of living on the streets also contributes to substance abuse and mental health concerns, making these issues both contributors to and symptoms of homelessness (DeVuono-Powell, 2013; Levy & O'Connell, 2004; NCH, 2017).

In California, homelessness is exacerbated by a crisis in housing affordability. The affordability crisis is driven by an availability crisis: the state has 1.5 million fewer affordable housing units than are needed, and only one-third of the number of very low income units needed (Environmental Law Clinic [ELC] and Environmental Justice Coalition for Water [EJCW], 2018). Fifty-seven percent of renters in the San Diego region spent at least 30% of their income on rent in 2017, tenth on a list of most rent-burdened cities in the country (Levy, 2017). Like other California cities, San Diego frequently is named among the least affordable housing markets in the United States, leading the category in 2015 (Horn, 2015), and second on the list in 2016 (Cox, 2017). In 2015, in more than 93% of San Diego zip codes, fewer than 50% of households could qualify to buy a median priced home, marking the least affordability of any city in the study (Horn, 2015). As of May 2019, real estate industry researchers estimated that San Diegans need an income of about \$125,000 to purchase a home, with an average monthly payment of \$2,911 for a median priced single family home, costing \$620,000 (HSH, 2019).

On any given night in California, approximately 130,000 people are homeless, over 32,000 of whom are considered chronically homeless (NAEH, 2019). California has the highest proportion of unsheltered individuals in its homeless population, with 78% of individuals experiencing homelessness in California staying in places not meant for sleeping, such as streets, vehicles, or parks (Housing and Urban Development [HUD], 2018). Far fewer shelter beds, only approximately 27,000, were available for individuals experiencing homelessness in the state in 2018. California's homelessness problem persists in spite of leading the country in the number of beds in permanent supportive housing, rapid rehousing, and transitional housing settings. California also leads the nation in key indicators of risk for homelessness, including the number of people living “doubled up” with family and friends (just over 571,000 individuals), and the number of people facing severe housing cost burden (nearly 823,000 individuals) (NAEH, 2019). San Diego City and County had the fourth highest number of total people experiencing homelessness in the United States in 2018 (NAEH, 2019). The annual point-in-time count in 2019 indicates that there are just over 8,100 individuals experiencing homelessness living in San Diego County, with nearly 4,500 being unsheltered. Just over 5,000 of these individuals were counted in the City of San Diego (Regional Task Force on the Homeless [RTFH], 2019b).

While homeless encampments are not a new phenomenon in the United States, for example being well documented during the Great Depression of the 1930s (Kusmer, 2001), only recently have encampments reemerged as part of the public’s perception of the modern problem of homelessness (DeVuono-Powell, 2013; Loftus-Farren, 2011). Since the 1980s, smaller illegal encampments have become common in U.S. cities (Herring & Lutz, 2015). California has the dubious distinction of being a forerunner in encampment development, with encampments re-emerging in many cities following the Great Recession and amidst a crisis in affordable housing

(Herring & Lutz, 2015; Loftus-Farren, 2011). In fact, the largest tent cities to form in the United States since the Great Depression are located in California, such as the well-known American River tent city in Sacramento (NCH, 2010). Herring and Lutz (2015) point out that encampment growth is common both in cities experiencing economic decline (e.g., Fresno) and in cities experiencing rapid economic growth and gentrification (e.g., San Francisco). This indicates that homeless encampments are not only a product of economic decline, but also a product of increasing inequality in wealthier communities. Relatively little research focuses specifically on encampments in waterways (exceptions being DeVuono-Powell 2013; Palta et al., 2016), which are the focus of this study.

Reasons individuals experiencing homelessness live near waterways

DeVuono-Powell (2013) recounts that during her research, an outreach worker in the San Francisco Bay area told her, “Wherever there is water, there are encampments” (p. 16). There is limited research on homeless encampments in waterways; in fact, to our knowledge, only five academic studies give attention to this subpopulation (DeMyers et al., 2017; DuVuono-Powell, 2013; Palta et. al, 2016; Vickery, 2017). Only two of these studies make use of in-depth interview data from individuals experiencing homelessness themselves (DuVuono-Powell, 2013; Vickery, 2017). We present that literature here, along with other information we can extrapolate to the river environment based on studies of homeless encampments in non-riparian locations, and of individuals experiencing homelessness who engage in “rough sleeping.”

While the reasons why homeless encampments are located near waterways are relatively unexamined, it is likely due at least in part to the ecosystem services that river-adjacent environments provide for encampment residents (Palta et al., 2016). Ecosystem services are the goods and benefits the environment provides for human wellbeing (Palta et al., 2016). The scant

research touching upon homelessness in waterways focuses on drier locations such as Arizona (DeMyers et al, 2017; Palta et al., 2016), California (DeVuono-Powell, 2013; NCH, 2010; Loftus-Farren, 2011), and Colorado (Vickery, 2017). This suggests that the ecosystem services provided by streams and rivers may be particularly valued in drier climates, where dense vegetation is not prevalent and shade and water access are coveted resources (Sanchez, 2011). Urban waterways can provide individuals experiencing homelessness with drinking water, opportunities for fishing, water for washing and cooking, and cooler, shaded areas (DeMyers et al., 2017; DeVuono-Powell, 2013; Palta et al., 2016; Sanchez, 2011). Some encampment residents also report enjoying the peaceful and calming effects of being near water, and the enjoyment of being surrounded by nature more generally (DeMyers et al., 2017; DeVuono-Powell, 2013; Palta et al., 2016). Waterways and their associated vegetation provide benefits by concealing encampments from public view, and residents appreciate the sense of safety and privacy riverbeds afford (DeVuono-Powell, 2013; Palta et al., 2016).

Individuals experiencing homelessness are not only drawn to waterways by ecosystem services, but they are also pushed into waterways by legal systems and negative public opinion. Encampments near waterways result in part from laws, regulations, and public attention, which displace individuals experiencing homelessness from urban centers (DeVuono-Powell, 2013; Herring & Lutz, 2015). In many cities anti-camping ordinances, prohibitions on sleeping, storing ones' belongings on sidewalks or in parks, and prohibitions on cooking or sharing food in public make staying in urban centers increasingly difficult for individuals experiencing homelessness (Bonds & Martin, 2016; Herring & Lutz, 2015; Minnery & Greenhalgh, 2007; Mitchell & Heynen, 2009; Murphy, 2009; NLCHP, 2014; Palta et al., 2016). Policing activity drives individuals experiencing homelessness into less central locations (DeVuono-Powell, 2013;

Herring & Lutz, 2015; Murphy, 2009; Stuart, 2014; Welsh & Abdel-Samad, 2018). Public opinion increasingly demands that unhoused people be removed from public view lest they have negative impacts on local businesses or home values (Bonds & Martin, 2016). While camping in waterways is often technically prohibited, a lack of public attention to these public lands often makes enforcement less likely (Bonds & Martin, 2016; Palta et al., 2016). Knowledge of jurisdictional boundaries and perceptions of the degree of enforcement by different agencies influences choices regarding camp location (DeVuono-Powell, 2013; Herring & Lutz, 2015).

While encampment residents may choose to live near waterways for the ecosystem services and jurisdictional protections these locations offer, it is important to note that living in waterways comes with specific health risks. In many urban waterways, water quality is poor enough that it is frequently unsafe for drinking, bathing, or other contact with human skin (Palta et al., 2016). Flooding poses a serious hazard to encampment residents, especially in drier areas of the United States where the rapid rise of water during flash flooding or following storms is common (DeVuono-Powell, 2013; Vickery, 2017). While waterways provide important shade and temperature regulating benefits, especially in hotter climates (Palta et al., 2016), encampment residents risk exposure to poisonous plants, insect bites, and snake bites that may cause them harm (Zlotnick et al., 2013). Distance from sources of safe drinking water and the need to haul drinking water into riverbed encampments may heighten risk of dehydration (DeMyers et al., 2017). While hygiene and sanitation pose problems for many unhoused people, especially those who sleep outdoors (Leibler et al., 2017), there is an even lower level of access to sanitation facilities in riverbeds (DeMyers et al., 2017) which may increase risk of exposure to fecal matter that can spread diseases such as Hepatitis A and shigellosis. The comparatively remote location of many riverbed encampments may put individuals at increased risk for

victimization. Individuals with severe mental illness often prefer to live in less central locations (TAC, 2009), and those living in waterways may be even less likely to receive needed treatment. Living in difficult-to-find locations is a known barrier to health care access; while health care services for the homeless typically use mobile strategies and outreach workers as a means of reaching individuals in out-of-the-way locations (Zlotnick et al., 2013), as our data show, many service providers lack the resources to engage river dwelling populations.

Homelessness and housing strategies

In spite of the national scope of homelessness in the United States, responsibility for dealing with issues associated with homelessness typically lies with local governments and not-for-profit organizations (DeVuono-Powell, 2013; Murphy, 2009). The provision of homelessness services at the local level allows for greater variation and experimentation in addressing homelessness (Murphy, 2009), and local governments have piloted a variety of strategies. Homelessness is costly for cities, and research suggests that effective prevention efforts, even if they were broadly targeted, would be less expensive than interventions after individuals become homeless (Gubits et al., 2016).

Local governments have addressed housing insecurity through use of single occupancy hotel rooms (see for examples Garcia, 2017; Murphy 2009), and legally sanctioned (or at least tolerated) tent cities (see Herring & Lutz, 2015; Loftus-Farren, 2011; NCH, 2010; Sparks, 2012). Rapid re-housing programs provide crisis intervention to minimize the amount of time a person experiences homelessness, typically providing housing search services and short-term assistance with rent and deposit costs (Gubits et al., 2013). Permanent supportive housing is gaining rapidly in prevalence as a strategy for addressing homelessness (NAEH, 2019). Supportive housing, sometimes called transitional housing, is housing that offers additional intensive services such as

physical and mental health services, life skills and financial management support, and opportunities for education and employment (Gubits et al., 2013). Finally, housing subsidies, often called housing choice vouchers, addresses homelessness by providing individuals with funding to rent housing on the private rental market, but typically does not provide any additional support. This is the type of support with the longest time horizon, as support can be indefinite, depending on the policies of the local public housing authority (Gubits et al., 2013).

The primacy of emergency shelters

In spite of the tools described above, emergency shelter provision remains a primary tool for addressing homelessness in many localities (Herring & Lutz 2015; Murphy 2009; NAEH, 2019). In fact, emergency shelter provision is such a pervasive strategy that professionals in housing and homelessness often refer to the emergency shelters as “usual care” (Gubits et al., 2013). Shelters vary widely in terms of the associated services they might provide; in many cases they provide only shelter – a roof and mat or bed – and may lack even meal provision (Murphy, 2009), though some provide a comprehensive array of health services and other supports (Schaner, 2007). In spite of a continual growth of shelter provision in the U.S., chronic shelter bed shortages are ubiquitous in many U.S. cities (Herring & Lutz, 2015; Murphy, 2009). For example, in California in 2018, there were only sufficient shelter beds to serve about 21% of individuals experiencing homelessness in the state (NAEH, 2019).

Even when beds are available, shelters are not a desirable choice for many people experiencing homelessness. Shelters have wide variation in terms of provision of meals, training of staff, and other baseline indicators of quality of service (Murphy, 2009). Shelter environments are reported by numerous individuals experiencing homelessness to be unsafe sites of violence and victimization (DeVuono-Powell, 2013; Herring & Lutz, 2015; Murphy, 2009; Palta et al.,

2016). Shelters are often reported as sites of drug use, a deterrent for individuals experiencing homelessness who are struggling with addiction and trying to “get clean” (DeVuono-Powell, 2013; Murphy, 2009). Shelters can be crowded and loud, an obstacle for many suffering from mental illness who may find such settings overwhelming (Murphy, 2009).

Further, shelters often are segregated by sex and do not permit pets, requiring people to separate from their partner or a beloved animal who provides emotional support (DeVuono-Powell, 2013; Herring & Lutz, 2015; NCH, 2010). Shelters often lack privacy and secure storage space and are perceived to have excessive rules (DeVuono-Powell 2013, Herring & Lutz, 2015; NCH, 2010; Palta et al., 2016). It should be noted that despite negative perceptions of shelters, shelter settings vary widely, and research indicates some beneficial impacts of staying in shelters that provide comprehensive services, such as improved health status and greater health insurance enrollment rates (Schanzer et al., 2007).

Health needs of unsheltered individuals

It is well established that the experience of homelessness harms health. Pre-existing health concerns contribute to homelessness (Levy & O’Connell, 2004; Schanzer et al., 2007; Schinka & Byrne, 2018; Zlotnick et al., 2013), and health conditions can be caused or exacerbated by homelessness (American Psychological Association [APA], n.d.; Bourgois & Schonberg, 2009; Kidder et al., 2007; Levy & O’Connell, 2004; O’Connell et al., 2010; Schanzer et al., 2007; Schinka & Byrne, 2018; Zlotnick et al., 2013). Stated simply, housing itself matters: in a longitudinal study, individuals experiencing homelessness observed a significant decrease in rates of high blood pressure upon finding stable housing (Schanzer et al., 2007).

People experiencing homelessness often suffer from an average of eight to nine simultaneous medical conditions (Levy & O’Connell, 2004). Unhoused people are admitted to

the hospital five times more often than people with permanent housing, and have longer hospital stays (Schanzer et al., 2007). People experiencing homelessness have an increased risk for early death (Levy & O’Connell, 2004; O’Connell et al., 2010), with an average lifespan of less than 45 years (Levy & O’Connell, 2004). The experience of homelessness itself accelerates the effects of aging on typical chronic diseases and diseases common in older adults, with some individuals suffering with disease conditions more typical for people twenty years older (Brown et al., 2013; Brown et al., 2017; Schinka & Byrne, 2018). “Rough sleepers” who avoid the shelter system are more likely to seek only emergency care, and in one study had a mortality rate of 40% (O’Connell et al., 2010; see also Bourgois & Schonberg, 2009).

Mental health, trauma and victimization, and substance abuse are well-documented challenges among individuals experiencing homelessness. Estimates of the rates of mental health diagnoses among the homeless population vary widely, but all are high. It is estimated that one in three (Markowitz, 2006; TAC, 2009) to one in four (NCH, 2009) unhoused people in the United States suffer from severe mental illness, compared to 6% of the general population (NCH, 2009). Mental illness can be both a cause of homelessness (Markowitz, 2006; NCH 2009), and a consequence of the stress of homelessness (Levy and O’Connor, 2004). Similarly, experiences of trauma, violence, and victimization both increase the likelihood one may experience homelessness, and are a common consequence of the experience of homelessness (Bourgois & Schonberg, 2009; Huey, 2016). Homelessness is more likely among individuals who have experienced childhood trauma (Schinka & Byrne, 2018), domestic violence, physical or sexual assault (Zlotnick et al., 2013), combat exposure (Schinka & Byrne, 2018; Szymkowiak & Montgomery, 2019; Zlotnick et al., 2013), and military sexual trauma (Szymkowiak & Montgomery, 2019). Unhoused people are commonly victims of random violence (Levy &

O'Connell, 2004; O'Connell et al., 2010), and Levy & O'Connell (2004) indicate that more than half of women experiencing homelessness have been sexually assaulted.

Rates of substance abuse, including both alcohol and street drugs, are higher among individuals experiencing homelessness than the general population (Didenko & Pankratz, 2007; Kidder et al., 2007; NCH, 2017; Schanzer et al., 2007). As many as one in three individuals experiencing homelessness struggle with drug and alcohol abuse (NCH, 2017; Polcin, 2015). While problems with substance use can be causes of homelessness, substance use is also a common coping mechanism for dealing with the stress of homelessness (Didenko & Pankratz, 2007; Levy & O'Connell, 2004; NCH, 2017; Polcin, 2015).

Challenges of sanitation and hygiene

People experiencing homelessness live with the daily challenge of accessing sanitation and hygiene services, which is the major focus of this article (Leibler et al., 2017). In California, access to water and sanitation for unsheltered people is worse than the levels required internationally for refugee camps (ELC & EJCW, 2018). This lack of access compounds poor hygiene practices that are common among people living with mental illness and substance abuse.

Hygiene is well known to reduce risk of infectious disease and promote good mental and physical health (Leibler et al., 2017). The health risks of poor hygiene are numerous. In addition to sometimes deadly consequences from parasites and bacterial infections (Levy & O'Connell, 2004; O'Connell et al., 2010; Zlotnick et al., 2013), many individuals experiencing unsheltered homelessness at least occasionally engage in open defecation due to a lack of bathroom access (ELC & EJCW, 2018; Murphy 2019). Open defecation and an inability to wash hands afterward pose serious risks of communicable disease. Unsheltered people live in conditions that put them at risk for diarrheal illnesses more common in the developing world (Leibler et al., 2017). San

Diego made national news for a Hepatitis A outbreak in the homeless population in 2017 (see, for example San Diego Health and Human Services [SDHHS], n.d.; Call et al., 2019), and responded with temporary deployment of portable toilets and handwashing stations (which have since been removed – see Murphy, 2019; Call et al., 2019), in addition to vaccination efforts. Similar Hepatitis A outbreaks occurred among unsheltered homeless in Los Angeles and Santa Cruz County. In spite of unsheltered individuals experiencing making up only 0.003% of the population of California, during the outbreaks in these three locations, more than 50% of those infected were experiencing unsheltered homelessness, and 71% of those who died were experiencing unsheltered homelessness (ELC & EJCW, 2018).

Accessing health and human services

Individuals experiencing homelessness face many challenges in accessing and using services. Bureaucratic procedures and complex and confusing processes make interacting with agencies challenging for many vulnerable populations (Brodkin & Maimundar, 2010; Soss, 2002), including individuals experiencing homelessness (Alden, 2015a, 2015b; Murphy, 2009). Lack of a physical address or identification documents complicates intake processes (Zlotnick et al., 2013). Different perceptions of time, and the labor-intensive process of process of accomplishing basic tasks of survival, can interfere with individuals' ability to interact effectively with providers, for example by keeping appointments with caseworkers and health care providers (DeVuono-Powell, 2013; Kidder et al., 2007; Levy & O'Connell, 2004; O'Connell et al., 2010; Zlotnick et al., 2013). Lack of a physical home makes self-care and treatment adherence challenging, presenting barriers to storing medications appropriately or taking medications on time (Kidder et al., 2007; Kushel et al., 2001; Zlotnick et al., 2013).

Individuals experiencing homelessness also lack family and social networks that many of us rely on during times of illness (Levy & O'Connell, 2004).

Physical location is another factor hampering service access. NIMBY (not in my backyard) movements increasingly push individuals experiencing homelessness – as well as service providers – to less accessible parts of local communities (Bonds & Martin, 2016). Difficult to access locations for doctors and clinics are one of a number of factors that have made emergency rooms a primary health care provider for individuals experiencing homelessness (Schanzer et al., 2007; Zlotnick et al., 2013). Many programs, such as healthcare for homeless (HCH) projects and health respite care programs (Levy & O'Connell 2004, O'Connell et al., 2010), and supportive housing programs (NCH, 2009) make a concerted effort to apply engaged, multidisciplinary approaches to serving the needs of individuals experiencing homelessness, with positive outcomes. Substantial time invested in developing trust and relationships with individuals experiencing homelessness is key, along with broad collaborative networks that give individuals the experience of a one-stop shop for services (Levy & O'Connell, 2004; O'Connell et al., 2010; Zlotnick et al., 2013).

Nonetheless, service providers find themselves faced with a distrustful population, often interested in avoiding institutions (Levy & O'Connell, 2004; Zlotnick et al., 2013). Despite the good intentions of many health care providers, health care systems are not currently designed to address the intensive needs of individuals experiencing homelessness (Levy & O'Connell, 2004). In healthcare settings, individuals experiencing homelessness often face apathy, discrimination, and disrespect (Bourgois & Schonberg, 2009; Zlotnick et al., 2013). The sum result of these experiences is a reluctance to seek services until problems become emergencies (Bourgois & Schonberg, 2009; Levy & O'Connell, 2004; Zlotnick et al., 2013).

Methods

The analysis presented here draws on data from 91 in-depth, semi-structured interviews with 84 individuals, seven of whom completed the interview on two occasions.¹ Fifty-three (63%) interview participants were currently residing near the San Diego River at the time of the interview, or had at some point previously stayed along the river. Interviews were conducted in October/November 2018 and April 2019.

Prior to conducting these two waves of interviews, we conducted informational interviews with seven staff members of local homelessness services and environmental conservation organizations. These interviewees were selected by first reviewing all known homelessness services organizations in the area, and the scope and geographic reach of their services. After culling organizations from the list that clearly did not regularly provide services to individuals living in riverbeds or canyons (e.g. shelters providing only in-house services, or stationary health clinics far from the river), we compiled a list of twenty organizations that appeared to have some interaction with individuals living in the riverbed. After reaching out to contacts at each of these organizations, seven indicated they could offer some information, although very few of these regularly provided services to this population.

Both authors and many of our student researchers also participated in volunteer opportunities with the San Diego River Park Foundation (SDRPF) to assist in their trash mapping data collection efforts. The SDRPF is an environmental organization that, among many other community engagement, education, and advocacy activities, maps the presence and types

¹ Due to privacy as well as ethical concerns, we did not attempt to eliminate repeat interviewees between the Fall and Spring waves of data collection. This project was approved by the authors' university's Institutional Review Board, and all privacy protections were rigorously maintained. All data collected were anonymous. To track repeat interviewees, we asked a question at the beginning of the Spring wave of interviews about whether the participant had done a similar interview in the past.

of trash – including trash related to encampments – along the San Diego River and then organizes volunteers to clean up the trash (SDRPF, 2019). We used the SDRPF’s trash maps to inform our recruitment approach and the location of our interviews with unsheltered people.

In line with best practices for qualitative research with marginalized populations (see Abrams, 2010), we used purposive/convenience sampling and passive recruitment techniques to engage people experiencing homelessness in this research. Flyers advertising the research study were posted at multiple locations along the river near where SDRPF’s data indicated people had recently been staying. We also left flyers on cars and RVs at locations known to be frequented by people experiencing homelessness. The flyer included a phone number at which potential participants could leave a voice or text message to express interest in the study. All interviews were held at a public library that is close to a section of the San Diego River that we knew from the SDRPF’s trash maps is frequently a place where unsheltered people stay. This location also has ample free parking and is convenient to public transit lines that run parallel to the river, and thus we believed would be accessible to people staying at other points along the river as well as to people staying in cars or RVs. Lastly, we note that in San Diego, as in other major cities, public libraries are a popular daytime refuge for people experiencing homelessness – people can charge their cell phones, use the bathroom facilities, and access the internet, along with the many other resources that libraries offer (see, for example, Nonko, 2019).

The structured interview guide contains questions about: a) recent contact with homelessness outreach providers, police, and environmental cleanup organizations; b) water access and usage; c) basic hygiene and sanitation practices; d) health; and e) length of homelessness and basic demographics. The interview takes approximately 30-45 minutes to complete, and all participants were offered an incentive worth \$20, with a choice of McDonald’s

or Target gift cards or public transit day passes. On each day of interviews, we set a table up outside of the library as a gathering place for potential participants, where we offered bottled water, hygiene products such as hand sanitizer, wipes, toothbrushes, and razors, and dog treats. Each interview was conducted by a pair of student researchers who were rigorously trained in both research ethics and in-depth interviewing techniques, including having completed the online research ethics certification required by our university's Institutional Review Board (see Welsh, 2018, for a more detailed description of the training that students receive). Both lead researchers were in direct view of students at all times to supervise and assist in the interview process. Due to the sensitivity of the research topic, data were collected in handwritten field notes rather than audio recordings. We note that this is consistent with the procedures recently followed by other researchers studying the needs of this vulnerable population (see Palta et al., 2016).

Field notes were then transformed and coded and analyzed both quantitatively and thematically by both lead researchers as well as one student-researcher who had conducted a handful of the interviews. Working in Excel, we calculated descriptive statistics for responses to close-ended questions such as demographic questions and questions about if and how frequently people engage in different forms of sanitation and hygiene practices. For open-ended questions, we initially engaged in a process of inductive, thematic coding (Braun & Clarke, 2006) to identify key themes around issues such as survival strategies and perceptions of police. Based on patterns we were seeing in the data, we generated a list of codes which we then systematically applied to all interviews. All three researchers engaged in the coding process, and we monitored inter-coder reliability by meeting often during the analysis phase to discuss how we were applying codes and addressing any inconsistencies.

All data collection activities were reviewed and approved by the San Diego State University Institutional Review Board (IRB), and an amendment was submitted and approved prior to our Spring 2019 wave of data collection. We obtained funding to provide our research participants with incentives through an internal university grant program.

Findings

To our knowledge, our research is the first study that focuses on the ways that multiple systems interact and cause homeless communities to move into waterways, and the sanitation and hygiene consequences of this relocation. Our findings indicate very high levels of service disconnection and avoidance among the unsheltered population living along the San Diego River. In some instances, the people we spoke with actively avoided some services (e.g., temporary shelters that are viewed as unclean and unsafe), while for others, the term disconnection may be more accurate, as people frequently expressed an eagerness to accept services if they were designed and offered differently. Our findings also highlight the daily difficulties encountered and survival strategies used by unsheltered people to access hygiene and sanitation resources. Our data suggest that barriers to hygiene and sanitation have very serious consequences for unsheltered people's health and for public health in general.

Table 1 summarizes the demographics of our sample. These statistics are consistent with the most recent point-in-time count of the unsheltered population in San Diego County (RTFH, 2019b). The mean length of homelessness in Table 1 shows that many people in our sample have experienced long-term and/or multiple periods of homelessness. In the City of San Diego in 2019, 22 percent of unsheltered individuals were chronically homeless; this term includes those experiencing homelessness for more than a year or experiencing multiple recent episodes of homelessness, and with a concomitant disabling condition (RTFH, 2019a). This figure is more

than twice as high in some cities in San Diego County (RTFH, 2019a), and though we did not ask about disability explicitly, likely many in our sample fall into this category.²

While we took people’s word on where they reported staying, we believe that our data on where people stay are accurate, as we saw people emerge from the river bed with our own eyes, and noticed things like mud, twigs in hair, and other indicators that many people were truly staying “in nature.” Further, we did not exclude any interested participants from the study, and we repeatedly reminded participants that all data were being collected anonymously.

Table 1. Demographics of interview participants (n=84)

Gender	63.1% male, 33.3% female, 1.2% different gender identity
Race/ethnicity	59.5% White, 19% Black or African-American, 11.9% Hispanic or Latinx, 9.5% multiracial, 1.2% Asian or Pacific Islander, 1.2% Native American
Age	Mean age of 44.8 years; nearly 70% between 30 and 59 years
Usual residence*	80.9% unsheltered/“outside,” 63.1% riverbed, 16.7% canyons, 11.9% vehicle, 3.5% emergency shelter, 14.3% someplace else
Length of homelessness	Mean length of 9.6 years

*Percentages do not add up to 100% as individuals experiencing unsheltered homelessness are highly mobile and may stay in various locations.

² We have been unable to locate data on the mean length of homelessness for individuals in San Diego. Homelessness is often dynamic and episodic, with people cycling in and out of homelessness over the course of their lives (Broll & Huey, 2017; Kuhn & Culhane, 1998; Jasinski, Wesely, Wright, & Mustaine, 2010). This can make accurately remembering and reporting one’s total length of homelessness more challenging, thus complicating data collection.

Rates of service access and system interaction

Overall, our sample reported very low rates of connections to health and social service providers. As shown in table 2, less than a third (28.6%) of our interview participants reported an interaction in the past 30 days with a homelessness service provider. Nearly 40% reported having at least one contact with police during this time, and almost half (47.6%) of our overall sample had interacted with an environmental organization. There are notable differences in rates of institutional contacts: the river dwelling population seems to have less institutional interaction overall compared to non-river dwelling individuals, with the exception of interactions with environmental cleanup crews.

Table 2: Reported interactions with institutions in past 30 days

	River/canyon dwelling individuals (n=56)	Non-river dwelling individuals (n=28)	Full Sample (n=84)
Homeless service providers	12 (21.4%)	12 (42.9%)	24 (28.6%)
Police	21 (37.5%)	12 (42.9%)	33 (39.3%)
Environmental organizations	32 (57.1%)	8 (28.9%)	40 (47.6%)

Nearly 40 percent (n=33) of our interviewees reported having at least one police contact in the past 4 weeks, and 19 percent (n=16) reported having lost their personal belongings due to a police sweep in the past 4 weeks. Some police contacts are with the HOT (Homeless Outreach

Team), but respondents tended to not differentiate the HOT from the “regular” police, and instead tried to avoid police contact altogether.

Reasons for disconnection from services or system avoidance

As displayed in table 1, two-thirds of the people we spoke with were currently staying or had at some point stayed near the San Diego River and/or in one of San Diego’s many canyons. A large majority reported staying either “outside” or in cars or RVs in the most recent month. A smaller percentage reported staying someplace else, including at a hotel or at a friend or family member’s house. Several people described a routine practice of saving up to stay at a hotel for a couple of nights every month to shower and sleep in a bed.

The vast majority of our interviewees avoided the shelter system. Reasons people gave for avoiding shelters included not being able to stay with one’s partner or pet, lack of safety in the shelters, the risk of having one’s possessions stolen, and not trusting other unsheltered people. As one interviewee put it, “when you get that many homeless people in one room, it’s bad.” Several people expressed a concern about a lack of cleanliness and hygiene in the shelters.

The people we spoke with described their living arrangements as either a) “loners” who seek out places to stay both out of public view and away from other unsheltered people; b) couples in committed relationships who always stay together and rely on each other for safety; or c) as part of a group of family members, friends, or acquaintances who stay together in encampments with as many as 20 other people. People identifying with the last type – and particularly women – expressed that there is “strength in numbers,” and reported feeling safer staying with others. Loners or “lone wolves” gave similar safety reasons for their living arrangements, stating that people who stay together often do so “for drug reasons,” as one of our

interviewees put it. There was also a concern among loners and couples that larger groups attract police attention.

A desire to avoid police was reported by several service providers; an environmental organization reported its staff and volunteers encounter individuals who are “clearly on edge” due to fear of police interaction, and share that they “hope to be out of the public eye.” Homelessness service providers reported that individuals live in the riverbed in part to avoid arrest due to outstanding warrants, or because of police harassment, such as during the 2017 Hepatitis A outbreak. Interview participants also describe staying by the river in order to be “off the radar from police;” police as being “the only ones who make [me] feel unsafe;” and incidents of police removing and destroying their belongings. Interviews indicated a common belief among unsheltered people that police are a threat to their daily safety and survival.

Health concerns and low service access

Our interviewees described a variety of health concerns. These include Crohn’s disease, E. coli and other food poisoning, Hepatitis A and C infections, kidney stones and other kidney problems, MRSA (Methicillin-resistant Staphylococcus aureus) infections, “weak” or “bad” bladders, scabies infections, shingles, stomach ulcers, and urinary tract infections. Individuals also reported being “dope sick,” referring to symptoms of drug withdrawal.

We also observed numerous health concerns visually as we conducted interviews, including open sores and infections, especially on individuals' feet and at sites of needle injection. Upon offering dental care products to interview participants, several individuals laughed and opened their mouths, showing us that they no longer had teeth. We also observed individuals under the influence of substances, experiencing substance withdrawal, or actively

experiencing mental health symptoms such as hallucinations, talking to people who were not present, or talking in “word salad.”³

At the request of homelessness service providers, during our Spring 2019 interviews we also asked about individuals’ experiences with several infectious diseases, including Hepatitis A, shigellosis, and typhus. Understanding that many interview participants may not have access to medical care and may not have received a diagnosis, we also asked about symptoms such as severe or bloody diarrhea. These results can be seen in table 3. While the sample size is small, we see that the number of people reporting these illnesses and symptoms is much higher than would be found in the general population, and higher for river dwelling individuals than for non-river dwelling individuals experiencing homelessness. As shown in table 3, over 40% percent of our overall Spring sample, and nearly 58% of our river dwelling Spring sample, either knew someone who had contracted Hepatitis A, or had contracted it themselves. Nearly one-fifth of our overall sample had experienced another type of serious illness, and/or bloody or severe diarrhea, and rates of both of these serious health incidents were higher among the river/canyon-dwelling sample (26.9% and 34.6% respectively).

³ In some cases, we did not engage in interviews, or ended interviews early, if we were concerned that the participant was unable to exercise informed consent. In these cases, interested interview participants were nonetheless offered an incentive even if they did not participate or complete a full interview. As noted previously, student-researchers were trained in the informed consent process, including how to assess a potential participant’s capacity to consent, how to minimize the risk of coercion in obtaining consent, and ensuring the information about informed consent is presented in a language that is understandable to the potential participant. Both authors were present at and closely supervised all days of interviews, and students were instructed that if they had any concerns about a participant’s capacity to consent, that they should refer that individual to us, as one of us is educated as a social worker and has training and work experience in mental health and substance abuse.

Table 3: Reported history of communicable disease while experiencing homelessness
Questions only asked in Spring 2019 interviews, n=42

	River/canyon dwelling individuals (n=26)	Non-river dwelling individuals (n= 16)	Full Sample (n=42)
Hepatitis A- self	5 (19.2%)	0	5 (12%)
Hepatitis A- someone you know	10 (38.5%)	2 (7.1%)	12 (28.6%)
Shigellosis, typhus, or another serious illness	7 (26.9%)	1 (3.6%)	8 (19.1%)
Bloody diarrhea or severe diarrhea that needed medical treatment	9 (34.6%)	0	9 (21.4%)

Tables 4 and 5 show common hygiene and sanitation practices reported by our study sample, and reported levels of concern about access to water and bathrooms, respectively.

Table 4: Reported sanitation and hygiene practices (n=84)

	River/canyon dwelling individuals (n=56)	Non-river dwelling individuals (n=28)	Full Sample (n=84)
Rarely/ never wash hands before eating	7 (12.5%)	3 (10.7%)	10 (11.9%)
Use soap when able to wash hands	45 (80.4%)	21 (75%)	66 (78.6%)
Bathe in port-a-potty or public restroom	11 (19.6%)	6 (21.4%)	17 (20.2%)
Bathe in business establishment (e.g. gas station or coffee shop)	17 (30.4%)	8 (28.6%)	25 (29.8%)
Bathe at service provider or shelter	12 (21.4%)	6 (21.4%)	18 (21.4%)
Defecate in port-a-potty or public restroom	28 (50%)	14 (50%)	42 (50%)
Defecate at business establishment (e.g. gas station or coffee shop)	32 (57.1%)	20 (71.4%)	52 (61.9%)
Self or encampment group practices open defecation	41 (73.2%)	11 (39.3%)	52 (62%)
Use river water for drinking	1 (1.8%)	0	1 (1.2%)
Use river water for non-drinking purposes	11 (19.6%)	2 (7.1%)	13 (15.5%)

Table 5: Reported concern about water, sanitation, and hygiene access (n=84)

	River/canyon dwelling individuals (n=56)	Non-river dwelling individuals (n=28)	Full Sample (n=84)
Somewhat or very concerned about water access	17 (30.4%)	13 (46.4%)	30 (35.7%)
Somewhat or very concerned about bathroom access	38 (67.9%)	20 (71.4%)	58 (69%)

Women in particular expressed concern about having consistent access to bathrooms. As one female participant put it, “I’m fairly concerned because I am a female. I’m more vulnerable when I need to use the bathroom.” Other female participants referenced health issues (such as urinary tract infections) that make bathrooms a particularly urgent necessity.

Rather than interacting with government or nonprofit service providers, we find that overall the individuals in our sample have a high level of reliance on private businesses to meet needs. In terms of bathroom access, 69.1% of our sample relies on businesses such as restaurants and gas stations for bathroom access, compared to the 7.1% that rely on homeless service providers. When accessing drinking water, 47.6% of people purchase bottled water, and of the 61.9% that use drinking fountains and tap water, the vast majority access this tap water from restaurants or from hose spigots at business establishments and private apartment complexes. Accessing showers is incredibly difficult, with very few individuals (less than five percent) reporting taking showers at homeless service providers.

As suggested by tables 4 and 5, it may be that the river dwelling population is less often concerned about bathroom access because there is more engagement in open defecation – nearly three-quarters (73.2%) of our river dwelling respondents reported that they and/or their

encampment members practice open defecation, compared to just over a third (39.3%) of non-river dwelling respondents. It may also be that our interviewees report relatively low levels of concern because their daily lives are very much organized around survival strategies to ensure access to water and sanitation. Interview participants indicate they build their schedules around access to water, and have perfected elaborate systems to ensure water access.

Service providers' barriers to serving this population

Our interviews with service providers revealed that no organizations actively provided services to people staying in the riverbed as one of their primary target populations. Some organizations provided services on a one-off or occasional basis, or suspected that some of their clientele left their riverbed homes for services (e.g. a mobile shower provider whose users sometimes had leaves and twigs in their hair and “appear to live deep in nature”). In fact, our staff interviewees found themselves unable to name any organizations that conducted regular outreach in the riverbed. This is reflected in our interviews with unsheltered people: just over 21% of individuals who stayed near the river reported interacting with service providers in the prior 30 days, compared to nearly 43% of individuals who do not stay near the river.

Staff Safety

Several reasons were offered for this lack of outreach. One was staff safety. Staff members from one homelessness service provider described two populations that lived in the riverbed: individuals who “chose” to be there and had elaborate encampments that sometimes included furniture and showers, and others that had been “pushed” into the riverbed. They attributed this push to a cycle of police harassment that had driven people into the riverbed, particularly during the Hepatitis A outbreak of 2017. During the period following the outbreak, many individuals were cleared from urban areas in downtown San Diego where they often

camped on sidewalks near service providers, due to a need to power wash streets and sidewalks (Halverstadt, 2017a, 2017b, 2017c). Unsheltered people were pushed into more remote areas with fewer resources, and as one service provider reported, “These folks are irate.” This particular organization stopped conducting outreach in the riverbed as staff members increasingly reported feeling unsafe. Staff of other organizations reported that their organization had never worked in the riverbed due to similar perceptions of an unsafe environment, and a sense that individuals living in the riverbed may be more likely to have a criminal background or to be active drug users. It is worth noting that many non-river dwelling unsheltered people also cited safety concerns as a reason they would not live in the riverbed.

There was also an overarching sense that people who had taken so much trouble to be hidden may resent being found. An environmental organization that regularly worked in the riverbed described practices it used to avoid surprising or upsetting riverbed residents, such as announcing their presence and purpose from a distance, never entering or photographing individuals’ living spaces, and never cleaning an encampment until it was clearly abandoned. Because this environmental organization engages in regular assessment and cleanups, staff reported feeling safer because they have relationships with many of the riverbed residents, a number of whom are long-time residents who prefer to stay in one location. “I’ve been seeing the same faces for years,” one staff member reported. However, even the staff of this organization indicated that the climate had changed somewhat because of police activity, and that less experienced volunteers felt unsafe when encountering riverbed residents.

Resource Constraints

Resources were also a clear barrier to conducting outreach to river dwelling populations. Building relationships with individuals experiencing homelessness is time-consuming and

repetitive in nature; one service provider reported that less than 5% of people they approach during outreach accept services on their first encounter. This requirement for multiple encounters is complicated – and even more time consuming – in the riverbed because the terrain is difficult to traverse and must be covered on foot. Because of safety concerns, staff need to be sent into the riverbed in groups. Another service provider reported that the river dwelling population is more likely to be chronically homeless, an expensive and difficult population to serve, whereas their organization prioritized the situationally homeless because they could get “more return for our efforts.” For organizations already overstretched serving the more than 5,000 San Diegans experiencing unsheltered homelessness, the expense of extra time and staff needed to reach the smaller group of individuals in the riverbed seemed like a poor investment, especially when these individuals are perceived to be actively avoiding system encounters.

Conclusion

Our analysis utilized an inductive, data-driven approach, and what emerges from our qualitative interviews is evidence a broad system composed of multiple interacting, and sometimes countervailing, subsystems that impact (or fail to impact) the lived experiences of unsheltered people. Our interviews reveal that the daily lives of people experiencing unsheltered homelessness along the riverbed are shaped by a desire to avoid the criminal justice subsystem, particularly in the form of police contact, even when that contact comes from Homeless Outreach Teams that exist to connect individuals experiencing homelessness with services. This finding is supported by prior research on role conflict in the trend toward city police agencies taking on homelessness outreach work (Welsh & Abdel-Samad, 2018).

Local public health agencies also partnered with police during the 2017 Hepatitis A outbreak in San Diego, and during that period police displacement of unsheltered people from

downtown San Diego intensified (Halverstadt, 2017a, 2017b, 2017c), prompting many individuals to relocate to the river (Smith, 2017). This collaboration between the public health and criminal justice subsystems, in an effort to sanitize the more centrally-located and service-adjacent areas where unsheltered people lived, displaced this population to an environment with substantial health risks and more barriers to accessing services.

Individuals experiencing unsheltered homelessness along the riverbed also express an eagerness to avoid the emergency shelter subsystem. Shelters are a primary way in which unsheltered people can get connected to housing and other services (Gubits et al., 2013, 2015, 2016), so the low level of shelter utilization by our sample points to other ways in which this population may be especially disconnected from services. Mental health and substance abuse are two factors that may contribute substantially to connectedness to services, including shelters. Our own observations of individuals experiencing mental health and substance abuse challenges, as well as the observations reported by agency staff members, indicate that mental health and substance abuse are important factors to consider. The desire to avoid police scrutiny, coupled with substance abuse and/or mental health issues, can push unsheltered people further “out in nature” and away from potential health and human service provision. This then reinforces perceptions by the public and service providers alike that people experiencing chronic unsheltered homelessness are difficult and expensive to help.

The people we spoke with – and particularly the river dwelling portion of our sample – report high rates of both open defecation and daily concern about bathroom access, as well as high rates of several serious communicable diseases. These findings suggest that subsystems’ displacement activities have direct and serious implications for the health and safety of people experiencing homelessness. Barriers to accessing water, sanitation, and hygiene resources appear

to put unsheltered people at substantially higher risk of serious communicable diseases compared to the general population (ELC & EJCW 2018, Leibler et al., 2017, Levy & O’Connell 2004, O’Connell et al., 2010, Zlotnick et al., 2013), with the river/canyon-dwelling population at particularly high risk. These consequences also extend to public health and safety of the population more generally. As individuals move into more remote “natural” settings, risks of illness due to contaminated river and beach water (Given et al., 2006; Soller, et al., 2017), risks of wildfires due to encampments (Plummer, 2019), and widespread disease outbreaks (San Diego Health and Human Services [SDHHS], n.d.; Call et al., 2019) will pose increased hazards to the general public in addition to the community experiencing homelessness.

In the spirit of this symposium’s focus on “strengthening health and human services for all,” we argue that there is an urgent need for actors within subsystems that seem independent to understand their position as part of a broader system that impacts individuals experiencing homelessness. A larger systems approach requires actively coordinating beyond the level of the typical community coalition of service providers, not only to accomplish the usual goals of avoiding duplication of services and coordinating service provision, but to circumvent perverse incentive structures that may cause one system to undermine or counteract another. Systems problems caused by actors monitoring a narrow range of variables related to one’s own work – termed “policy resistance” – is a common “trap” in complex systems (Meadows, 2008).

Taking San Diego’s Hepatitis A outbreak as an example, a policing subsystem that measures success by numbers of move-on citations issued, or a public health subsystem that measures success by blocks of sidewalk cleaned after a disease epidemic, may score high marks on their own agency’s metrics of success. However, these subsystems are merely displacing individuals experiencing homelessness to less accessible locations with less access to hygiene

and sanitation, thereby increasing risk of contagious disease outbreak along a watershed frequented by many members of the public, including San Diego's ample tourist population that enjoys beach recreation at the mouth of the river. These conflicts must be discussed frankly and openly, in spite of political pressures that make such conversations difficult. The solution Meadows presents to policy resistance is, "Let go. Bring in all the actors and use the energy formerly expended on resistance to seek out mutually satisfactory ways for all goals to be realized – or redefinitions of larger and more important goals that everyone can pull toward together," (2008, p. 116.)

As Meadows (2008) notes, system traps also present opportunities. A larger systems approach also means considering opportunities that exist within subsystems that are not always identified as key actors in a policy arena. An example is the potential role of the library subsystem in the broader system surrounding homelessness; many libraries count numerous individuals experiencing homelessness among their patrons, making libraries unexpected but valuable potential sites of service provision (Nonko, 2019). The recycling and solid waste industries (through which individuals experiencing homelessness often gain income), the storage unit industry, and inexpensive hotel chains are other novel subsystems within which people experiencing homelessness are deeply embedded, and which might be leveraged in response to the problem of homelessness.

We do not pretend that integrating subsystems, and the difficult (often politically charged) conversations required, are easy. The sanitation and hygiene concerns of individuals experiencing homelessness are easy to solve from a technical perspective: first and foremost would be to provide more publicly-accessible bathrooms and showers in urban and peri-urban areas. Service providers and elected officials in San Diego are well aware of this need (Warth

2019), with some service providers offering services such as mobile showers (see for example Think Dignity, 2019). The San Diego County Health Department temporarily deployed portable toilets and handwashing stations during the 2017 Hepatitis A outbreak, but these were removed once public health officials determined the outbreak was contained (Murphy, 2019; Call et al., 2019.)

However, even in a city like San Diego, where homelessness is one of the hottest political topics, NIMBY opposition to the presence of individuals experiencing homelessness and to concomitant services is powerful (see for example Hargrove, 2015; Rivlin-Nadler 2019). This creates strong political pressure from constituents on elected officials and agencies that could fund and implement solutions. These political challenges are exacerbated by a lack of political representation of and responsiveness to individuals experiencing homelessness, who typically do not have an effective voice in these political processes. As an example, a San Diego City Councilwoman who vocally opposes new homelessness services in her district insisted that individuals experiencing homelessness in her district were not her constituents; when asked whose constituents individuals experiencing homelessness were, she replied, “I’m not sure.” (Bowen, 2019). Bathrooms are surprisingly controversial and expensive (see for example Alpert Reyes, 2019; Chabria, 2017; Holland, 2018), with many public officials concerned about the criminogenic effects of restrooms, which are sometimes used for drug use, prostitution, and other illicit purposes. In San Diego, even with abundant political attention to homelessness and some political allies on the City Council (Warth 2019), controversy around service provision and appropriate policy solutions prevails, making this a particularly formidable health and human services challenge.

We argue that the findings presented here are not idiosyncratic to San Diego. While San Diego is experiencing a crisis in housing affordability, this crisis is becoming national in scope (see for example Sisson et al., 2019), and brings with it the specter of increasing homelessness. The pattern of people experiencing homelessness moving into watersheds, canyons, and other more remote natural settings is evident throughout California (Anderson, 2017; Gonzalez, 2018; Pimentel, 2017; Smith, 2017) and in other major cities of the Rocky Mountain States (Vickery, 2017) and the Southwest (DeMyers et al., 2017; Palta et al., 2016). We can expect these problems to be further exacerbated by natural disasters due to ongoing climate change (see for example CRP, 2019). Finally, NIMBY opposition to basic services for people experiencing homelessness certainly is not unique to San Diego, but is a challenge faced in many cities nationwide. We assert that as a first step, municipal and regional actors involved with homelessness must coordinate in an honest and informed attempt to better understand where their systems intersect, and how shared goals and metrics of success may prevent undermining one another's efforts in the arena of homelessness. This first step must be met with bold decision making by elected leaders willing to consider the needs of their constituents without housing and broad-based public health and safety concerns, alongside the voices of their housed constituents. Future research should support these efforts by examining the social, political, and economic barriers to making hygiene and sanitation accessible to all.

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