Title: Community Integration Among Formerly Homeless Veterans

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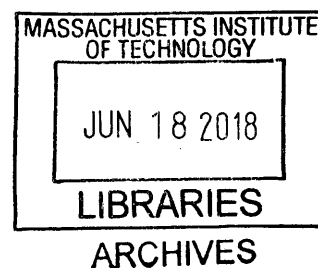May 25, 2018

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Community Integration Among Formerly Homeless Veterans

By Melissa Chinchilla

Submitted to the Department of Urban Studies and Planning on May 25, 2018 in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Urban and Regional Planning

Abstract:

My dissertation examines the community integration outcomes of formerly homeless Veterans housed under the Department of Housing and Urban Development-Veterans Affairs Supportive Housing (HUD-VASH) program. HUD-VASH provides homeless Veterans with affordable housing subsidies and supportive services, including non-mandated linkages to healthcare. The program functions under two types of housing vouchers: vouchers used in buildings designated for persons with subsidized housing (project-based) and vouchers used for market rate rentals in the community (tenant-based). HUD-VASH is the largest permanent supportive housing (PSH) program in the nation, with over 86,000 vouchers (~6% project-based) awarded through fiscal year 2017 and 100,000 Veterans housed since the program's inception.

Research suggests that persons in PSH have limited success in community integration, which has important implications for health, substance use, subjective well-being, and housing retention. My research provides an understanding of how role of multiple factors – individual characteristics, service utilization, housing choice, and neighborhood quality – impact formerly homeless individuals' community integration process, i.e. how they function in their new communities including their relationships with others, ability to maintain independent living, and engagement in vocational activities.

My dissertation uses mixed methods to understand housing placement of HUD-VASH participants in Los Angeles County and their community integration outcomes once housed. This dissertation is made up of three manuscripts; (1) Paper one provides an overview of housing models under the HUD-VASH program including a description of socio-demographics, clinical diagnoses, service utilization patterns, and neighborhood quality of project based and tenant based voucher types; (2) Paper two uses quantitative analysis to identify factors, including personal characteristics, voucher type (i.e., project and tenant-based), and service utilization, that mediate community integration outcomes (i.e. employment, community adjustment, and housing retention); and (3) Paper three provides a qualitative analysis of VA staff and HUD-VASH participants' perspectives of the roles of housing type (project-based vs. tenant-based), neighborhood characteristics, and social networks on participants' community integration.

Thesis Supervisor: Amy Glasmeier
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A note on future directions for this dissertation:
A version of paper 1, "Comparing Tenant and Neighborhood Characteristics of the VA's Project-vs. Tenant-Based Supportive Housing Program in Los Angeles County," will be published in *Administration and Policy in Mental Health and Mental Health Services* Research; A version of paper 2, "Determinants of Veteran Community Integration Among Permanent Supportive Housing Voucher Recipients," will be published in *Public Health Reports*; At the time of dissertation completion, paper 3, "Enhancing Community Integration Among Formerly Homeless Veterans: A Comparison of Project-Based vs. Tenant-Based Supportive Housing," was in manuscript preparation.

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Essays on Community Integration Among Formerly Homeless Veterans

I. Introduction

In 2017, on any given night, 553,742 people were homeless in the United States, 40,056 of whom were homeless Veterans ("AHAR Reports, Guides, Tools, and Webinars - HUD Exchange," n.d.). In 2010, the Federal Government adopted *Opening Doors*, the nation's first comprehensive plan to end and prevent homelessness. The plan spotlighted Veterans, which led the VA to devote significant attention to homeless services and fund these much more robustly. At the crux of these efforts is the U.S. Department of Housing and Urban Development (HUD)-VA Supportive Housing (VASH) ("Opening Doors: Federal Strategic Plan to Prevent and End Homelessness," n.d.).

HUD-VASH is a joint effort between the VA and HUD, and is designed to house the most vulnerable individuals using a Housing First approach, offering permanent, independent housing in the community with supportive services, including non-mandated linkages to healthcare. It is the largest permanent supportive housing (PSH) program in the nation, with over 86,000 HUD-VASH vouchers awarded through fiscal year 2017 and 100,000 Veterans housed since the program's inception ("National Low Income Housing Coalition," n.d.). HUD-VASH provides homeless Veterans with subsidized affordable housing and supportive services. Between 2010 and 2017, homelessness among Veterans declined by 46%, a decrease attributed to local and national efforts to end Veteran homelessness, particularly through HUD-VASH ("AHAR Reports, Guides, Tools, and Webinars - HUD Exchange," n.d.). However, once placed into PSH, formerly homeless individuals remain socially isolated and have limited success across domains of community integration (Friedrich, Hollingsworth, Hradek, Friedrich, & Culp, 2014; Siegel et al., 2006; Tsai & Rosenheck, 2012a).

II. Statement of the Problem

Community Integration of Formerly Homeless Veterans

HUD-VASH houses individuals who are chronically homeless and suffer from physical, mental, and/or substance use challenges. Homeless Veterans have an age-adjusted mortality that is close to three times higher than their housed peers (T. P. O'Toole et al., 2011). Homeless

Veterans show faster aging than their housed counterparts; they suffer from disproportionately high rates of illness attributed to aging, including falls, incontinence, and cognitive impairment, at a much younger age (Brown, Kiely, Bharel, & Mitchell, 2012). These illnesses are likely the result by a number of factors associated with homelessness, including suboptimal management of chronic medical illnesses, mental health disorders, and environmental stressors (Epel, 2009), sequelae of cigarette, alcohol, and drug use (Fyhrquist & Saijonmaa, 2012) and malnutrition associated with food insecurity (Ames et. al., 2005). In 2014, 71% of HUD-VASH voucher participants were chronically homeless (Crone, Baylee, 2017). In 2015, 73% of HUD-VASH participants reported having at least one chronic medical condition, 58% endorsed having at least one psychiatric disorder, and 42% had a substance use disorder (SUD) (Northeast Program Evaluation Center, n.d.). Consequently, health issues associated with homelessness are likely to continue once the Veteran is housed.

O'Toole and colleagues (2013) note that progress made housing Veterans will raise new public health challenges, including questions about how we manage the effects of homelessness and poverty once people are housed. Tools to predict and actively manage the healthcare needs of formerly homeless individuals are needed. The goal will be to improve quality of life and reduce recidivism (T. O'Toole, Pape, & Kane, 2013).

Housing is only the first step in addressing the needs of Veterans experiencing homelessness. Homeless individuals housed in PSH remain socially isolated and show limited improvement in other domains of social integration, including community participation, civic activity, religious faith, employment, and social support (Tsai, Mares, & Rosenheck, 2014). In addition, housing retention in PSH is between 75% and 85% in the first year (Caton, Wilkins, & Anderson, 2007). Scholars suggest that community integration should be a focus in defining the long-term success of programs that place homeless individuals in PSH (Tsai et al., 2014). Positive social supports are associated with improved mental health, decreased substance use (Hwang et al., 2009), higher rates of housing retention (G. Nelson et al., 2015; Wong & Stanhope, 2009), and subjective well-being (Barczyk, Thompson, & Rew, 2014).

Through this dissertation, I examine community integration outcomes of formerly homeless Veterans housed in HUD-VASH. I use a mixed methods approach to conceptualize the

role of multiple factors – individual characteristics, service utilization, housing choice, and neighborhood quality–on an individual's community integration process. First, I study differences in Veteran characteristics in two models of HUD-VASH housing: project- and tenant-based. Project-based vouchers subsidize housing in dedicated multi-unit facilities for low-income persons, often with on-site supportive services, e.g., case management. Tenant-based vouchers subsidize market rate housing in the community; participants receive in-home case management, including linkages to health services and community-based resources. Next, I use secondary data to identify factors, including individual characteristics, service utilization, and voucher type (i.e., project and tenant-based) that affect Veterans' community integration outcomes in the HUD-VASH program. Last, I examine VA staff and Veteran perspectives on community integration in HUD-VASH and explore how the program could be improved to better support Veterans' integration into their communities.

The rest of this chapter outlines what we know about community integration, current research gaps, and how this dissertation will contribute to our understanding of formerly homeless individuals' lives in PSH. I start by providing an overview of the history of housing subsidies in the United States and support for why community integration matters. I also give background information on Veteran homelessness and outline national efforts to address the problem. I subsequently highlight empirical research examining what impacts community integration outcomes of vulnerable populations. I then present my research questions and suggest the potential significance of this study. The following chapters consist of three empirical papers each building on the other to provide a comprehensive understanding of the HUD-VASH program and its implications for community integration.

III. Background and Context

The Emergence of Supportive Housing

The 1980s witnessed increased numbers of street homelessness. Rising housing costs resulted in more families and individuals experiencing homelessness. The term "supportive housing" became widespread in 1987 under the Stewart B. McKinney Homeless Assistance Act, which created the Supportive Housing Demonstration Program to provide funds for homeless housing (Glauber, 1996). Local efforts to provide supportive housing combined state and local

funds, LIHTC, HOME, CDBG, and Housing Choice Vouchers (Katz, Turner, Brown, Cunningham, & Sawyer, 2003).

Although supportive housing became common lexicon in the 1980s, supportive housing first emerged in the 1950s to assist those with special needs, including the elderly, people with disabilities, and individuals experiencing homelessness. Supportive housing combines social service supports with affordable housing. Targeting housing to specific subsets of the low-income population was closely tied to the deinstitutionalization movement and the push to shift social service supports to the local level (Glauber, 1996). The first federal supportive housing program was enacted in 1952 under Section 202 Supportive Housing for the Elderly. This program provided housing assistance for low- and moderate-income elderly and physically disabled people. While first concentrated on housing provision, the program was later expanded to require the provision of supportive services. In the late 1980s, it became apparent that elderly and disabled individuals have different needs and are not well served by living in the same development. This realization resulted in the development of the Section 811 program to serve disabled populations, while Section 202 focused on elderly individuals (Applied Real Estate Analysis, 1995). Supportive housing is also used to address homelessness. Supportive housing provides services that help mitigate initial reasons for loss of housing (e.g., health care needs, loss of income, and substance abuse), increases housing retention, and reduces public costs associated with institutional settings (Rog, 2004).

In the 1990s Housing Choice Vouchers were targeted towards Veterans under the Department of Housing and Urban Development-Veterans Affairs Supportive Housing (HUD-VASH) program. HUD-VASH combined Housing Choice Vouchers with VA administered case management services, to provide supportive housing options for homeless Veterans. HUD-VASH consists of vouchers that are committed either to the tenant or to a unit (e.g., project-based and tenant-based housing models). HUD-VASH was created in 1992, but did not receive strong financial backing until several years later.

In 2008, Congress appropriated $75 million to the HUD-VASH program. Then in 2009, President Obama announced a national plan to end Veteran homelessness – *Opening Doors*. Since 2008, HUD has allocated over 85,000 HUD-VASH vouchers to Public Housing Authorities

(PHAs) across the nation. HUD has held three competitions, in 2010, 2014, and 2015, to competitively award over 2,600 project-based HUD-VASH vouchers (HUD, n.d.). HUD-VASH is a pivotal resource for meeting Veterans' affordable housing needs and the primary resource for tackling Veteran homelessness.

Housing First

HUD-VASH began as a supportive housing program that functioned under a traditional treatment first model, i.e. service receipt as a prerequisite to permanent housing. However, national goals to end Veteran homelessness resulted in efforts to maximize resources and identify evidence-based strategies to efficiently and effectively house homeless individuals. These efforts led to the adoption of a housing first approach (Montgomery, Hill, Kane, & Culhane, 2013). Housing first is a consumer centered model that places a primary focus on attaining housing, achieving housing stability, and then, enabling connections to non-mandated services (Henwood, Stanhope, & Padgett, 2011; Ridgway & Zipple, 1990; Rog, 2004; Tsemberis, 2010; Tsemberis, Gulcur, & Nakae, 2004).

Unlike housing first, traditional treatment programs function under a continuum of care that moves from transitional and congregate settings to independent housing and abstinence, treatment compliance, and psychiatric treatment (Leff et al., 2009; "Toward Understanding Homelessness," 2016). Access to housing was traditionally reserved for those that earned it through sobriety and compliance with treatment (Dordick, 2002). However, the traditional housing approach has not been effective in engaging or maintaining people who experience long-term homelessness housed (Padgett, Henwood, Abrams, & Davis, 2008; Tsemberis & Eisenberg, 2000). Housing that requires sobriety, can lead consumers to view their options as being between restricted housing and homelessness (Hopper, Jost, Hay, Welber, & Haugland, 1997). Struggles with sobriety are a common reason for service disengagement (Stanhope, Henwood, & Padgett, 2009).

Housing first improves housing stability for people experiencing long-term homelessness, approximately 85% maintain housing versus 55% in traditional programs (Tsemberis et al., 2004). Research also indicates that access to housing decreases usage of institutional settings, such as hospitals, jails, and detox clinics (Rog, 2004). Housing first

emphasizes consumer choice and self-determination. There is a belief that consumers are the experts and are best equipped to make decisions regarding their needs. Instead of promoting abstinence like traditional models, housing first emphasizes harm reduction, i.e. reducing the negative consequences associated with drug use (Tsemberis et al., 2004). An emphasis on self determination has resulted in greater adoption of consumer centered models of care that tailor services to consumer preferences (Drake & Deegan, 2009).

A program built on the idea that those struggling with mental illness and/or addiction can make choices regarding their care was revolutionary. Housing first gave people the right to make choices, take risks, and learn from their mistakes. The model provided people with independent housing options that were separated from service receipt (Greenwood, Stefancic, & Tsemberis, 2013). HUD-VASH is now the largest housing first program in the nation.

The National Fight to End Veteran Homelessness: HUD-VASH

HUD-VASH provides Veterans with housing vouchers and case management services. It is a joint effort between the Department of Veteran Affairs and the Department of Housing and Urban Development, and is designed to house the most vulnerable individuals using a Housing First approach – permanent, independent housing in the community with supportive services, including non-mandated linkages to healthcare. The HUD-VASH program combines Housing Choice Voucher (HCV) rental assistance with case management and health care services provided by the Department of Veterans Affairs (VA). HUD-VASH is used to target the most vulnerable homeless Veterans, i.e. those with multiple morbidities who are most likely to die on the streets. Yet, while thousands of Veterans are getting off the streets and into housing using HUD-VASH, we have a limited understanding of their outcomes once placed into housing, including how they are integrating into their new communities. Minimal attention has been paid to the process of community integration, such as what factors may facilitate or hinder participation in daily community life.

HUD-VASH utilizes two types of voucher models - project-based and tenant-based. Project-based vouchers subsidize housing in multi-unit facilities for low-income persons, often with on-site supportive services, e.g., case management. Tenant-based vouchers subsidize market rate scattered site housing with connections to community-based services. Initially HUD

discouraged the use of project-based vouchers (Cunningham, 2009). Project-based units were thought to be challenging to construct due to difficulty in obtaining local approval (Sard, 2001), higher financial costs, and slower lease-up (Deng, 2005). Tenant-based vouchers were viewed as offering the most client choice and flexibility (Sard, 2001). Consequently, project-based vouchers make up a relatively small fraction of HUD-VASH vouchers, only about 6 percent in 2017 (HUD, n.d). Local public housing authorities can petition HUD to obtain permission to transfer tenant-based voucher awards to project-based subsidies. However, this transfer is limited to 20 percent of awarded vouchers (HUD, n.d.). Voucher models ultimately affect the manner in which the program functions and potential differences in consumers' experiences.

What is Community Integration? Why Does it Matter?

Community integration refers to the way an individual is embedded in his or her community (McColl, Davies, Carlson, Johnston, & Minnes, 2001). It is a concept that stems from work with physically and mentally disabled populations and rests on the notion that measures of health must include citizenship experiences, social connections, and community engagement (McColl et al., 2001; Organization, 2001). In the rehabilitation literature, community integration was originally defined as the opposite of disability or impairment (Organization, 1980; Whiteneck, Charlifue, Gerhart, Overholser, & Richardson, 1992; Willer, Rosenthal, Kreutzer, Gordon, & Rempel, 1993). However, in the late 1990s, this view was expanded to include a more universal notion of participation, made up of personal maintenance, mobility, social relationships, home life, exchange of information, education, work, economic life, and community and civic life (Organization, 1999).

Early approaches to disability were primarily clinical. The medical model framed disability as a problem of the person, which required medical attention in the form of individual treatment by professionals (Üstün, Chatterji, Bickenbach, Kostanjsek, & Schneider, 2003). The medicalized approach to disability focused on the individual's functional limitations and social restrictions, and emphasized rehabilitation and medical treatment (Barnes & Mercer, 2010). In contrast, the social model viewed disability as a socially created problem, one which demanded social action to address an unaccommodating physical and social environment (Üstün et al., 2003).

In the 1970s there was a shift from medicalization to community integration. Disability rights activist made the claim that the ultimate goal for those with a disability should be community integration, which included physical belongingness, social functioning, and community attachment (Barnes & Mercer, 2010; DeJong, 1979; Yasui & Berven, 2009). Under the community integration framework, health became defined not only by how long one lives, but also by how well one lives (Ustün et al. 2003). In 1973, the Rehabilitation Act banned discrimination against individuals with disabilities. Its passage was in sync with the independent living movement, which emphasized self-empowerment, de-medicalization, and deinstitutionalization, and became closely associated with the notion of community integration (DeJong, 1979). The disability rights movement began to address key questions about what it meant to be part of a community. Since the 1970s, the concept of community integration has continued to evolve.

McColl et al. (1998) identified three common themes in definitions of community integration: (1) relationships with others, (2) independence in living, and (3) situations and activities to fill time. A basic principle of community integration is that all people have a right to full community participation and membership. A few years after McColl et al.'s piece, Wong and Solomon reviewed the mental health literature and developed a conceptual model of community integration composed of three dimensions: (1) physical, (2) social, and (3) psychological integration. Physical integration involves participation in community activities, including the use of goods and services. Social integration takes a social network perspective, examining social interactions, social roles, and social support. Psychological integration consists of a sense of belonging, including perception of community membership (Wong & Solomon, 2002). The model was developed to conceptualize community integration within the growing movement of PSH for individuals with psychiatric disabilities and is a framework for thinking comprehensively about community integration (*see Figure 1*). Informed by the work of Hall et. al. (1987), Wong and Solomon utilize an ecosystem perspective to understand the interdependence and interrelatedness of various levels of an ecological system and how these impact community integration.

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Figure 1
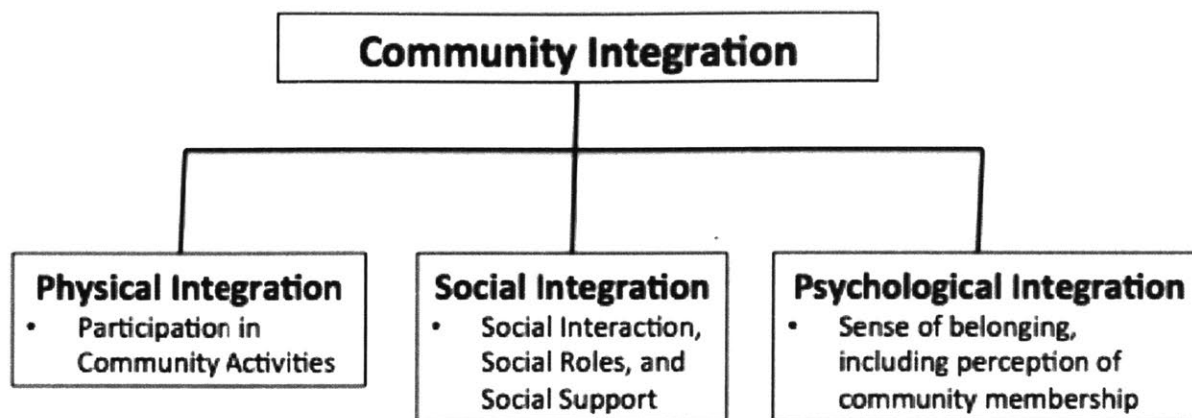
Source: Wong and Solomon (2002)

Although there is a general understanding of what community integration entails, definitions vary depending on what dimensions researchers choose to emphasize. In a review of the literature, Yasui and Berven (2009) found that various measures have been developed and applied to the study of community integration. These measures are based on different frameworks emphasizing varying dimensions and components. As a result, there is no universal measure of community integration and measures are primarily based on researcher interests and data availability (Yasui & Berven, 2009). Therefore, clearly defining community integration, measures used, and evaluation criteria are of the upmost importance in research examining the concept.

IV. Literature Review

A limited number of studies provide insight into best practices for community integration in supportive housing. Past and current research highlights the importance of self-determination and choice. It also shows that supportive services are essential in helping individuals with disabilities become fully incorporated into their neighborhoods. In addition, there is growing awareness that neighborhood level factors can impact integration outcomes.

What Impacts Community Integration?

Gulcur et al. (2007) conducted an evaluation of community integration in scattered-site apartments versus congregate living arrangements. Scattered site housing was provided under a Housing First approach, while congregate housing stressed the Continuum of Care approach that includes outreach, treatment and transitional housing, and ends with PSH. Choice and independent scattered-site housing were predictors of psychological and social integration (Gulcur, Tsemberis, Stefancic, & Greenwood, 2007). Independent living arrangements that allow for consumer choice have positive outcomes related to integration, including increased rates of housing stability and positive mental health outcomes (Gulcur et al., 2007; Hull & Thompson, 1981; van Wel, Felling, & Persoon, 2003). The provision of life skills training within a residential facility is linked to community participation and use of resources (Kruzich, 1985). Individuals receiving medical care, including substance abuse treatment, were also more socially integrated (Gulcur et al., 2007; Segal & Aviram, 1978). Independent community living arrangements, combined with community support services appear to be the most conducive to community integration (Carling, 1992).

Research suggests a relationship between a person's social and physical environment and community integration outcomes. Perceived stigma by individuals with psychiatric illness is strongly and negatively associated with psychological integration. Greater stigma is associated with a decreased sense of belonging in the community (Prince & Prince, 2002; Segal & Everett-Dille, 1980). Studies have also found that the physical proximity of community resources, including transportation, stores, and recreational facilities, is positively correlated with community integration (Kruzich, 1985; Timko, 1996). An extension of research focused on environmental factors suggests that the degree that other community members experience integration, may affect integration of vulnerable populations. Obstacles to community integration may actually be a problem for all community members in neighborhoods with significant rates of poverty and social disorder. Consequently, goals for community integration may be intertwined with larger community level concerns (Yanos, Stefanic, & Tsemberis, 2011).

In an examination of psychological integration, Yanos and colleagues (2011) found that objective neighborhood characteristics predicted sense of community, which is part of

psychological integration, for individuals with psychiatric disabilities. Objective measures included, neighborhood disadvantage, such as local socio-economic variables, and immigrant concentration. Wright and Kloos (2007) found that perceived neighborhood characteristics predicted well-being among people with severe mental illness living in supported housing (Wright & Kloos, 2007). Furthermore, Yanos et al.'s (2004) work shows that neighborhood factors including crime, perceived values, and racial/ethnic composition impacted psychological community integration of people with severe mental illness living in supportive housing (Yanos, Barrow, & Tsemberis, 2004). However, overall, the role of neighborhood factors on the community integration of individuals with mental illness remains understudied (Yanos et al., 2011).

There are several research gaps that remain in the community integration literature. For one, our knowledge of the role that environmental factors play in integration remains limited – what types of communities best promote positive integration outcomes? This should be of particular note as vulnerable individuals are frequently located in low-income and marginalized communities. Second, research examining the impact of varying housing models on community integration has focused on differences between institutional settings and independent living arrangements. Few researchers have examined outcomes by difference in independent living arrangements, i.e. tenant-based and project-based housing. Third, few studies have looked at the Veteran population. Most studies on community integration have focused on outcomes of populations diagnosed with mental illness and/or physical disabilities, without differentiating between Veteran and non-Veteran populations. Along these lines, there is a lack of standardized community integration measures and conceptual frameworks for the Veteran population. This makes it difficult to create programs that are targeted to meet integration benchmarks, and complicates our analysis of current community integration challenges for formerly homeless Veterans. Lastly, research indicates that PSH is a promising model, but more information is needed for determining the most effective service and housing elements for various subpopulations (Kertesz, Crouch, Milby, Cusimano, & Schumacher, 2009; Rog et al., 2014).

V. Proposal Summary

Homeless Veterans As A Critical Case Study

My dissertation will examine community integration outcomes among formerly homeless Veterans placed in PSH. While a significant amount of research examines the causes of homelessness, there is almost no data on predictive factors of community integration. However, what we do know is that community integration has not improved in unison with PSH placement (Tsai & Rosenheck, 2012b). This is important because community integration impacts housing stability (Rosenbeck & Fontana, 1994a) and has positive impacts on individuals' mental (Davidson et al., 2004a) and physical health (Berkman & Syme, 1979). Therefore, community integration should be a focus in defining the long-term success of programs that place homeless individuals in PSH (Tsai & Rosenheck, 2012b).

My dissertation aims to develop an understanding of community integration among HUD-VASH participants. This includes knowledge of the benefits of belonging to a physical and social community and the manner in which policy structures impact community integration. My dissertation responds to current policy debates focused on how best to address the needs of formerly homeless Veterans. My dissertation provides important learning about the role of housing subsidies and service supports in assisting individuals in becoming incorporated to into new physical and social spaces.

I use the community integration of formerly homeless Veterans as a critical case for examining the impact of housing policy in the United States on community integration outcomes. A critical case is a case with strategic importance in relation to the general problem. If the case study is not valid then we expect it is not to be valid for any, or very few, cases (Flyvbjerg, 2006).

A case study approach helps create generalizations by drawing on the idea of falsification. Falsification occurs when a proposition is raised that is thought to hold true across cases, but a case is identified that calls the proposition into question (Flyvbjerg, 2006). Veterans enjoy access to an array of services and generally receive positive public support (MacLean & Kleykamp, 2014). Consequently, formerly homeless Veterans may have more support integrating into their communities than other vulnerable populations. If Veterans are not

successfully integrating into their communities, we would expect non-Veteran PSH participants to face greater hurdles in achieving integration; we could then conclude that public support for programs, and access to housing and supportive services are not sufficient to facilitate successful community integration.

A case study approach is used to develop intensive knowledge about a topic or object. In a case study, the researcher establishes boundaries, makes decisions about the elements that will comprise the study and the relationship among these, and delineates contextual influences (Zeisel, 1984). In case studies, multiple techniques may be needed to obtain sufficient information. In order to address my research questions, I use a mixed methods case study approach that combines qualitative and quantitative methods. Data resources include, Veteran characteristics and service use data collected by the Veteran Administration (VA), publicly accessible neighborhood level data, and interviews with VA staff and HUD-VASH participants. My case study focuses on the VA of Greater Los Angeles Veteran Administration (GLA), which serves metropolitan Los Angeles.

VAGLA provides comprehensive medical and social services for homeless Veterans, and administers the largest homeless program of any VA in the nation. GLA serves 21% of homeless Veterans in urban areas and more than 10% of all homeless Veterans nationwide (Cortes, Henry, De La Cruz, & Brown, 2012). In 2017, there were an estimated 57,794 homeless individuals in Los Angeles County, 4,828 of these individuals were homeless Veterans (LAHSA, 2017). GLA is responsible for 5,867 HUD-VASH vouchers. A total of 2,000 vouchers are serviced by 11 different contracted agencies, and there are currently 172 active staff in the program serving HUD-VASH Veterans (Weinreich, Heidi M., N.A.). In addition, GLA recently established community integration as a research priority for local HUD-VASH implementation under the Research Enhancement Award Program (REAP), which enabled me to work collaboratively with VA research staff.

Research Questions and Methodological Approaches

My dissertation consists of three research papers that address HUD-VASH program implementation from an interest in community integration outcomes. Each paper builds on the other to provide an understanding of how the HUD-VASH program is administered on the

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ground, factors associated with community integration, and voucher participant and staff perspectives on what may affect integration outcomes. I specifically examined the following issues: (1) differences between project-based and tenant-based voucher types (i.e., individual characteristics, service utilization patterns, and neighborhood characteristics), (2) factors (i.e., individual characteristics, service use behaviors, and voucher types) associated with community integration outcomes (i.e., community adjustment, employment, and housing retention), and (3) how program implementation of HUD-VASH may hinder or promote community integration for Veterans.

Methodology/ Research Design

I use a mixed methods approach, incorporating both quantitative and qualitative methods in my research. My quantitative analysis consisted of VA administrative data including HUD-VASH assessment and healthcare service utilization data, and Census data. Qualitative research is comprised of interviews with HUD-VASH staff, including case managers, peer supports, and nurse practitioners, and interviews with HUD-VASH participants in both project-based and tenant-based housing. Below I provide an overview of data collection and analysis.

Quantitative Analysis

In collaboration with the Veterans Administration (VA) of Greater Los Angeles, I use administrative data to (1) examine differences in HUD-VASH housing models (i.e., project-based and tenant-based), and (2) assess the association between personal characteristics, voucher type, service use behaviors and community integration (i.e., employment, housing retention, and community adjustment). These analyses are presented in papers one and two.

Paper 1:

Project-based and tenant-based vouchers are designed for participants with different clinical characteristics and service needs. Project-based vouchers were designed to serve high need participants, such as persons with complex medical and mental health conditions or criminal records (Ellison et al., 2012). These vouchers group HUD-VASH participants in multi-family developments and provide on-site supportive services, including case management. In contrast, tenant-based vouchers serve participants with a range of clinical needs. Participants with tenant-based vouchers receive in-home case management and linkages to health services

and community-based resources. Given service delivery structures and aims, it can be anticipated that project-based voucher participants have higher clinical needs and rates of service utilization when compared to tenant-based voucher holders.

Another factor that may impact service receipt and participant well-being is the type of neighborhoods where participants are housed. Veterans living in neighborhoods with lower socioeconomic status tend to have poorer health outcomes and a higher risk of mortality. Formerly homeless Veterans with physical and mental disabilities, and/or substance addiction may be particularly vulnerable to low-income and socially disorganized surroundings (K. Nelson et al., 2011). Limited research contrasts project-based and tenant-based housing. Most affordable housing research has examined differences between tenant-based vouchers and public housing populations (Goering, Kamely, & Richardson, 1997; Newman & Schnare, 1997). However, the minimal research on project-based properties suggests that project-based housing has been more successful than previous housing production programs in entering low-poverty neighborhoods (Deng, 2007; McClure, 2006).

Paper one compares individual- and neighborhood-level characteristics of HUD-VASH participants who received project-based or tenant-based vouchers through GLA. I examine whether the groups differed in terms of the following: 1) individual characteristics (i.e., demographics, medical diagnoses, and substance use); 2) service utilization patterns (i.e., primary care, outpatient, inpatient, case management, and substance use disorder visits); and 3) neighborhood quality (i.e., crime and socio-economic characteristics). I utilize bivariate analysis and recursive partitioning to assess potential differences.

Paper 2:

Community integration refers to a universal notion of participation, made up of personal maintenance, mobility, social relationships, home life, exchange of information, education, work, economic life, and community and civic life (World Health Organization 1999). A common emphasis of community integration as established by the International Classification on Functioning is participation and productivity in daily life, including a person's ability to successfully live independently outside of an institutional setting (WHO 2001). Veterans have immutable characteristics – for example, age, race, and medical diagnosis (Kruzich, 1985; Segal

and Everett-Dille, 1980) – that influence community integration. Where Veterans live (Kruzich, 1985; Nelson, et. al., 2011; Timko, 1996) and the services they receive can also impact integration outcomes (Kruzich, 1985; Carling 1992; Gulcur, et. al., 2007; Segal and Aviram, 1978). I define community integration outcomes as housing stability, employment, and community adjustment one year post housing.

Volk and colleagues (2016) attempted to identify the characteristics of participants that experienced housing instability one year after entering PSH. Researchers found that several variables were significant predictors of housing instability, including homelessness chronicity, time spent in jail, and community psychological integration; further, place of residence, and diagnosis of PTSD or panic disorder predicted stability (Volk et al., 2016). Research on HUD-VASH housing retention suggests that poor adherence to outpatient care, substance use disorders, hepatitis C, chronic pain, justice involvement, frequent emergency department utilization, and medical-surgical admissions all affect stability (Gabrielian et al., 2015a).

Those placed in HUD-VASH have significantly high rates of unemployment (Montgomery et al., 2013). Generally, participation in public housing, subsidized private housing developments, and housing vouchers have a negative impact on labor earnings (Olsen, Tyler, King, & Carrillo, 2005; Susin, 2005). Researchers have also found that housing choice vouchers have no impact on self-sufficiency and in some cases may promote dependency (Popkin, 2000, 2004; Popkin, Cunningham, & Burt, 2005).

Minimal research could be identified assessing community adjustment outcomes, as community adjustment represents a subjective measure of well-being as determined by HUD-VASH staff. Community adjustment can most closely be identified as a measure of the social component of community integration (i.e., a participants interaction with his or her local community), and as previous research has identified, PSH participants do not appear to farewell in this domain (Tsai & Rosenheck, 2012b)

In paper 2, housing retention is assessed by whether or not the HUD-VASH participant was permanently housed one year after placement. Employment status is captured on a quarterly basis and is based on the case managers' knowledge of employment status during last contact with the participant. Community adjustment is a subjective measure based on case

managers' assessment of participant's well-being. The goal of paper 2 was to assess whether personal factors, service use behaviors, and voucher type were associated with HUD-VASH participants' community integration outcomes (*see Figure 2*). I use ordinal and logic regressions to identify factors associated with community integration outcomes.

Figure 2

Personal Factors
(baseline)
- Age
- Gender
- Ethnicity/Race
- Married or Partnered
- Have Children (yes)
- Education (years)
- Employment Status
- Criminal History
- Homelessness Chronicity
- Medical Diagnoses
- Mental Health Diagnoses
- Addictive Disorders

Service Use Behaviors
- Primary Care
- Emergency Department
- Mental Health
- HUD-VASH Case Management
- Outpatient Substance Use Disorder
- Mental Health Inpatient Admission
- Medical/Surgical Admission

Community Integration
- Community Adjustment
- Housing Stability
- Employment Status

Voucher Type
- Project Based
- Tenant Based

Qualitative Analysis

The use of mixed methods can help offset the shortfalls of only using one data collection and analysis approach. Participant observation and interviews with VA staff and HUD-VASH participants offered the opportunity to collect information not readily available through quantitative analysis. For example, while administrative data allowed me to identify patterns of voucher allocation (i.e., project-based versus tenant-based) and factors associated with community integration, qualitative interviews informed why specific patterns were prevalent

and also provided important information not readily available through secondary database analysis. Overall, interviews provided knowledge regarding participants' and HUD-VASH staff's perceptions of program implementation, observed outcomes, and potential opportunities for program improvement.

Paper 3:

Paper 3 identifies service design features of project-based and tenant-based housing, Veteran characteristics, and neighborhood factors that are associated with positive community integration. The aims of paper 3 were as follows: (1) to identify key features of VAGLA's HUD-VASH project-based and tenant-based housing and neighborhood characteristics that impact community integration; and (2) to compare Veteran characteristics associated with positive community integration outcomes in project-based vs. tenant-based HUD-VASH housing at VAGLA.

In order to understand HUD-VASH administration, including intake, program application, and voucher allocation, participant observation was undertaken with case managers that work with Veterans throughout the HUD-VASH process. Interview questions were informed by a comprehensive understanding of how the HUD-VASH program functions. Semi-structured interviews were used with HUD-VASH participants of both project-based and tenant-based vouchers, and focused on participants' community integration experiences, including psychological integration in their housing and neighborhoods, socialization patterns, recovery, service use, and unmet needs. Interviews with HUD-VASH staff also followed a semi-structured format and were used to develop an understanding of how, if at all, community integration is considered in the voucher allocation and housing placement process, and how housing placement affects community integration once Veterans are housed (*see Appendix*). Semi-structured interviews allowed for flexibility in questions asked, and the opportunity to explore unanticipated research avenues. Interviews were audio recorded, professionally transcribed, and coded using Atlas.ti.

VI. Significance of the Study

Contribution and Policy Implications

HUD-VASH is a pivotal program for addressing the needs of homeless Veterans. To date, the HUD-VASH program has helped over 100,000 homeless Veterans achieve housing stability by awarding 85,000 vouchers to more that 300 Public Housing Authorities nationwide (Crone, Baylee, 2017). The scale of the HUD-VASH program makes it ideal for studying the opportunities and challenges of permanent supportive housing (PSH), the leading housing model for addressing homelessness. By combining housing with supportive services, PSH offers a promising framework for addressing the needs of highly vulnerable individuals. However, there is still much that is not known about how PSH functions, including potential pitfalls and how opportunities to maximize positive outcomes. My dissertation provides a starting point for understanding what happens to PSH participants once they are placed into housing, specifically how participants integrate into their new communities to become reincorporated into society. My dissertation consists of three papers, and each paper offers key findings with potential implications for HUD-VASH policies and program structure.

Research from paper one demonstrates the potential importance of project-based vouchers in serving high need populations and enabling access to better quality neighborhoods. Project-based participants show greater usage of primary care, mental health services, and HUD-VASH case management. Project-based participants also find themselves located in neighborhoods with higher socio-economic status than tenant-based voucher holders. Given findings in paper one, local public housing authorities should consider the potential benefits of increased project-based housing stock. Jurisdictions, such as Los Angeles County, have opportunities to increase access to project-based voucher through new construction or through the conversion of tenant-based vouchers to project-based (currently up to 20% of awarded tenant based vouchers can be converted to project based by local public housing authorities). Some efforts are already being undertaken in Los Angeles.

In 2016, Los Angeles voters approved the Homelessness Reduction and Prevention, Housing, and Facilities Bond (HHH), a $1.2 billion bond measure for the development of affordable housing targeted towards homeless individuals. This funding will be distributed over

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the course of 10 years, and will help finance the construction of 10,000 units of affordable PSH (Chiland, Elijah, 2016). Homeless advocates in Los Angeles County are optimistic that HHH funds will create greater housing opportunities, including an increase in project-based housing subsidies. In addition, over the next decade, the Veteran Affairs of Greater Los Angeles will build over 1,000 PSH units on its campus. The resources accessible through project-based vouchers point to the need for increased consideration of how individuals are triaged into voucher type. Increases in project-based vouchers will provide opportunities for greater strategic voucher allocation and housing placements.

Paper 2 highlights the ongoing challenges of mental health illness for community integration. The negative association between mental health service use and community adjustment, housing stability, and employment, suggests unmet mental health needs. This association also highlights the importance of using service utilization rates as indicators of vulnerability, as baseline diagnosis may not be accurately capturing need. Case managers should consider service utilization patterns, in addition to diagnoses, when making recommendations for allocation of voucher type. Paper 2 also highlights the limitations of secondary database analysis for examining correlates of community integration, particularly with regards to community adjustment measures. This limitation, combined with findings from paper 3, suggests the potential role that neighborhood factors play in HUD-VASH recipients' well-being and community integration outcomes.

Neighborhood safety appears to strongly affect HUD-VASH recipients' housing satisfaction, as well as, willingness to engage with their local community. Unsafe neighborhoods and areas with rampart drug use can have negative repercussions for individuals struggling with substance abuse, or for those who have spent significant amounts of time living on the streets and display poor social skills (e.g., have trouble socializing with others and lack independent living skills). Further, population mix in project-based housing (Veteran only versus Veteran and non-Veteran) is not often considered but may potentially have significant impacts on community integration outcomes. Consequently, more research is needed to understand what role population demographics have in facilitating community integration in project-based sites. Lastly, HUD-VASH program constraints, including limited resources and high demands of HUD-

VASH program staff, result in limited resources for addressing participants' community integration needs; greater attention must be paid to the long-term well being of voucher recipients.

Overall, my dissertation research addresses questions that persist in community development literature. It informs our knowledge about the role communities of place play in individuals' lives, and how housing and neighborhood contexts interact with individual level factors. My research provides important insights into formerly homeless Veterans' experiences in the HUD-VASH program, including how policy structures and program implementation impact community integration processes. Findings from this dissertation are generalizable to homeless Veterans that receive HUD-VASH in Los Angeles County, and are particularly relevant given ongoing efforts to address homelessness in the region.

Since Los Angeles County has a unique set of characteristics, including types of local resources available to Veterans, findings do not generalize to other counties or at the national level. However, while not generalizable outside of Los Angeles County, findings provide key insights into program administration and community integration outcomes for all Veterans housed under HUD-VASH. Increased knowledge regarding community integration outcomes can help the VA effectively target resources and develop processes to triage homeless Veterans into project-based versus tenant-based vouchers; a clearer understanding of program implementation can assist policy makers in identifying resource gaps and opportunities to improve participant outcomes; and knowledge of Veteran community integration can assist in the development of guidelines and measures for community adjustment once individuals are housed.

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Paper 1: Comparing Tenant and Neighborhood Characteristics of the VA's Project- vs. Tenant-Based Supportive Housing Program in Los Angeles County

ABSTRACT

The United States Department of Housing and Urban Development (HUD)-Veteran Administration Supportive Housing (VASH) program uses project- and tenant-based vouchers to provide permanent supportive housing for homeless Veterans. We compared Veteran characteristics, health service utilization, and neighborhood characteristics between HUD-VASH participants with project-based (n=114) vs. tenant-based (n=978) vouchers. We found that project-based voucher holders were older and more medically ill than tenant-based voucher holders. Project-based vouchers were also associated with relatively higher quality neighborhoods and higher rates of health service utilization than tenant-based vouchers. Our findings confirm that homeless Veterans with high medical need are currently (and appropriately) being steered to project-based vouchers. Accordingly, project-based vouchers may be best suited for homeless Veterans with high levels of need. However, little is known about whether the different voucher programs differ with respect to various outcomes, including community integration.

Key Words: Veterans, homelessness, supportive housing, affordable housing, HUD-VASH

Comparing Tenant and Neighborhood Characteristics of the VA's Project- vs. Tenant-Based Supportive Housing Program in Los Angeles County

Homelessness is a major national concern (United States ICH, 2015), and for some jurisdictions it is a local crisis. Los Angeles County has the largest number of unsheltered homeless Veterans of any County in the nation. At a single point in time in 2017, there were an estimated 57,794 homeless individuals in Los Angeles County, and 4,828 of these individuals were Veterans (LAHSA, 2017). The Veterans Administration (VA) is making substantial progress in housing homeless Veterans. The VA Greater Los Angeles Healthcare System (GLA), which has the VA's largest homeless program, provides housing for over 8,800 Veterans with a history of homelessness. The majority of these Veterans (6,375) are housed through the VA's permanent supportive housing program, the Department of Housing and Urban Development-VA Supportive Housing (HUD-VASH), which uses the Housing First model (Austin et al., 2014) to provide subsidized permanent housing with supportive services.

HUD-VASH uses two types of Housing First vouchers to subsidize housing: project-based and tenant-based vouchers. Voucher types were designed for individuals with different clinical characteristics and service needs. However, nationwide, only about 6% of HUD-VASH vouchers are designated project-based. Project-based vouchers are part of the Low-Income Housing Tax Credit (LIHTC) program, which is used to pay for the capital costs of affordable housing units while the vouchers subsidize unit rent. Consequently, project-based vouchers subsidize housing in dedicated multi-unit facilities for low-income persons, often with on-site supportive services, e.g., case management or nursing. These vouchers were designed to serve high need participants, such as persons with longer periods of homelessness, complex medical and mental health conditions, or criminal records (Ellison et al., 2012). With access to on-site supportive services, persons with project-based vouchers may benefit from enhanced linkages to health services. In contrast, tenant-based vouchers subsidize market rate housing in the community. These vouchers serve individuals that need fewer supports (e.g., onsite staff) to maintain independent housing; HUD-VASH participants with tenant-based vouchers receive in-home

case management, including linkages to health services and community-based resources. Of note, consistent with the Housing First model (Tsemberis et. al., 2003; Shern et. al., 2000), both voucher types provide housing subsidies and case management with non-mandated linkages to health services. HUD-VASH staff may recommend a voucher type for a given participant (e.g., an individual who would benefit from on-site nursing services might receive a recommendation for a project-based voucher); however, participants ultimately choose what type of voucher to accept. Rental costs are determined by participant income; housing subsidies are determined by the fair market rent of the area assigned to a given Public Housing Authority (PHA), regardless of voucher type (project-based vs. tenant-based).

Although there is a general understanding that project- and tenant-based vouchers were intended to serve homeless Veterans with different needs, surprisingly little is known about whether individuals with different demographic characteristics and clinical needs are actually placed into these programs, or whether health service utilization differs by voucher type. The limited supply of project-based vouchers necessitates a comparison between Veterans with each voucher type. Further, it is not known whether each of these voucher types subsidize housing in neighborhoods of differing quality (e.g., socio-economic characteristics and crime levels), which can substantially affect access to community resources, health services, and subsequent health status (WHO, 2008; Nelson et al., 2011; Ludwig et. al., 2012).

This paper examines whether formerly homeless Veterans housed through HUD-VASH within Los Angeles County with project-based vouchers differ from those with tenant-based vouchers. Specifically, we compare these groups' demographic and clinical characteristics at the time of entry into HUD-VASH. We also compare these groups on neighborhood quality and on service utilization following housing placement.

METHODS

Participants

The GLA Institutional Review Board (IRB) approved all study activities. To identify individuals with project- vs. tenant-based vouchers, we used the VA Homeless Operations Management and Evaluation System (HOMES), a centralized registry of VA homeless service use (LaSalle, 2011). We obtained a roster of formerly homeless participants who were housed

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through HUD-VASH in the VA's Desert Pacific Healthcare Network (encompassing VA facilities in parts of California, Arizona, and New Mexico) in the most recent available fiscal year (October 1, 2014 - September 30, 2015). While this sample consists of participants housed in a single year, the HUD-VASH program's eligibility criteria and operational policies have remained constant since 2012 (HUD, 2012); we assume that this sample is representative of HUD-VASH enrollees over this time.

HOMES data includes a baseline (at the time of entry into the VA's homeless program) assessment of participant demographics, as well as medical, mental health, and substance use diagnoses. We selected participants housed through HUD-VASH in Los Angeles County (n=1,326). Address files were used to determine voucher type. Participants without a known address were removed from the dataset (n=208). Addresses were mapped and project-based vouchers were checked against the nine project-based sites in GLA's catchment area. About 2% of our total sample did not report medical diagnoses; there was no missing data for mental health diagnoses or addictive disorders. After removing duplicate entries (n=26), our final participant list (n=1,092) included 114 (10.44%) participants with project-based vouchers and 978 participants (89.56%) with tenant-based vouchers.

Variables

Our selection of HOMES variables was guided by the Behavioral Model for Vulnerable Populations (Gelberg, Andersen, & Leake, 2000), an adaptation of the Andersen Model (Andersen, 1968, 1995, Andersen & Davidson, 2007) that conceptualizes factors associated with health outcomes for vulnerable populations. This conceptual framework depicts the relationships between *predisposing* factors (e.g., demographics), *enabling* factors (e.g., neighborhood quality), *need* factors (e.g., perceived and evaluated health), *health behaviors* (e.g., health service utilization), and *health outcomes* (e.g., health status, satisfaction with care).

Predisposing factors: We used the baseline assessment in HOMES to obtain the following characteristics: age, gender, race/ethnicity, years of education, employment status, presence or absence of children, relationship status (e.g., married or partnered), presence or absence of a criminal history, and homelessness chronicity (number of homeless episodes and duration of current episode of homelessness).

Need factors: From the HOMES baseline assessment, we obtained an index of perceived physical health, ranked by the participant on a 5-point Likert scale, ranging from 1 (poor physical health) to 5 (excellent physical health). We also obtained case managers' assessments of the presence vs. absence of specific medical diagnoses, mental health diagnoses, and addictive disorders (Table 1) that are common among homeless persons (Fazel, Khosla, Doll, & Geddes, 2008; Kushel, Vittinghoff, & Haas, 2001; Schanzer, Dominguez, Shrout, & Caton, 2007; Winkleby & Fleshin, 1993).

Enabling factors: To capture enabling variables, we focused on neighborhood quality variables that characterize the socio-economic status and crime statistics of a community (Greenberg, 1999; Patterson, Nochajski, & Wu, 2014; Pendall, 2000). To characterize socio-economic status, Veterans' housing information from HOMES (latitude/longitude of last address) was mapped on to Los Angeles County Census Tracts and cross-referenced with the publicly available 2011-2015 American Community Survey 5-Year estimates (U.S. Census Bureau, 2015). For each participant's census tract, the American Community Survey was used to capture the following variables: rate of unemployment for persons ≥16 years old, rate of individuals ≥25 years old without a high school diploma, poverty rate for persons ≥18 years of age, vacancy rate, median household income, and housing value.

To characterize crime, we used Applied Geographic Solutions' CrimeRisk data, which uses the Federal Bureau of Investigations' Uniform Crime Report data from 2011 to 2015 to assess a neighborhood's relative risk of crime. Crime rate estimates are weighted by population and converted to indexes relative to the national total, where 100 represents the national average (AGS, 2017). We used CrimeRisk data to identify prevalence of crime by census tract, capturing the following variables: murder, rape, robbery, assault, burglary, larceny, motor vehicle theft, and total crime (index of all crimes).

Health behaviors: We examined health service utilization through VA's Corporate Data Warehouse (CDW), an administrative dataset of inpatient and outpatient clinical encounters (U.S. Department of Veteran Affairs, 2014). From CDW, we captured participants' rates of VA service utilization for one year after housing placement, including the number of HUD-VASH case management contacts, primary care visits, outpatient mental health visits, outpatient

substance use disorder program visits, emergency department visits, mental health inpatient admission, and medical/surgical inpatient admission.

Statistical Analysis

Comparisons between the project- and tenant-based voucher groups were conducted with X^2 tests for categorical variables and t-tests for continuous variables. Data analyses were undertaken in three stages. First, we compared the groups on Veteran-level characteristics (predisposing and need variables), at the time of entry into HUD-VASH. In addition to examining between-group differences for each individual variable, recursive partitioning was conducted (using Rx64 3.4.0) to identify the combination of predisposing and need characteristics (n=44) that best-predicted assignment to project- vs. tenant-based voucher type. Recursive partitioning was used over other multivariate methods, including regression, because it accounts for potential interactions between predictor variables (Hellemann, Conner, Anglin, & Longshore, 2009). Recursive partitioning facilitates the exploration of complex and potentially interdependent predictor variables (Hellemann et al., 2009). It is a nonparametric data mining technique that uses "decision trees" to predict outcomes, in this case voucher type, from a group of predictors.

Second, we compared the groups on indices of neighborhood quality (enabling variables). Since neighborhood level proportions for poverty rate, vacancy rate, unemployment rate, and educational status were not normally distributed, these variables were arcsine transformed before conducting t-tests (Ahrens, Cox, & Budhwar, 1990). Third, we compared the groups' health service utilization (health behavior variable) for the year following housing placement.

All between-group comparisons used a significance value of $p < 0.05$. In addition, we report the results of Bonferroni-corrected statistical tests to account for multiple-comparisons within each of the major categories of variables (i.e., individual characteristics, diagnosis (medical, mental health, and addictive disorders), service utilization, neighborhood socioeconomic characteristics, and neighborhood crime). All analyses, with the exception of recursive partitioning, were conducted using StataMP 14.

RESULTS

1. Participant characteristics

    1.a. Predisposing factors: Table 2 depicts the predisposing factors of HUD-VASH Veterans at baseline assessment. Regarding demographics, the groups differed on three variables. Those receiving project-based vs. tenant-based vouchers were older (mean age 52.69/57.97 years) and less likely to have dependent children (11.01% vs. 26.03%); these differences remained significant (p<0.05) following Bonferroni correction. The groups also differed on married or partnered status (project-based voucher holders were less likely to be married or in a relationship than tenant-based voucher holders (4.59%/11.10%)), but this difference was not significant (p>0.05) after correction for multiple comparisons. There were no between-group differences on criminal history (53.64%/52.11%) or homelessness chronicity.

    1.b. Need factors: Table 3 depicts need factors by voucher type. Among medical diagnoses, the groups only differed on Hepatitis C and history of positive Tuberculosis test (Purified Protein Derivative (PPD)), with higher rates in the project-based group (15.04%/8.16% and 9.73%/4.49%, respectively). However, these differences were not significant after correction. In addition, there were no significant between-group differences for substance use disorders or mental health diagnoses. Beyond evaluating each specific need characteristic, we also conducted a supplemental analysis at the overall category level, comparing whether the groups differed on the presence vs. absence of any condition within each of the three categories (medical, mental, or substance use), any combination of two categories, or all three categories. Categories do not account for the number of diagnoses that an individual has (e.g., an individual can have more than one medical diagnoses but only be counted once in the medical category). Project-based voucher holders have a greater likelihood of having at least one medical diagnosis (40.35%/24.64%) than tenant-based voucher holders. This difference remained significant (p=0.00) after correction (see Supplemental Table 1).

    1.c. Recursive Partitioning Analyses: Recursive partitioning analyses were used to identify the optimal combination of predisposing and need variables that predicted voucher type. The results indicated that no stable predictive model for voucher type could be identified.

That is, no combination of factors was identified that enhanced the prediction of voucher type beyond the current 90%/10% split.

Regardless, recursive-partitioning analyses did highlight two variables that were the most predictive of voucher assignment in this sample: the presence of at least one medical diagnosis and age. These variables were also found to be significant in our univariate analyses of project- and tenant-based voucher holders. However, while important at the population level, the low predictive power (relative error of 1.08) of the recursive-partitioning model that incorporated these variables suggests that these differences do not give enough information to predict classification for individuals. The model's lack of predictive power may reflect the large percentage of subjects in tenant-based housing (90%), which might have resulted in age and medical diagnoses having a spurious relationship. Still, the recursive partitioning findings parallel our univariate results, and suggest the importance of age and medical diagnosis in understanding the differences between persons with these two voucher types.

2. Enabling variables

Table 4 depicts enabling variables by voucher type. There were a number of significant differences in neighborhood characteristics between project- vs. tenant-based voucher holders. The project-based group was housed in areas with lower rates of unemployment (mean 10.70%/13.20%), lower rates of adults with less than a high school education (21.83%/30.06%), lower poverty rates (20.94%/25.64%), and higher median household income ($46,050.48/$39,776.62). Differences in vacancy rates and median housing value of owner occupied units were also significant. Specifically, compared to tenant-based voucher holders, project-based voucher holders lived in areas with lower rates of rental (38.96%/40.70%) and for sale vacancies (2.38%/7.52%) and higher rates of other vacancies (56.91%/48.51%), e.g., units held for settlement of an estate, used for personal reasons, or undergoing repairs. Project-based voucher holders also lived in census tracts with a higher percentage of homes valued at $150,000 or above but less than a million dollars (91.81%/80.08%). Project-based voucher holders were also less likely than tenant-based voucher holders to live in census tracts that had a greater percentage of homes valued between less than $20,000 and $149,999

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(6.61%/12.12%) or above one million dollars (1.58%/2.58%). All of these differences remained statistically significant (p<0.05) after correction.

Regarding crime data, the total crime index, which weighs all types of crime equally (e.g., a stolen purse is weighted equal to homicide), was higher in the project-based group than the tenant-based group (130.55/115.55). However, the results differed for specific categories of crime. Specifically, project-based voucher holders were in census tracts that had higher rates of larceny (125.59/88.15) and rape (114.45/81.85) than tenant-based voucher holders. However, project-based vouchers holders' census tract had lower rates of assault (127.24/156.15) and burglary (78.91/105.87) than tenant-based. These differences remained significant after correction.

3. Health behaviors

VA health service utilization data for the year after housing is presented in Table 5. The project-based group had higher rates of outpatient primary care (mean 10.91/8.11), mental health (mean 45.77/22.47), and HUD-VASH visits (mean 41.40/33.48) than the tenant-based group. These differences all remained significant after correction for multiple comparisons. However, there were no significant differences for Emergency Department visits (1.00/0.85) and rates of at least one inpatient admission in mental health (1.8%/2.35%) or medical-surgical (17.54%/11.55%) units.

DISCUSSION

This study compared Veteran characteristics, neighborhood quality, and health service utilization among formerly homeless Veterans in Los Angeles' HUD-VASH program who received permanent housing using project- vs. tenant-based vouchers. Though these analyses were confined to the Los Angeles region, which has a limited rental market (California Housing Partnership, 2017), we saw very few differences in predisposing and need characteristics between Veterans with each voucher type; univariate analyses and recursive partitioning confirmed that only age and presence of a medical illness were significantly different between project- and tenant-based populations. However, project-based voucher holders lived in relatively higher quality neighborhoods and showed higher levels of service utilization than tenant-based voucher holders. Thus, although project-based vouchers provided access to

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higher quality neighborhoods and were associated with increased service utilization, voucher allocation appeared to be only partially impacted by predisposing or need characteristics that convey vulnerability.

The relatively few differences between project- and tenant-based populations may be the result of limited housing stock in Los Angeles County (California Housing Partnership, 2017) and a HUD-VASH program structure that emphasizes consumer choice. For example, due to slower lease-up, HUD initially discouraged the use of project-based vouchers (Cunningham, 2009) and encouraged the use of tenant-based vouchers that were thought to offer more choice and flexibility (Sard, 2001). As a result, HUD-VASH has a limited number of project-based vouchers and many high-need Veterans presumably received tenant-based vouchers due to limited resources. Alternatively, as the Housing First model prioritizes participant preferences, the relatively high level of tenant-based housing may partly reflect many Veterans' expressed preferences for this type of housing voucher, i.e., even if a participant would presumably fair best under project based housing, he or she may decide to accept a tenant-based voucher. Whichever the case, the data show higher rates of service utilization with project-based vouchers, which suggests an opportunity to more optimally match Veterans with higher service needs to this voucher type.

Despite the general lack of between-group differences in predisposing and need characteristics, project-based voucher holders lived in relatively better quality neighborhoods than tenant-based voucher holders. This was apparent in a number of the socio-economic status indices considered (i.e., lower rates of unemployment, lower rates of adults with less than a high school education, lower poverty rates, higher median household income, lower rental and for sale vacancy rates, and a greater proportion of homes with higher housing values). Crime data was more nuanced; crime appeared to impact neighborhood quality for both types of housing, albeit in different ways. Although the neighborhood quality of HUD-VASH project- and tenant-based permanent supportive housing has not previously been compared, these results appear consistent with the limited research comparing project-based vs. tenant-based housing showing that project-based housing can be more successful in entering low-poverty neighborhoods (Deng, 2007; McClure, 2006). Participants in our sample

had access to nine project-based sites located in diverse settings across the county. These sites provided access to neighborhoods that, due to market-rate rental costs, may have been out of reach for tenant-based voucher holders.

It is worth noting that, despite socioeconomic status and crime differences between the groups, both types of voucher programs were associated with worse neighborhood quality than LA County as a whole (see Supplemental Table 2 for County-level statistics). For example, median household income is lower for neighborhoods of both project- ($46,050) and tenant-based ($39,777) voucher holders when compared to the County mean ($61,213). In addition, the murder indices for project-based (Mean = 220.1; SD =141.6) and tenant-based (Mean = 237.4; SD=158.0) vouchers are much higher than the LA County mean (133.5; SD =131.0). Thus, there is ample room for further enrichment of the neighborhoods in which these individuals are housed.

With regards to health behaviors, our analyses show that individuals in project-based housing have significantly higher rates of primary care, mental health, and HUD-VASH service utilization. Given that project-based voucher holders are older and have higher rates of medical illness, some of this service utilization may be tied to higher need. However, higher rates of mental health and VASH service utilization cannot easily be explained by diagnostic prevalence reflected in homeless registry data (though these rates are only proxies for need) and may instead reflect greater access or greater motivation to seek services among project-based voucher holders. Primary care is occasionally offered to particularly vulnerable patients on-site; however, on-site primary care is rare and mental health services are not offered on-site. On site services in these project-based settings generally include nursing, case management, and some substance abuse treatment. We would not expect increased primary care and mental health services due to co-location alone; rather, these differences likely reflect differential morbidity between individuals by voucher type, or greater linkages to care that result from on-site case management and nursing. Lower rates of mental health and HUD-VASH service utilization among tenant-based voucher holders may reflect challenges in accessing potentially helpful services in tenant-based housing. We note, however, that easier access to services in project-based housing did not appear to translate into lower levels of acute care utilization, i.e.,

Emergency Department visits or inpatient hospitalizations. This disparity may reflect our study of service use in the year after housing placement; the literature shows that permanent supportive housing is a protective factor against Emergency Department use and hospitalizations (Martinez, et. al., 2006; Sadowski, et. al., 2009).

LIMITATIONS

While the VA collects extensive data on consumers, there are limitations to data quality. Specifically, the diagnostic prevalence reflected in the HOMES data is a rudimentary measure of medical need. Future studies could incorporate standardized measures of morbidity and mortality (reported by the patient or calculated by VA), as these are more robust measures of need. Furthermore, our study is limited to one year of HUD-VASH data in Los Angeles County. Future studies should consider including data on all Veterans currently housed in HUD-VASH in Los Angeles County, and longitudinal follow-up of utilization data to track changes over time. In addition, future analysis may examine a national cross-section of Veterans housed through HUD-VASH; Los Angeles County is largely urban with profound limitations in housing stock that differ from other parts of the nation. A use of national data would help us understand if there is any regional variation on how the program is being implemented. Our study also does not examine consumer outcomes post housing, including potential changes in health, substance recovery, and community integration outcomes. New studies should explore the potential impact of voucher type and neighborhood quality on various outcomes of interest. Lastly, while there does not appear to be a significant difference in racial/ethnic composition by voucher type, future studies may examine whether race/ethnicity makes a difference with regards to the neighborhoods that are accessed under tenant and project-based vouchers. Past studies have found that white HUD-VASH tenant-based voucher recipients access better quality neighborhoods then their black counterparts (Patterson, Nochajski, & Wu, 2014). It would be informative to examine whether this remains the case within project-based vouchers.

CONCLUSION

The HUD-VASH program is the linchpin of the VA's strategic plan to end Veteran homelessness (Driscoll, 2014). As more homeless Veterans achieve housing through HUD-VASH, we need to pay closer attention to the importance of voucher type in this program. With the

limited availability of project based vouchers, juxtaposed with the increased service use and better neighborhood quality with this voucher type, our findings suggest a greater need to think strategically about how to best allocate housing vouchers to meet homeless Veteran's needs. This question will become increasingly relevant in urban areas (like City of Los Angeles) that plan to expand project-based housing stock through new construction. Further, the benefits of project-based housing may propel PHAs to consider the conversion of tenant-based vouchers to project-based vouchers (i.e., currently PHAs can petition to transfer up to 20 percent of tenant-based vouchers to project-based). Increases in project-based housing availability should prompt policy makers to consider how to best-match individuals to housing and service delivery structures, as these decisions may have important repercussions for consumers' health and quality of life.

Table 1 – Need Variables (Medical, mental, and addiction-related diagnoses)

Medical Diagnoses	Mental Health Diagnoses	Addictive Disorders
Chronic Obstructive Pulmonary Disease (COPD)	Bipolar Disorder	Alcohol Use Disorder
Diabetes	Depressive Disorder	Drug Use Disorder
Heart disease	Adjustment Disorder	Tobacco Use Disorder
Stroke	Military Post-traumatic Stress Disorder (PTSD)	Gambling Disorder
Chronic pain	Non-Military PTSD	
Seizures	Other Anxiety Disorders	
Hepatitis C	Schizophrenia	
HIV/AIDS	Other Psychotic Disorders	
History of Positive TB test	Personality Disorders	
	Other Psychiatric Disorders	

Table 2 – Predisposing Factors by Voucher Type

	Total	Tenant Based Mean or n (SD or %) N=978	Project Based Mean or n (SD or %) N=114	P-Value	Bonferroni P-Value
Age* (in years)	53.24 (12.43)	52.69 (12.47)	57.97 (11.08)	0.00	0.00
Male	697 (63.83%)	626 (64.01%)	71 (62.28%)	0.72	7.88
Ethnicity				0.28	3.07
Hispanic	152 (14.46%)	140 (14.86%)	12 (11.01%)		
Race				0.90	9.93
Black	619 (56.74%)	557 (57.01%)	62 (54.39%)		
White	369 (33.82%)	329 (33.67%)	40 (35.09%)		
Asian	18 (1.65%)	16 (1.64%)	2 (1.75%)		
American Indian/Alaskan	22 (2.02%)	19 (1.94%)	3 (2.63%)		
Native Hawaiian/ Pacific Islander	5 (0.46%)	4 (0.41%)	1 (0.89%)		
Married or Partnered	110 (10.43%)	105 (11.10%)	5 (4.59%)	0.04	0.39
Have Children (yes)*	258 (24.48%)	246 (26.03%)	12 (11.01%)	0.00	0.01
Education (in years)	13.32 (1.82)	13.31 (1.78)	13.38 (2.08)	0.72	7.94
Employment				0.62	6.79
Full Time	144 (13.75%)	128 (13.65%)	16 (14.68%)		
Military	20 (1.91%)	19 (2.03%)	1 (0.92%)		
Part Time	133 (12.70%)	123 (13.11%)	10 (9.17%)		
Student	46 (4.39%)	43 (4.58%)	3 (2.75%)		
VA vocational therapy	3 (0.29)	3 (0.32%)	0		
Retired/ Disabled	701 (66.95%)	622 (66.31%)	79 (72.48%)		
Criminal History (yes)		481 (52.11%)	59 (53.64%)	0.76	8.38
Homeless Episodes (last 3 years)	2.82 (1.71)	2.83 (1.70)	2.77 (1.76)	0.74	8.11
Duration of Current Homelessness Episode				0.88	9.65
1 night less than 1 month	112 (11.59%)	100 (11.53%)	12 (12.12%)		
1 month – 6 months	144 (14.91%)	127 (14.65%)	17 (17.17%)		
6 months to 1 year	91 (9.42%)	82 (9.46%)	9 (9.09%)		
1 – 2 years	242 (25.05%)	219 (25.26%)	23 (23.23%)		
2 years or more	377 (39.03%)	339 (39.10%)	38 (38.38%)		

*P < 0.05

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Table 3 – Need Variables (Health Conditions) by Voucher Type

	Total	Tenant Based Mean or *n* (SD or %) *N*=978	Project Based Mean or *n* (SD or %) *N*=114	P-Value	Bonferroni P-Value
Medical Diagnoses					
Self-Rated Physical Health	2.58 (1.03)	2.60 (1.04)	2.41 (0.93)	0.06	0.69
COPD	70 (6.54%)	62 (6.48%)	8 (7.08%)	0.81	8.88
Diabetes	100 (9.43%)	86 (8.98%)	14 (12.39%)	0.24	2.62
Heart Disease	80 (7.48%)	72 (7.52%)	8 (7.08%)	0.87	9.52
Stroke	48 (4.49%)	40 (4.18%)	8 (7.08%)	0.16	1.75
Chronic Pain	360 (33.64%)	318 (33.23%)	42 (37.17%)	0.40	4.42
Seizures	34 (3.18%)	29 (3.03%)	5 (4.42%)	0.42	4.66
Hepatitis C	95 (8.89%)	78 (8.16%)	17 (15.04%)	0.02	0.17
HIV/AIDS	18 (1.68%)	18 (1.88%)	0	0.14	1.55
History of Positive TB Test	54 (5.05%)	43 (4.49%)	11 (9.73%)	0.02	0.18
Other	365 (34.18%)	318 (33.30%)	47 (41.59%)	0.08	0.87
Mental Health Diagnoses					
Bipolar Disorder	61 (5.59%)	52 (5.32%)	9 (7.89%)	0.26	3.87
Depressive Disorder	255 (23.37%)	235 (24.05%)	20 (17.54%)	0.12	1.80
Adjustment Disorder	70 (6.42%)	64 (6.55%)	6 (5.26%)	0.60	8.93
Military PTSD	150 (13.75%)	139 (14.23%)	11 (9.65%)	0.18	2.69
Non Military PTSD	74 (6.78%)	68 (6.96%)	6 (5.26%)	0.50	7.43
Anxiety Disorder	155 (14.21%)	145 (14.84%)	10 (8.77%)	0.08	1.19
Schizophrenia	53 (4.86%)	47 (4.81%)	6 (5.26%)	0.83	12.48
Other Psychotic Disorder	32 (2.93%)	28 (2.87%)	4 (3.51%)	0.70	10.50
Personality Disorder	15 (1.37%)	14 (1.43%)	1 (0.88%)	0.63	9.45
Other Psychiatric Disorder	38 (3.48%)	34 (3.48%)	4 (3.51%)	0.99	14.81
Addictive Disorders					
Alcohol Use Disorder	233 (21.36%)	214 (21.90%)	19 (16.67%)	0.20	2.96
Drug Use Disorder	222 (20.35%)	203 (20.78%)	19 (16.67%)	0.30	4.53
Tobacco Use Disorder	170 (15.58%)	150 (15.35%)	20 (17.54%)	0.54	8.13
Gambling Disorder	6 (0.55%)	4 (0.41%)	2 (1.75%)	0.07	0.99

$*P < 0.05$

Supplemental Table 1– Veterans Diagnosis by Voucher Type

	Total	Tenant Based Mean or *n* (SD or %) *N*=978	Project Based Mean or *n* (SD or %) *N*=114	P-Value	Bonferroni P-Value
Diagnostic Category					
At least one mental health diagnosis	553 (50.69%)	500 (51.12%)	53 (46.49%)	0.34	2.75
At least one medical diagnosis*	287 (26.80%)	241 (24.64%)	46 (40.35%)	0.00	0.00
At least one Substance Use Disorder (SUD)[a]	223 (20.44%)	204 (20.86%)	19 (16.67%)	0.29	2.33
No Diagnosis	264 (24.65%)	237 (24.23%)	27 (23.68%)	0.84	6.75
Combination of physical and mental health diagnoses	211 (19.70%)	190 (19.83%)	21 (18.58%)	0.75	6.00
Combination of physical and SUD diagnoses	43 (4.01%)	42 (4.38%)	1 (0.88%)	0.07	0.56
Combination of mental and SUD diagnoses	62 (5.68%)	54 (5.53%)	8 (7.02%)	0.52	4.16
Combination of physical, mental, and SUD diagnoses	142 (13.26%)	126 (12.88%)	16 (14.04%)	0.77	6.12
* P < 0.05					

a. The category "at least one Substance Use Disorder" encompasses alcohol and drug disorders. This category does not include tobacco use disorder or gambling.

Table 4: Enabling Variables at the Tract Level by Voucher Type in Los Angeles

Neighborhood Characteristics (Tract Level)	Total	HUD-VASH Tenant-Based Voucher Holders (N=978)	HUD-VASH Project-Based Voucher Holders (N=114)	P-Value	Bonferroni P-Value
	Mean (SD)	Mean (SD)	Mean (SD)		
Unemployment Rate *					
Unemployed (for those > 16)	12.94% (6.37%)	13.20% (6.52%)	10.70% (4.28%)	0.00	0.00
Education Rates*					
Less Than High School (for those > 25)	29.20% (15.42%)	30.06% (15.43%)	21.83% (13.34%)	0.00	0.00
Poverty Levels* [b]					
Living in Poverty (for those > 18)	25.15% (12.69%)	25.64% (12.81%)	20.94% (10.71%)	0.00	0.00
Vacancy Rate*				0.00	0.00
Vacant for Rent	40.52% (28.78%)	40.70% (29.57%)	38.96% (20.92%)		
Vacant for Sale	6.98% (15.68%)	7.52% (16.18%)	2.38% (9.27%)		
Vacant Other	49.39% (29.40%)	48.51% (30.14%)	56.91% (20.76%)		
Household Income*					
Median Household Income	$40,430 ($20,023.61)	$39,776.62 ($19,792.59)	$46,050.48 ($21,182.40)	0.00	0.01
Median Housing Value for Owner Occupied*				0.00	0.00
Less than $20,000	1.49% (2.92%)	1.55% (3.05%)	0.92% (1.26%)		
$20,000 to $49,999	1.45% (2.86%)	1.51% (2.98%)	0.97% (1.33%)		
$50,000 to $99,999	2.68% (7.42%)	2.77 % (7.71%)	1.92% (4.23%)		
$100,000 to $149,999	5.92% (13.88%)	6.29% (14.51%)	2.80% (5.28%)		
$150,000 to $299,999	26.62% (19.87%)	26.57% (20.31%)	27.05% (15.65%)		
$300,000 to $499,999	38.25% (22.28%)	37.06% (22.42%)	48.40% (18.14%)		
$500,000 to $749,999	12.24% (14.87%)	12.01% (15.05%)	14.17% (13.07%)		
$750,000 to $999,999	4.21% (10.42%)	4.44% (10.56%)	2.19% (8.89%)		
Greater than $1,000,000	2.47% (8.64%)	2.58% (8.63%)	1.58% (8.77%)		
Crime Indexes Crime Indexes					
Assault Index*	153.13 (84.39)	156.15 (86.56)	127.24 (56.79)	0.00	0.00
Burglary Index*	103.05 (44.02)	105.87 (43.83)	78.91 (38.00)	0.00	0.00
Larceny Index*	92.05 (56.23)	88.15 (55.62)	125.59 (50.13)	0.00	0.00
Motor Vehicle Theft Index	246.84 (135.06)	249.42 (138.31)	224.75 (100.84)	0.06	0.52
Murder Index	235.62 (156.36)	237.43 (157.96)	220.12 (141.62)	0.26	2.11
Rape Index*	85.26 (59.48)	81.86 (59.81)	114.45 (47.61)	0.00	0.00
Robbery Index	298.33 (151.69)	296.12 (152.29)	317.25 (145.69)	0.16	1.28
Total Crime Index*	117.12 (48.73)	115.55 (49.03)	130.55 (44.03)	0.00	0.01
* P < 0.05					

b. For poverty level, the Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family, and every individual in it, is considered in poverty. For example, for an individual 65 or older, $11,500 would be considered the poverty threshold where as a family of four would have to have an income less than $24,500 to be classified as living in poverty.

Table 5 – Health Behaviors by Voucher Type

	Total	Tenant Based Mean or *n* (SD or %) *N*=978	Project Based Mean or *n* (SD or %) *N*=114	P-Value	Bonferroni P-Value
Service Utilization					
Primary Care Visits*	8.41 (8.94)	8.11 (8.73)	10.91 (10.23)	0.00	0.01
Emergency Department Visits	0.86 (1.68)	0.85 (1.62)	1 (2.10)	0.35	2.47
Mental Health Visits*	24.90 (51.05)	22.47 (45.24)	45.77 (83.50)	0.00	0.00
HUD-VASH Visits*	34.31 (24.05)	33.48 (23.34)	41.40 (28.62)	0.00	0.01
Outpatient Substance Use Disorder Visits	2.78 (14.82)	2.54 (12.51)	4.81 (27.60)	0.12	0.86
Mental Health Inpatient Admission	25 (2.29%)	23 (2.35%)	2 (1.8%)	0.69	4.81
Medical/ Surgical Inpatient Admission	133 (12.18%)	113 (11.55%)	20 (17.54%)	0.06	0.45
*P < 0.05					

Supplemental Table 2

Neighborhood Characteristics (Tract Level)	Los Angeles County
	Mean (SD)
Unemployment Rate	
Unemployed (for those > 16)	10.20% (5.25%)
Education Rates	
Less Than High School (for those > 25)	24.01% (18.04%)
Poverty Levels	
Living in Poverty (for those > 18)	16.49% (11.07%)
Vacancy Rate	
Vacant for Rent	30.31% (30.97%)
Vacant for Sale	9.72% (19.42%)
Vacant Other	55.03% (33.58%)
Household Income	
Median Household Income	$61,212.79 ($30,888.43)
Median Housing Value for Owner Occupied	
Less than $20,000	1.68% (4.02%)
$20,000 to $49,999	1.66% (4.62%)
$50,000 to $99,999	1.90% (5.58%)
$100,000 to $149,999	2.75% (6.64%)
$150,000 to $299,999	20.14% (19.65%)
$300,000 to $499,999	36.23% (22.68%)
$500,000 to $749,999	18.77% (18.53%)
$750,000 to $999,999	7.07% (10.96%)
Greater than $1,000,000	7.63% (17.23%)
Crime Indexes Crime Indexes	
Assault Index	99.53 (82.64)
Burglary Index	83.43 (49.16)
Larceny Index	80.76 (63.13)
Motor Vehicle Theft Index	192.45 (135.92)
Murder Index	133.50 (131.03)
Rape Index	72.73 (68.88)
Robbery Index	173.22 (134.42)
Total Crime Index	93.83 (58.11)

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Paper 2: Determinants of Community Integration Among Formerly Homeless Veterans Who Received Supportive Housing

ABSTRACT

Objective. To identify factors associated with community integration outcomes among formerly homeless Veterans housed through the VA's Supported Housing program (VASH).

Methods. We performed secondary database analyses of Veterans (n=560) housed via VASH in the VA Greater Los Angeles Healthcare System from 10/1/14-9/30/15. Homeless registry and VA administrative data were analyzed; we conducted ordinal and logit regressions to examine associations between individual characteristics, supported housing voucher type, and health service utilization on community integration outcomes.

Results. We found that mental health negatively affected community adjustment, housing stability, and employment outcomes; full-time employment at baseline positively impacted housing stability and employment outcomes one year post housing; SUD visits positively impacted employment outcomes; and a dual physical and SUD diagnosis had a positive impact on community adjustment.

Conclusions. We found few variables were associated with community integration. Overall, similar to previous research, our study points to the importance of mental health needs, and suggests that utilization of mental health services is an important indicator of employment, housing stability and community adjustment outcomes.

Determinants of Community Integration Among Formerly Homeless Veterans Who Received Supportive Housing

INTRODUCTION

On a single night in 2017, 553,742 people were homeless in the United States, 40,056 of whom were homeless Veterans ("AHAR Reports, Guides, Tools, and Webinars - HUD Exchange," n.d.). The Department of Veterans Affairs (VA) has devoted tremendous resources towards ending and preventing Veteran homelessness ("Opening Doors: Federal Strategic Plan to Prevent and End Homelessness," n.d.). As a result, between 2010 and 2017, homelessness among Veterans declined by 46%, a decrease attributed in large part to the crux of VA's strategic plan to end homelessness: the U.S. Department of Housing and Urban Development (HUD)-VA Supportive Housing (VASH) program ("AHAR Reports, Guides, Tools, and Webinars - HUD Exchange," n.d.). Housing, however, is only the first step toward addressing the community needs of homeless Veterans. After homeless Veterans achieve housing, deeper, more fundamental needs grow important, e.g., involvement in the community, vocational pursuits, and social support.

HUD-VASH uses the Housing First model (Austin et al., 2014), which combines independent permanent housing in the community with supportive services, including field-based case management and non-mandated linkages to health care. Housing First programs offer recovery-oriented services that further participants' goals, with the flexibility to respond to varying levels of need. Housing First differs from the traditional "housing readiness" approach that requires service receipt as a prerequisite to permanent housing (Kertesz, Crouch, Milby, Cusimano, & Schumacher, 2009; O'Connell, Kasprow, & Rosenheck, 2012). HUD-VASH participants receive a housing choice voucher that pays a subsidy to the landlord, supplemented by 30%–40% of the participant's monthly income as rent ("Payment Standards and Fair Market Rents (FMR) FAQs - HUD Exchange," n.d.). The program targets persons who are chronically homeless, who often have a host of medical and mental health vulnerabilities, as well as substance use disorders (SUD) ("HUD-VASH Eligibility Requirements - HUD Exchange,"

n.d.). Homeless Veterans are notably vulnerable, with age-adjusted mortality that is close to three times higher than that of their housed peers (T. P. O'Toole et al., 2011). In fiscal year 2015, 73% of HUD-VASH participants nationwide reported having at least one chronic medical condition, 58% endorsed having at least one psychiatric disorder, and 42% had a SUD (Northeast Program Evaluation Center, n.d.). The VA's notable progress housing Veterans with a history of homelessness raises public health concerns about how to manage the long-lasting consequences of homelessness and poverty, e.g., vocational challenges and poor social networks, once people are housed (T. O'Toole, Pape, & Kane, 2013).

Research to date highlights concerns that some individuals in permanent supportive housing remain socially isolated and have limited success in other domains of community integration, including community participation, civic activity, religious involvement, employment, and social support (Friedrich, Hollingsworth, Hradek, Friedrich, & Culp, 2014; Siegel et al., 2006; Tsai & Rosenheck, 2012). Social connectedness is central for integration and has significant implications for housing stability (Rosenbeck & Fontana, 1994), and mental (Davidson et al., 2004) and physical health (Berkman & Syme, 1979). Social ties can affect access to social and economic resources (Turner, 2006) and impact individuals' health by affecting instrumental aid, information flows, and emotional support (Kawachi, Kennedy, & Wilkinson, 1999). Yet, little is known regarding what factors influence community integration outcomes for Veterans with a history of homelessness who are placed in permanent supportive housing.

This paper focuses on community integration among formerly homeless Veterans housed in HUD-VASH. We define community integration as encompassing aspects of participation and productivity in daily life, with three core themes: relationships with others (social integration), independence in living and situations and activities to fill time (physical integration) (McColl, 1998). Community integration encompasses aspects of participation and productivity in daily life (Organization, 1999). Consequently, it is a key factor in determining the long-term success of permanent supportive housing participants (Tsai & Rosenheck, 2012). Of note, though some researchers also describe psychological integration, i.e., an emotional sense of belonging to a community (Wong and Solomon, 2003), we do not include this construct here.

While substantial research examines factors that convey risk for experiencing homelessness, there is little data on individual and service utilization patterns that are predictive of community integration among formerly homeless persons in permanent supportive housing; previous research has examined psychological integration of homeless individuals (Ecker and Aubry, 2016),[24] and compared community integration in independent and congregate settings (Yanos, Felton, and Tsemberis, 2007).[25] Further, there is scant research that specifically addresses community integration among formerly homeless Veterans. In this paper, we examine community integration outcomes among formerly homeless Veterans placed in permanent supportive housing under the HUD-VASH program. Using secondary data for participants in this program, we identify individual characteristics, supported housing voucher type (project-based vs. tenant-based), and health service utilization patterns associated with community integration outcomes (i.e., community adjustment, housing stability, and employment).

METHODS

Participants

We used the VA Homeless Operations Management and Evaluation System (HOMES), a centralized registry of VA homeless service use, to identify participants housed through HUD-VASH at the VA Greater Los Angeles (GLA, n = 1,117) over one fiscal year (October 1, 2014 through September 30, 2015). GLA is the largest homeless program in the nation, serving 15,823 Veterans in fiscal year 2018, with 3,847 participants in its VASH program.

HOMES data included a baseline assessment (at the time of entry into the VA's homeless program) of participants' demographics, as well as medical, mental health, and SUD diagnoses. This assessment was also used to determine time from homeless program entry to housing placement. Across the nation, HUD-VASH housing placement takes an average of 108 days from enrollment to placement in a rental unit (O'connell, Kasprow, & Rosenheck, 2010). As baseline information may change over time (e.g., relationship status, years of education, medical diagnoses), we limited the sample to participants who achieved housing within one year (365 days) of intake. A total of 327 (29.3%) entries exceeded one year for placement and

were removed from the dataset. These individuals were enrolled in VASH, but remained homeless after one year.

To assess community integration outcomes, we used HOMES' Quarterly Status Reports completed by HUD-VASH case managers (who performed supported services). We were interested in three primary variables from these reports: community adjustment, housing stability, and employment. We removed duplicate entries. We also resolved conflicting information; if a participant had two reports entered in one day, and data entries did not match, the report was removed from our dataset. Next, we assured that subjects had specific Quarterly Status Report data, differing by the primary outcome variable: For community adjustment, we included participants who had reports for quarters one and four (n = 497). For housing stability, we included participants who had reports for quarter four (n = 506). Lastly, due to low reporting for employment in general, and particularly at quarter four, we included participants who had reports for quarters one and three (n = 172). In total, our final sample consisted of 560 participants. The GLA Institutional Review Board approved all study activities.

Predictive Variables

We considered three types of predictive variables that prior research demonstrates association with community integration: participant characteristics (Nagy, Fisher, & Tessler, 1988; Segal & Aviram, 1978; Segal & Everett-Dille, 1980), supported housing voucher type (Somers et al., 2017), and health service utilization in the year post housing (Segal & Aviram, 1978; Segal & Everett-Dille, 1980).

Participant characteristics: We used the HOMES baseline assessment to obtain the following characteristics: age, gender, race/ethnicity, years of education, employment status, presence or absence of children, relationship status (e.g., married or partnered versus single, divorced, or widowed), presence or absence of a criminal history, and number of homeless episodes. We used the baseline assessment to obtain an index of perceived physical health, scored on a likert scale ranging from 1 (poor) to 5 (excellent). We also obtained data input by case managers' regarding the presence vs. absence of specific medical diagnoses, mental health diagnoses, and SUDs that are common among homeless persons (Fazel, Khosla, Doll, & Geddes, 2008; Kushel, Vittinghoff, & Haas, 2001; Winkleby & Fleshin, 1993). Medical diagnoses included

Chronic Obstructive Pulmonary Disease (COPD), diabetes, heart disease, stroke, chronic pain, seizures, Hepatitis C, HIV/AIDS, and history of positive TB test. Mental health diagnoses consisted of bipolar disorder, depressive disorder, adjustment disorder, military Post-traumatic Stress Disorder (PTSD), non-military PTSD, other anxiety disorder, schizophrenia, other psychotic disorders, personality disorders, and other psychiatric disorders. SUDs included alcohol, drug, and tobacco use disorders. Data on specific diagnoses were used to create diagnostic categories that function as summary variables (Table 1).

Supported housing voucher type: Voucher type was obtained from HOMES and was checked against the last known housing address, which was obtained from VA's Informatics and Computing Infrastructure (VINCI), an administrative dataset of inpatient and outpatient clinical encounters. As noted, HUD-VASH uses two types of vouchers: project-based and tenant-based. Project-based vouchers subsidize housing in dedicated multi-unit facilities for low-income persons. Tenant-based vouchers subsidize market rate housing in the community. We obtained a list of addresses for GLA's HUD-VASH project-based sites, which allowed us to confirm participants' supported housing voucher type.

Service utilization: We abstracted health service utilization data from VINCI, including participants' rates of VA service utilization for one year after housing placement. Specifically, we abstracted participants' number of HUD-VASH case management contacts, primary care visits, outpatient mental health visits, outpatient SUD program visits; we also identified whether or not each participant had at least one Emergency Department visit, psychiatric hospitalization, and medical/surgical hospitalization.

Outcome Variables

Case managers use quarterly reports to document a Veteran's progress in the HUD-VASH program. Completion of quarterly reports is intended to occur every three months, however, there is variability in time and rate of submission. Therefore, we set a minimum of 30 days between reporting periods to assure that reports were standardized and reflected potential changes in community integration. Reports that were less than 30 days apart were removed from the database. The following outcome variables were all abstracted from the quarterly reports.

Community adjustment was captured by a 5-point Likert scale, ranging from 1 (greatly worsened) to 5 (greatly improved), which estimated community adjustment over the previous 90 days (i.e., how well a Veteran is acclimating to his or her new neighborhood). Community adjustment depicts a case manager's assessment of how a Veteran is engaging with the local community (e.g., use of resources and social relationships) and his or her ability to follow rules of tenancy. It reflects the core community integration domain of relationships with others (social integration). Data for quarter four were compared to quarter one to create an overall outcome measure that assessed community adjustment over one-year post housing (-1 = worsened; 0 = stayed the same; 1 = improved).

Housing stability was measured by a housing status variable, categorized into one of three groups: obtained permanent housing without HUD-VASH, retained housing with HUD-VASH, or no longer in permanent housing (i.e., returned to homelessness). This variable was a proxy of the community integration domain of independent living. We used entries from quarter four to create an ordinal outcome measure that assessed housing stability (0 = did not retain housing; 1 = retained housing HUD-VASH; 2 = achieved permanent housing without HUD-VASH). We only included participants who had a quarter four report; we could not verify if quarter four reports were omitted due to administrative oversight or loss of a HUD-VASH voucher.

Employment outcomes were abstracted into one of the following categories: employed, unemployed (including persons who identified as retired, disabled, or in a controlled environment), student, or active duty military. Due to low reporting rates in the fourth quarter (2.15%), we examined employment status between first and third quarters. We created a binary variable that captured if a participant's employment status was good (obtained a job or stayed employed) or poor (lost a job or remained unemployed) between quarters one and three.

Statistical Analysis

We used participant characteristics at baseline, supported housing voucher type, and service utilization as predictors of interest. We used ordinal logistic regression models (for community adjustment and housing stability) and a logistic regression model (for employment

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status) to test the relationship between predictors of interest and community integration outcomes. Ordinal logistic regression analyses were used to determine odds ratio for outcome categories. Ordinal logistic regression takes into account the ordering of categories, while functioning under the proportional odds assumption that holds that the coefficients that describe the relationships between categories (e.g., lowest versus higher categories, next lowest and higher categories, etc.) are the same. In order to test this assumption a likelihood ratio test was conducted, which showed no difference in the coefficients between models. Had this assumption been violated, a generalized ordered logistic model would have been required. Logistic regression is used for dichotomous outcome variables and models outcomes as a linear combination of predictor variables. Due to low variability in employment outcomes and small sample size due to low levels of reporting, we removed diagnostic categories from our logistic regression and, although not as comprehensive as diagnostic categories, relied on service utilization patterns to assess medical vulnerability. In addition, presence of mental health admission was removed as only one participant reported an admission. In order to provide a single summary score of effects, odds ratio with 95% confidence intervals were calculated for all predictive variables. A $p<0.10$ was chosen to assess significance. All statistical analyses were performed using StataMP 14.

RESULTS

Participant Characteristics

Table 2 presents participants' characteristics. Most participants in our sample received tenant-based vouchers (88.39%), were middle age (mean age 52.93 years), male (93.57%), single (87.98%), and self-identified as African American (57.17%) or White (38.18%). At baseline, participants reported high rates of unemployment (66.24%) and an average of 2.97 episodes of homelessness over the past three years. Supplemental table 1 contains information on participants' medical, mental health, and SUD diagnoses. A notable proportion of participants reported at least one medical (15.18%) or mental health diagnosis (15.89%) (rates do not include participants that had combined diagnoses, e.g., medical and mental health diagnoses). A total of 6.25% of participants reported at least one SUD. Additionally, a significant number of participants reported combined medical and mental health diagnoses (16.25%) or

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trimorbidity (11.79%). Rates of diagnoses are comparable to a prior study of diagnoses for which GLA HUD-VASH recipients received outpatient care (Sonya Gabrielian, Anita H. Yuan, Ronald M. Andersen, & Lillian Gelberg, 2016).

Health service utilization in the year following housing placement is also shown in Table 2. Nearly a third of participants had at least one Emergency Department visit (30.54%); fewer participants' had at least one mental health inpatient admission (2.14%) or medical/surgical inpatient admission (10.00%). There was also notable usage of VASH case management (mean 36.84 visits), as well as mental health visits (mean 21.19), and primary care (mean 8.22).

Community Adjustment

Table 3 shows the results of community adjustment ordinal logistic regression analyses. The likelihood ratio chi-square of 38.20 with a p-value of 0.12 tells us that our community adjustment model as a whole is not statistically significant ($p<0.10$), as compared to the null model with no predictors. The pseudo-R-squared of 0.06 also shows low predictive power. Nonetheless, the model highlights a number of significant predictors ($p< 0.10$): full-time employment at baseline, self-reported physical health, combined physical and SUD diagnoses, and mental health inpatient admission.

Full-time employment at baseline increased the odds of high community adjustment, versus the combined middle and low categories, by a factor of 1.88. For a one unit increase in self reported physical health at baseline, the odds of high community adjustment increased by 1.22. We also found that having a combined physical and SUD diagnoses increased the odds of high community adjustment by 3.55. Lastly, having a mental health inpatient admission decreased the chances of having high community adjustment by 0.10.

Housing Stability

Table 4 shows the results of housing stability ordinal logistic regression analyses. The likelihood ratio chi-square of 39.52 with a p-value of 0.09 tells us that our housing stability model as a whole is statistically significant ($p<0.10$). The pseudo-R-squared is 0.20. The model shows three significant predictors ($p< 0.10$): full-time employment at baseline, Emergency Room admission, and mental health visits.

Being employed full-time at baseline increased the odds of high housing stability, versus the combined middle and low categories, by a factor of 13.44. Having an Emergency Room admission increased the odds of high housing stability by 1.18. A one-unit increase in mental health visits decreased the odds of having high housing stability by 0.97.

Employment

Table 5 shows the results of employment logistic regression analyses. The likelihood ratio chi-square of 61.95 with a p-value < 0.01 tells us that our employment model as a whole is statistically significant, as compared to the null model with no predictors. The pseudo-R-squared is 0.36. The model shows nine significant predictors (p< 0.10): voucher type (i.e., project-based versus tenant-based), White, education, full-time employment at baseline, enrolled in the military at baseline, part-time employment at baseline, having a criminal history, mental health visits, and SUD visits.

Having a tenant-based voucher increased the odds of having good employment outcomes (versus poor) by a factor of 12.04. Being White increased the odds of having good employment outcomes by a factor of 2.72. For one unit increase in education, the odds of having good employment outcomes increase by a factor of 1.28. Being employed full-time at baseline increased the odds of having good employment outcomes by a notable factor of 42.10. Being enrolled in the military at baseline increases the odds of having good employment outcomes by a factor of 16.41. Being employed part-time at baseline increased the odds of having good employment outcomes by a factor of 5.44. Somewhat unintuitive, having a criminal history increased the odds of having good employment outcomes by a factor of 3.08. For a one unit increase in mental health visits, the odds of having good employment outcomes decreased by a factor of 0.97. Lastly, for a one unit increase in SUD visits, the odds of having good employment increased by a factor of 1.07.

DISCUSSION

This study identified factors associated with community integration outcomes among formerly homeless participants engaged in supported housing. Similar to previous studies, we found that medical and psychiatric diagnoses impacted community integration post housing (Silva, McKenzie, Harpham, & Huttly, 2005; Gabrielian et al., 2015)

We found that community adjustment was associated with four studied variables: full-time employment at baseline, self-reported physical health, having combined physical and SUD diagnoses, and having a mental health inpatient admission. Being employed full-time at baseline, increases in self-reported physical health, and having a combined physical and SUD diagnoses were positively associated with community adjustment, while having a mental health inpatient admission was negatively associated with community adjustment. However, confidence intervals for being employed full-time at baseline (CI: 0.94, 3.77) and self-reported physical health (CI: 0.97, 1.52) show that the positive association between these variables and community adjustment is not consistent across our population (i.e., some individuals experience a negative association between full-time employment at baseline and community adjustment and self-reported physical health and community adjustment). Confidence intervals for a combined physical and SUD diagnosis (CI: 1.01, 12.45) and a mental health admission (CI: 0.02, 0.47) show that the directionality of the relationships (i.e., positive association and negative association, respectively) between these variables and community adjustment is consistent.

The positive association between having combined physical and SUD diagnoses and community adjustment (Odds Ratio: 3.55) may be the result of the stability that permanent housing offers a participant to address health and substance use concerns. It is likely that these individuals receive needed services and, if they are housed at the one year mark as is the case in our sample, are able to more successfully integrate into their communities. This may be particularly true when compared to participants with mental health concerns. Our results show that experiencing a mental health inpatient admission is negatively associated with community adjustment. The negative association between mental health inpatient admission and community adjustment was expected, as psychiatric hospitalizations—and their associated symptomatology—are highly disruptive to community adjustment. The low predictive power of our community adjustment model suggests that key determinants of community adjustment might be missed in secondary analyses of VA databases.

Our analyses showed that housing stability was influenced by full time employment at baseline, Emergency Room admission, and mental health visits. Confidence intervals show that

a positive association between having an Emergency Room admission and housing stability does not remain consistent (CI: 0.96, 11.11), meaning that not all participants' housing stability is positively associated with Emergency Room admission. It may be the case that Emergency Room admission causes instability for some participants, while perhaps bringing attention to the needs of and additional resources for others. Full-time employment had a positive effect on housing stability (CI: 2.36, 76.65), and likely assisted voucher recipients in meeting rental obligations. While service provision is frequently associated with increased housing stabilization and modest improvements in quality of life for formerly homeless participants (Mares & Rosenheck, 2010), we found that, as the number of mental health visits increased, housing stability decreased (CI: 0.95, <1.00). This relationship is likely due to the severity of participants' mental health symptoms.

We found that employment outcomes were significantly associated with several variables. Voucher type (i.e., project-based versus tenant-based), White, education, full-time employment at baseline, enrollment in the military at baseline, part-time employment at baseline, having a criminal history, and SUD visits were all positively associated with employment; mental health visits were negatively associated with employment outcomes. The directionality of these associations was not consistent across our population for voucher type (CI: 0.92, 1.02), White (CI: 0.84, 8.78), education (CI: 0.96, 1.72), enrollment in the military at baseline (CI: 0.76, 352.22), and having a criminal history (CI:0.92, 10.26). Confidence intervals showed that the directionality of the associations between full-time employment at baseline (CI: 7.75, 228.68), part-time employment at baseline (CI: 1.35, 21.98), SUD visits (CI: 1.01, 1.13), mental health visits (CI: 0.94, <1) and employment outcomes all remained consistent. Findings suggest that those that enter HUD-VASH with full-time or part-time employment are more likely to have good employment outcomes one year post housing. In addition, those that seek SUD services are also likely to experience a slight improvement in employment. In contrast, mental health visits appear to be predictive of poor employment outcomes, suggesting that those with mental illness struggle to find and/or maintain jobs.

Overall, we found that mental health was negatively associated with community adjustment, housing stability, and employment outcomes; full-time employment at baseline

was positively associated with housing stability and employment outcomes one year post housing; SUD visits were positively associated with employment outcomes; and a dual physical and SUD diagnosis was positively associated with community adjustment.

PUBLIC HEALTH RELEVANCE

HUD-VASH is the largest permanent supportive housing program in the nation, with over 86,000 HUD-VASH vouchers awarded through fiscal year 2017 and 100,000 Veterans housed since the program's inception ("National Low Income Housing Coalition," n.d.). Participants placed in permanent supportive housing have significant vulnerabilities, including physical, mental, and SUD diagnoses. There is a pressing need to expand our conceptualization of successful supported housing beyond brick and mortar definitions of housing receipt; we must consider quality of life issues, including how participants acclimate to their new communities.

These findings contribute to our understanding of community integration outcomes of permanent supportive housing consumers, a topic that holds important implications for the long-term well-being of formerly homeless individuals. These data suggest the ongoing impact of mental health problems in facilitating community integration. We found that mental health service utilization patterns, more than any specific psychiatric or medical diagnoses, are indicators that a Veteran may have trouble with community adjustment, housing stability, and employment.

LIMITATIONS

Our study had several limitations. First, the diagnoses recorded in HOMES reflect data from case managers, most of whom have a mental health background (in social work) and less familiarly with medical diagnoses. Thus, some medical diagnoses may be under-reported. Future studies could incorporate additional procedures for medical diagnoses, including evaluation of laboratory data and/or more detailed chart review. Second, employment outcomes were poorly tracked for HUD-VASH participants (e.g., about 2.15% of participants reported employment status at quarter four). Future studies may examine income through service connection (i.e., disability benefits and social security income) as a measure of financial stability and program independence. Third, our data are limited to a year of reporting post-

housing placement. It is possible that changes in community integration become more pronounced over the course of several years. For example, a study conducted with seven years of longitudinal data found that those with project-based vouchers experienced greater increases in income when compared to tenant-based voucher holders or public housing residents (Tatian & Snow, 2005). Fourth, though we considered voucher type, we do not account for the potential influences of neighborhood characteristics on community integration outcomes; neighborhood quality may vary among HUD-VASH participants (Chinchilla, Melissa et al., n.d.) and can impact community integration. For instance, research indicates that location and neighborhood factors, including economic conditions, affect stability in assisted housing (Ambrose, 2005). Fifth, our sample represents a small segment of the HUD-VASH population (e.g., one year of HUD-VASH data at the GLA facility level). Participants served through the GLA facility largely resided in Los Angeles County (87%), an urban area with relatively robust resources for homeless Veterans. There are many factors, including geography, population diversity, and employment industries, that make Los Angeles unique and may result in poor translation of these data to other geographic settings. Last, our study is limited to HOMES and does not include measures of civic engagement, social support, or self-reported assessments of community integration, which could expand this work to encompass the construct of psychological integration. Participants' subjective experience is an important component of community integration and should be incorporated in future studies.

CONCLUSION

As federal and local programs strive to address the housing needs of homeless individuals, it is imperative to consider how to maximize individual's well-being and assure that they are leading stable, productive, and satisfying lives in their new places of residence. Our findings suggest that mental health needs, measured through the proxy of mental health service use, strongly affect likely achievement of community adjustment, housing stability, and employment. Expectedly, we find that employment at baseline impacts both housing stability and employment one year post housing. In addition, SUD visits impact employment outcomes while a dual physical and SUD diagnosis affects community adjustment. Our analysis also suggests that VA's secondary data may not include important predictors of community

integration. For example, we found that only two variables were associated with community adjustment and that our model had low predictive power, suggesting that determinants may consist of factors currently not captured by the VA. Understanding how to improve community integration outcomes of HUD-VASH participants necessitates future VA investment in data collection and analysis aimed at comprehending experiences post housing.

Table 1 – Medical, mental, and addiction-related diagnoses

Medical Diagnoses	Mental Health Diagnoses	Addictive Disorders	Diagnostic Category
Chronic Obstructive Pulmonary Disease (COPD)	Bipolar Disorder	Alcohol Use Disorder	At least one mental health diagnosis
Diabetes	Depressive Disorder	Drug Use Disorder	At least one medical diagnosis
Heart disease	Adjustment Disorder		At least one Substance Use Disorder (SUD)
Stroke	Military Post-traumatic Stress Disorder (PTSD)		No Diagnosis
Chronic pain	Non-Military PTSD		Combination of medical and mental health diagnoses
Seizures	Other Anxiety Disorders		Combination of medical and SUD diagnoses
Hepatitis C	Schizophrenia		Combination of mental and SUD diagnoses
HIV/AIDS	Other Psychotic Disorders		Combination of medical, mental, and SUD diagnoses
History of Positive TB test	Personality Disorders		
	Other Psychiatric Disorders		

Table 2 – Participant Characteristics and Service Utilization: VA Greater Los Angeles Healthcare System, 10/1/14-9/30/15

	Mean or *n* (SD or %) N=560	*Min*	Max
Tenant-Based Voucher	495 (88.39%)		
Age	52.93 (12.95)	22.52	86.30
Male	524 (93.57%)		
Ethnicity			
Hispanic	91 (16.61%)		
Race			
African American	307 (57.17%)		
White	205 (38.18%)		
Married or Partnered	66 (12.02%)		
Have Children (yes)	143 (26.00%)		
Education (in years)	13.40 (1.82)	6	20
Employment			
Full Time	64 (11.79%)		
Military	11 (2.03%)		
Part Time	85 (15.65%)		
Student-Vocational Therapy	23 (4.24%)		
Unemployed	359 (66.24%)		
Criminal History (yes)	211 (39.44%)		
Homeless Episodes (last 3 years)	2.97 (1.72)	0	5
Self-Perceived Physical Health	2.59 (1.04)	1	5
Diagnostic Category			
At least one mental health diagnosis	85 (15.18%)		
At least one medical diagnosis	89 (15.89%)		
At least one Substance Use Disorder (SUD) [+]	35 (6.25%)		
No Diagnosis	141 (25.18%)		
Combination of medical and mental health diagnoses	91 (16.25%)		
Combination of medical and SUD diagnoses	23 (4.11%)		
Combination of mental and SUD diagnoses	34 (6.07%)		
Combination of medical, mental, and SUD diagnoses	66 (11.79%)		
Service Utilization[+]			
Primary Care Visits	8.22 (9.18)	0	72
Emergency Department Admission	171 (30.54%)		
Mental Health Visits	21.19 (34.06)	0	535
HUD-VASH Visits	36.84 (24.47)	3	169
Outpatient SUD Visits	1.08 (8.73)	0	140
Mental Health Inpatient Admission	12 (2.14%)		
Medical/ Surgical Inpatient Admission	56 (10.00%)		

[+]Service utilization represents health behaviors one-year post-housing.

Table 3 –Results for Community Adjustment: VA Greater Los Angeles Healthcare System, 10/1/14-9/30/15

Independent Variables	Odds Ratio	Confidence Interval	Significance
Predictors of community adjustment			
Tenant-Based Voucher	1.19	(0.56, 2.51)	0.65
Age	1.01	(0.99, 1.04)	0.19
Male	1.89	(0.77, 4.69)	0.17
Ethnicity			
Latino	1.06	(0.55, 2.06)	0.87
Race			
White	1.30	(0.79, 2.13)	0.30
Married or Partnered	1.37	(0.68, 2.78)	0.38
Have Children	0.67	(0.39, 1.14)	0.14
Education	0.99	(0.88, 1.11)	0.83
Employment			
Full Time Employment	1.88	(0.94, 3.77)	0.08
Part Time Employment	1.01	(0.54, 1.88)	0.99
Military	0.67	(0.15, 3.08)	0.61
Student	2.19	(0.65, 7.31)	0.20
Criminal History (Yes)	1.25	(0.78, 2.02)	0.36
Homeless Episodes	0.92	(0.81, 1.04)	0.20
Self Reported Physical Health	1.22	(0.97, 1.52)	0.09
Diagnostic Category			
At least one mental health diagnosis	1.64	(0.81, 3.33)	0.17
At least one medical diagnosis	1.30	(0.63, 2.67)	0.48
At least one Substance Use Disorder (SUD)	2.18	(0.78, 6.05)	0.14
Combination of medical and mental health diagnoses	1.56	(0.76, 3.18)	0.23
Combination of medical and SUD diagnoses	3.55	(1.01, 12.45)	0.05
Combination of mental and SUD diagnoses	1.55	(0.62, 3.88)	0.34
Combination of medical, mental, and SUD diagnoses	2.40	(0.98, 5.85)	0.06
Service Utilization			
Primary Care Visits	1.01	(0.98, 1.04)	0.47
Emergency Department Admission	1.27	(0.75, 2.17)	0.38
Mental Health Visits	0.99	(0.98, <1.00)	0.17
HUD-VASH Visits	1.00	(0.99, 1.01)	0.61
Outpatient SUD Visits	1.00	(0.97, 1.03)	0.80
Mental Health Inpatient Admission	0.10	(0.02, 0.47)	0.00
Medical/ Surgical Inpatient Admission	0.87	(0.40, 1.93)	0.74

Table 4 – Results for Housing Stability: VA Greater Los Angeles Healthcare System, 10/1/14-9/30/15

Independent Variables	Odds Ratio	Confidence Interval	Significance
Predictors of housing stability			
Tenant-Based Voucher	1.40	(0.28, 7.07)	0.68
Age	1.02	(0.97, 1.07)	0.40
Male	0.57	(0.10, 3.24)	0.53
Latino	1.37	(0.32, 5.87)	0.67
Race			
White	1.00	(0.34, 2.98)	1.00
Married or Partnered	1.63	(0.29, 9.10)	0.58
Have Children	0.57	(0.17, 1.90)	0.36
Education	1.05	(0.81, 1.35)	0.71
Employment			
Full Time Employment	13.44	(2.36, 76.65)	0.00
Part Time Employment	3.53	(0.61, 20.28)	0.16
Military	3.56	(0.04, 302.50)	0.58
Student	3.65	(0.17, 77.15)	0.41
Criminal History (Yes)	1.08	(0.35, 3.35)	0.90
Homeless Episodes	0.82	(0.60, 1.10)	0.19
Self Reported Physical Health	0.74	(0.45, 1.23)	0.24
Diagnostic Category			
At least one mental health diagnosis	2.09	(0.38, 11.55)	0.40
At least one medical diagnosis	1.86	(0.31, 11.10)	0.50
At least one Substance Use Disorder (SUD)	4.36	(0.41, 46.68)	0.22
Combination of medical and mental health diagnoses	0.64	(0.12, 3.27)	0.59
Combination of medical and SUD diagnoses	0.22	(0.03, 1.66)	0.14
Combination of mental and SUD diagnoses	2.15	(0.20, 23.12)	0.53
Combination of medical, mental, and SUD diagnoses	1.61	(0.20, 12.72)	0.65
Service Utilization			
Primary Care Visits	1.00	(0.95, 1.05)	0.87
Emergency Department Admission	3.27	(0.96, 11.11)	0.06
Mental Health Visits	0.97	(0.95, <1.00)	0.02
HUD-VASH Visits	1.00	(0.98, 1.02)	0.99
Outpatient SUD Visits	1.05	(0.98, 1.13)	0.19
Mental Health Inpatient Admission	0.28	(0.02, 3.42)	0.32
Medical/ Surgical Inpatient Admission	0.33	(0.07, 1.66)	0.18

Table 5 —Results for Employment: VA Greater Los Angeles Healthcare System, 10/1/14-9/30/15

Independent Variables	Odds Ratio	Confidence Interval	Significance
Predictors of employment			
Cons	0.00	(0.00, 0.71)	0.04
Age	0.97	(0.92, 1.02)	0.19
Tenant-Based Voucher	12.04	(0.81, 179.02)	0.07
Ethnicity			
Latino	0.15	(0.02, 1.47)	0.10
Race			
White	2.72	(0.84, 8.78)	0.09
Married or Partnered	1.22	(0.30, 4.88)	0.78
Have Children	0.68	(0.19, 2.47)	0.56
Education	1.28	(0.96, 1.72)	0.10
Employment			
Full Time Employment	42.10	(7.75, 228.68)	0.00
Part Time Employment	5.44	(1.35, 21.98)	0.02
Military	16.41	(0.76, 352.22)	0.07
Student	0.88	(0.06, 13.91)	0.93
Criminal History (Yes)	3.08	(0.92, 10.26)	0.07
Homeless Episodes	1.01	(0.74, 1.37)	0.97
Self Reported Physical Health	1.46	(0.85, 2.51)	0.17
Service Utilization			
Primary Care Visits	0.96	(0.88, 1.06)	0.44
Emergency Department Admission	0.50	(0.14, 1.75)	0.28
Mental Health Visits	0.97	(0.94, <1.00)	0.05
HUD-VASH Visits	0.98	(0.95, 1.01)	0.17
Outpatient SUD Visits	1.07	(1.01, 1.13)	0.03
Medical/ Surgical Inpatient Admission	0.99	(0.14, 7.10)	0.99

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Paper 3: Enhancing Community Integration Among Formerly Homeless Veterans: A Comparison of Project-Based vs. Tenant-Based Supported Housing

ABSTRACT

Objective. We explore community integration experiences among formerly homeless Veterans who live in permanent supported housing (PSH): subsidized, independent housing with case management services. Within the Department of Housing and Urban Development-VA Supportive Housing (HUD-VASH) program, we examine the roles of housing type (project-based vs. tenant-based), neighborhood characteristics, and social networks on participants' community integration.

Methods. Between August 2017 and January 2018, we performed interviews and focus groups with HUD-VASH staff (social workers, nurses, and peer support specialists, n=14); participants residing in project-based HUD-VASH (n=9); and participants residing in tenant-based HUD-VASH (n=9) at the VA Greater Los Angeles (GLA). We performed thematic data analyses to identify barriers to and facilitators of community integration in PSH.

Results. Four salient themes emerged from these data: (1) the transitional nature of supported housing placements; (2) the impact of neighborhood safety on community integration; (3) the effects of Veteran identity and the VA on community integration; and (4) programmatic challenges to improving community integration.

Conclusions. These data provide insights into why formerly homeless persons in PSH struggle to achieve community integration. Our findings suggest that neighborhood characteristics play a significant role in community integration outcomes, including participants' sense of permanency in the neighborhoods in which they are initially placed and their willingness to engage with neighbors and use community resources. In addition, HUD-VASH policies and resource constraints make it difficult for staff to address participants' long-term community integration needs.

Enhancing Community Integration Among Formerly Homeless Veterans: A Comparison of Project-Based vs. Tenant-Based Supported Housing

INTRODUCTION

Permanent supportive housing (PSH) offers subsidized, community-based housing and supportive services to persons experiencing homelessness. PSH is an evidence-based intervention that addresses chronic homelessness (Martinez & Burt, 2006; Rog et al., 2014; Tsemberis & Eisenberg, 2000). In addition to increasing housing tenure, PSH is associated with decreased Emergency Department visits and inpatient hospitalization rates (Rog et al., 2014). However, persons in PSH have limited success in community integration, which encompasses community participation (e.g., use of community resources), civic activity (e.g, involvement in local government), religious involvement, vocational activities, and social support (Friedrich, Hollingsworth, Hradek, Friedrich, & Culp, 2014; Siegel et al., 2006; Tsai & Rosenheck, 2012). We know little about why formerly homeless persons in PSH struggle to achieve community integration, including how housing and neighborhood characteristics affect the integration process.

PSH serves highly vulnerable individuals; many PSH participants are chronically homeless, with high rates of mental illness, substance use disorders, and/or chronic medical conditions ("Supportive Housing : CSH," n.d.). Though community integration among PSH participants is limited, community integration is recognized as a meaningful goal that is highly relevant to the long-term success of PSH programs (Tsai, Mares, & Rosenheck, 2014). Among formerly homeless individuals, positive social supports are associated with improved mental health, decreased substance use (Hwang et al., 2009), better housing retention (Nelson et al., 2015; Wong & Stanhope, 2009), and improved subjective well-being (Barczyk et al., 2014). Across all populations, individuals with greater social ties and interpersonal support feel less depressed, get less physically ill, and live longer (Erickson, 2003). Research shows that individuals experiencing homelessness generally have low levels of social support, including small social networks (Letiecq, Anderson, & Koblinsky, 1998; MacKnee & Mervyn, 2002; Solarz

& Bogat, 1990) and less reliable supports with fewer resources (Eyrich, Pollio, & North, 2003; Toohey, Shinn, & Weitzman, 2004). These trends appear to continue once individuals are housed.

The U.S. Department of Housing and Urban Development (HUD)-Veteran Affairs Supportive Housing (VASH) program is one of the nation's largest PSH programs and an ideal setting to examine outcomes among PSH participants. HUD-VASH uses vouchers to provide subsidies for independent, permanent housing with supportive services, including non-mandated linkages to healthcare (Austin et al., 2014). Specifically, HUD-VASH uses two voucher types, project-based and tenant-based. Project-based vouchers (6% of HUD-VASH vouchers) subsidize housing in dedicated multi-unit facilities for low-income persons, often with on-site supportive services, e.g., case management. Tenant-based vouchers (94% of HUD-VASH vouchers) subsidize market rate housing in the community. Regardless of voucher type, participants receive in-home case management and linkages to community-based resources. The literature shows no differences in housing stability by voucher type (Somers et al., 2017); limited research suggests that only project-based housing participants show improvements in other domains of community integration, including subjective experiences of belonging and community participation (Somers et al., 2017). However, little is known about what may explain these differences, including the potential impacts of housing and neighborhood characteristics (e.g., socio-economic factors).

Among PSH participants in HUD-VASH, we used qualitative methods to understand barriers to and facilitators of community integration. We explored differential experiences of community integration among HUD-VASH participants in project-based vs. tenant-based housing. Findings are used to suggest programmatic changes that may improve program participants' community integration outcomes.

Conceptual Framework

We used McColl and colleagues (2001) framework to conceptualize community integration. Under this framework, community integration consists of four factors: assimilation, occupation, relationships, and living situation. Assimilation refers to the degree to which a person feels a sense of belonging to his or her community; social support focuses on social

connections; occupation considers whether an individual feels that he or she is a productive member of the community; and independent living gauges an individual's satisfaction with his or her living arrangement (McColl et al., 2001).

METHODS

Participants

Between August 2017 and January 2018, we collected qualitative data from HUD-VASH staff (social workers, nurses, and peer support specialists, n=14), as well as persons residing in project-based HUD-VASH (n=9), and persons residing in tenant-based HUD-VASH (n=9) at the VA Greater Los Angeles (GLA). The VAGLA serves metropolitan Los Angeles and has the largest VA homeless program in the nation, with housing for over 6,000 Veterans through its HUD-VASH program.

We e-mailed all HUD-VASH staff at VAGLA to identify individuals interested in participating in data collection. Several staff reached out directly to the interviewer, while colleagues referred others. We strove to include staff across the professional disciplines represented in HUD-VASH, i.e., social work, nursing, and peer support specialists, conducting staff interviews until we reached thematic saturation. Subsequently, HUD-VASH staff identified a convenience sample of Veterans on their HUD-VASH caseload. These Veterans resided in two project-based sites and in tenant-based housing throughout Los Angeles County; some HUD-VASH participants were identified using snowball sampling, with participants referring subsequent interviewees. We were limited to collecting data from nine persons each in project- and tenant-based housing by the Paperwork Reduction Act of 1995, 5 Code of Federal Regulations 1320 (Office of Mangament and Budget, 1995). This project was formally designated a VA quality improvement activity.

Interview Structure and Data Analysis

Most data from staff and Veterans were collected in the form of semi-structured individual interviews (~45 minutes), except for five project-based HUD-VASH participants who participated in a 60-minute focus group. HUD-VASH participants were interviewed in person and HUD-VASH staff were interviewed by phone. All interviews and the focus group were conducted in English by one author (MC). Qualitative data collection explored factors

associated with community integration (across the four domains guided by our conceptual framework) (McColl et al., 2001) from staff and program participants' perspectives. Interviews and the focus group examined the interactions between housing type (project-based vs. tenant-based), neighborhood characteristics, and social networks, as well as the implications of these variables on HUD-VASH participants' community integration. We asked participants about their experience in PSH, their neighborhoods, and their socialization patterns. We obtained HUD-VASH staff members' perceptions of program participants' community integration, including the obstacles they face and opportunities to enhance outcomes.

All interviews and focus groups were audio-recorded and professionally transcribed. We used thematic data analysis to identify patterns in interviewees' descriptions of barriers to and facilitators of community integration in PSH. A top-level codebook was constructed using the interview and focus group guides, as well as the community integration conceptual framework (McColl, Davies, Carlson, Johnston, & Minnes, 2001). Using an interpretivist approach that acknowledges that the researcher has a dynamic relationship with data collection and interpretation (Greenbank, 2003) (Blair, 2015), the primary author (MC) coded all interview and focus group data. The codebook, prevalent themes, and associated examples from the narratives were discussed iteratively with two co-authors (SG, AG) to clarify emergent ideas and identify thematic connections (Saldaña, 2015). The final list of themes and examples were reviewed and finalized with the entire research team. Specific attention was given to similarities and differences by theme across HUD-VASH staff and program participants. All analyses were conducted with ATLAS.ti, a qualitative data software tool ("ATLAS.ti," n.d.).

RESULTS

The majority of HUD-VASH participants were men; only two participants were women. Participants' time in the HUD-VASH program ranged from seven months to three years. HUD-VASH staff included case managers (n=11), peer support specialists (n=2), and a nurse practitioner (n=1). Project-based participants lived in two different housing sites, one on the VA campus that targeted only Veterans and one that housed a mixed population (i.e., Veteran and non-Veteran). Tenant-based participants lived in communities across Los Angeles County.

Staff respondents had varying program experience; some worked in both project-based and tenant-based housing, while others worked primarily with one voucher type (i.e., project-based or tenant-based). Staff respondents' time working for the HUD-VASH program ranged from one year to seven years. Staff respondents worked across southern California and California's Central Valley.

Four salient themes resonated across our qualitative data analyses. Below, we present these themes with examples from the narratives.

Transitional Nature of Supportive Housing Placement

Participants frequently felt that they had limited housing choices and chose housing simply to exit homelessness, rather than picking a unit they desired. As such, participants conceptualized their housing as transitional, a bridge to higher quality housing in more desirable locations. Staff respondents corroborated that limited housing stock and time constraints for voucher use meant that HUD-VASH participants ended up in undesirable housing placements. Such placements negatively impacted participants' sense of permanency and likely affected their willingness to engage with the local community.

When asked about housing satisfaction and whether he would like to remain in his current building, one project-based participant stated, "Well remember nobody in this [building] is jumping up hollering I'm happy, happy, happy, happy. This is just a stopping place. This is just a go between to take the pressure [off]..." Seeing project-based housing as transitional was common. Project-based participants described moving into their housing as a last resort, as the easiest option after spending significant amounts of time looking for housing opportunities with tenant-based vouchers with limited success; "I started out with the [tenant-based] voucher. I also could not find a one bedroom in a neighborhood in LA that I would live in...This was a last resort for me...The only reason I moved here was because it was an easy move."

Tenant-based voucher holders expressed similar sentiments, stressing a desire to move to higher quality and safer neighborhoods. One participant described his future plans: "Now, when I initially went to look for places, not knowing this city, so best to get [my] foot in where [I could]...Now, I can look away from the semi-commercial atmosphere that I'm in and look

someplace like the good parts of Baldwin Hills where it's nicer." Participants felt constrained by HUD-VASH requirements to identify permanent housing within a designated time period; due to a competitive rental market in Los Angeles, they were frequently unable to find housing in desirable locations in this time frame. Nearly all tenant-based participants expressed a desire to move from their initial housing placements.

Staff respondents acknowledged that requirements to find housing within a designated timespan led to dissatisfaction with housing placement. While participants experienced pressure to use their voucher before it expired, staff respondents felt a need to meet HUD-VASH productivity goals by increasing the number of placements. As one respondent noted, "You know, it's focused on the numbers of how many we got housed. And I just don't want it to be about the numbers of how many we got housed this week, but how many progressed towards being more successful." Efforts to quickly house program participants resulted in poor housing matches, including poor fits between landlords and participants and placements in unsafe and under-resourced areas. Staff respondents recognized that such placements were not conducive to the long-term well-being and community integration of program participants.

Unsafe Neighborhoods and Social Isolation

Neighborhood safety was described as the primary reason why participants were unsatisfied with their housing. Unsafe neighborhoods influenced participants' desires to move from their initial housing placement, and negatively impacted community integration by limiting community engagement and social interactions. Safety concerns included gun violence, gangs, assault, theft, drug trade and use, traffic safety, prostitution, noise disturbances, murder, pan handling, issues with neighborhood clean up, and verbal harassment. Staff respondents acknowledged that competitive rental markets and deadlines for voucher use resulted in participants ending up in undesirable areas. One staff respondent noted, "Well, the majority of Veterans will come in and say, I don't want to be in a gang-ridden, drug-ridden, crime-ridden area. And then they get sort of desperate looking when they cannot find anything that does not meet that. And then they end up being in those areas."

Safety concerns impacted participants' mobility and use of public spaces. Participants stated that they frequently did not feel safe to go out into the community, particularly at night.

A project-based respondent expressed the following frustrations, "The offer of drugs, sexual harassment, physical intimidation, they block the sidewalks...I have to go through a bunch of crap just to get home." Tenant-based participants had similar safety concerns. One tenant-based participant recounted his experience travelling home at night; "I was coming home from a free comedy club night in North Hollywood about two in the morning...I was approached by one of the Crips and he asked me, in a very good way, he said, hey, old man, isn't it past your bedtime?...I was out beyond a gang imposed curfew." The same participant avoided walking home from specific bus stops for fear of gang violence. A different tenant-based participant stated that, due to safety concerns, he does not walk more than two blocks in his neighborhood; "If I go anywhere, I don't go walking past maybe two blocks in the daytime. At night, I don't go out the gate unless I'm in my car." These experiences stood in sharp contrast to project-based participants that lived on the VA campus and expressed a greater sense of safety. One participant stated, "...from Westwood or Beverly Hills, whatever, all the way back to the beach is pretty well safe. 'Cause like I say, when I go tomorrow I'll be walking to the beach, I gotta go to work. So, I put on my music and I go. But that's—I love to walk." This participant felt safe walking on VA grounds and in the local neighborhood, a middle to upper income section of the county.

Participants expressed hesitation in having children visit unsafe neighborhoods. This resulted in delayed reunification plans and fewer family visits. One participant wanted his son to move into his HUD-VASH apartment. However, he had not pursued this option because he refused to have his son attend school where gang violence was prevalent. The participant stated, "It's like I would not want my child to come out here and go to school. I would like for my child to come out here after he graduates, because that's where all the recruiting and stuff go on. You know, for these street gangs and stuff." Another tenant-based participant mentioned that he was embarrassed of the neighborhood in which he lived, and issues of neighborhood safety kept him from inviting his family to visit; "My son came and took me to lunch one time and I hated him to see the area that I live in...I don't want to expose my son to the criminal element that's pretty evident in my neighborhood...I would extend my invitation more to my family members if I lived in another one, right now I would not. Because I would

hate for something out of the blue to happen." In addition, to feeling ashamed of his neighborhood, this participant worried about his family's safety. These concerns limited his interaction with family and likely affected the strength of his social support system.

Staff respondents confirmed that neighborhood safety impacted participants' mobility. When speaking about participants' travel, one staff respondent stated, "...they want to navigate what time they're actually going to leave their apartment, which route they're going to take, how they're going to get there." Being afraid of going out in one's neighborhood was described as increasing participants' isolation; "if they know that [it's] a high crime neighborhood that they live in, they're not as willing to go outside. So they'll isolate more, they'll stay home more." Participants living in high crime areas were likely to become victims of crime; "We got many Veterans who have been killed, who've been shot, who've been mugged." In some instances, tenant-based participants even had their homes overrun by organized crime. A respondent stated, "Veteran[s] have had their unit actually taken over by the local gang and we've had to go in and rescue them..." These types of interactions were more probable when participants had spent a significant amount of time living on the streets and displayed poor social skills. A respondent noted that such participants were particularly vulnerable to negative influences and ending up in detrimental situations, "So, they get exposed to triggers and they get swept up. And in some cases, some of the Veterans have difficulties setting boundaries. They've lived on the street so much they don't know how to develop their own space and have limits. So, they might [allow] people to stay with them and they think they're doing them a favor. And then they try to manipulate a little bit and then get trapped with gangs or trapped with people who are unsavory coming in and manipulating them, taking over." In addition, for tenant-based participants, staff respondents noted that reporting a crime added to safety concerns; "So you can't really call the police unless you're begging really, and then all we have to remove the Veteran 'cause he's never go[ing] back 'cause the police have been involved. 'Cause he'll get killed." Involving local authorities meant that tenant-based participants were easily identified and subsequently targeted for retribution. Consequently, in some instances, participants were better off not socializing with community members.

Veteran Identity, Social Supports, and the Veteran Administration

Participants were asked about their relationships with neighbors, specifically their interactions with other HUD-VASH Veterans. Across voucher type, participants expressed hesitation in spending time with or seeking friendships among HUD-VASH participants. This hesitation was particularly apparent when it came to socializing with fellow HUD-VASH Veterans in one's place of residence; there was a clear divide in how participants and staff respondents viewed Veteran camaraderie. Staff frequently expressed beliefs that Veterans fared well living in close proximity to one another, while participants conveyed the opposite sentiments.

Some participants felt that other HUD-VASH participants were in a different stage of recovery, which might negatively affect their own well-being. This resulted in participants creating a social distance between themselves and other HUD-VASH Veterans. One project-based participant stated, "...you don't know the state of some people in this building and [you] got to, try to deal with it the best you can." Another project-based participant talked about a negative experience with one of his neighbors and his desire to avoid unsafe and undesirable social situations; "I kind of keep my distance. A lot of them are still smoking meth." One project-based participant believed that there were a lot of "good people" in his building, but he preferred to keep to himself and focus on his recovery and personal goals; "I will say that I think there are a lot of really fine people here...My situation is, I got to keep my head down, focus on my school, and just be safe."

One tenant-based participant stated that he actively chose to live apart from other HUD-VASH Veterans. This choice was based on his recovery process. He desired to move past his military experience and early recovery to see himself as a civilian; "And it's like one get[s] over one's past. Okay. And it takes you a while to do that. But once I come to terms with it, I leave it behind... So, once that chapter is over, I'm not going to relive it. You know, hey, buddy do you remember—no, I want to build new memories." Another tenant-based participant explained his desire to stay away from Veterans who he saw as potential safety threats; "a lot of them have drug issues. I have a daughter and don't invite nobody in my home from this VA, period! I don't know them like that. So, I don't do all that." This participant went on to acknowledge that he

did not mind associating with Veterans in what he referred to as a "positive setting." This was a common theme mentioned in various interviews.

Participants were not particularly interested in socializing with Veterans in their place of residence. However, several expressed a preference for socializing with fellow Veterans at VA sponsored events or while using VA services. Several participants described attending community barbeques, giveaways, stand downs, bingo, dances, and holiday events. These occasions provided opportunities to interact with other Veterans. One tenant-based participant stated that he liked going to VA events because he was "amongst other Veterans. Amongst positive people...In a safe environment." When asked what he enjoyed about attending the events, a different tenant-based participant stated, "That I'm amongst other Veterans. Amongst positive people."

Participants noted that they experienced a sense of camaraderie and understanding around other Veterans, which was important in a recovery context. A project-based participant that stated he avoided other HUD-VASH Veterans added, "I know as far as like going to the groups and some of the other things around here I do, there's a comfort level being around other Vets. You know, 'cause they kind of, everybody kind of gets what we've been through." The benefit of being around other Veterans in a recovery based setting rang true for others. Another project-based participant said that being around other Veterans helped her feel "understood" and "not judged." Consequently, there was clear segmentation between spaces where participants wanted to interact with Veterans (i.e., VA events and recovery settings) and places where they did not (i.e., place of residence).

In contrast to participants, staff respondents generally believed that Veterans enjoyed socializing with other Veterans in their place of residence. Project-based buildings that served Veterans were described as creating a sense of camaraderie and, potentially, facilitating community integration. For example, socializing within the building complex could help residents feel more comfortable engaging with others in the surrounding community. With regards to project-based housing, one respondent stated, "Well it can be a beneficial thing because of the camaraderie with other Veterans. Sometimes they'll be able to pull their friends and their fellow Vets into a community program. So there's a lot of mutual aid that goes into

the building, which I think is amazing." Although various staff respondents believed that living among other Veterans could be beneficial for participants, some respondents did acknowledge that not all participants want to live in close proximity to other HUD-VASH Veterans. One respondent noted that some participants explicitly verbalized a desire to live away from Veterans; "...some Veterans will say I don't want to live near Veterans because they're crazy, they're dangerous. Some Veterans will say that." Other staff respondents noted that the social dynamics in project-based sites vary by residents' behavior, which is contingent on population mix. For example, one staff respondent noted that if Veterans are doing well it is helpful to have them living together, but if their behavior is negative it can have detrimental consequences for all residents. Consequently, the general perception, or hope, was that living amongst other HUD-VASH Veterans would result in mutual support but respondents acknowledged that this was variable and dependent on Veteran characteristics and socialization contexts. While the ideal housing conditions could not be guaranteed, staff respondents believed that a connection to the VA was important for program participants, and participants frequently expressed a desire to be near the VA; "they always want that connection back to the VA."

Programmatic Challenges to Improving Community Integration Outcomes

Staff respondents felt overwhelmed by program demands, which led to limited time and resources to address HUD-VASH participants' community integration needs. Various staff respondents mentioned large caseloads and high priority cases that required significant amounts of time. Staff described their work as focusing on meeting participants' immediate needs, including crises intervention, to assure housing retention; "...unfortunately, we're so busy caring about the chronic cases or the current issue or just managing the everyday stuff that I don't know that we give ourselves time to really amplify and clarify those other avenues that I think the Vets need." Further, respondents noted that once stably housed, participants were moved off or transferred to lower intensity case management to make room for new HUD-VASH participants. As a result, respondents felt that they were unable to assist Veterans with community integration; "That next step of reaching out [with regards to] integration, as far as I see, isn't happening. Because what happens is when people stabilize and move to a

different level, they eventually move them to another level [of case management] and we don't even know what's going on with them...I never saw any case management that really went into any [community integration] issues. You know, like the treatment plan just focused on the housing, but there was no other delineation for plans that should be addressed."

One respondent recognized that community engagement was an important part of participants' life satisfaction and, in order to keep it at the forefront of her work, she systematized her efforts to assess participants' engagement in recreational activities; "I helped do a template for the home visit template. And so, in one of the categories I put hobbies and interests on there." The same respondent stated that case managers often focus on participants' medical charts and are "just looking to clear them up from homelessness." This type of approach was perceived as being based on deficiencies, and failing to consider the interests or skills that HUD-VASH participants possessed and that may lead to more satisfying lives.

While community integration, including life skills, connections to local resources, social supports, and life satisfaction, were recognized as important factors for participants' success, staff respondents felt limited in their ability to meet these needs. Respondents noted a necessity to hire more staff to assist HUD-VASH participants in adjusting to their new neighborhoods and housing, model behavior, and help enhance participants' independent living skills. Peer supports were specifically highlighted as potentially playing an important role in community integration: "...peer support[s] are really key...they will find activities [to] take all the Veterans who live in a certain area, maybe to a museum or something like that, to help them start integrating...we take them around to grocery stores, the different services that they need, post offices, and help them to learn where everything is in their neighborhood." Another staff respondent noted, "We need more peer support specialists to do their community integration work [...] To show them how to have a calm, reasonable conversation with the landlord..." Overall, staff respondents felt that greater resources were needed to address participants' community integration needs.

DISCUSSION

Our findings reveal challenges in HUD-VASH participants' community integration. Participants expressed neighborhood safety concerns, often viewing their initial placements as temporary, as a place to gain stability before moving to a permanent home; as such, they had little motivation to integrate into their communities. Staff and participants expressed mixed views on the value of having HUD-VASH participants live in close proximity to one another. Staff believed that living near other HUD-VASH participants facilitated community integration. However, despite feeling connected to the Veteran community and engaging in activities at the VA, Veterans were reluctant to connect with HUD-VASH peers struggling with recovery. Further, HUD-VASH staff described crisis management and housing stability as their central focus. Consequently, though staff desired to help Veterans with community integration, this need fell secondary to program mandates centered on housing attainment and retention.

Competitive rental markets and time limits for voucher use, led HUD-VASH participants to feel greatly constrained in their housing choices. Consequently, most participants expressed a lack of housing satisfaction and conceptualized their initial placements as temporary. Some participants described the desire to port vouchers to reunite with family, find a new place in a better neighborhood, or move from project based to tenant based housing. The belief in the temporality of housing placement may negatively affect participants' community integration outcomes, as longer stays are associated with a greater sense of belonging and social contact (Silverman & Segal, 1994; Trute, 2009).

Program implementation influences where a Veteran lives, including the type of housing he or she obtains and the neighborhood in which he or she resides (Patterson, et al., 2014; Darrah & Deluca 2014; Keels, Duncan, Deluca, Mendenhall, & Rosenbaum 2005; Marr 2005). The provision of case management services is essential in assisting Veterans in locating and retaining housing (Cunningham, 2009; O'Connell, Kasprow, & Rosenheck, 2008), and impacts housing and neighborhood choice (Darrah & DeLuca, 2014; Keels, Duncan, DeLuca, Mendenhall, & Rosenbaum, 2005; Mares, Desai, & Rosenheck, 2005). Unfortunately, competitive rental markets, time constraints for voucher use, and limited staff time to assist with housing location resulted in less than ideal housing placements, specifically placements in neighborhoods with

high crime. These findings may be amplified in Los Angeles, which has one of the nation's tightest rental markets (Boeing & Waddell, 2017) and the nation's largest HUD-VASH program.

Previous research has found that, compared to the general population, individuals with serious mental illness reside in neighborhoods that are more disadvantaged (Byrne et al., 2013; Newman, 1994) including higher levels of physical and structural inadequacy, crime, drug-related activity, and social instability (Byrne et al., 2013). Neighborhood safety greatly affects participants' engagement in the local community, including physical mobility and social connections. In fact, even when resources are available, concerns about crime can impede physical activity (Sundquist et al., 2006). Both staff respondents and program participants described unsafe neighborhoods as negatively impacting well-being. Participants acknowledged that unsafe environments decreased their willingness to walk in their neighborhoods, use public spaces, and engage with local community members. Staff respondents noted that participants in unsafe neighborhoods were vulnerable to organized crime and were more likely to isolate themselves. We found significant disparities in perceived safety among Veterans residing in project-based HUD-VASH on the VA campus, as opposed to persons living in the greater Los Angeles community. VAGLA's plans to build >1,000 PSH units on its campus over the next decade—coined the "Master Plan" (U.S. Dept. of Veteran Affairs, n.d.-b) – will provide a unique opportunity to enhance community integration outcomes without the neighborhood safety concerns that arise in Los Angeles' under-resourced neighborhoods. Moreover, landlord education initiatives and incentives could facilitate broader housing options—in better neighborhoods—for HUD-VASH participants.

While research, generally, suggests that Veterans' peers provide relatively high-perceived support, including emotional support, with little interpersonal stress (Laffaye, Cavella, Drescher, & Rosen, 2008), there is also evidence that participants working on abstinence may find close proximity to users to be detrimental for their recovery (Henwood, Padgett, & Tiderington, 2014; Milby et al., 2000). HUD-VASH participants, largely, expressed a desire to live apart from other HUD-VASH Veterans. Participants desired social distance from HUD-VASH Veterans that were in early stages of recovery as they believed that close association could negatively affect their own well-being. In contrast, staff respondents

frequently expressed the notion that living in close proximity to other Veterans could help HUD-VASH participants with community integration. Staff respondents generally believed that Veterans felt more comfortable around other Veterans. Research does suggest that consumers look for interactions that help them feel heard and empowered (Ware, Tugenberg, & Dickey, 2004) and, although participants did not want to live in close proximity to other HUD-VASH Veterans, they did express a desire to partake in VA sponsored events and described the benefits of Veteran camaraderie in the context of recovery. This was true even among project-based participants housed on the VA's campus who spoke about not socializing with Veterans in their building, but attending events on VA grounds. These perceptions are valuable in preparing for VAGLA's Master Plan, suggesting the value of careful assessments of Veterans' recovery goals and substance use disorders; there may be value in placing Veterans with similar goals and stages of recovery in a single building.

Staff respondents recognized the importance of community integration, including its role in participants' life satisfaction. However, respondents felt limited in their ability to meet community integration needs. Staff identified spending the majority of their time addressing participants' immediate needs and fulfilling administrative requirements. Previous work on HUD-VASH implementation found that staff must balance competing demands, including finding appropriate housing and providing intensive case management for highly vulnerable participants (Austin et al. 2014). While leadership can support staff through resource allocation and performance monitoring (Austin et al. 2014), staff respondents felt that their program lacked resources and that a focus on quantitative deliverables negatively affected their ability to address the long-term well-being of participants. Several respondents highlighted the need to hire more staff, and the potential role that peer-support specialists could play in assisting HUD-VASH recipients with community integration. The VA recently disseminated a Community Integration Specialist Training program for its peer support specialists (U.S. Dept. of Veteran Affairs, n.d.-a); identifying HUD-VASH peers to serve these roles could significantly enhance Veterans' community integration outcomes in the program, regardless of constraints placed on case management staff.

LIMITATIONS

This study had limitations. First, the Paperwork Reduction Act of 1995 limited the number of HUD-VASH participants we could interview, which restricted the types and number of Veteran perspectives that we could obtain. Project-based participants were limited to two sites, one of which was relatively unusual in that it was located on a VA medical center campus. Second, Veteran participants interviewed were limited to urban Los Angeles County, whereas staff respondents served the VA Greater Los Angeles' catchment area, which includes part of Central California and a mix of rural, suburban, and urban communities. Third, our sample was limited to Veterans and may not apply to non-Veteran populations; the Veteran community shares unique attributes, particularly camaraderie from shared military service and use of the VA, that impact its community integration experience. In addition, our sample consisted of only two female participants, limiting our understanding of how women Veterans experience community integration in PSH, which likely differs from their male counterparts (Benda, 2006; Tsai & Rosenheck, 2015; Tsai, Rosenheck, & Kane, 2014; Tsai, Rosenheck, & McGuire, 2012). Last, we conceptualized community integration through participants' narratives and did not collect standardized data (i.e., community integration scales) that quantifies this construct.

CONCLUSION

These data provide insights as to why formerly homeless persons in PSH struggle to achieve community integration (Tsai, Mares, et al., 2014; Tsai & Rosenheck, 2012) and potential avenues for addressing this challenge. Our findings suggest that PSH programs would benefit from increased personnel, e.g., peer support specialists, to address Veterans' community engagement following housing placement. In addition, our findings suggest that PSH programs need to pay greater attention to how participants are matched to housing and supports needed to assure successful community integration. For one, better avenues are needed for addressing PSH participants neighborhood safety concerns. This will likely require a combination of approaches, including combating nimbyism to expand housing choice and offering moving assistance to housed PSH participants negatively impacted by their neighborhood surroundings. Second, the VA plays an important role in Veterans' social and service needs, however, not all Veterans are able to find housing in close proximity to the VA. Consequently, satellite clinics

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and community centers may potentially help fill a void by providing Veteran programming albeit not HUD-VASH specific. Lastly, future research should explore HUD-VASH participants' community integration in communities with broader rental markets than Los Angeles County. Such research may allow for comparison of community integration processes across a variety of neighborhood types. Research assessing the role of population mix in project-based facilities may also prove valuable. Further, mixed methods studies, including quantitative assessments of community integration, can facilitate better comparisons of project-based vs. tenant-based HUD-VASH participants and analysis of the impact neighborhood factors have on community integration.

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Appendix

Semi-Structured Interview Guide for HUD-VASH Program Staff

Aims:

1. To identify key design features of VAGLA's HUD-VASH scattered site and project based housing and neighborhood factors that impact community integration outcomes from the perspectives providers.

2. To compare Veteran characteristics perceived by providers as associated with positive community integration outcomes in project-based vs. scattered-site HUD-VASH housing at VAGLA.

I are interested in understanding the U.S. Department of Housing and Urban Development-Veterans Affairs Supportive Housing (HUD-VASH) voucher allocation and housing location decision process and subsequent outcomes. I am seeking to comprehend the relationship between Veteran characteristics and successful programmatic outcomes given variations in housing and service arrangements. I am specifically interested in understanding community integration outcomes. By community integration I mean how an individual is adjusting to his or her new community, including housing satisfaction, the formation of social networks, achievement of employment/educational outcomes, and ongoing housing tenure.

HUD-VASH is the largest housing subsidy program for homeless Veterans. It functions under two distinct housing models, scattered site and project based. I would like to understand how voucher allocation decisions are made. Project-based vouchers support congregate settings and are "attached" to a physical unit. Scattered site vouchers are allocated to individuals and subsidize rental rates of private market housing, and can be thought of as being "attached" to an individual, i.e. move with the person.

I am interested in understanding how social work and counseling professionals guide Veterans toward the two different types of housing options.

- What is the decision making process for placing people in project based versus scattered site housing?
- What factors, if any, go into the decision making process that affects the type of housing voucher a Veteran receives? (Veteran characteristics, service use needs, or preferences?)
- To help me understand more clearly, please walk me through the presentation of the options associated with HUD-VASH. Lets pretend I am a Veteran, can you describe the different housing options I have?

The housing location identification process can allow a Veteran to explore and better understand HUD-VASH housing options.

- Based on your experience, can you describe how you help locate appropriate housing for a client given the recommendation that they receive either a scattered site or a project based housing voucher. I am interested in the process utilized to locate specific housing units.
- Who is involved in this process?
- During the process of location selection, are Veterans able to consult with peers? Family? Friends?

When a Veteran is given a scattered site housing voucher, what factors are considered before a housing unit is approved?
- Distance to services?
- Quality of unit?
- Neighborhood qualities?

How are project based versus tenant based services structured?
- What services are provided for tenant based voucher holders? How are these provided? (in home visits? In the community?)
- What services are provided for project based voucher holders? How are these provided? (in home visits? Housing site? In the community?)

Aside from placing a Veteran into housing, what are some markers of success?
- Housing retention?
- Reuniting with family?
- Employment?
- Educational outcomes?
- Socialization?

What do you think contributes to success under the HUD-VASH program?
- Veteran characteristics?
- Service use?
- Housing characteristics?
- Neighborhood factors?

Do you think there are any ways that the VASH program could be improved? Can you elaborate on your response?

Focus Group/ Interview Guide for HUD-VASH Program Participants

Welcome
- Introduce moderator(s), note-taker(s)
- Sign permissions for voice recording

The aim for this focus group is to examine Veterans' experiences obtaining permanent supportive housing and adjusting to their new housing and neighborhoods.

You were selected because you are currently housed through the HUD-VASH housing program.

Guidelines
- There are no right or wrong answers; We may not agree with everything that is said here today but we do agree to listen respectively to what each person has to say.
- We are recording this discussion, so only one person should speak at a time.
- We will use only first names throughout today's focus group; however, your name will never be connected with anything you share while participating in this session.
- We ask that you please turn off your phones; if you cannot, we ask that you leave the room to respond to your call.
- Are there any other norms that you think would be helpful?
- Is there anyone who cannot live with these norms for this session?
- My role as a moderator will be to guide the discussion, but please speak with each other.

Introduction
Thank you for taking the time to speak with us today about your experiences living in [HUD-VASH project-based program OR your current housing unit and neighborhood]. My name is [Moderator] and I am joined by [Person 1] and [Person 2]. We are working on a project with the Greater Los Angeles Veteran Administration to learn more about the HUD-VASH program. We would like to learn about your experience in your current place of residence, including why you chose to live there, what you like and do not like about your neighborhood, your use of VA services, and your experience interacting with the local community. We are having similar discussions with another focus group housed in [project based housing OR in various neighborhoods throughout Los Angeles County].

We will be asking a series of questions and are looking forward to a discussion among this group. There are no right or wrong answers. Our reports about what we learn will not attribute any statements to individuals and we will not share your personal opinions with program staff. However, we will report generally what we hear during this discussion, as it will be helpful in understanding the Veterans who the HUD-VASH program serves and what could improve their experiences in the program.

To start, can we go around and share our first names only, where you live, and how long you have been there?

Housing Type:
We would like to know why you chose to live in your current place of residence, including what you enjoy about the housing unit and what could be improved.
- There are two types of VASH housing. Some Veterans use VASH to live in an apartment in the community, while other Veterans use VASH to live in a building where other Veterans on VASH or people on Section 8 live. Can you tell use why you decided to [live in this building [state building name] or in the community]?
  Probe: Did you feel free to choose one type of housing over the other?
  Did your choice about where to live change the way you interacted with family? For example, did it allow you to move closer to or reunite with family?
  Was your choice impacted by your relationship with other Veterans? For example, did you want to be near other Veterans?
  Was your choice impacted by how close you would be to any health, substance use, educational, or employment services you receive or expect to receive?

- What do you like about your current housing unit? (the focus here is on your unit and your apartment complex, upcoming questions will ask about your surrounding neighborhood)
  Probes: Are there things you like about your apartment? (Spaciousness, design features, etc.)
  Are there things that you like about your apartment complex? (Shared spaces, green space/ recreational areas, etc.)

- What do you dislike about your current housing unit?
  Probes: Are there things about the apartment that you do not like or you think are missing? (Spaciousness, design features, etc.)
  Are there things about the apartment complex that you do not like or you think are missing? (Shared spaces, green space/ recreational areas, etc.)

Neighborhood:
Now, lets discuss your experiences living in your current neighborhood.
- Can you tell me what you like about your neighborhood?
  Probes: Are you close to recreational centers and/or community spaces?
  Is transportation accessible?
  Are you close to retail stores?
  Are you close to educational or employment opportunities?
  Do you like your neighbors?

- Can you tell me what you do dislike about your neighborhood?
  Probes: Are you far from recreational centers and/or community spaces?
  Is transportation inaccessible?

Are you far away from retail stores?

Do you have safety concerns or concerns about substance abuse in the area?

Social Support:

We would now like to understand your social connections in the surrounding community.

* Do you know your neighbors?

    Probes: How many neighbors could you name by first name?

* Are you involved in volunteering? Are any volunteer opportunities available in your place of residence or surrounding neighborhood?

    Probes: Can you volunteer through the Veteran Administration?

    Are there volunteer opportunities through your local church, community center, or local organizations?

Supportive Services:

We would like to better understand your access to and use of various services.

* What Veteran Administration services do you receive?

    Probes: Do you receive any health care services, such as medical, mental health or substance abuse, or all of the above?

    Do you receive any employment or educational services? For example, job training or help with job location.

    Do you receive any benefits/financial help? For example, general assistance, social security benefits, disability, or unemployment funds.

* Is there any kind of help you have needed, but have not received?

Conclusion:

We have covered all of the questions that we had and we really appreciate your time and insights. Is there anything else you would like to share?