USCHomelessness Policy Research Institute

Assessing Heterogeneity in Homelessness Risk and Housing First Supports' Effectiveness by Race and Ethnicity among Older Adults Experiencing Homelessness: Evidence from Los Angeles County

FINAL REPORT
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EXECUTIVE SUMMARY

Background

Two major demographic trends — the rapid aging and racial diversification of the U.S. population — have collided with spiraling housing costs to foment a homelessness crisis among older adults of color. Owing to structural disadvantages experienced throughout their lives, older adults of color are particularly vulnerable to enduring homelessness — and to suffering its worst consequences. Yet most relevant research examines how homelessness risk and intervention effectiveness vary by race and age, separately, rather than both simultaneously.

In this study, we employ an intersectional lens and a mixed-methods approach to estimate age- and race-based disparities in the risk of previously unhoused adults who received homelessness services and are subsequently returning for additional services, suggesting unresolved housing precarity. We also assess whether and why Housing First interventions, which prioritize permanent housing and service recipients' specific needs and preferences (e.g., Permanent Supportive Housing [PSH]; Rapid Re-Housing [RRH]), reduce this risk to a greater extent for older, versus younger, adults and for older adults of color rather than White older adults.

Our quantitative analyses rely on de-identified data from the Homelessness Management Information System (HMIS) in Los Angeles County, which is arguably the epicenter of America's homelessness surge. The dataset tracks nearly all adults interfacing with the county's Continuum of Care (CoC), a community-wide system integrating local resources, services, and data to support those experiencing homelessness in securing stable housing, from 2013 through 2019; in supplementary analyses, we extend our timeframe of interest through 2023. We also conducted interviews with a racially diverse group of 40 older adults who have experienced homelessness and currently reside in scattered-site or project-based PSH settings in Los Angeles.

Main Findings

Analyses of HMIS data from 2013 through 2019 revealed an age-race interaction in the risk of returning to homelessness services. This risk generally increases with age: Black adults exhibit higher risk compared to White adults within all age groups, and the Black-White gap increases at older ages. Black older adults (age 55+) thus constitute one of the highest-risk subgroups; American Indian/Native American middle-aged and older adults (aged 45–64) also exhibit elevated risk (Figure E1).

Figure E1. Unadjusted Probability of Returning for Additional L.A. County Continuum of Care Service by Age and Race/Ethnicity (2013–2019).
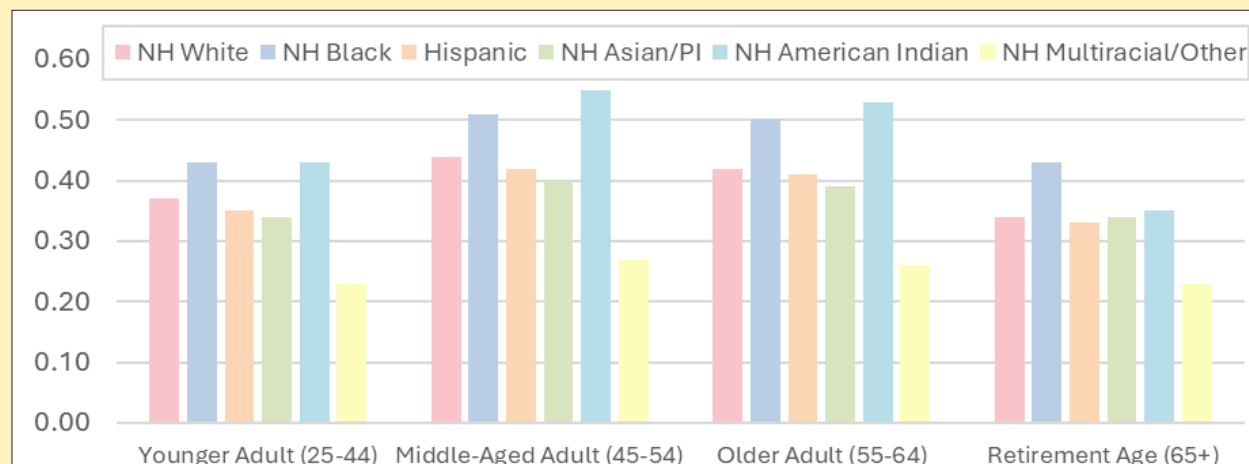
Notes: Age is estimated based on difference between birth year and 2013."NH" stands for non-Hispanic.

Both PSH and RRH appeared highly effective in reducing this risk among older and younger adults alike. When comparing a move into a PSH or RRH unit to a stay in an emergency shelter (ES), the two former interventions conferred even larger risk reductions for older adults compared to younger adults, and for Black older and retirement-aged adults compared to White adults of a similar age (Figure E2). Despite the equity-boosting benefits of these interventions, only 10% of CoC services in our main analytic sample were classified as RRH and 2% were classified PSH, whereas 38% were classified as ES; the remainder were marked other.

Figure E2. Conditional Probability of Returning for L.A. County CoC Service by Age, Race, Intervention Type (2013–19).
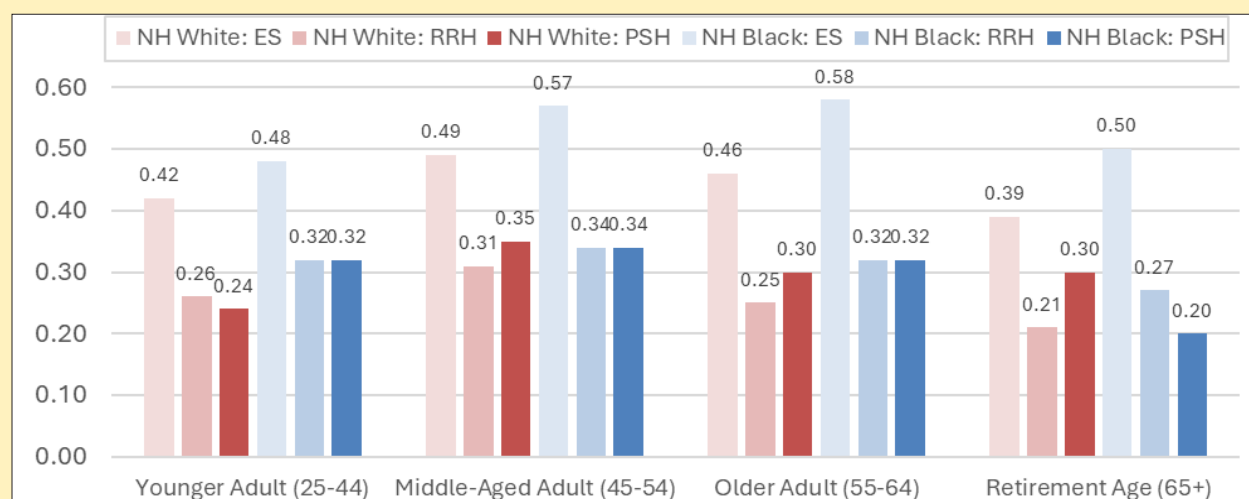
Notes: [1] Age is estimated based on difference between birth year and 2013. [2] ES stands for Emergency Shelter; PSH stands for Permanent Supportive Housing. [3] "NH" stands for non-Hispanic. Conditional probabilities are based on age- and race-stratified models that include fixed effects for CoC service type, gender and household structure controls, as well as controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013–2019); service entry date year, month, and date year-month.

Examining an alternative outcome to proxy housing stability — the probability of exiting to rent or own a home or to moving in with family or friends — reveals the same general pattern. **RRH and PSH are both strongly associated with increased housing stability based on this measure; among older and especially retirement-age adults, Black adults see larger RRH-/PSH-associated boosts to this outcome thando White adults** (Figure E3).

Figure E3. Conditional Probability of HMIS Destination: Rent/Own, Family/Friends after Receiving CoC Service ('13–'19).
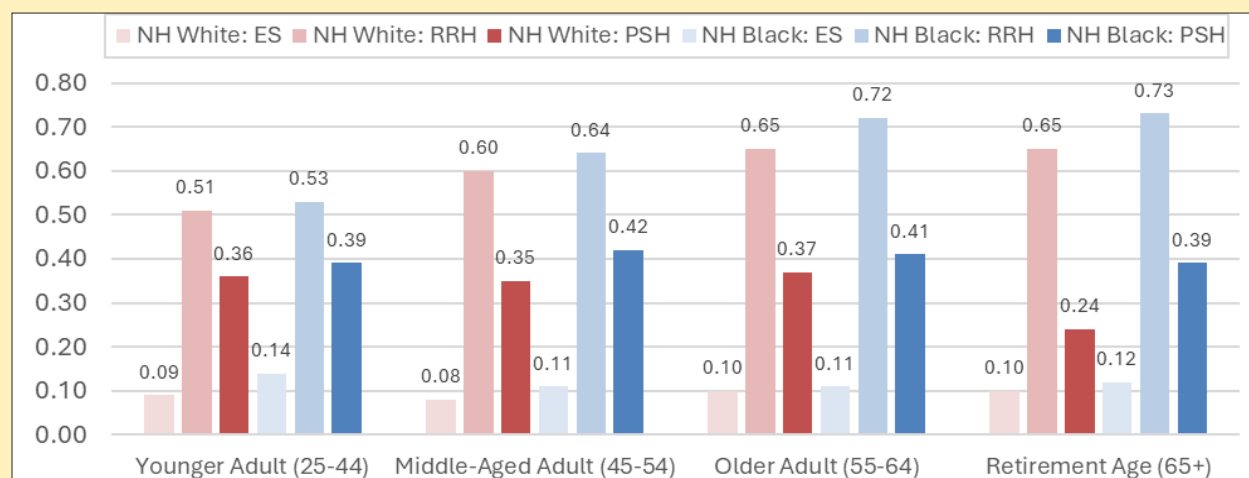
Notes: [1] Age is estimated based on difference between birth year and 2013. [2] ES: Emergency Shelter; RRH: Rapid Rehousing, PSH: Permanent Supportive Housing. [3] Conditional probabilities are based on age- and race-stratified models that include fixed effects for CoC service type, gender and household structure controls, as well as controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013–2019); service entry date year, month, and date year-month.

Quantitative analyses and qualitative interviews with PSH residents sought to clarify why Black older adults may see larger housing security benefits through PSH when compared to White older adults. Quantitative analyses did not support our initial hypothesis that group differences in individual-level vulnerabilities that PSH may be particularly well-equipped to address (e.g., disability profiles) explain why Black older adults see the largest risk reduction benefits from it. Instead, exploratory analyses examined one of many possible explanations for PSH exerting larger risk reduction effects for Black versus White older adults; they revealed that Black older adults sort into higher-quality scattered-site PSH programs, on average, compared to White older adults.

Our interviews with a diverse group of 40 older adult PSH residents helped contextualize these findings. Most PSH residents, regardless of race, were satisfied with their experience and typically preferred their current living situation to alternative options available. However, we did observe racial differences in residents' preferred PSH placements and in their assessments of their prospects, if they were to exit PSH.

Specifically, White older adults appeared to prioritize neighborhood desirability (i.e., Whiter and wealthier neighborhoods) over other factors that may be more consequential for their long-

term stability (e.g., quality of service provider, types of services available). White older adults also tended to feel more empowered to exit PSH early and search for housing on their own. Due to the advantages that White people have in the housing search process, White older adults may underestimate the challenges involved with finding and maintaining independent housing; this could lead them to reenter homelessness if they exit PSH too early. Alternatively, most Black older adults and some Hispanic older adults reported openness to PSH placements in any neighborhood and were hesitant to leave once placed. As Black and Hispanic residents frequently face housing market disadvantages (e.g., discrimination, unplanned moves, or housing quality issues), PSH residents within these groups appear more inclined to accept "sure bet" placements guaranteeing relatively safe shelter.

Both channels — i.e., White older adults' (1) stronger neighborhood preferences, which may come at the cost of PSH service provider/service quality, and (2) their more optimistic view of post-exit prospects in the housing market — could contribute to PSH conferring more modest risk reduction benefits for them than for Black older adults. However, available data could not solidify the precise mechanisms by which racial differences in these orientations yield racial differences in outcomes (e.g., via the Coordinated Entry placement process). Nor could our data adequately probe other possible explanations for the racial variation PSH's estimated risk reduction effects, including: racial differences in difficult-to-observe individual characteristics that may be associated with both PSH access and effectiveness among older adults, or racial differences in the "fit" between older adults' particular needs and the services provided by the PSH program with which they are matched.

Implications for Research and Policy

Future studies examining intersectional dynamics of homelessness risk and intervention effectiveness should:

1. *Move beyond observational analyses to causal identification strategies* (e.g., regression discontinuity) that credibly isolate the risk-reduction effects of Housing First interventions on various subgroups

2. *Encompass a broader set of outcomes* beyond risk of returning to homelessness

3. *Scrutinize racial heterogeneity and other sources of variation in risk and intervention effectiveness in a finer-grained manner,* including subgroups with some combination of American Indian/Native American, Hispanic, and multiracial backgrounds, as well as variation by gender identity and sexual orientation

4. *Account for contextual effects*, by examining whether and why subgroups' homelessness risk and intervention effectiveness varies between different CoCs and between areas within the same CoC

5. *Open the "black boxes" of Coordinated Entry (CE) and RRH/PSH program quality* by employing mixed-methods studies that clarify precisely how these factors drive subgroup differences in program impacts

From a policy perspective, a rapid and exponential increase of RRH and PSH slots will be key to mitigating the looming crisis of homelessness among older adults. Tracking data on the effectiveness of, and access to, these interventions by fine-grained race/ethnicity and age categories and ensuring consistent quality across programs will help solidify Housing First as a key driver of housing security and racial equity.

Supplementary Analysis Findings

Beyond the main analyses summarized above, we conducted a set of supplementary analyses that tracked Los Angeles County CoC HMIS data over a longer timeframe (i.e., from 2013 through 2023, rather than through 2019) and that switched our key outcome of interest from returning for any additional Los Angeles County CoC service to returning for either an Emergency Shelter or Street Outreach CoC service in the county.

The analyses confirmed the main findings reported above. Middle age and older adults who identify as Black or American Indian/Native American exhibit particularly high risk of returning for emergency shelter or street outreach. Moreover, RRH and PSH are associated with steeper drops in this risk, relative to the Emergency Shelter alternative, for Black and American Indian/Native American older adults than for White older adults.

Figure E4. Estimated Marginal Effect of CoC Service Type by Race/Ethnicity on Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only, Among Adults Age 55+ at Date of CoC Service Entry (2013–2023)
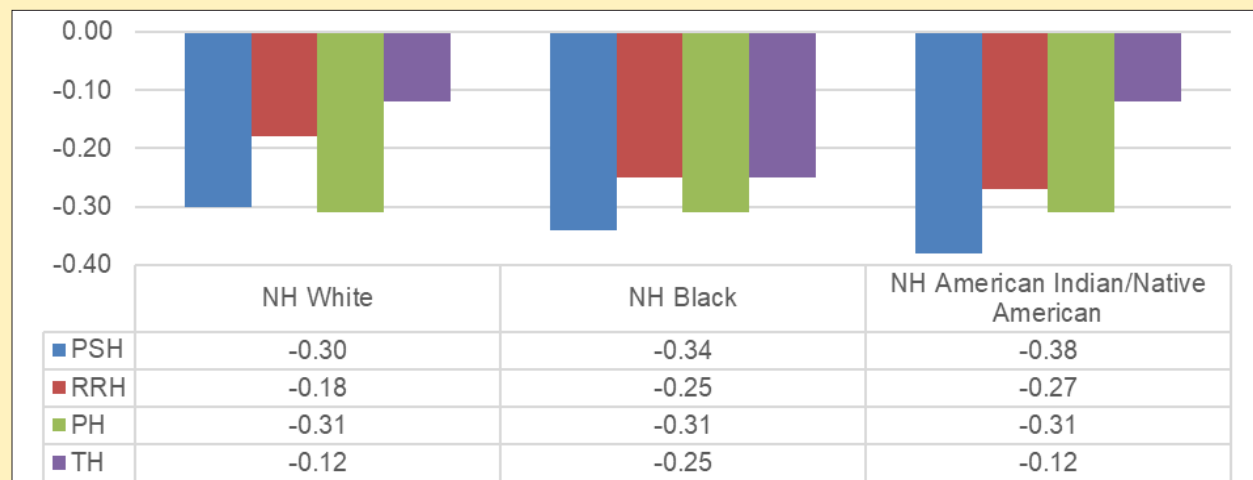
	NH White	NH Black	NH American Indian/Native American
PSH	-0.30	-0.34	-0.38
RRH	-0.18	-0.25	-0.27
PH	-0.31	-0.31	-0.31
TH	-0.12	-0.25	-0.12

Note: [1] Age is estimated based on difference between birth year and year of CoC service entry. [2] NH = Non-Hispanic. [3] Marginal effects of PSH, RRH, PH, TH were not significantly different for Hispanics, NH Multiracial/Other, or NH Asian/Pacific Islander versus Whites.

Given the equity-promoting effects of RRH and PSH, it is also worth noting that the supplementary analyses revealed Black older adults to be more likely to receive them than are otherwise-similar White older adults.

Figure E5. Conditional Probability of Accessing CoC Service Type by Race/Ethnicity, Age 55+ at CoC Service Entry
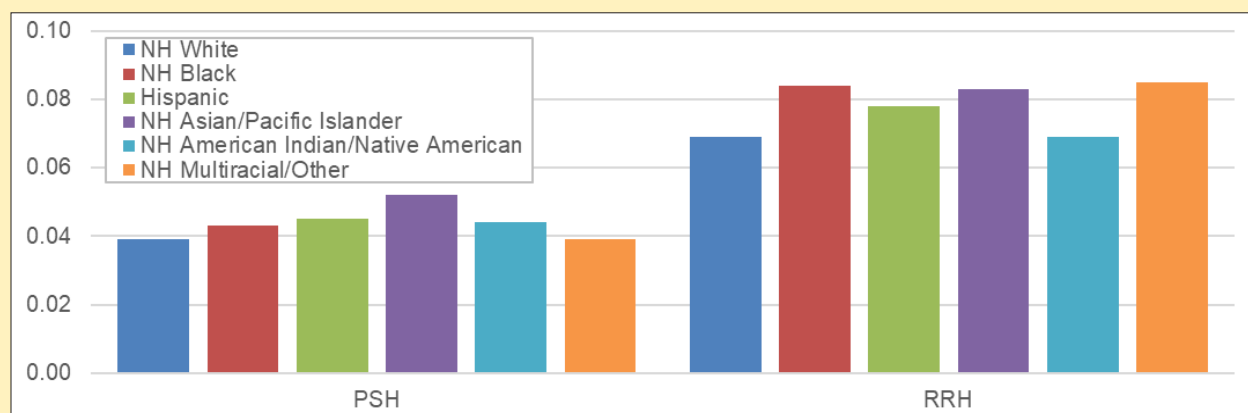
Note: [1] Age is estimated based on difference between birth year and year of CoC service entry. [2] NH = Non-Hispanic

STRUCTURE OF THE REPORT

The remainder of this report proceeds as follows. First, we review prior research that informs our expectations regarding the intersectional patterning of homelessness risk in the U.S. (i.e., by age and race). Then, we review research on what interventions have proven most effective in reducing this risk for the population at risk of homelessness, as a whole. Housing First interventions — specifically RRH and PSH — emerge as most promising, but we argue that heterogeneity in the effects of these programs has not been adequately theorized or empirically tested to date. We then hypothesize why heterogeneous RRH and PSH effects may exist and propose that compared to White older adults, Black older adults may see larger degrees of homelessness risk reduction when receiving these Housing First interventions, as opposed to the more common Emergency Shelter/ES alternative.

Next, we shift to the empirical analyses that test our theoretical expectations. The first portion of this section centers on our quantitative analyses, describing the data and methods we use to test our key hypotheses and then reporting the results that emerge from the descriptive analyses and multivariate models, as well as supplementary analyses. The second portion of the section proceeds to our qualitative analyses, describing the data and methods used, as well as our results.

We conclude with a brief synthesis of our main results, framed in relation to our key hypotheses, and proceed with a discussion of the study's implications for both research and for policy.

A THEORETICAL FRAMEWORK OF INTERSECTIONAL VARIATION IN HOMELESSNESS RISK AND INTERVENTION EFFECTIVENESS, BY AGE & RACE

Examining Homelessness Risk Among Minoritized Individuals, Older Adults, and Older Adults of Color

Recent research casts structural racism as a fundamental cause of homelessness and documents the disproportionate representation of people of color —particularly Black and Indigenous populations —among the unhoused (Fowle, 2022; Jones, 2016; Olivet et al., 2021). Scholars implicate racial discrimination across many domains throughout the life course (e.g., via healthcare, the criminal justice system, and housing market), which foster cumulative disadvantages that may substantially increase homelessness risk; these disadvantages, in turn, become compounded as a consequence of homelessness (Paul et al., 2020). Specifically, structural racism endured in three social institutions — the labor market, the housing market, and the criminal-legal system — amplifies homelessness risk among Black Americans, in particular:

Racism endured in the labor market. Black Americans endure persistent exclusions from the labor market and from wealth building opportunities in the United States, creating conditions of poverty that make Black households vulnerable to economic shocks that can prompt spells of homelessness. Audit studies of hiring practices continue to show that labor market discrimination strongly limits the job opportunities available to Black Americans (Pager and Shepherd, 2008). One audit study even suggests that employers hire white men with criminal records at higher rates than Black men with no comparable record (Pager, 2003). Black job seekers also may struggle to activate their personal networks for referrals to open positions (Smith, 2005). Due in part to these exclusions, there are large Black-White wealth inequalities in the United States (Oliver & Shapiro, 2006), leaving Black households with little to fall back on when they endure shocks that can lead to homelessness, including medical emergencies, unemployment spells, or the death of a loved one. Labor market disadvantage also reverberates to impact network income inequality. Social network resource inequalities mean that Black households have fewer ties to fall back on when enduring hard times that could lead to homelessness. For instance, some research shows that Black households are less likely than comparable White households to have a middle-class family member (Heflin & Pattillo, 2006), though when these Black middle-class ties are present, they are more likely to assist their kin than comparable White households (O'Rourke, 2012).

Racism endured in the housing market. People of color also endure persistent exclusions from the housing market, making it more difficult to find safe and stable housing opportunities. Historically, predatory lending practices targeting minority communities have contributed to higher levels of foreclosure in Black and Latinx neighborhoods, pushing these households out of homeownership (Rugh & Massey, 2010). Among renter households, evidence from audit studies

persistently shows that landlords continue to discriminate against Black and Latino/a/x renters, making housing searches longer and more difficult for these movers (Oh & Singer, 2015; Pager & Shepherd, 2009). Some evidence also suggests that Black and Latino/a/x households also endure disparate treatment after entering rentals, including racial discrimination from housing providers and maintenance delays, which may prompt premature, reactive moves (Roscigno, Karafin, & Tester, 2009; Schmidt, 2024). Further, the stigma of enduring a prior eviction or homelessness episode may interact with racial discrimination in ways that hamper unhoused people of color's attempts to acquire secure private market housing. These challenges could both push households into homelessness and prolong homelessness spells.

Racism endured in the criminal legal system. Finally, criminal justice contact — which is disproportionately endured by Black Americans — stigmatizes individuals in the labor and housing markets (DeMarco, 2023; Pettit & Western, 2004) — and may contribute to elevated housing instability (e.g., evictions) and homelessness risk among Black adults, relative to White ones. The rise of credit and background checks in rental screening make housing searches substantially more difficult for renters with records, particularly those with felony convictions (Bryan, 2022). Compared to non-incarcerated men, recently incarcerated men are more likely to experience homelessness, residential churning, and to mobilize ties for help covering housing costs (Geller & Curtis, 2011). People with criminal-legal records also struggle to find job opportunities (Western & Sirois, 2019) or are channeled to low-wage positions (Western, 2002), increasing their financial insecurity and subsequently pushing them towards homelessness. Some research also finds that formerly-incarcerated Black and Latino/a/x job seekers, in particular, struggle to find stable employment relative to formerly-incarcerated white job seekers, who turn to relatively advantaged social networks for job placement assistance (Western & Sirois, 2019). Criminal legal contact also has collateral consequences for family members' housing security. Having a family member incarcerated — an event that is also predominantly endured by people of color — increases the likelihood of doubling-up or experiencing an eviction — two events that are often precursors to homelessness (Geller & Franklin, 2014).

Age stratification in homelessness risk: Elevated risk among older adults

Recent work also highlights the unique risk factors that may prompt spells of homelessness among older adults, in particular.

Older adults and diminished social networks. As older adults age, their social networks become increasingly important sources of day-to-day assistance (Ayalon & Levkovich, 2019). However, older adults' social support networks also atrophy over time, with a tendency to retain close network members (Cornwell, Laumann, & Schumm, 2008). Given that strong ties take on outsized importance in the social support networks of older adults, multiple studies show that the removal of these close network members (via death, divorce, etc.) is an important driver of homelessness among older adults (Brown et al., 2016; Burns & Sussman, 2019; Lee et al., 2016).

Older adults and income insecurity. Older adults also face unique financial challenges, relative

to younger adults. Many older adults endure rising housing costs on fixed incomes, leaving them more vulnerable to destabilizing rent increases and eviction. Older adults may also face age discrimination in the labor market as they near retirement age, making it more challenging to exit destabilizing periods of unemployment (Roscigno et al., 2007). Older adults are often not eligible for income entitlements until they are 65, leaving them vulnerable to financial shocks (Brown et al., 2022). These conditions can foster income insecurity and coupled with older adults' smaller social support networks, prompt housing insecurity (Brown et al., 2011, 2016; Burns & Sussman, 2019; Herbert & Molinsky, 2019). These financial challenges make older adults more vulnerable to repeated spells of homelessness.

Older adults and health issues. Finally, growing older comes with a myriad of physical and cognitive health challenges that may prompt entry into homelessness. Research shows that mental and physical health problems — including illness, disability, and depression — are both proximal and distal causes of homelessness for older adults (Crane et al., 2005). Health shocks that arise in older age can prompt financial insecurity through job loss or medical expenses, with cascading consequences for housing insecurity. Health conditions loom large among older adults not only as a key cause of homelessness but also a consequence of it (Brown et al., 2022). Experiencing homelessness accelerates aging. For instance, older adults who formerly experienced homelessness exhibit levels of memory loss, functional impairment, and falls consistent with housed adults who are ten years older (Brown et al., 2022). Acute health challenges, and the elevated economic and housing insecurity risks they often engender, may render older adults of all race/ethnic groups vulnerable to repeated episodes of homelessness.

Intersectional stratification (by age and race) in homelessness risk

Although these emerging lines of research constitute important steps forward, studies probing the intersection between them remain relatively scarce. This void is particularly glaring, given that stratification theories increasingly highlight the value of adopting intersectional frameworks, whereby structural vulnerabilities (e.g., age, race, gender) are posited to compound each other in complex and highly consequential ways across the life course (Homan et al., 2021). "Intersectional disadvantage" may be particularly salient to housing and homelessness.

For example, older adults of color may exhibit elevated rates of prior criminal justice contact or of prior evictions across their life course, patterns that reflect Black older adults coming of age during the mass incarceration age and also during a period when eviction protection policies and services were scarce (Neil & Sampson, 2021; Paul et al., 2020). Structural racism endured throughout the life course may have cumulative consequences of older adults of color, making it more difficult to exit spells of homelessness (Paul et al., 2020). Moreover, acute health challenges, which may hamper economic and housing security, disproportionately afflict Black older adults compared to older White adults and younger Black adults. A social determinants of health framework highlights how structural racism engenders increased rates of chronic disease and mental health challenges (e.g., via residential segregation, environmental contamination,

and trauma) among people of color. Aging likely substantially amplifies these disadvantages by fostering heightened vulnerability to them (Ferraro & Shippee, 2009), a process called accelerated aging. We thus expect to find that Black older adults exhibit a higher probability of experiencing repeated episodes of homelessness than do older White adults or younger Black adults.

The Promise of Housing First Interventions

If older adults of color, particularly Black older adults, exhibit elevated vulnerability to repeated episodes of homelessness, targeting this group with the most robust, evidence-based housing interventions available is warranted. In recent years, a consensus has emerged that Housing First programs are most promising in securing long-term stability for individuals at risk of homelessness. These programs' theoretical approach sharply diverges from the prevailing perception in the twentieth century that people experiencing homelessness must first demonstrate "suitability" for housing (e.g., by resolving behavioral health challenges, ceasing drug use, and participating in services) before accessing housing. Instead, the Housing First model theorizes that permanent housing is crucial, enabling residents to participate in supportive services and to resolve key health challenges. The model also prioritizes clients' specific needs and preferences when selecting interventions; this alignment may increase the likelihood of success (Woodhall-Melnik & Dunn, 2016).

There are two primary types of programs that follow the Housing First approach. The first is *rapid rehousing* (RRH), which provides short-term rental assistance (e.g., in the form of time-limited vouchers) paired with select services for households enduring temporary disruptions that increase homelessness risk. These services often include support in identifying suitable housing units, rental payment and move-in cost assistance, and case management. The second program type is *permanent supportive housing* (PSH), which provides more intensive supports centered around housing unit provision to individuals who would otherwise struggle to remain stably housed, due to serious physical and mental health concerns, including chronic illness and substance use disorders. Participants in this intervention often have endured repeated episodes of homelessness. They are therefore expected to receive program support for a much longer duration compared to those who receive RRH (Henwood et al., 2013). Permanent supportive housing interventions can be further subdivided into two program types: project-based programs (PB-PSH), where PSH residents live in buildings together and receive services on-site and scattered-site programs (SS-PSH), where residents rent from private landlords and receive mobile services.

In the United States, these interventions are delivered through a novel multiorganizational infrastructure developed by the U.S. Department of Housing and Urban Development (HUD) called a *Continuum of Care* (CoC). CoCs are community-wide systems integrating local resources, services, and data to support those experiencing homelessness in securing stable housing. In recent decades, investments in Housing First programs like RRH and PSH have increased rapidly across U.S. CoCs.

However, the extent of investment varies considerably across geographies, given that the U.S. Department of Housing & Urban Development affords local areas substantial flexibility in deciding

how they respond to local needs and community preferences. This variation is evident not only in the wide distribution in financial resources available to CoCs — and the share of resources they each invest in Housing First interventions like PSH or RRH versus ES — but also in how they allocate often-scarce PSH and RRH slots to individuals at risk of homelessness within their jurisdictions.

The allocation of Housing First program slots to individuals typically entails some form of CoC-run Coordinated Entry system whereby unsheltered individuals and emergency shelter residents are initially identified, triaged, assessed for risk in a standardized way. They are then prioritized for RRH or PSH referrals once capacity allows, with the highest-risk individuals often receiving the highest priority. During the main timeframe analyzed in this study (2013–2019), Los Angeles County CoC's Coordinated Entry system employed a commonly-used triage tool called the *Vulnerability Index — Service Prioritization Decision Assistance Tool* (VI-SPDAT). The VI-SPDAT indexes personal histories and health issues to generate an acuity score. Higher acuity scorers are recommended for PSH (with no distinction between SS-PSH or PB-PSH), moderate scorers are directed towards RRH, and low scorers are not prioritized for a CoC-funded permanent housing intervention.

However, specific approaches to creating access points for those in need, assessing risk, and prioritizing individuals based on risk assessments have varied across U.S. CoCs and over time. For example, from 2020 onwards, the Los Angeles County CoC Coordinated Entry system began transitioning away from VI-SPDAT, given concerns that the screening tool underestimated the risks and vulnerabilities faced by certain populations, including Black people. The Coordinated Entry System Triage Tool Research and Refinement (CESTRR) project reviewed these concerns and developed the new Los Angeles Housing Assessment Tool (LA HAT), which is designed to address them and is now being deployed in the county (Rice et al. 2023).

Figure 1 provides an overview of how a typical U.S. CoC functions in linking unsheltered and housing precarious individuals to various programs.

Figure 1. Overview of CoC Service Flow

Notes: [1] Information in figure is based, in part, on Gubits, et al. 2018 and Woodhall-Melnik & Dunn, 2016.
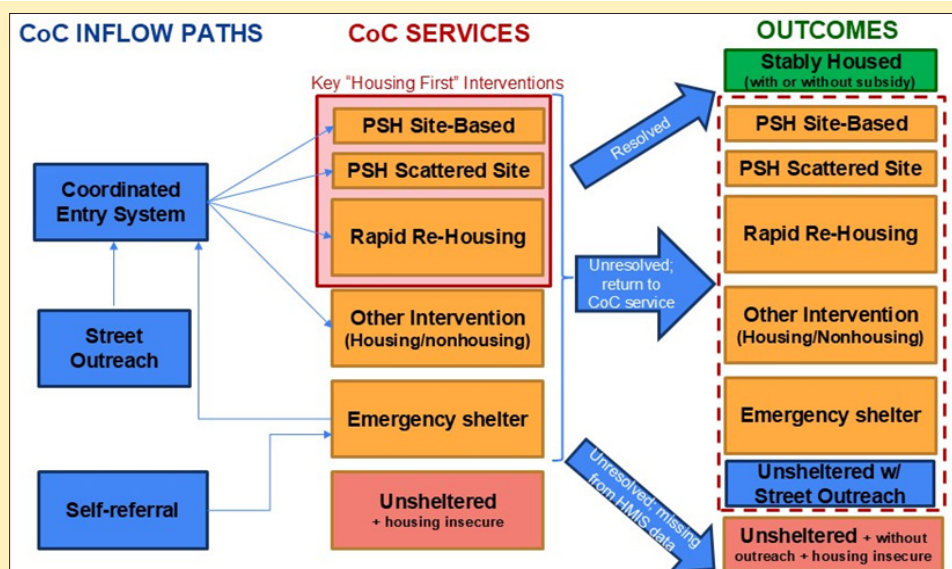
Causal Effects of Housing First Interventions

A robust body of evidence suggests that Housing First (HF) interventions are more effective than non-HF interventions at reducing spells of homelessness among adults, writ large. Evaluations of HF programs across diverse locales show consistent, positive effects relative to control groups or non-HF models. For example, in several studies where HF and non-HF interventions were randomly assigned across participants, HF recipients exit homelessness faster than those in the control category (Aubry et al., 2019, Montgomery et al., 2013, Tsemberis et al. 2004). This work also shows that HF recipients spend more time stably housed than comparable non-HF recipients, overall.

In addition to accelerating exits from homelessness and supporting housing stability, HF interventions have positive spillover effects for households, relative to non-HF interventions. For instance, children living in HF homes churned through fewer schools and displayed fewer behavioral problems than children living in non-HF homes (Gubits et al., 2018). Receiving a long-term, HF rental subsidy reduced intimate partner violence, psychological distress, and drug use and alcohol dependence among recipients. In contrast, alternative models, including short-term rental subsidies and transitional housing with mandatory services had smaller or no positive effects on housing security, overall, and notably, no statistically significant effect on drug use and alcohol dependence (Gubits et al., 2018).

Research shows that Housing First interventions accelerate exits from homelessness and encourage housing security and that these positive effects generally larger than those created by non-HF interventions. Yet relatively little research explores heterogeneous HF effects across population subgroups more broadly, or whether HF is equally effective across race/ethnicity and age, specifically. This omission is important because the population at risk of homelessness is highly, perhaps increasingly, heterogeneous along various axes, including age and race. Much as the emerging paradigm of "precision medicine" highlights the potential power of customizing treatments for health conditions across subgroups, the overall (i.e., "main") effects of Housing First interventions may obscure substantial variation.

Why Older Adults — and Black Older Adults in Particular — May Benefit Most from Housing First Approaches

Although a growing literature confirms Housing First interventions' effectiveness for the population of housing insecure individuals as a whole (Gubits et al., 2018; Woodhall-Melnik & Dunn, 2016), less research has scrutinized whether and why these programs are disproportionately effective– or ineffective– for various demographic subgroups. The studies that have pursued this line of inquiry typically examine Housing First intervention effect heterogeneity along one demographic axis, like race (Milburn et al. 2021), rather than multiple simultaneously. Intersectional dynamics are thus obscured.

Clarifying whether these programs are particularly effective or ineffective for Black older

adults is critical, given this group's growing size and acute vulnerabilities. But doing so requires first identifying the correct counterfactual condition. In the absence of PSH or RRH access, individuals experiencing homelessness may only have access to programs like emergency shelter (ES), which is a low-intensity, short-duration intervention that is nonetheless frequently used.

Heterogeneity in PSH Effectiveness

Compared to White older adults, Black older adults may disproportionately benefit from PSH versus ES: ES is particularly ineffective for individuals with prior criminal justice experiences, extensive histories of housing instability, and complex sets of needs (e.g., physical, mental disabilities) (Quirouette, 2016), each of which is particularly common among older Black adults. Moreover, PSH's intensive support services model renders it particularly effective for individuals with some of these same risk factors, especially physical and mental conditions and social isolation (Henwood et al., 2015; Padgett et al., 2020; Rog et al., 2014). Even among Black and White older adults who have similar acuity levels and past experiences, PSH may be more effective for the former group, given the uniquely formidable barriers to securing stable housing in the private housing market Black older adults face due to racial discrimination.

Alternatively, though, older adults of color also face unique exit pressures that may dampen PSH program effectiveness for these groups relative to White older adults. Analyses based on HMIS data from Los Angeles County CoC during a similar timeframe as this study suggests that Black adults, in general, are more likely to return to homelessness after entering PSH than comparable White adults. Qualitative evidence provides some hints as to why: Black adults in PSH endure strong exit pressures, including racial discrimination from staff and residents, placement into under-resourced neighborhoods, and insecure building environments (Milburn et al., 2021).

Differences across SS-PSH and PB-PSH interventions could also explain differences in overall PSH program effectiveness for Black and White older adults. Qualitative research suggests that residents strongly prefer scattered-site placements, which they perceive as more independent and less stigmatized (Padwa et al., 2024). In some contexts, White residents are also disproportionately sorted in scattered-site interventions, as they face less discriminatory treatment from landlords and program staff during the placement process (Henwood et al., 2024). Although PB-PSH and SS-PSH are both designed to espouse Housing First principles and offer extensive services that fit clients' needs, some research suggests that, in practice, SS-PSH programs may offer fewer services, and have less contact between residents and staff (Padwa et al., 2024). If White residents are able to enact their preferences for SS-PSH more easily than are Black older adults, but the SS-PSH programs they access do not fully address their needs (e.g., due to fewer services, less consistent contact between residents and staff), then White older adults may see more attenuated PSH-associated risk reduction benefits, on average, compared to Black older adults.

Heterogeneity in RRH Effectiveness

Black older adults may also see disproportionate benefits from RRH versus ES compared to

White older adults. As noted above, Black older adults at risk of homelessness may face uniquely formidable barriers to securing stable housing in the private housing market. Thus, they may be more likely to need both the financial support and housing market services RRH provides. This subpopulation exhibits elevated rates of prior criminal justice contact or eviction proceeding (Graetz et al., 2023; Pettit & Western, 2004). Extensive research suggests some landlords use these records as a pretext to reject prospective tenants; others discriminate on the basis of race or age, regardless of criminal justice and housing histories, despite fair housing laws (Gaddis & DiRago, 2023).

In sum, we expect Housing First interventions to be significantly more effective in reducing the risk of experiencing repeated episodes of homelessness relative to the emergency shelter counterfactual for Black older adults compared to White ones, owing to differences in individual-level vulnerabilities that RRH and PSH are specifically designed to address.

However, despite these potentially amplified benefits, evidence suggests Black adults in general — and Black older adults in particular — may have a diminished chance of accessing them. This disparity in access could reflect key features of the PSH and RRH assignment process employed by some CoCs' Coordinated Entry systems. For example, the common risk assessment tool used to prioritize individuals for Housing First interventions, known as VI-SPDAT (mentioned above), has been shown to systematically rate White individuals as higher risk and therefore higher priority for scarce Housing First slots (Cronley, 2022). It is also possible that even among the subset of individuals who are successfully referred to these slots, there are racial gaps in the quality of PSH and RRH programs they access.

RESEARCH QUESTIONS AND HYPOTHESES

PSH may be particularly effective in reducing this risk relative to the ES alternative among the older Black adult subpopulation, given their higher rates of vulnerabilities that these Housing First interventions are specifically designed to address. These vulnerabilities include health disabilities and increased number of prior homelessness episodes, prompted by cumulative disadvantages, including criminal justice contact, labor market disconnection, and eviction. In contrast, ES has proven particularly ineffective in addressing complex needs.

Based on our reading of the research literature, synthesized above, we identify the following key research questions, and propose associated hypotheses for empirical testing:

1. How does the risk of experiencing repeated episodes of homelessness vary between:

    i.   Older (i.e., age 55+) and younger adults overall?
    ii. Older versus younger adults of color?
    iii. Black, Latino, Asian, and White older adults?

    H1: Compared to other age-race subgroups, older Black adults may exhibit elevated risk of repeatedly returning to homelessness services, reflecting the cumulative disadvantages they have faced across key social institutions and throughout the life course.

2. How does the effectiveness of Housing First programs (e.g., Permanent Supportive Housing, Rapid Re-Housing), in reducing the risk of repeated episodes of homelessness, when benchmarked against Emergency Shelter, vary between:

    i. Older (i.e., age 55+) and younger adults overall?
    ii. Older versus younger adults of color?
    iii. Black, Latino, Asian, and White older adults

    H2: PSH and RRH may both be particularly effective in reducing homelessness risk relative to the ES alternative among the older Black adult subpopulation. PSH may be particularly effective for Black older adults given their higher rates of vulnerabilities that the intensive PSH service model is specifically designed to address, including health disabilities and increased number of prior homelessness episodes. Another potential explanation is that Black older adults face particularly acute challenges navigating the private housing market owing to various forms of disadvantage and discrimination. These difficulties navigating the private housing market may also explain why the services RRH provides are particularly impactful for Black older adults, compared to White older adults.

3. Do the housing programs that emerge as effective for specific subgroups based on RQs 1 & 2 exert plausibly causal effects on repeated episodes of homelessness among older adults of various racial backgrounds?

    H3: Even after adjusting for myriad age-race subgroup differences in individual-level vulnerabilities and past homelessness experiences, as well as in difficult to observe characteristics that could confound the estimated effectiveness of RRH and PSH, both interventions emerge as highly effective in reducing housing precarity — particularly for older Black adults, who are at highest risk.

4. If specific housing programs appear to confer causal benefits for older adults of specific racial groups (vis-a-vis repeated episodes of homelessness), how does the estimated size of this benefit compare to the causal effect of turning 65 and qualifying for Medicare/Social Security for each racial group?

    H4: Qualifying for Medicare/Social Security meaningfully reduces the risk of returning to homelessness services, but their effects are not as large as — and do not vary across race/ethnic groups as much as — RRH and PSH are expected to: social safety net services do not directly address key sources of discrimination in the housing market.

QUANTITATIVE ANALYSES

The Dataset and Empirical Case

Answering the questions and testing the hypotheses above imposes a strict set of data requirements that few prior studies meet. First, quantifying the risk of experiencing repeated episodes of homelessness requires longitudinal data tracking individuals over long periods of time. Second, these longitudinal risk profiles must have sufficient coverage across age and race/ethnic groups so that valid inferences regarding the size and sources of group-based disparities can be drawn. Third, individuals of various age and race/ethnic backgrounds and their risk of experiencing repeated episodes of homelessness must be linked to the specific housing intervention types they experience.

We use the Research Accelerator dataset (a de-identified extract of Homelessness Management Information System data), which tracks nearly all individuals interfacing with Los Angeles County's Continuum of Care from 2010 through 2023, and fulfills the requirements listed above. Los Angeles County is a strategic case insofar as it is widely perceived to be on the front lines of America's homelessness surge, due in part to its high levels of poverty, inequality, and housing costs (Colburn & Aldern 2022). The county is also exceptionally large and diverse; its homeless population reflects this pattern, so our data permit valid estimates of age and race-stratified risk and of heterogeneous program effects by age, race, and age-race combinations. Moreover, Los Angeles is home to a large, ever-expanding set of Housing First programs.

As we describe in more detail below, Research Accelerator data include variables capturing myriad factors beyond our focal age and race predictors. For example, veteran status, disability/addiction, relationship and status/household structure are all tracked. These variables enable us to not only descriptively estimate age-race group differences in risk and program effectiveness, but to adjust for potential confounding factors that could explain the patterns.

Creating an Analytic Sample Using HMIS Data

Our approach to specifying an analytic sample is visually laid out in Figure 2 and is described in more detail below. We begin with all HMIS-reported L.A. County CoC service contacts tracked within the Research Accelerator dataset that started between 2013 and 2019 — a total of 541,831 service contacts. We start with 2013 because prior research suggests there were major data entry lapses among the county's CoC service providers in earlier years, and HMIS data are derived directly from CoC service providers' data entry (i.e., service providers input the date of service entry and, if applicable, exit) (Meyer et al., 2023). We stop at 2019 due to concerns that the COVID-19 pandemic yielded substantial changes to CoC data entry quality and CoC service characteristics, including screening criteria and duration of services provided (e.g., eviction moratoria may have prolonged the length of rapid rehousing interventions).

Figure 2. Overview of Analytic Sample Specification for Main Analyses

Starting criteria/age	Confirmed service type	Non-high frequency churn	Mortality cases removed
• CoC service has valid entry date • Confirmed to begin in 2013-19 time period • Occurred in L.A. County **541,831 CoC service contacts nested within 279,099 unique individuals**	• CoC service type is marked as *either* Emergency Shelter, Rapid Rehousing, Permanent Supportive Housing, Transitional Housing – but not some combination thereof **360,914 CoC service contacts nested within 167,591 individuals**	• CoC service is not followed by a new CoC service contact *within 7 days* of the focal service entry date **292,864 CoC service contacts nested within 167,450 individuals**	• CoC service exit code does not indicate recipient died during the course of service **289,774 CoC service contacts nested within 166,289 individuals**
• CoC service is received by adults estimated to be age 25+ in 2013 (based on birthdate) **363,484 CoC service contacts nested within 168,340 individuals**	• CoC service's exit date (if provided) is not preceded by additional CoC service(s) that were received *after* the initial focal service entry date **313,708 CoC service contacts nested within 167,524 individuals**	• CoC service did not begin within 7 days of the end of study timeframe (12/31/19) **291,710 CoC service contacts nested within 167,056 individuals**	• CoC service contains valid exit code ***FINAL SAMPLE SIZE*** **254,061 CoC service contacts nested within 155,558 individuals**

Next, we specify the analytic sample to only include CoC services linked to individuals who were confirmed to be adults (i.e., age 25+, so transition-aged youth are excluded) at baseline (2013), leaving 363,484 service contacts nested within 168,340 adult individuals. Of these service contacts, we remove the 54,788 CoC service records in which an individual either (a) received more than one of the following service types simultaneously — emergency shelter, transitional housing, rapid rehousing, and permanent supportive housing (N=2,570) — or (b) received another CoC service that began after the focal CoC service contact entry date but before the focal service contact exit date (N=52,218). These two conditions preclude us from disentangling the effects of each specific type of service on our outcome of interest.

Importantly, of the remaining CoC service contacts, we drop the 23,279 contacts marked with entry dates indicating they began less than a week after the entry date or exit date (if applicable; whichever is later) assigned to the individual's prior CoC service in our 2013–2019 timeframe. The specification helps ensure that high-frequency churning (e.g., moving into and out of a given emergency shelter during the course of a week) does not bias the results. Following a similar logic, we also drop the 1,153 service contacts containing a CoC service entry date within a week of the end of our study period (December 31, 2019).

Finally, to mitigate the possibility of mortality-induced attrition biasing our results, we remove 1,915 of our remaining CoC service records that were marked in HMIS as ending with the death of the service recipient, as well as 28,288 service records where the post-service destination (e.g., unsheltered homelessness, institutional setting) was marked missing. The effect of the former set of service spells on our core outcome of interest — the probability of an individual returning to CoC services — can, of course, not be determined. The missing values for the latter set of service spells raises the possibility that the individual may have died during the course of service, as well.

With these CoC service contacts removed, our final analytic sample includes 254,061 CoC service "spells" nested within 155,558 unique adults. Figure 3 below reveals the distribution in the number of distinct CoC spells within our analytic sample, stratified across four key age groups based on individuals' estimated age at baseline (i.e., year 2013): younger adult (age 25–44); middle-aged adult (45–54); older adult (55–64); and retirement-age adult (65+).

Note that in robustness checks, described in more detail in the "Supplementary Quantitative Analyses" section below, we respecify the sample to lift many restrictions listed above. For example, we include all services received by adults who were age 25+ *at the time of service entry* rather than at the 2013 baseline. For a subset of those analyses, we extend the timeframe beyond 2019 to include all CoC services that began between 2013 and 2023.

Figure 3. Proportion of individuals with a given number of distinct CoC service contacts (2013–2019) in analytic sample, by age stratum
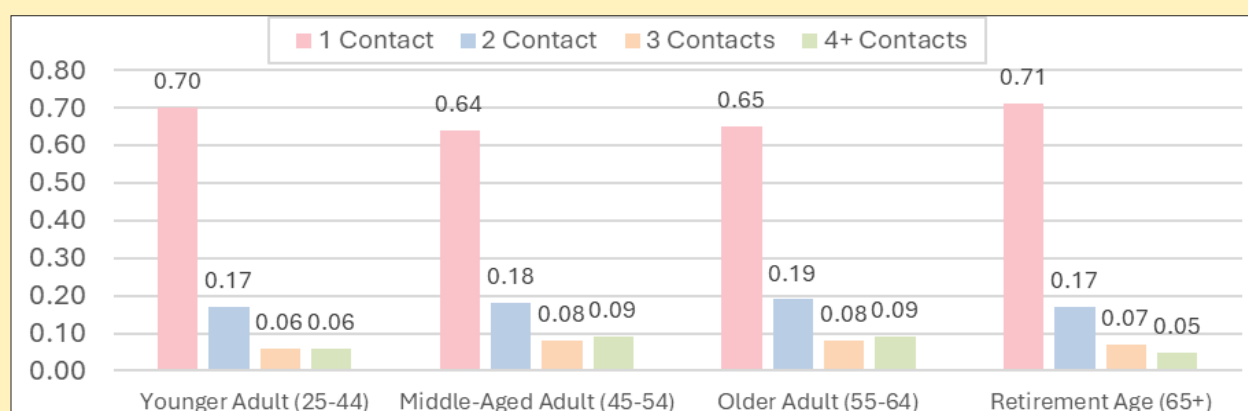
Notes: [1] Age is estimated based on difference between birth year and 2013.

Outcome Variable

Following Milburn et al., (2021), which uses the same HMIS dataset as we do, our primary outcome of interest is a proxy for the risk of returning to homelessness services, operationalized as a binary indicator of whether a given individual CoC service recipient returned for an additional CoC service, of any type, after the focal CoC service spell and before the end of 2019. This outcome assumes that a given service spell prevented an individual from returning to homelessness services (and is marked as "0") if the said spell: (a) ends with the recipient "exiting" service and no subsequent CoC service spell occurs before December 31, 2019 or (b) is never marked as ending and the HMIS contains no additional CoC service for the individual between the service entry date and December 31, 2019.

This outcome comes with some nontrivial limitations, insofar as the risk of returning to homelessness services may not perfectly overlap with the risk of returning to homelessness in general. For example, some individuals marked as non-returns in our dataset may have returned to unsheltered homelessness and were not contacted by street outreach; others may have relocated

to other CoCs. Both types of returns to homelessness would not show up in our data. These concerns are partially allayed because locating to other CoCs is less likely in L.A County given its expansiveness and because individuals that return to unsheltered homelessness may be contacted by street outreach. These contacts are marked in our HMIS data, though our data cannot solidify what proportion of the total unsheltered population in Los Angeles was contacted by street outreach in a given year.

Moreover, we believe our outcome operationalization is preferable to other options available in the data. Although using service provider-coded exit destination codes that specify where exiting individuals ended up post-service may seem preferable, a sizable body of research suggests that service providers do not consistently and accurately input this information into the HMIS database (see Meyer et al., 2023). Our outcome variable sidesteps these concerns because it is not reliant on service providers accurately entering exit destination information or dates,hough we do use the destination codes for robustness checks, described below.

Key Stratifying and Predictor Variables

Reflecting our intersectional lens, we stratify our analyses by age and race/ethnic identity of CoC service recipients. For age, we divide the sample of adults who have experienced homelessness into four categories, based on individuals' estimated age at baseline (i.e., year 2013), using their HMIS-entered birthdates: *younger adult (age 25–44)*; *middle-aged adult (45–54)*; *older adult (55–64)*; and *retirement-age adult (65+)*. For race/ethnicity, we use HMIS-provided identifiers: non-Hispanic *White* (reference group), *Hispanic*, *Black*, *Asian/Pacific Islander*, *Native American*, and *Multiracial/Other*. The latter four groups only include non-Hispanic individuals.

Our key predictors of returning to homelessness services are binary variables indicating whether the individual received one of the following CoC service types during a given service spell: *permanent supportive housing* (PSH); *rapid rehousing* (RRH); *other housing* (OTH-H: Transitional housing; Permanent housing: housing only; Permanent housing: with services but no disability required); *other non-housing interventions* (OTH-N: Coordinated entry; Homelessness prevention; Services only; Street outreach; Other). The reference/counterfactual group includes all individuals who received *Emergency Shelter* (ES). CoC service spells that entailed receiving PSH, RRH, OTH-H, or ES in combination with a service in the OTH-N category were marked as receiving PSH, RRH, OTH-H, or ES. In our supplementary analyses (see Supplementary Quantitative Analyses below), we separate out the OTH-H grouping of interventions, creating an indicator for Transitional Housing (TH) programs and an indicator for Permanent Housing (PH) programs (i.e., Permanent housing: housing only; Permanent housing: with services but not disability required).

Control Variables

For all multivariate models, we include an extensive slate of control variables. Fixed effects capture individuals' *first year of CoC service* within our timeframe of interest (2014–2019, ref: 2013) and the focal CoC service spell's HMIS-provided *entry date year*, *entry date month*, and

entry date year-month combination. We also adjust for continuous *age* (estimated as of 2013, based on birth year) and *age-squared* and include binary control variables capturing individuals' *gender identity* (female, transgender/nonbinary/other, ref: male) and *household structure* (i.e., whether the individual's HMIS record indicates she shares a household with another individual).

We include a rich set of additional explanatory variables to assess whether individual-level vulnerabilities and past experiences — which together proxy the severity of individuals' risk/acuity — could explain why certain interventions are particularly effective in reducing the risk of returning to homelessness services for certain race/age subgroups. Binary variables capturing vulnerabilities indicate whether the individual is an armed forces *veteran* (versus veteran status-unknown or ref: non-veteran). Dichotomous variables also indicate whether the individual is marked in HMIS data as having each of the following conditions: *physical disability*, *developmental disability*, *chronic disability*, *HIV/AIDS*, *mental disability*, or *substance abuse*.

We adjust for clients' prior experiences by capturing the *number of distinct CoC service spells between 2013 and 2019 that precede the focal CoC service* for a given individual; we also include the square term of this variable to model nonlinearities. Binary indicator variables capture the *number of times the individual has been reported to be homeless in the three years* preceding the focal CoC service entry date: once, twice, three times, four or more times, or an unknown number (ref: not applicable/no times).

Analytic Strategy

Our analytic strategy entails first descriptively comparing how the risk of receiving another CoC service between 2013 and 2019 after receiving a prior service varies between adults of various race/ethnic groups in our sample, within each of our four age categories. Next, we run linear probability models (LPMs), using ordinary least squares (OLS), that predict this risk in a multivariate framework.

For our multivariate analyses, we opt for LPMs over event history models for two key reasons. First, the substantive interpretation of coefficients generated by LPM models is much more straightforward and intuitive than is the interpretation of hazard ratios generated by event history models; effect magnitudes can be compared across stratified models for the former but not for the latter, and most of our models below are age-stratified. Second, our core parameters of interest (described below) are interaction terms, which present inference challenges when using nonlinear model specifications. An emerging consensus suggests interaction terms' magnitude and standard errors estimated from nonlinear models are not readily interpretable the way interactions from linear models are (Long & Mustillo, 2018; Mize, 2019; Mustillo et al., 2018). However, in robustness checks, we replicate key model specifications below using the event history model framework; the core findings remain substantively unchanged.

The first sets of LPMs gauge age-based heterogeneity in the effect of receiving Housing First CoC services (i.e., PSH, RRH) versus emergency shelter/ES on the risk of returning to homelessness services:

(Equation 1)
$$(\text{Received Additional CoC Service After Focal CoC Service})_{ij} = \beta_0 + \beta_1(\text{PSH})_{ij} + \beta_2(\text{RRH})_{ij} + \beta_3(\text{OTH-H})_{ij} + \beta_4(\text{OTH-N})_{ij} + \beta_5(\text{Age 45–54})_j + \beta_6(55–64)_j + \beta_7(65+)_j + \dots + e_{ij}$$

The binary outcome, which proxies whether individual j returns to homelessness services after prior CoC service spell *I*, is predicted as a function of: the type of CoC intervention received and age bracket, as well as the individual's continuous age in 2013 and age-squared and fixed effects capturing CoC service entry timing. Our inclusion of continuous age and age-squared controls, in addition to age brackets, reflects concerns that our four age brackets are sufficiently large that other predictors' effects may be confounded by age gaps within the stratum and that intra-stratum age differences may exhibit a nonlinear relationship to our outcome.

It is important to note that all of our LPMs cluster standard errors by individual, since approximately a third of individuals in our analytic sample contributed multiple CoC service spells to our analytic sample (see Figure 1 above). We replicated key model specifications using two-level hierarchical linear models (HLMs; level-1: CoC service spell; level-2: individual), which are specifically designed for nested data like ours and adjust standard errors accordingly. HLM results, reported below, are virtually indistinguishable from those generated by our LPMs with clustered standard errors.

Subsequent models include interactions between the CoC service type and age bracket fixed effects (twelve total). These interaction terms' coefficients are the focal parameters of interest, capturing how much stronger or weaker the effects of receiving PSH and RRH are on the probability of returning to homelessness services (versus receiving ES), for older adults relative to younger adults (age 25–44).

After assessing age-based heterogeneity in PSH and RRH effectiveness, using Equation 1, we stratify the sample across our four age groups (25–44; 45–54; 55–64; 65+) to assess whether there is also evidence racial heterogeneity in these programs' effectiveness within each age bracket. We use the following model across age brackets to do so:

(Equation 2)
$$(\text{Received Additional CoC Service After Focal CoC Service})_{ij} = \beta_0 + \beta_1(\text{PSH})_{ij} + \beta_2(\text{RRH})_{ij} + \beta_3(\text{OTH-H})_{ij} + \beta_4(\text{OTH-N})_{ij} + \beta_5(\text{PSH})_{ij}X(\text{Black})_j + \beta_6(\text{RRH})_{ij}X(\text{Black})_j + \beta_7(\text{OTH-H})_{ij}X(\text{Black})_j + \beta_8(\text{OTH-N})_{ij}X(\text{Black})_j + \dots + e_{ij}$$

Interactions between the binary indicators for each service type and all other race/ethnic groups (ref: non-Hispanic White) are also included in the model, but the focal parameters of interest for these four sets of age-stratified models are β_5 and β_6, which capture how much larger, or smaller, the estimated risk reduction effects of PSH and RRH are for Black adults compared

to White adults of a similar age. We expect these coefficients to be significant and negative, suggesting Black adults see larger Housing First-associated risk reductions relative to the emergency shelter counterfactual than do White adults.

If they are, we will run additional models that bring in the individual-level vulnerability and past experience variables described above and interact these variables with the focal CoC service type indicator variables. Attenuation in the Black-PSH or Black-RRH interaction coefficients would suggest that racial differences in individuals' risk profiles may partially explain why RRH and PSH are particularly effective for Black versus White older adults.

Results: Quantitative

Age-race disparities in risk of repeated returns to homelessness

Across our full analytic sample, return to homelessness services risk exhibits a nonlinear age gradient, with middle-aged and older adults not yet of retirement age exhibiting the highest risk. Within these two groups, 45% of service spells that started during the 2013–2019 period were followed by a subsequent CoC service by the end of 2019. For younger adults and retirement-age adults, the equivalent estimates are 38% and 37%, respectively.

Consistent with prior studies, the top row of Table 1 (below) suggests that, congruent with prior studies, Black individuals (whose CoC service contacts constitute 42% of the full analytic sample and nearly half — 47% — of contacts within the age 55+ stratum) are more likely to return to homelessness services than are White ones (whose contacts constitute 23% of the overall sample and 26% of the age 55+ stratum). Black adults within each age category exhibit a 6–9pp elevated risk of post-CoC service return for additional services compared to White individuals. The Black-White gap in risk grows across the age distribution; it is smallest among young adults and nearly doubles among retirement-age adults.

Hispanic adults' CoC service contacts make up 27% of our full analytic but less than 20% of the older adult (age 55+) component of it. But perhaps surprisingly, Hispanic adults' risk of returning to CoC services closely mirrors that of Whites within each of our four age strata (see Figure 4 below). However, this risk estimate may be dampened due to Hispanics' higher rates of undocumented status and lower rates of institutional trust. These factors may lead Hispanic individuals to disproportionately opt for unsheltered homelessness and avoid CoC touchpoints, including street outreach (Aiken et al., 2021).

Other race/ethnic groups constitute much smaller portions of our overall sample. CoC service contacts attributed to Asian-American/Pacific Islanders make up less than 2% of the overall sample and of the older adult component of it (age 55+), though among the oldest/retirement-age (65+) subgroup that percentage increases to 3%. The unadjusted data in Figure 2 suggest that across age strata, this race/ethnic group closely resembles Whites and Hispanics when it comes to the risk of returning to homelessness.

The story is strikingly different for Native Americans who make up less than 1% of the overall

and older adult sample (age 55+). Their unadjusted risk of returning to CoC services is elevated across age strata; for the age 45–54 and 55–64 strata, this risk is even higher than it is for Black Angelenos. On the other end of the spectrum are Multiracial/Other individuals, who exhibit the lowest unadjusted risk of returning to services across age strata. They make up 4–5% of our overall sample and of the age 55+ subsample.

The upshot from these descriptive analyses is that, given the sheer size of the older Black adult subpopulation — and their disproportionate vulnerability to returning to CoC services — it is particularly important critical to clarify what interventions serve them most effectively.

Figure 4. Unadjusted Probability of Returning for Additional L.A. County Continuum of Care Service by Age and Race/Ethnicity (2013–2019).
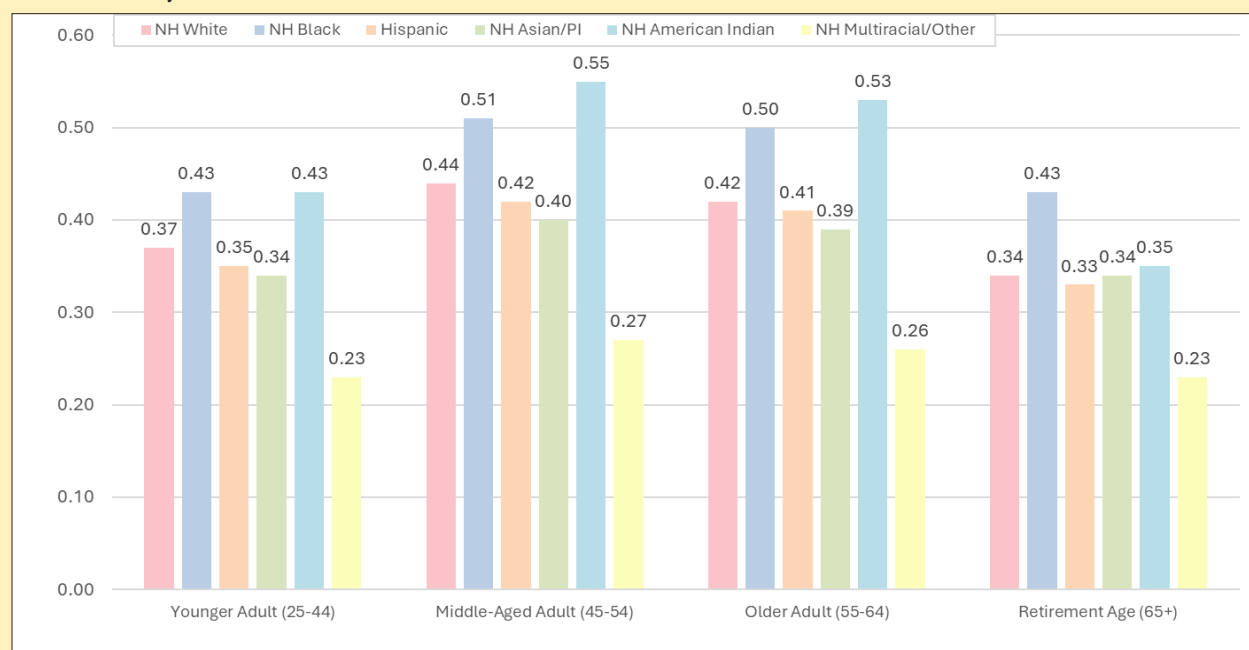
Notes: [1] Age is estimated based on difference between birth year and 2013.

Table 1. Descriptive Statistics for Los Angeles County Continuum of Care Services Received by Adults in 2013-2019

Age group (2013)	All Ages	Younger Adult (25-44)		Middle-Aged Adult (45-54)		Older Adult (55-64)		Retirement Age (65+)	
Race/ethnicity	All Races	NH White	NH Black	NH White	NH Black	NH White	NH Black	NH White	NH Black
Returned for additional CoC service	0.41 (0.49)	0.37 (0.48)	0.43 (0.49)	0.44 (0.50)	0.51 (0.50)	0.42 (0.49)	0.50 (0.50)	0.34 (0.47)	0.43 (0.50)
Focal CoC service: type of service received									
ES:Emergency shelter	0.38 (0.49)	0.36 (0.48)	0.40 (0.49)	0.37 (0.48)	0.43 (0.49)	0.39 (0.49)	0.42 (0.49)	0.40 (0.49)	0.43 (0.49)
PSH: Permanent supportive housing	0.02 (0.14)	0.01 (0.12)	0.02 (0.14)	0.02 (0.14)	0.03 (0.16)	0.02 (0.15)	0.03 (0.16)	0.02 (0.12)	0.02 (0.14)
RRH: Rapid rehousing	0.10 (0.30)	0.07 (0.26)	0.14 (0.35)	0.06 (0.24)	0.09 (0.29)	0.09 (0.28)	0.11 (0.31)	0.12 (0.33)	0.13 (0.33)
OTH-H:Other, housing	0.04 (0.19)	0.04 (0.21)	0.03 (0.17)	0.04 (0.20)	0.04 (0.20)	0.06 (0.23)	0.05 (0.22)	0.06 (0.23)	0.06 (0.23)
OTH-N:Other, non-housing	0.46 (0.50)	0.52 (0.50)	0.41 (0.49)	0.50 (0.50)	0.41 (0.49)	0.44 (0.50)	0.39 (0.49)	0.40 (0.49)	0.37 (0.48)
Client gender/household structure									
Gender: Man	0.63 (0.48)	0.64 (0.48)	0.55 (0.50)	0.67 (0.47)	0.66 (0.47)	0.72 (0.45)	0.75 (0.43)	0.72 (0.45)	0.76 (0.43)
Gender: Woman	0.35 (0.48)	0.35 (0.48)	0.44 (0.50)	0.32 (0.47)	0.33 (0.47)	0.27 (0.45)	0.25 (0.43)	0.28 (0.45)	0.24 (0.43)
Gender: Trans/Other	0.01 (0.07)	0.01 (0.08)	0.01 (0.09)	0.00 (0.06)	0.00 (0.06)	0.00 (0.04)	0.00 (0.04)	0.00 (0.05)	0.00 (0.00)
Gender: Unknown	0.02 (0.14)	0.00 (0.03)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.03)	0.00 (0.02)	0.00 (0.02)	0.00 (0.00)
2+ person household	0.10 (0.30)	0.07 (0.26)	0.17 (0.38)	0.03 (0.17)	0.05 (0.22)	0.03 (0.16)	0.03 (0.17)	0.03 (0.18)	0.04 (0.21)
Client vulnerabilities and prior experiences									
Veteran	0.13 (0.34)	0.11 (0.32)	0.08 (0.28)	0.16 (0.37)	0.16 (0.36)	0.27 (0.44)	0.28 (0.45)	0.40 (0.49)	0.36 (0.48)
Non-veteran	0.82 (0.39)	0.84 (0.37)	0.89 (0.31)	0.80 (0.40)	0.82 (0.38)	0.70 (0.46)	0.70 (0.46)	0.58 (0.49)	0.62 (0.49)
Vet status unknown	0.05 (0.22)	0.05 (0.21)	0.03 (0.16)	0.03 (0.18)	0.02 (0.15)	0.03 (0.17)	0.02 (0.13)	0.02 (0.16)	0.02 (0.14)
Disabilities									
Physical	0.24 (0.43)	0.17 (0.38)	0.16 (0.37)	0.32 (0.46)	0.31 (0.46)	0.39 (0.49)	0.41 (0.49)	0.44 (0.50)	0.45 (0.50)
Developmental	0.09 (0.28)	0.12 (0.32)	0.10 (0.30)	0.10 (0.30)	0.10 (0.30)	0.08 (0.27)	0.09 (0.28)	0.05 (0.22)	0.05 (0.21)
Chronic	0.23 (0.42)	0.18 (0.39)	0.17 (0.38)	0.29 (0.45)	0.28 (0.45)	0.36 (0.48)	0.36 (0.48)	0.38 (0.49)	0.39 (0.49)
HIV/AIDS	0.02 (0.14)	0.02 (0.15)	0.03 (0.16)	0.02 (0.15)	0.03 (0.16)	0.01 (0.11)	0.02 (0.14)	0.01 (0.11)	0.01 (0.10)
Mental	0.31 (0.46)	0.34 (0.47)	0.32 (0.47)	0.36 (0.48)	0.37 (0.48)	0.33 (0.47)	0.34 (0.47)	0.23 (0.42)	0.22 (0.41)
Substance abuse	0.05 (0.21)	0.05 (0.21)	0.03 (0.17)	0.07 (0.26)	0.05 (0.21)	0.09 (0.29)	0.05 (0.22)	0.05 (0.22)	0.04 (0.19)
# prior CoC services	1.80 (1.42)	1.68 (1.25)	1.82 (1.44)	1.84 (1.39)	2.10 (1.71)	1.78 (1.37)	2.08 (1.68)	1.56 (1.09)	1.87 (1.53)
Times homeless in prior 3 years									
N/A (none)	0.15 (0.35)	0.16 (0.37)	0.15 (0.35)	0.15 (0.35)	0.13 (0.33)	0.12 (0.33)	0.12 (0.32)	0.13 (0.34)	0.11 (0.31)
Once	0.24 (0.43)	0.25 (0.43)	0.24 (0.43)	0.25 (0.44)	0.22 (0.42)	0.25 (0.43)	0.21 (0.41)	0.29 (0.45)	0.22 (0.41)
Twice	0.09 (0.28)	0.08 (0.27)	0.10 (0.30)	0.08 (0.27)	0.09 (0.28)	0.08 (0.27)	0.09 (0.28)	0.06 (0.24)	0.08 (0.28)
Three times	0.05 (0.21)	0.05 (0.21)	0.05 (0.23)	0.04 (0.19)	0.05 (0.22)	0.04 (0.20)	0.05 (0.22)	0.04 (0.19)	0.05 (0.22)
Four or more times	0.14 (0.35)	0.14 (0.35)	0.15 (0.35)	0.16 (0.36)	0.17 (0.37)	0.15 (0.35)	0.15 (0.36)	0.11 (0.32)	0.13 (0.33)
Unknown	0.35 (0.48)	0.33 (0.47)	0.32 (0.47)	0.34 (0.47)	0.36 (0.48)	0.37 (0.48)	0.39 (0.49)	0.38 (0.48)	0.42 (0.49)
Person *N*	155,558	17,368	29,319	11,257	17,662	6,586	11,093	1,942	2,445
Service *N*	254,061	26,767	48,760	19,233	33,618	10,785	20,934	2,830	4,131

Notes [1] Analytic sample individuals' age is estimated in the year 2013, based on their year of birth. [2] NH White and NH Black stand for Non-Hispanic White and Non-Hispanic Black. [3] Type of CoC service-Other, housing (OTH-H) includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing: with services but no disability required. [4] Type of CoC service-Other, non-housing (OTH-N) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other.

Identifying interventions that reduce risk overall — and specifically for older adults of color

Before reporting our multivariate model results, we first descriptively assess whether individuals of any age or race who receive PSH or RRH exhibit a lower likelihood of returning for CoC services compared to those in ES. The unadjusted patterns (see Table 2 below) are aligned with the large literature establishing that Housing First interventions are much more effective than ES in preventing repeated homelessness episodes (Gubits et al., 2018).

For the full analytic sample, receiving Housing First interventions like PSH and RRH predict a ~20pp reduction in the risk of returning to CoC services relative to receiving ES. Congruent with Milburn et al., (2021), Table 2A suggests that among PSH recipients, Black adults exhibit elevated risk of subsequently returning to CoC service relative to White adults. However, when this risk is benchmarked against same-race adults in ES, the unadjusted PSH-associated drop is steeper for Black than White adults in both absolute terms (17pp vs. 12pp) and in relative terms (30% vs. 26%). Stratifying by age (Table 2B) shows that the Black versus White difference in PSH-associated drops in risk are largest within the two oldest groups — in both absolute and relative terms (55–64: 24pp vs. 16pp, 39% vs. 33%; 65+: 29pp vs. 12pp, 55% vs. 29%).

Figure 5 provides additional detail on the intervention "dosage" provided by the three focal CoC service types in this study (ES, our benchmark/counterfactual; RRH; and PSH), revealing the mean duration of CoC service contacts (in days) across each type of service. The patterns are stratified by age and by race/ethnicity to assess whether unadjusted sociodemographic differences in service duration are detectable. It is important to note that only the subset of CoC service contacts with a valid exit date are included in this figure's analysis.

The figure confirms our expectation that, across age-race subgroups, ES service contacts tend to be much shorter in duration (averaging ~50 days) compared to Housing First interventions. Of the latter, RRH services with valid exit dates in our data average ~200 days in duration across subgroups, while PSH services with valid exit dates last 800–1000+ days on average. Variation in durations by age and race within each service type is fairly modest, with no clear gradient detectable for ES. RRH duration exhibits some subtle age and race divergence, with longer durations detectable for the two younger strata compared to the two older ones. Interestingly, racial gaps in RRH duration appear to open up for the two older strata, with White older adults (age 55+) benefiting from RRH services for approximately 20–30% more days than do Black adults of similar age. PSH duration exhibits a different pattern, with Black adults receiving services longer across all age strata, on average, except for the age 55–64 group. The Black-White disparity is largest for the oldest adults: Black retirement-age adults average 200 days more (~25%) in PSH service compared to White adults of similar age.

Before shifting to our multivariate models, it is important to note that Table 1 suggests only a very small proportion of CoC service spells within our analytic sample are classified as PSH (0.02); a larger, but still modest, proportion of service spells are classified as RRH (0.10). More than a third of services are classified as ES.

Table 2. Descriptive Statistics: Probability of Returning for Additional L.A. County Continuum of Care Service by Age, Race, CoC Service Type)

A. By Race (All Ages Pooled)

Race/ethnicity	All Races	NH White	NH Black
Overall	0.41 (0.49)	0.40 (0.49)	0.47 (0.50)
Focal CoC service: type of service received			
ES: Emergency shelter	0.52 (0.50)	0.48 (0.50)	0.56 (0.50)
PSH: Permanent supportive housing	0.36 (0.48)	0.35 (0.48)	0.39 (0.49)
RRH: Rapid rehousing	0.28 (0.45)	0.27 (0.45)	0.30 (0.46)
OTH-H: Other, housing	0.44 (0.50)	0.40 (0.49)	0.50 (0.50)
OTH-N: Other, non-housing	0.36 (0.48)	0.37 (0.48)	0.41 (0.49)
Person *N*	155,558	37,153	60,519
Service *N*	254,061	59,615	107,443

B. By Race and Age

Age group (2013)	Younger Adult (25-44)		Middle-Aged Adult (45-54)		Older Adult (55-64)		Retirement Age (65+)	
Race/ethnicity	NH White	NH Black	NH White	NH Black	NH White	NH Black	NH White	NH Black
Overall	0.37 (0.48)	0.43 (0.49)	0.44 (0.50)	0.51 (0.50)	0.42 (0.49)	0.50 (0.50)	0.34 (0.47)	0.43 (0.50)
Focal CoC service: type of service received								
ES	0.45 (0.50)	0.52 (0.50)	0.52 (0.50)	0.60 (0.49)	0.49 (0.50)	0.61 (0.49)	0.42 (0.49)	0.53 (0.50)
PSH	0.31 (0.46)	0.40 (0.49)	0.40 (0.49)	0.41 (0.49)	0.33 (0.47)	0.37 (0.48)	0.30 (0.46)	0.24 (0.43)
RRH	0.26 (0.44)	0.29 (0.45)	0.32 (0.47)	0.32 (0.47)	0.26 (0.44)	0.31 (0.46)	0.21 (0.41)	0.26 (0.44)
OTH-H	0.35 (0.48)	0.48 (0.50)	0.48 (0.50)	0.51 (0.50)	0.40 (0.49)	0.52 (0.50)	0.34 (0.47)	0.43 (0.50)
OTH-N	0.34 (0.47)	0.38 (0.48)	0.40 (0.49)	0.45 (0.50)	0.39 (0.49)	0.44 (0.50)	0.30 (0.46)	0.39 (0.49)
Person *N*	17,368	29,319	11,257	17,662	6,586	11,093	1,942	2,445
Service *N*	26,767	48,760	19,233	33,618	10,785	20,934	2,830	4,131

Figure 5. Unadjusted mean amount of time (in days) actively receiving the service, by intervention type, age of individual at baseline, and race/ethnicity of individual (2013–2019).
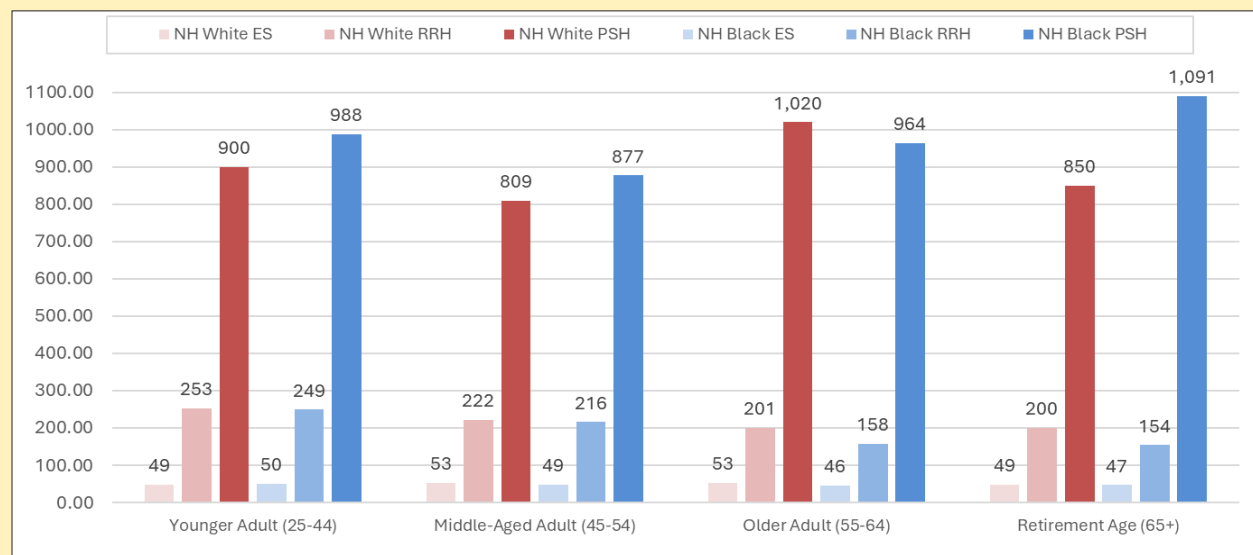
Notes: [1] Age is estimated based on difference between birth year and 2013. [2] Only CoC services with exit dates are included in analysis.

Multivariate Models: Age Heterogeneity

Next, we specify multivariate models predicting whether a given CoC service spell was followed by a subsequent return to additional CoC services. Our first LPM (Table 3 below; Model 1) pools service spell observations from all age groups together and captures racial differences in the probability of returning to CoC service, with a small set of controls included. Congruent with the descriptive patterns reported above, when comparing adults (age 25+) of all ages, Black individuals exhibit a considerably higher likelihood (3pp) of returning to homelessness services post-CoC service compared to White ones.

Black disadvantage remains detectable when age, gender, and household structure control variables are included (Model 2). This model also confirms the nonlinear relationship between age and risk: middle-age (45–54) and older adults (55–64) are each 2pp more likely to return to homelessness services than are younger adults (25–44), but retirement-age adults are not at significantly higher risk.

Model 3 adds binary indicator variables capturing CoC service type for the focal service spell. Prior research suggests PSH and RRH are highly effective. Indeed, the coefficients on these indicator variables are both significant, negative, and large in magnitude; across the full sample, receiving RRH or PSH predicts ~20pp reduction in risk of returning to CoC services, relative to ES.

Model 4 incorporates an extensive set of variables capturing differences in individuals' vulnerabilities and prior experiences. These variables' coefficients confirm the expected elevated risk conferred by veteran status, many types of disability, and multiple prior homelessness experiences. But most important for this study's purposes, the coefficients on PSH and RRH do not meaningfully attenuate, even after controlling for these acuity proxies. Further, the Black disadvantage remains stable at 4pp. Black adults still exhibit a higher risk of returning to homelessness services, even when compared to White adults with very similar profiles.

Models 5 and 6 examine whether Housing First interventions like PSH and RRH are particularly effective in reducing risk among older versus younger adults, regardless of race/ethnic background. Indeed, they are. PSH's estimated effects increase for older age brackets, with the effect amplified by ~50% for retirement-age adults compared to otherwise-similar adults ages 25–44. RRH's estimated effects are strongest for older adults ages 55–64 but are still significantly larger for retirement-age adults compared to adults ages 25–44. This pattern of age heterogeneity remains largely intact when controlling for an extensive set of controls (Model 6). Overall, these models confirm that RRH and PSH appear extremely effective across the age distribution and particularly for older adults (55+).

Table 3. Linear Probability Models (OLS) Predicting Probability of Returning for Additional L.A. County CoC Service after Receiving a CoC Service (2013-2019) CoC Service (N = 254,061, Person N = 155,558)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Race/ethnicity (ref: White; *all groups are non-Hispanic, unless noted*)						
Black	0.03** (0.00)	0.04** (0.00)	0.04** (0.00)	0.04** (0.00)	0.04** (0.00)	0.04** (0.00)
Hispanic	-0.03** (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.01* (0.00)	-0.01** (0.00)	-0.01* (0.00)
Asian/Pacific Islander	-0.04** (0.01)	-0.03** (0.01)	-0.03* (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)
Native American	0.06** (0.01)	0.06** (0.01)	0.06** (0.01)	0.05** (0.01)	0.06** (0.01)	0.05** (0.01)
Multiracial/Other	-0.17** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.01 (0.01)	-0.04** (0.01)	-0.01 (0.01)
Age Category (as of 2013; ref: 25-44)						
45-54		0.02** (0.00)	0.02** (0.00)	0.02** (0.00)	0.03** (0.01)	0.03** (0.00)
55-64		0.02** (0.01)	0.02** (0.01)	0.02** (0.01)	0.04** (0.01)	0.03** (0.01)
65+		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Focal CoC service: type of service received (ref: ES) and age-service type interactions						
PSH			-0.18** (0.00)	-0.19** (0.01)	-0.16** (0.01)	-0.13** (0.03)
RRH			-0.19** (0.01)	-0.16** (0.00)	-0.15** (0.00)	-0.07** (0.01)
OTH-H			-0.10** (0.01)	-0.08** (0.01)	-0.11** (0.01)	-0.11** (0.02)
OTH-N			-0.07** (0.00)	-0.02** (0.00)	-0.06** (0.00)	-0.04** (0.01)
PSH X 45-54					-0.04* (0.02)	-0.03+ (0.02)
PSH X 55-64					-0.07** (0.02)	-0.05* (0.02)
PSH X 65+					-0.09** (0.03)	-0.06+ (0.03)
RRH X 45-54					-0.06** (0.01)	-0.05** (0.01)
RRH X 55-64					-0.08** (0.01)	-0.07** (0.01)
RRH X 65+					-0.03* (0.02)	-0.01 (0.02)
OTH-H X 45-54					0.02 (0.01)	0.01 (0.01)
OTH-H X 55-64					0.01 (0.01)	-0.01 (0.01)
OTH-H X 65+					0.01 (0.02)	-0.01 (0.02)
OTH-N X 45-54					-0.01 (0.00)	-0.01+ (0.00)
OTH-N X 55-54					-0.01* (0.01)	-0.01* (0.01)
OTH-N X 65+					0.01 (0.01)	0.01 (0.01)
Gender and household structure						
Gender: Woman		0.02** (0.00)	0.02** (0.00)	0.02** (0.00)	0.02** (0.00)	0.02** (0.00)
Gender: Trans/Other		0.08** (0.01)	0.07** (0.01)	0.06** (0.01)	0.08** (0.01)	0.06** (0.01)
Gender: Unknown		-0.30** (0.01)	-0.29** (0.01)	-0.11** (0.01)	-0.29** (0.01)	-0.11** (0.01)
2+ person household		-0.14** (0.00)	-0.08** (0.00)	-0.06** (0.00)	-0.09** (0.00)	-0.07** (0.00)
Vulnerabilities and prior experiences (based on 2013-2019 data)						
Veteran				0.01** (0.00)		0.03** (0.00)
Vet status unknown				-0.21** (0.00)		-0.24** (0.01)
Physical disability				0.01** (0.00)		0.01** (0.00)
Developmental disability				0.01** (0.00)		0.01* (0.01)
Chronic disability				-0.01* (0.00)		-0.01+ (0.00)
HIV/AIDS				0.02** (0.01)		0.03** (0.01)
Mental disability				0.03** (0.00)		0.04** (0.00)
Substance abuse				0.00 (0.00)		-0.00 (0.01)
# prior CoC services				0.13** (0.00)		0.12** (0.00)
# prior CoC services-squared				-0.01** (0.00)		-0.01** (0.00)
Times homeless in prior 3 years (ref: none, N/A)						
Once				0.06** (0.00)		0.05** (0.01)
Twice				0.07** (0.00)		0.06** (0.01)
Three times				0.06** (0.00)		0.05** (0.01)
Four or more times				0.06** (0.00)		0.06** (0.01)
Unknown				0.04** (0.00)		0.06** (0.01)
Vulnerabilities/past experiences X service type interactions						X

Notes [1] Type of CoC service-PSH: Permanent supportive housing; RRH: Rapid rehousing; OTH-H includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing w/ services no disability required. OTH-N includes: Coordinated entry; Services Only; Homelessness Prevention; Street Outreach; Other. [2] All models include fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, service entry date month, service entry date year-month combination. Models 2-6 control for continuous age (as of 2013) and age-squared. [3] Standard errors are clustered by person. [4] ** p <.01,* p <.05, + p <0.10 (two-tailed test).

Racial Heterogeneity in Housing First Interventions' Effectiveness

We next shift from age to racial heterogeneity in PSH and RRH effects, examining moderation patterns within the four age groups — focusing specifically on the two older ones. The models in Table 4 (see below) are stratified, accordingly (Models 1–4: younger adults, 25–44 as of 2013; Models 5–8: middle-age adults, 45–54; Models 9–12: older adults, 55–64; Models 13–16: retirement-age adults, 65+).

Starting with younger adults (25–44), Model 1 reconfirms that RRH and PSH both exert large, negative effects (15–16pp) on the probability of returning to CoC services. Net of service type, Black younger adults still exhibit a 4pp increased risk of returning to CoC services. Race and program type effects among younger adults remain largely stable when a slate of vulnerability and past experience controls are added in (Model 2). The Black-RRH interaction is significant and negative in Model 3; it remains so after including interactions between vulnerability and past experience variables with each CoC service type (Model 4). Overall, RRH is estimated to generate a ~3pp larger protective effect for younger Black adults versus otherwise-similar White ones.

Across the three older sample strata, PSH and RRH also exhibit large protective main effects for each subgroup relative to the ES counterfactual; these effects are larger for the three older sample strata than they are for the youngest strata. Shifting to examining racial heterogeneity in this program's effectiveness, PSH exhibits a significantly stronger protective effect among Black individuals in these three groups compared to otherwise similar White ones. Most striking, PSH exhibits a ~20pp larger protective effect when comparing Black versus White retirement-age adults.

Figure 6 reports the estimated conditional probabilities of returning to CoC services for White and Black recipients of ES, RRH, and PSH services based on age- and race-stratified models (full output available upon request) that include basic control variables. The figure confirms the amplified RRH and PSH (vs. ES) associated drops among Black versus White retirement-age adults.

Figure 6. Conditional Probability of Returning for Additional L.A. County Continuum of Care Service by Age, Race, and Intervention Type (2013–2019).

Notes: [1] Age is estimated based on difference between birth year and 2013. [2] ES stands for Emergency Shelter; PSH stands for Permanent Supportive Housing. [3] Conditional probabilities are based on age- and race-stratified models that include fixed effects for CoC service type, gender and household structure controls, as well as controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013–2019); service entry date year, service month, date year-month combination.
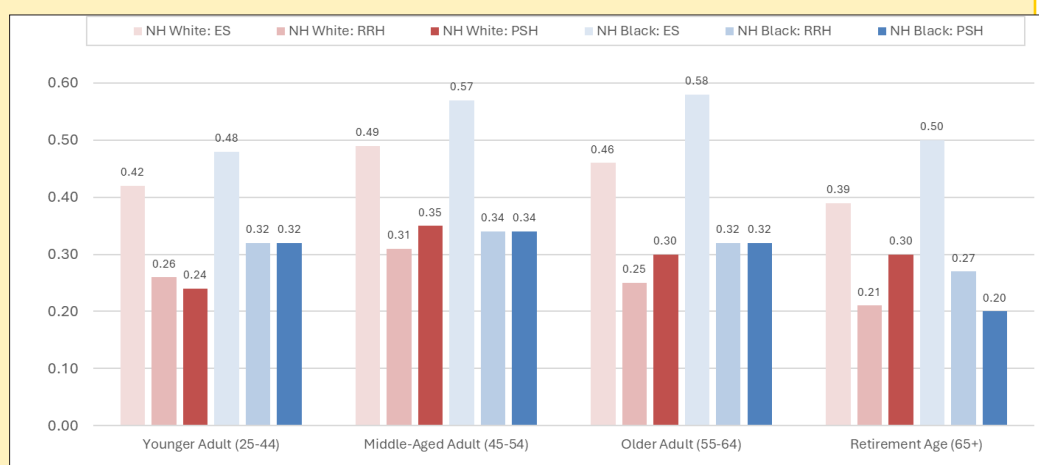
Table 4. Age-Stratified Linear Probability Models (OLS) Predicting Probability of Returning for Additional L.A. County CoC Service after Receiving a CoC Service

	Young Adult (25-44) (Service N=126,558; Person N=81,672)				**Middle-Age Adult (45-54)** (Service N=74,861; Person N=42,747)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Race/ethnicity X CoC service type interactions								
Black X PSH			-0.00 (0.03)	0.00 (0.03)			-0.09** (0.03)	-0.09** (0.03)
Black X RRH			-0.03* (0.01)	-0.03* (0.01)			-0.08** (0.02)	-0.07** (0.02)
Black X OTH-H			0.07** (0.02)	0.07** (0.02)			-0.03 (0.02)	-0.02 (0.02)
Black X OTH-N			-0.05** (0.01)	-0.06** (0.01)			-0.06** (0.01)	-0.06** (0.01)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	-0.16** (0.01)	-0.17** (0.01)	-0.17** (0.02)	-0.12** (0.05)	-0.20** (0.01)	-0.20** (0.01)	-0.14** (0.02)	-0.07 (0.05)
Rapid rehousing	-0.15** (0.00)	-0.13** (0.00)	-0.14** (0.01)	-0.04 (0.02)	-0.21** (0.01)	-0.19** (0.01)	-0.16** (0.01)	-0.09** (0.03)
Other, housing	-0.10** (0.01)	-0.08** (0.01)	-0.13** (0.01)	-0.11** (0.04)	-0.10** (0.01)	-0.09** (0.01)	-0.09** (0.02)	-0.11* (0.05)
Other, non-housing	-0.07** (0.00)	-0.02** (0.00)	-0.03** (0.01)	-0.00 (0.02)	-0.06** (0.00)	-0.02** (0.00)	-0.03** (0.01)	0.02 (0.02)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	0.04** (0.00)	0.04** (0.00)	0.06** (0.01)	0.06** (0.01)	0.03** (0.00)	0.03** (0.00)	0.07** (0.01)	0.06** (0.01)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

	Older Adult (55-64) (Service N=42,786; Person N=24,706)				**Retirement-Age Adult (65+)** (Service N=9,856; Person N=6,433)			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Race/ethnicity X CoC service type interactions								
Black X PSH			-0.09* (0.04)	-0.09** (0.04)			-0.20* (0.09)	-0.18 (0.09)
Black X RRH			-0.07** (0.02)	-0.07** (0.02)			-0.06 (0.03)	-0.05 (0.04)
Black X OTH-H			0.02 (0.03)	0.01 (0.03)			-0.00 (0.05)	-0.01 (0.05)
Black X OTH-N			-0.11** (0.01)	-0.11** (0.01)			-0.04 (0.03)	-0.04 (0.03)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	-0.22** (0.02)	-0.21** (0.02)	-0.16** (0.03)	-0.16** (0.06)	-0.23** (0.03)	-0.21** (0.03)	-0.09 (0.08)	-0.21 (0.12)
Rapid rehousing	-0.23** (0.01)	-0.21** (0.01)	-0.19** (0.02)	-0.13** (0.04)	-0.18** (0.02)	-0.16** (0.02)	-0.16** (0.03)	-0.12 (0.09)
Other, housing	-0.11** (0.01)	-0.09** (0.01)	-0.13** (0.02)	-0.26** (0.06)	-0.10** (0.02)	-0.08** (0.02)	-0.09* (0.04)	-0.16 (0.11)
Other, non-housing	-0.07** (0.01)	-0.03** (0.01)	0.00 (0.01)	-0.00 (0.03)	-0.06** (0.01)	-0.03 (0.01)	-0.02 (0.02)	-0.13 (0.07)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	0.05** (0.01)	0.04** (0.01)	0.10** (0.01)	0.10** (0.01)	0.06** (0.01)	0.06** (0.01)	0.09** (0.02)	0.09** (0.02)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

Notes [1] Analytic sample individuals' age is estimated in 2013, based on birthdate. [2] Type of CoC service-Other, housing (OTH-H) includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing: w/ services but no disability required. [3] Type of CoC service-Other, non-housing (OTH-N) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other. [4] All models control for sociodemographics, continuous age, age-squared, fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, date month, and entry date year-month combination. [6] Standard errors clustered by person. [7] ** $p < .01$, * $p < .05$ (two-tailed test).

Robustness Checks

Additional evidence supporting the enhanced effectiveness of RRH and PSH for Black older adults, particularly retirement-age adults, emerges from several sets of robustness check models. Models that include the same predictors and same age-based stratification structure as Model 4 but employ an event history model, rather than LPM or HLM, specification, reveal the same basic patterns of age and race heterogeneity in PSH and RRH effectiveness reported above; PSH and RRH appear to predict longer delays in returns to service for Black versus White adults within the three older age strata (see Table 5 below). Moreover, hierarchical linear models that predict the probability of returning to CoC service and nest CoC service spells (level-1) into individual persons (level-2) and adjust standard errors accordingly generate virtually identical results to the LPM models in Table 4 (see Table 6 below).

To probe two potential sources of bias — omitted variable and mortality-induced attrition bias — we return to our LPM specifications from Table 4's most complete models but subdivide the two older adult groups (ages 55+) into four narrower age strata — 55–60, 61–64, 65–68, 69+ — and examine the Black X RRH and Black X PSH interaction terms within each. We believe there is likely to be more balance vis-a-vis observable and unobservable characteristics across race/ethnic groups within each narrowly-specified age stratum than there is across the pooled 55+ age group.

These analyses (presented in Table 7 below) mitigate some concerns regarding mortality-induced attrition and omitted variable bias insofar as the Black X PSH and Black X RRH coefficients are consistently negative across all age-based subgroups. Moreover, there is not a clear pattern of increasing magnitude in the Black X PSH and Black X RRH negative effects as age strata increase, which would be suggestive of mortality-induced attrition.

We also run Table 7's age-stratified models with CoC service spells deemed to have resulted in the individual "exiting" to jail (based on HMIS-provided destination codes) removed, since this outcome could also bias our results much in the way mortality could. The results (not shown) are virtually identical. Taken together, these results provide additional support for our prediction that Housing First interventions, especially PSH, yield larger risk reduction benefits versus ES for older Black adults than for older White adults.

Importantly, however, the most complete models in Tables 4–7 suggest that, contrary to our proposed explanation, this heterogeneity pattern does not appear to be explained by Black versus White differences in individual-level vulnerabilities among older adults that PSH and RRH are specifically designed to address. What, then, could explain racial heterogeneity?

Table 5. Age-Stratified Event History (Proportional Cox, with Hazard Ratios) Models Predicting Risk of Returning for Los Angeles CoC Service

	Young Adult (25-44) (Service N=126,558; Person N=81,672)				Middle-Age Adult (45-54) (Service N=74,861; Person N=42,747)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Race/ethnicity X CoC service type interactions								
Black X PSH			1.05 (0.11)	1.02 (0.10)			0.76** (0.07)	0.76** (0.07)
Black X RRH			0.92 (0.05)	0.94 (0.05)			0.77** (0.05)	0.80** (0.05)
Black X OTH-H			1.23** (0.08)	1.27** (0.08)			0.91 (0.06)	0.93 (0.06)
Black X OTH-N			0.85** (0.02)	0.83** (0.02)			0.83** (0.02)	0.83** (0.02)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	0.53** (0.02)	0.50** (0.02)	0.50** (0.04)	0.53** (0.09)	0.48** (0.02)	0.48** (0.02)	0.59** (0.05)	0.68* (0.11)
Rapid rehousing	0.55** (0.01)	0.58** (0.01)	0.57** (0.03)	0.60** (0.06)	0.47** (0.01)	0.48** (0.01)	0.56** (0.03)	0.57** (0.07)
Other, housing	0.70** (0.02)	0.74** (0.02)	0.64** (0.03)	0.55** (0.08)	0.73** (0.02)	0.76** (0.02)	0.75** (0.04)	0.58** (0.10)
Other, non-housing	0.79** (0.01)	0.93** (0.00)	0.90** (0.02)	0.86* (0.05)	0.80** (0.01)	0.92** (0.01)	0.91** (0.02)	1.02 (0.07)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	1.16** (0.02)	1.15** (0.01)	1.24** (0.03)	1.24** (0.02)	1.14** (0.02)	1.12** (0.02)	1.26** (0.03)	1.24** (0.03)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

	Older Adult (55-64) (Service N=42,786; Person N=24,706)				Retirement-Age Adult (65+) (Service N=9,856; Person N=6,433)			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Race/ethnicity X CoC service type interactions								
Black X PSH			0.76* (0.10)	0.75* (0.10)			0.53+ (0.19)	0.64 (0.27)
Black X RRH			0.85* (0.07)	0.86* (0.07)			0.92 (0.14)	0.97 (0.28)
Black X OTH-H			1.04 (0.09)	1.04 (0.09)			1.01 (0.19)	1.28 (0.51)
Black X OTH-N			0.71** (0.03)	0.71** (0.03)			0.90 (0.08)	1.31 (0.29)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	0.43** (0.02)	0.45** (0.02)	0.53** (0.06)	0.45** (0.10)	0.37** (0.06)	0.38** (0.06)	0.61+ (0.17)	0.35** (0.21)
Rapid rehousing	0.43** (0.01)	0.44** (0.01)	0.47** (0.03)	0.46** (0.08)	0.48** (0.03)	0.51** (0.04)	0.48** (0.06)	0.46** (0.17)
Other, housing	0.73** (0.03)	0.76** (0.03)	0.68** (0.05)	0.31** (0.07)	0.72** (0.06)	0.75** (0.06)	0.73* (0.11)	0.52 (0.26)
Other, non-housing	0.78** (0.01)	0.88** (0.02)	1.00 (0.04)	0.88 (0.09)	0.83** (0.04)	0.92** (0.04)	0.91 (0.07)	0.61* (0.14)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	1.19** (0.03)	1.17** (0.02)	1.38** (0.04)	1.35** (0.04)	1.26** (0.06)	1.24** (0.05)	1.33** (0.08)	1.32** (0.08)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

Notes Analytic sample individuals' age is estimated in 2013, based on birth year. Type of CoC service-Other, housing (OTH-H) includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing: with services but no disability required. Type of CoC service-Other, non-housing (OTH-N) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other. All models control for sociodemographics/household structure, continuous age, age-squared, fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, date month, and entry date year-month combination. Standard errors are clustered by person. **$p < .01$, *$p < .05$, +$p < 0.10$ (two-tailed test).

Table 6. Age-Stratified Two-level Hierarchical Linear Models Predicting Probability of Return for Additional Los Angeles CoC Service (2013-2019)

	Young Adult (25-44) (Level-1 N=126,558; Level-2 N=81,672)				**Middle-Age Adult (45-54)** (Level-1 N=74,861; Level-2 N=42,747)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Black X PSH			0.01 (0.03)	0.00 (0.03)			-0.08** (0.03)	-0.09** (0.03)
Black X RRH			-0.03* (0.01)	-0.03* (0.01)			-0.06** (0.02)	-0.06** (0.03)
Black X OTH-H			0.07** (0.02)	0.07** (0.02)			-0.02 (0.02)	-0.02 (0.02)
Black X OTH-N			-0.04** (0.01)	-0.06** (0.01)			-0.05** (0.01)	-0.06** (0.01)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	-0.15** (0.01)	-0.17** (0.01)	-0.17** (0.02)	-0.12** (0.05)	-0.19** (0.01)	-0.19** (0.01)	-0.12** (0.02)	-0.07 (0.05)
Rapid rehousing	-0.13** (0.00)	-0.13** (0.00)	-0.12** (0.01)	-0.04+ (0.02)	-0.18** (0.01)	-0.19** (0.01)	-0.15** (0.01)	-0.09** (0.03)
Other, housing	-0.09** (0.01)	-0.08** (0.01)	-0.12** (0.01)	-0.11** (0.04)	-0.09** (0.01)	-0.08** (0.01)	-0.08** (0.02)	-0.11* (0.05)
Other, non-housing	-0.06** (0.00)	-0.02** (0.00)	-0.03** (0.01)	-0.00 (0.02)	-0.05** (0.00)	-0.02** (0.00)	-0.02** (0.01)	0.02 (0.02)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	0.04** (0.00)	0.04** (0.00)	0.06** (0.01)	0.06** (0.01)	0.03** (0.00)	0.03** (0.00)	0.06** (0.01)	0.06** (0.01)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

	Older Adult (55-64) (Level-1 N=42,786; Level-2 N=24,706)				**Retirement-Age Adult (65+)** (Level-1 N=9,856; Level-2 N=6,433)			
	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Black X PSH			-0.08* (0.04)	-0.09* (0.04)			-0.21* (0.09)	-0.18* (0.09)
Black X RRH			-0.06** (0.02)	-0.07** (0.02)			-0.06 (0.04)	-0.05 (0.04)
Black X OTH-H			0.01 (0.02)	0.01 (0.02)			-0.01 (0.05)	-0.01 (0.05)
Black X OTH-N			-0.10** (0.01)	-0.11** (0.01)			-0.04+ (0.03)	-0.04 (0.02)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	-0.21** (0.01)	-0.21** (0.02)	-0.15** (0.03)	-0.16** (0.06)	-0.22** (0.03)	-0.21** (0.03)	-0.08 (0.07)	-0.21 (0.14)
Rapid rehousing	-0.21** (0.01)	-0.21** (0.01)	-0.18** (0.02)	-0.13** (0.04)	-0.16** (0.02)	-0.16** (0.02)	-0.14** (0.03)	-0.12 (0.09)
Other, housing	-0.09** (0.01)	-0.09** (0.01)	-0.11** (0.02)	-0.26** (0.06)	-0.09** (0.02)	-0.08** (0.02)	-0.08* (0.04)	-0.16 (0.11)
Other, non-housing	-0.06** (0.01)	-0.03** (0.01)	0.01 (0.01)	-0.00 (0.03)	-0.05** (0.01)	-0.03 (0.01)	-0.02 (0.02)	-0.13+ (0.07)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	0.05** (0.01)	0.05** (0.01)	0.10** (0.01)	0.10** (0.01)	0.06** (0.01)	0.06** (0.01)	0.09** (0.02)	0.09** (0.02)
Controls								
Gender, hhld structure	X	X	X	X	X	X	X	X
Vulnerabilities/past experiences		X		X		X		X
Vulnerabilities/past X service types				X				X

Notes Analytic sample individuals' age is estimated in 2013, based on birth year. Type of CoC service-Other, housing (OTH-H) includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing: with services but no disability required. Type of CoC service-Other, non-housing (OTH-N) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other. All models control for sociodemographics/household structure, continuous age, age-squared, fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, date month, and entry date year-month combination. ** $p < .01$, * $p < .05$, + $p < 0.10$ (two-tailed test).

Table 7. Age-Stratified Linear Probability Models (Ordinary Least Squares) Predicting Probability of Returning for Additional Los Angeles County CoC Service after Receiving a CoC Service among Older Adults

	Model 1: Age 55-60	Model 2: Age 61-64	Model 3: Age 65-68	Model 4: 69+
Black X PSH	-0.09*	-0.10	-0.28*	-0.14
	(0.04)	(0.07)	(0.13)	(0.14)
Black X RRH	-0.07**	-0.05	-0.04	-0.05
	(0.02)	(0.04)	(0.05)	(0.05)
Black X OTH-H	0.02	0.01	-0.08	0.10
	(0.03)	(0.05)	(0.07)	(0.08)
Black X OTH-N	-0.10**	-0.13**	-0.04	-0.04
	(0.01)	(0.03)	(0.04)	(0.04)
Black	0.09**	0.13**	0.11**	0.05+
	(0.01)	(0.02)	(0.03)	(0.03)
Focal CoC service: type of service received (ref: emergency shelter)				
PSH	-0.18**	-0.14	-0.32	-0.10
	(0.07)	(0.13)	(0.21)	(0.18)
RRH	-0.13**	-0.15+	-0.24*	-0.03
	(0.05)	(0.09)	(0.12)	(0.13)
OTH-H	-0.19**	-0.46**	-0.24	-0.10
	(0.07)	(0.11)	(0.15)	(0.18)
OTH-N	-0.00	0.00	-0.20*	-0.04
	(0.04)	(0.07)	(0.10)	(0.10)
Controls				
Gender, household structure	X	X	X	X
Vulnerabilities/past experiences	X	X	X	X
Vulnerabilities/past X serv. type	X	X	X	X
Person *N*	18,435	6,271	3,191	3,242
Service *N*	32,422	10,364	5,066	4,790

Notes Type of CoC service-PSH: Permanent supportive housing; RRH: Rapid rehousing; OTH-H includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing with services no disability required. OTH-N includes: Coordinated entry; Services Only; Homelessness Prevention; Street Outreach; Other. All models include controls for continuous age (as of 2013), age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013-19); service entry date year, month, year-month combination. Standard errors are clustered by person. **p <.01, *p <.05, +p<0.10.

Alternative Explanations for Racial Heterogeneity in Housing First Interventions' Effectiveness: Exploratory Analyses

Data limitations preclude us from exploring the full range of possible explanations underlying our finding that PSH may exert larger risk reduction efforts for Black versus White older adults. For example, our HMIS data cannot capture racial differences in difficult-to-observe individual-level characteristics that may be associated with both PSH access and effectiveness among older adults age 65+ (e.g., "institutional savvy"/bureaucratic navigation skills) or racial differences in the "fit" between individuals' particular needs and (a) the services provided by the PSH program with which adults of this age are matched or (b) the neighborhood location of their PSH units.

However, we can empirically examine another plausible contributing factor: Black and White older adults may systematically sort into different types of PSH and RRH programs that in turn meaningfully vary in their average effectiveness. For example, if White older adult PSH residents are disproportionately sorted into scattered-site (SS) developments, as evidence suggests (Henwood et al., 2024), and these SS contexts are less effective in reducing the risk of returns

to homelessness services than are project-based settings (PB) (e.g., due to less comprehensive, consistent service provision), then disentangling the effects of PSH-SS and PSH-PB may "control away" the racial heterogeneity pattern reported above.

The models in Table 8 (see below) do just this, splitting PSH into SS and PB components for the full analytic sample (Model 1) and then for each age stratum (Models 2–5). For nearly all age groups, PB PSH exhibits a stronger protective effect than does SS PSH for the White reference group. However, the differential effectiveness of SS versus SB PSH does not appear to fully explain the racial heterogeneity pattern among retirement-age adults discussed above. For the full sample (Model 1), and for the retirement-age subsample (Model 5), a racial heterogeneity pattern remains detectable. However, it appears limited to the effect of SS, not PB, PSH.

A robustness check that replicates Table 5's model specifications but replaces the return to CoC service outcome with an alternative outcome proxying housing stability — the probability of receiving a post-service HMIS destination code indicating the individual "exited" to renting or owning a housing unit (with or without subsidy) or moving in with family or friends — reinforces this same pattern (see conditional age-, race-, and intervention-stratified patterns in this alternative outcome in Figure 7, below).

Table 9's multivariate models (see below) using this alternative outcome suggests retirement-age Black adults who receive PSH-SS see a striking 33pp increase in the probability of being marked with this promising exit code compared to otherwise-similar White adults who receive PSH-SS. There is no significant Black-White difference in PSH-PB effects on this same outcome. It is also worth noting that the magnitude of the main effects of RRH and OTH-H are much larger than that of PSH-SS or PSH-PB, due to the fact that the former two sets of interventions are oriented toward "exiting" clients to stable housing outcomes (i.e., outside of CoC services); PSH services, on the other hand, are intended to be a permanent housing solution and therefore are less likely to correspond with an exit of any kind.

An exploratory analysis, described below, provides suggestive evidence for one of several possible reasons why, on average, Black older adults who receive PSH-SS see a larger reduction in risk and boost in probability of exiting to a stable housing situation than otherwise-similar White older adults who receive PSH-SS: on average, Black older adults sort into higher-quality SS programs than White older adults.

Table 8. Linear Probability Models (OLS) Predicting Probability of Returning for Additional CoC Service after Receiving a CoC Service (2013-2019), with PSH Disaggregated by Site-Based versus Scattered Site

|	Model 1	Model 2	Model 3	Model 4	Model 5
Age	All	25-44	45-54	55-64	65+
Black X	-0.03	0.04	-0.03	-0.13**	-0.03
PSH: Site-Based	(0.02)	(0.04)	(0.04)	(0.05)	(0.11)
Black X	-0.12**	-0.07	-0.18**	-0.03	-0.49**
PSH: Scattered Site	(0.03)	(0.05)	(0.05)	(0.06)	(0.14)
Black X	-0.05**	-0.03*	-0.06**	-0.07**	-0.05
RRH	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)
Black X	0.03*	0.07**	-0.02	0.01	-0.01
OTH-H	(0.01)	(0.02)	(0.02)	(0.03)	(0.05)
Black X	-0.07**	-0.06**	-0.06**	-0.11**	-0.04
OTH-N	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)
Black	0.07**	0.06**	0.06**	0.10**	0.09**
	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)
Focal CoC service: type of service received (ref: emergency shelter)					
PSH: Site-Based	-0.13**	-0.15*	-0.10	-0.16*	-0.31*
	(0.04)	(0.06)	(0.06)	(0.07)	(0.14)
PSH: Scattered Site	-0.08	-0.09	-0.04	-0.19*	-0.20
	(0.04)	(0.07)	(0.07)	(0.08)	(0.16)
RRH	-0.07**	-0.04	-0.09**	-0.13**	-0.12
	(0.02)	(0.02)	(0.03)	(0.04)	(0.09)
OTH-H	-0.14**	-0.11**	-0.11*	-0.26**	-0.16
	(0.02)	(0.04)	(0.05)	(0.06)	(0.11)
OTH-N	0.00	-0.00	0.02	-0.00	-0.13
	(0.01)	(0.02)	(0.02)	(0.03)	(0.07)
Age Category (as of 2013; ref: 25-44)					
45-54	0.02**				
	(0.00)				
55-64	0.02**				
	(0.01)				
65+	0.01				
	(0.01)				
Controls					
Gender, hhld structure	X	X	X	X	X
Vulnerabilities/ past experiences	X	X	X	X	X
Vulnerabilities/past X service types	X	X	X	X	X
Person *N*	155,558	81,672	42,747	24,706	6,433
Service *N*	254,061	126,558	74,861	42,786	9,856

Notes [1] Type of CoC service-PSH: Permanent supportive housing; RRH: Rapid rehousing; OTH-H includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing w/ services no disability required. OTH-N includes: Coordinated entry; Services Only; Homelessness Prevention; Street Outreach; Other. [2] All models include controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, service month, date year-month combination. [3] Standard errors clustered by person. [4] **$p<.01$,*$p<.05$, +$p< 0.10$ (two-tailed test).

Table 9. Linear Probability Models (OLS) Predicting Probability of HMIS Destination Code: Rent/Own or Family/Friends after Receiving a CoC Service (2013-2019), with PSH Disaggregated by Site-Based versus Scattered Site

	Model 1	Model 2	Model 3	Model 4	Model 5
Age	All	25-44	45-54	55-64	65+
Black X	-0.02	-0.06	-0.02	-0.00	0.04
PSH: Site-Based	(0.02)	(0.04)	(0.04)	(0.05)	(0.12)
Black X	0.07*	0.01	0.15**	0.02	0.33**
PSH: Scattered Site	(0.03)	(0.05)	(0.05)	(0.06)	(0.13)
Black X	0.02+	-0.00	0.03+	0.05**	0.05
RRH	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)
Black X	0.05**	0.04*	0.04*	0.07**	0.04
OTH-H	(0.01)	(0.02)	(0.02)	(0.02)	(0.05)
Black X	0.02**	0.02**	0.02**	0.03**	-0.00
OTH-N	(0.00)	(0.00)	(0.01)	(0.01)	(0.02)
Black	0.02**	0.02**	0.02**	0.01*	0.02+
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Focal CoC service: type of service received (ref: emergency shelter)					
PSH: Site-Based	0.23**	0.18**	0.25**	0.32**	0.37*
	(0.04)	(0.06)	(0.06)	(0.08)	(0.18)
PSH: Scattered Site	0.19**	0.10	0.28**	0.25**	0.15
	(0.04)	(0.07)	(0.07)	(0.09)	(0.17)
RRH	0.36**	0.30**	0.47**	0.50**	0.54**
	(0.02)	(0.02)	(0.03)	(0.04)	(0.07)
OTH-H	0.38**	0.32**	0.41**	0.47**	0.45**
	(0.02)	(0.04)	(0.05)	(0.06)	(0.10)
OTH-N	0.03**	0.00	0.06**	0.05+	0.13**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)
Age Category (as of 2013; ref: 25-44)					
45-54	0.00				
	(0.00)				
55-64	0.01				
	(0.00)				
65+	-0.00				
	(0.01)				
Controls					
Gender, hhld structure	X	X	X	X	X
Vulnerabilities/ past experiences	X	X	X	X	X
Vulnerabilities/past X service types	X	X	X	X	X
Person *N*	155,558	81,672	42,747	24,706	6,433
Service *N*	254,061	126,558	74,861	42,786	9,856

Notes [1] Type of CoC service-PSH: Permanent supportive housing; RRH: Rapid rehousing; OTH-H includes: Transitional Housing; Permanent Housing: Housing Only; Permanent Housing w/ services no disability required. OTH-N includes: Coordinated entry; Services Only; Homelessness Prevention; Street Outreach; Other. [2] All models include controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013-2019); service entry date year, service month, date year-month combination. [3] Standard errors clustered by person. [4] **$p<.01$, *$p<.05$, +$p< 0.10$ (two-tailed test).

Figure 7. Conditional Probability of HMIS Destination: Rent/Own (with or without subsidy) or Family/Friends after Receiving CoC Service (2013–2019).
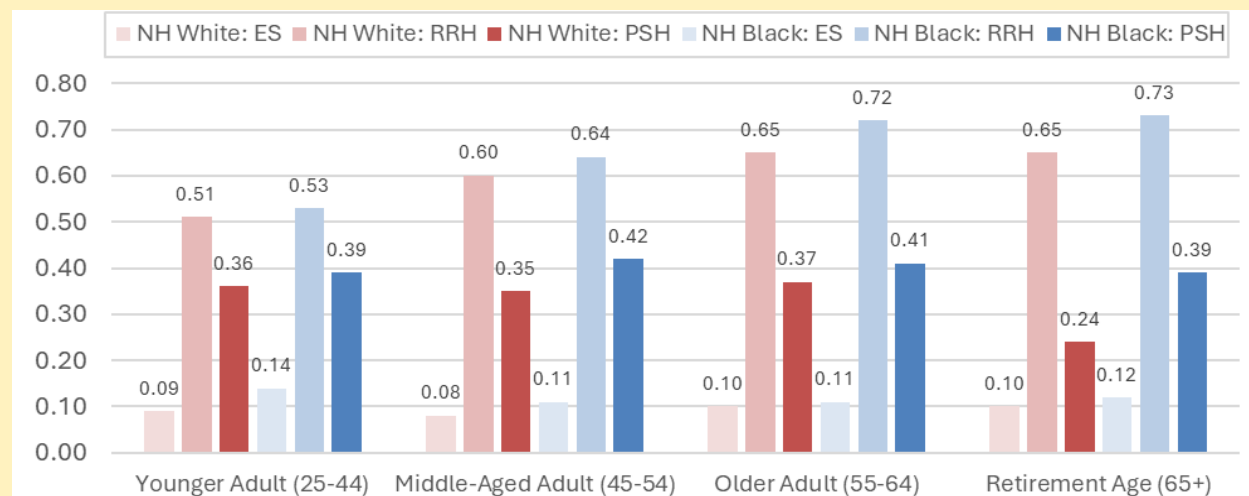
Notes: [1] Age is estimated based on difference between birth year and 2013. [2] ES stands for Emergency Shelter; RRH stands for Rapid Rehousing. PSH stands for Permanent Supportive Housing. [3] Conditional probabilities are based on age- and race-stratified models that include fixed effects for CoC service type, gender and household structure controls, as well as controls for continuous age (as of 2013) and age-squared, as well as fixed effects capturing: individuals' first year of CoC service (2013–2019); service entry date year, month, and date year-month.

Exploratory Analysis of PSH Program Quality As an Explanation for Racial Heterogeneity

Why might PSH-SS be more effective for Black older adults age 65+ than for White older adults? As noted above, there are many explanations but relatively few that can be empirically tested using the data available. However, one explanation is there are racial differences in the average quality of PSH-SS programs that are accessed by older adults age 65+ — is both theoretically motivated and empirically testable using our HMIS data. Theoretically, recent research on Housing First interventions has called for additional attention on program quality differences within the large and heterogeneous group of programs classified as PSH (Milburn et al., 2021). Yet relatively few studies have conceptualized how differences in PSH program quality might be properly measured (for notable exceptions, see Dickson-Gomez, et al. 2017; Fleury, et al. 2025; Rollings and Bollow, et al. 2021), and consensus on how to operationalize PSH quality remains elusive. Moreover, no known published study has tried to empirically estimate the distribution of PSH program effects using longitudinal client-level data and quantitative analyses.

We attempted to do this as part of an exploratory analysis, by drawing on frameworks and approaches within the K-12 school value-added quality literature and by leveraging our large, longitudinal HMIS dataset tracking the characteristics and outcomes of PSH clients before, during, and after, they participated in a PSH program. This exercise may potentially illuminate one of several potential explanations for why Black older adults see considerably larger degrees of risk reduction vis-a-vis returns to homelessness services after entering a PSH scattered site program, compared to White older adults.

More than two decades of education research has yielded a widely accepted approach to quantifying differences in K-12 school quality: the value-added school effectiveness model. This approach typically leverages longitudinal data and multilevel models (i.e., hierarchical linear models/HLMs) to partition the variance in academic achievement into between- and within-school components, while adjusting for differences in student characteristics that shape achievement but that the school has no, or minimal, control over (e.g., student sociodemographic characteristics; measures of academic achievement prior to entering the school).

The between-school variance component, estimated after adjusting for student sorting dynamics, is interpreted as the "value-added" effect of a given school on student outcomes. It can be substantively interpreted as how much higher (or lower) the average student would be expected to achieve vis-a-vis a specific outcome (e.g., standardized test scores) if they attended a given school versus the average school (see Lloyd & Schachner, 2021 for more details on this approach). (Quasi)experimental research designs confirmed that this value-added approach using observational data generates school effectiveness estimates that closely approximate estimates that would be recovered from randomized school assignment (Angrist et al., 2017; Deming, 2014).

We believe this approach holds promise for estimating the quality (i.e., value-added effectiveness) of various PSH programs, with quality conceived as a program's impact on reducing (or increasing) the probability a given individual will return for additional CoC services at some point after entering the PSH intervention. To this end, we isolated the subset of focal CoC services in our analytic sample (pooling adults of all ages) that were marked as a PSH intervention during the 2013–2019 timeframe (CoC service spell $N = 4,612$) and ran a three-level HLM with random intercepts and fixed slopes (level-1: CoC service spell; level-2: individual adult; level-3: PSH program identifier) predicting our core outcome of interest: the probability of returning for additional CoC services at some point after receiving the focal PSH service. We included all covariates listed in the Data & Methods section, as well.

Modeling the third-level random intercept in the HLM framework using PSH program identifiers enabled us to isolate the portion of the total variance in our outcome attributable to PSH programs, as opposed to individual-level characteristics or temporal dynamics. Further, these random intercepts enabled us to quantify residualized program effects (i.e., adjusted for program differences in participant sociodemographics, vulnerabilities, and past experiences) on the risk of returning for additional CoC service for all 288 PSH programs that clients in our analytic sample participated in. These value-added PSH program effects can be substantively interpreted as how much less (or more) likely a given client would be to subsequently return for a CoC service if they attended a given PSH program, compared to the average PSH program. It is important to note that these value-added program effects encompass the combined effects of all program characteristics — including the quality of staff, housing buildings and units, and the neighborhood(s) in which the units are located; these various factors' contributions to a program's overall value-added effects are difficult to disentangle given available data.

Our HLM results (detailed model results available upon request) indicated that a one standard

deviation increase in PSH value-added program quality decreases the probability of returning to CoC service after beginning the PSH program by six percentage points. We interpreted these results as suggesting the 288 PSH programs vary fairly widely in their estimated effects on our core outcome of interest, even after adjusting for selection effects. Importantly, the distributions of PSH-PB and PSH-SS programs' value-added quality are tightly overlapping; there is more variation in value-added quality within these two program types than between them.

Could racial differences in PSH program quality measured in this manner explain why Black older adults see larger degrees of risk reduction vis-a-vis returns to homelessness services after entering a PSH scattered site program, compared to White older adults? We explore this possibility by comparing the distribution of PSH program value-added estimates for PSH-scattered site programs in which Black older adults in our analytic sample were enrolled compared to the programs White older adults in our sample received.

Among retirement-aged adults (65+) in our analytic sample who participated in a PSH scattered site program, Black adults attended programs with higher levels of estimated value-added effectiveness compared to White adults. Concretely, the average Black PSH scattered site participant age 65+ attended a program estimated to reduce the risk of returning for CoC service by 3pp more than the average PSH program. The average older White PSH scattered site participant attended a program whose value-added effectiveness was about average. In other words, the average older Black adult within a PSH-scattered site setting sorted into a program that was almost half a standard deviation higher in the PSH value-added distribution than was the program accessed by the average older White adult in a PSH-scattered site setting. We thus conclude that Black retirement-age adults may be systematically sorting into higher-quality scattered-site PSH programs than White retirement-age adults. Although we cannot solidify the processes underlying this racially stratified sorting pattern, the qualitative research findings (reported below) provide some clues. For example, we found that White older adults' strong preferences for neighborhood desirability may lead to PSH-SS placements in Whiter, more affluent areas but lower quality services.

Again, it is important to note that these racially stratified sorting patterns may not fully explain the amplified effectiveness of PSH among older Black versus older White adults. Other contributing factors need to be theorized and further probed with finer-grained data. We consider some other potential alternative explanations in our qualitative research findings, reported below.

Supplementary Quantitative Analyses

Before shifting to our qualitative research findings, we assess whether our key quantitative findings related to racial heterogeneity in Housing First interventions' effectiveness remain intact when we make three key modifications to our analytic strategy. These three modifications include: (1) switching our key outcome of interest from returning for *any* additional Los Angeles County CoC service to returning for either an Emergency Shelter or Street Outreach CoC service in the county; (2)

disentangling the effects of Transitional Housing (TH) from Permanent Housing (PH) programs on recurrent homelessness; and (3) expanding our analytic sample, by modifying key sample restrictions.

The first modification is made to align our results more closely with other studies using HMIS data, including recent California Policy Lab publications (e.g., Milburn, et al. 2021). Regarding the third modification, we make three key changes to the analytic sample described above (in "Creating an Analytic Sample Using HMIS Data" section and visualized in Figure 2). First, instead of constraining our analytic sample to include HMIS-reported Los Angeles County CoC service contacts that started between 2013 and 2019 (as a means of avoiding COVID-19 pandemic-related changes to CoC data entry quality and service characteristics), we extend our analytic sample to encompass HMIS service contacts through 2023. Second, instead of operationalizing client age by the age estimated in 2013 (based on birth year) and removing all CoC clients who were estimated to be under age 25 in 2013, we estimate each client's age based on the year they received a given CoC service. We include all individual-CoC service combinations for which the individual was estimated to be age 25 or older based on the year of CoC service entry. A key implication of this decision is that CoC services received by the same individual can be classified across more than one of our four key age brackets, depending on what the CoC service year of entry was (e.g., if a given individual who as 53 in 2013 receives a CoC service and another CoC service when she was 59 in 2019, that individual's first service will be classified as being received by a middle-aged adult and the second service will be classified as being received by an older adult). Third, we lift multiple restrictions that were previously imposed to mitigate potential biases induced by (a) high CoC service churn (i.e., by removing returns for new CoC service that occurred within the course of a week of a prior CoC service entry date and by removing focal CoC services that began within a week of the end of the study timeframe) and (b) mortality induced attrition (i.e., by dropping all observations with death indicated as the destination code and all observations lacking a valid exit destination code altogether).

All three of these analytic sample decisions result in a substantially larger analytic sample: 873,624 CoC service contacts (nested within 335,006 unique individuals, who were age 25+ at service entry) that started between 2013 and 2023; 394,245 CoC service contacts (nested within 186,758 unique individuals, who were age 25+ at service entry) are available when constrained to contacts that started in the pre-COVID period (i.e., between 2013 and 2019). Recall that the main analytic sample used to generate the findings presented in previous sections was 254,061 CoC service contacts (2013–2019), nested within 155,558 individuals who were age 25+ in 2013. If, compared to our main analyses presented above, the results from analyses using this revised analytic sample are broadly similar, then we can be more confident in our findings.

Revisiting Housing First Intervention Effects with a Larger Analytic Sample — Overall and by Age and Race

Using the modified analytic sample and outcome laid out above, we first replicated the model specifications included in Table 4 above, with one key change: instead of stratifying the analytic

sample into four categories (age estimated in 2013: 25–44, 45–54, 55–64, and 65+), we bifurcated it into two (age estimated at CoC service entry: 25–54 — younger/middle age adults and 55+ — older adults). Although this age-based stratification is less fine-grained, the approach allows us to generate sufficient statistical power to detect the main and interactive effects of PH/Permanent Housing, which is now disentangled from TH/Transitional Housing (the two were combined in the Other-Housing/OTH-H category in our main analyses). Only 120 CoC service contacts are coded as PH received by an adult who was age 65+ at the age of entry, and only 59 of these contacts are among individuals coded as non-Hispanic Black — out of 873,624 in the full supplementary analytic sample. These numbers nearly quadrupled when the age band for the oldest group expanded from age 65+ at entry to age 55+ at entry.

The analyses — based on the age-bifurcated analytic sample of CoC service contacts with a revised outcome (i.e., returns to emergency shelter/street outreach rather than any type of CoC service), a finer-grained set of focal CoC service indicator variables (i.e., permanent housing and transitional housing are separated out), and adjustments to the analytic sample specification criteria as laid out above — are presented in Table 10 and are intended to replicate the key findings from Table 4. Recall that those findings suggested that across all age strata, Black adults consistently exhibited a significantly higher rate of returning to CoC service — all else equal — and RRH and PSH exerted large negative effects on the probability of CoC service return, compared to the ES counterfactual. Importantly, the Black-RRH and especially Black-PSH interaction effects were larger within the older age strata, suggesting Black older adults were especially likely to reap risk reduction benefits from these Housing First interventions.

Table 10's models tell the same general story. Specifically, among young/middle-age and older adults alike, Black adults are significantly more likely to return to Emergency Shelter or Street Outreach CoC services, after an initial CoC service, even after adjusting for an extensive set of control variables. This elevated risk is particularly apparent among Black older adults (age 55+) compared to younger ones, which is congruent with this study's intersectional lens.

Across both age strata, RRH and PSH exert large negative effects on the risk of returning to Emergency Shelter or Street Outreach CoC services, as Table 4's models confirmed, though here the latter service type emerges as markedly more effective than the former, particularly when adjusting for differences in CoC service recipient vulnerabilities and prior homelessness history. Note too that disentangling the Other-Housing interventions into Transitional Housing (TH) and Permanent Housing (PH) confirms that both exert negative main effects on the outcome, relative to the ES counterfactual. Once differences in CoC service recipient vulnerabilities and prior homelessness — and their interactions with CoC service type — are statistically adjusted for, PH remains highly effective in reducing the odds of returning to emergency shelter or street outreach services, but PSH generally exerts a larger depressive effect. Model 8 is the one exception in which PH and PSH are roughly equivalent in their estimated depressive main effects among older adults (age 55+) on returns to emergency shelter or street outreach services; both intervention types are estimated to reduce the probability of this outcome by about 30 percentage points, all

else equal. This model also indicates that RRH and TH exert relatively large, though smaller, depressive main effects on the outcome, estimated at -18pp for the former and -12pp for the latter. The pattern is flipped among young/middle-aged adults (age 25–54): TH appears more effective in depressing return rates than does RRH here, all else equal.

Estimating CoC service type effects separately by recipient race/ethnicity tells a more nuanced story. Among young/middle-aged adults, RRH is significantly more effective for Black individuals than it is for White ones. In the most complete model for this age group, spanning the full timeframe (2013–2023) (Model 4), RRH's estimated negative effect on the probability of returning to emergency shelter or street outreach (-19pp) is larger than is TH's estimated negative effect (-16pp) among Black individuals. It is worth noting that PSH effects are not significantly different between White and Black individuals within this age bracket, even though they were among the middle age group (45–54) in our main model results (Table 4); PH effects are not significantly different between these two race/ethnic groups, either.

Among our focal group — older adults — both PSH and RRH are significantly more effective in reducing returns to emergency shelter or street outreach among Black individuals than White ones (see Model 8). For Black older adults, PSH is estimated to reduce the probability of this outcome by 34pp, and RRH is estimated to reduce it by 25pp. The analogous estimates for otherwise-similar White older adults are 30pp and 18pp, respectively. These racial heterogeneity patterns closely mirror those presented above, in our main analyses. Note, too, that PH's estimated marginal effect of -31pp does not significantly vary between White and Black older adults. Thus, among Black older adults, PSH appears more effective than PH based on this model, and the two interventions appear roughly equally effective among White older adults. Yet it is important to keep in mind that PH serves a much smaller group of individuals, who may diverge from PSH recipients in ways that cannot be fully adjusted for, based on the control variables we have available.
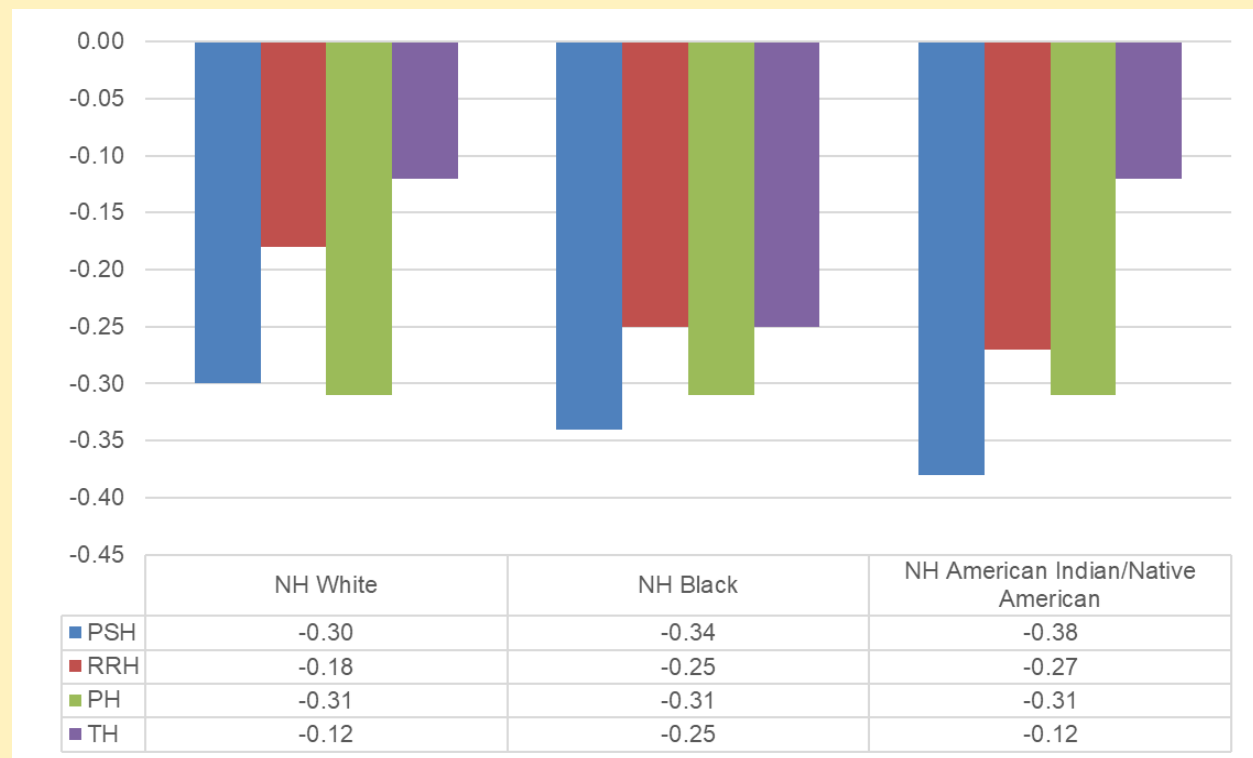
The racial heterogeneity patterns among older adults just described are visualized in Figure 8, which displays the estimated marginal effects of four CoC service types — PSH, RRH, PH, and TH — separately by race/ethnicity, based on the model output from Table 10, Model 8. Importantly, the figure also reveals the estimated effects of these service types for Non-Hispanic American Indians/Native Americans. As is the case for Black older adults, the key Housing First interventions — PSH and RRH — appear significantly more effective for this race/ethnic group than they are for otherwise-similar White older adults. Specifically, PSH is estimated to depress the probability of returning for emergency shelter or street outreach by 38pp and RRH is estimated to depress it by 27pp among older adults who identify as Non-Hispanic American Indians/Native Americans. These estimated effects are even larger than those estimated for Black older adults. RRH, PSH, PH, and TH do not significantly vary in effectiveness between White older adults and otherwise-similar Hispanic, Non-Hispanic Multiracial/Other, and Non-Hispanic Asian/Pacific Islander older adults.

Table 10. Age-Stratified Linear Probability Models (OLS) Predicting Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only

	Young/Middle Age Adult at CoC Service Entry (25-54)				Older/Retirement-Age Adult at CoC Service Entry (55+)			
Timeframe	2013-19 (Service N=277,750)		2013-23 (Service N=613,857)		2013-19 (Service N=116,495)		2013-23 (Service N=259,767)	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Race/ethnicity X CoC service type interactions								
Black X PSH	-0.02 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.06** (0.01)	-0.03 (0.01)	-0.05** (0.01)	-0.04** (0.01)
Black X RRH	-0.04** (0.01)	-0.03** (0.01)	-0.05** (0.01)	-0.05** (0.01)	-0.08** (0.01)	-0.04** (0.01)	-0.09** (0.01)	-0.07** (0.01)
Black X TH	-0.02 (0.01)	-0.02 (0.01)	-0.00 (0.01)	-0.02 (0.01)	-0.09** (0.02)	-0.07** (0.02)	-0.07** (0.01)	-0.07** (0.01)
Black X PH	-0.06 (0.04)	-0.00 (0.01)	-0.04 (0.04)	-0.04 (0.04)	-0.06 (0.05)	-0.00 (0.05)	-0.04 (0.04)	-0.01 (0.04)
Black X OTH-N	-0.08** (0.01)	-0.07** (0.01)	-0.09** (0.00)	-0.08** (0.00)	-0.09** (0.01)	-0.07** (0.01)	-0.09** (0.01)	-0.08** (0.01)
Focal CoC service: type of service received (ref: emergency shelter)								
Perm supportive housing	-0.27** (0.01)	-0.22** (0.02)	-0.29** (0.01)	-0.31** (0.02)	-0.30** (0.01)	-0.31** (0.03)	-0.28** (0.01)	-0.30** (0.02)
Rapid rehousing	-0.14** (0.01)	-0.03 (0.02)	-0.15** (0.01)	-0.14** (0.01)	-0.22** (0.01)	-0.19** (0.03)	-0.16** (0.01)	-0.18** (0.01)
Transitional housing	-0.21** (0.01)	-0.12** (0.02)	-0.22** (0.01)	-0.16** (0.01)	-0.17** (0.01)	-0.13** (0.04)	-0.17** (0.01)	-0.12** (0.02)
Permanent housing	-0.23** (0.03)	-0.18** (0.05)	-0.23** (0.03)	-0.26** (0.04)	-0.29** (0.04)	-0.26** (0.07)	-0.28** (0.03)	-0.31** (0.05)
Other, non-housing	0.00 (0.01)	0.06** (0.02)	0.04** (0.00)	0.02** (0.01)	0.00 (0.01)	0.02 (0.02)	0.04** (0.00)	0.02 (0.01)
Race/ethnicity (ref: Non-Hispanic White)								
Non-Hispanic Black	0.04** (0.00)	0.01** (0.00)	0.02** (0.00)	0.01** (0.00)	0.06** (0.01)	0.03** (0.01)	0.04** (0.01)	0.03** (0.00)
Vulnerabilities X service type interactions		X		X		X		X

Notes [1] Analytic sample individuals' age is estimated on based on CoC service entry date and birthdate. [2] Type of CoC service-PH includes: Permanent Housing: Housing Only; Permanent Housing: w/ services but no disability required. [3] Type of CoC service-Other, non-housing (OTH-N) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other. [4] All models include controls for continuous age at entry and age-squared, as well as fixed effects capturing: individuals' first year of CoC service; service entry date year, service month, date year-month combination. Additional controls account for gender/household structure, as well as vulnerabilities and past experiences. [5] Standard errors clustered by person. [6] **$p < .01$, *$p < .05$ (two-tailed test).

Figure 8. Estimated Marginal Effect of CoC Service Type by Race/Ethnicity on Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only, Among Older Adults (Age 55+) at Date of CoC Service Entry (2013–2023)

	NH White	NH Black	NH American Indian/Native American
PSH	-0.30	-0.34	-0.38
RRH	-0.18	-0.25	-0.27
PH	-0.31	-0.31	-0.31
TH	-0.12	-0.25	-0.12

Notes: [1] Age is estimated based on difference between birth year and year of CoC service entry. [2] NH = Non-Hispanic. [3] PSH = Permanent Supportive Housing; RRH = Rapid Rehousing; PH = Permanent Housing; TH = Temporary Housing. [4] Marginal effects of PSH, RRH, PH, and TH were not significantly different for Hispanics versus Whites; NH Multiracial Other versus Whites; or NH Asian/Pacific Islander versus Whites. 4 Marginal effect estimates visualized above are estimated based on Table 10, Model 4 output (emergency shelter is the omitted/reference CoC service type).

Table 11 uses our modified analytic approach and age-stratified framework but disaggregates PSH into site-based and scattered-site interventions, to assess whether we once again see evidence that it is specifically scattered site PSH rather than site-based PSH that is significantly more effective among Black older adults compared to White Ones (see Table 8 for similar analyses using the main analytic sample). Indeed, Table 11's results — specifically Models 3 and 4 — suggest that among older adults, it is scattered-site PSH that is significantly more effective in reducing returns to emergency shelter or street outreach for Black adults compared to otherwise-similar White ones. Within this age stratum, the evidence of site-based PSH being more effective for the former subgroup compared to the latter is less clear.

A similar pattern emerges when comparing Non-Hispanic American Indian/Native American and Non-Hispanic Multiracial/Other older adults to otherwise-similar Non-Hispanic Whites: race/ethnic differences in PSH effectiveness appear larger when examining scattered-site rather than single-site PSH effects. Specifically, the estimated depressive effects of the PSH scattered-

site intervention on returns to emergency shelter or street outreach are a striking 11 and 6 percentage points larger for Non-Hispanic American Indian/Native American and Non-Hispanic Multiracial/Other older adults compared to otherwise-similar Whites, respectively (coefficients not shown in table). Site-based PSH estimated effects do not significantly vary between White older adults and these two groups. Table 11's results are thus compatible with a core finding generated by our main analyses (see Table 8): White older adults may be sorting into lower-quality scattered-site PSH interventions, compared to otherwise similar Black, American Indian/Native American, and Multiracial/Other older adults.

Table 11. Age-Stratified Linear Probability Models (OLS) Predicting Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only, with PSH Disaggregated by Site-Based versus Scattered Site

	Model 1	Model 2	Model 3	Model 4
Age at CoC Service Entry	Young/Middle Age Adult (25-54)		Older/Retirement-Age Adult (55+)	
CoC Service Timeframe	2013-19	2013-23	2013-19	2013-23
Race/ethnicity X CoC service type interactions				
Black X PSH-site	-0.02 (0.02)	-0.01 (0.01)	-0.02 (0.02)	-0.03* (0.01)
Black X PSH-scatter	-0.01 (0.02)	-0.01 (0.01)	-0.04* (0.02)	-0.05** (0.01)
Black X RRH	-0.03** (0.01)	-0.05** (0.01)	-0.04** (0.01)	-0.07** (0.01)
Black X TH	-0.02 (0.01)	-0.02 (0.01)	-0.07** (0.02)	-0.07** (0.01)
Black X PH	-0.04 (0.04)	-0.04 (0.04)	-0.00 (0.05)	-0.01 (0.04)
Black X OTH	-0.07** (0.01)	-0.08** (0.00)	-0.07** (0.01)	-0.08** (0.01)
Focal CoC service: type of service received (ref: emergency shelter)				
PSH-site	-0.16** (0.03)	-0.25** (0.02)	-0.30** (0.03)	-0.30** (0.02)
PSH-scatter	-0.30** (0.03)	-0.39** (0.03)	-0.35** (0.04)	-0.31** (0.02)
RRH	-0.03 (0.02)	-0.14** (0.01)	-0.19** (0.03)	-0.18** (0.01)
TH	-0.12** (0.02)	-0.16** (0.01)	-0.13** (0.04)	-0.12** (0.02)
PH	-0.19** (0.05)	-0.26** (0.04)	-0.26** (0.07)	-0.31** (0.05)
OTH	0.06** (0.02)	0.02** (0.01)	0.02 (0.02)	0.02* (0.01)
Race/ethnicity (ref: Non-Hispanic White)				
Non-Hispanic Black	0.01** (0.00)	0.01** (0.00)	0.03** (0.01)	0.06** (0.01)
CoC Service N	277,750	613,857	116,495	259,767
Person N	138,516	251,698	52,488	94,443

Notes [1] Analytic sample individuals' age is estimated on based on CoC service entry date and birthdate. [2] Type of CoC service-PH includes: Permanent Housing: Housing Only; Permanent Housing: w/ services but no disability required. [3] Type of CoC service-Other, non-housing (OTH) includes: Coordinated entry; Homelessness Prevention; Services Only; Street Outreach; Other. [4] All models include controls for continuous age at entry and age-squared, as well as fixed effects capturing: individuals' first year of CoC service; service entry date year, service month, date year-month combination. Additional controls account for gender/household structure, as well as vulnerabilities and past experiences and vulnerabilities and past experiences interactions with CoC service type indicator variables. [5] Standard errors clustered by person. [6] ** $p <.01$, * $p <.05$ (two-tailed test).

**Examining Age-Based Discontinuities in Risk and Housing First Intervention Effectiveness**

Next, we use our modified analytic sample and framework described above to address RQ4, examining whether PSH and RRH effectiveness in general and PSH's disproportionate effectiveness among Black older adults compared to otherwise-similar White ones appears amplified once individuals turn 65 and become eligible for Medicare/Social Security. As a first step we estimate unadjusted probabilities that a given CoC service was followed by a return to emergency shelter or street outreach before the end of 2023, disaggregated by the age of the individual at CoC service entry and by whether the CoC service is marked as RRH, PSH, or any other type of service (see Figure 9).

The descriptive patterns for CoC services received by individuals age 60 through 70 at service entry do not reveal any clear discontinuity around age 65 in the risk of returning to CoC services as we originally posited might be the case due to social safety net program eligibility. Recurrent homelessness risk appears relatively consistent regardless of the specific age of entry within the 60–70 age range. The slight drop in this risk that is detectable among PSH and RRH recipients is between age 66 and 67, not between 64 and 65, and it is not sustained, particularly among RRH recipients. Descriptively at least, we do not see clear evidence that PSH and RRH effectiveness is amplified once individuals turn 65.

A more rigorous test of this potential age-based discontinuity in intervention effectiveness is presented in Table 12. Here we narrow our analytic sample range to just above and below the retirement-age (age 65) threshold — i.e., age 62–64 versus 65–67 — and run our most complete multivariate model specifications from Table 11. Table 12 does not reveal clear evidence of the age 65 threshold stratifying PSH/RRH effectiveness. Counter to theoretical expectations, the estimated main effects of scattered-site PSH and site-based PSH, as well as RRH, are actually slightly attenuated for individuals who are just over age 65 compared to those who are just below it. Although we expected a potential synergetic effect, whereby Housing First services and Medicare/Social Security eligibility could combine to steeply reduce the risk of recurrent homelessness, we do not see evidence of that here. The lack of a clear discontinuity at age 65 may reflect the fact that many individuals in this subpopulation were likely to qualify for, and enroll in, Social Security Disability Insurance, Medicaid, or other social safety net programs in the years before they turned 65.

However, there is some marginal evidence of a three-way interaction, whereby among those who are just over age 65, the amplified risk-reducing effect of scattered-site and project-based PSH for Black individuals compared to White ones is more pronounced than it is for those who are just under age 65. Small sample sizes preclude assessing similar patterns for non-Hispanic American Indian/Native Americans versus White older adults, but future research should probe the potentially complex interactive effects between individuals' race/ethnicity, Medicare/Social Security eligibility, and Housing First interventions.

Figure 9. Unconditional Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only by Service Type and Age at Date of CoC Service Entry (2013–2023)
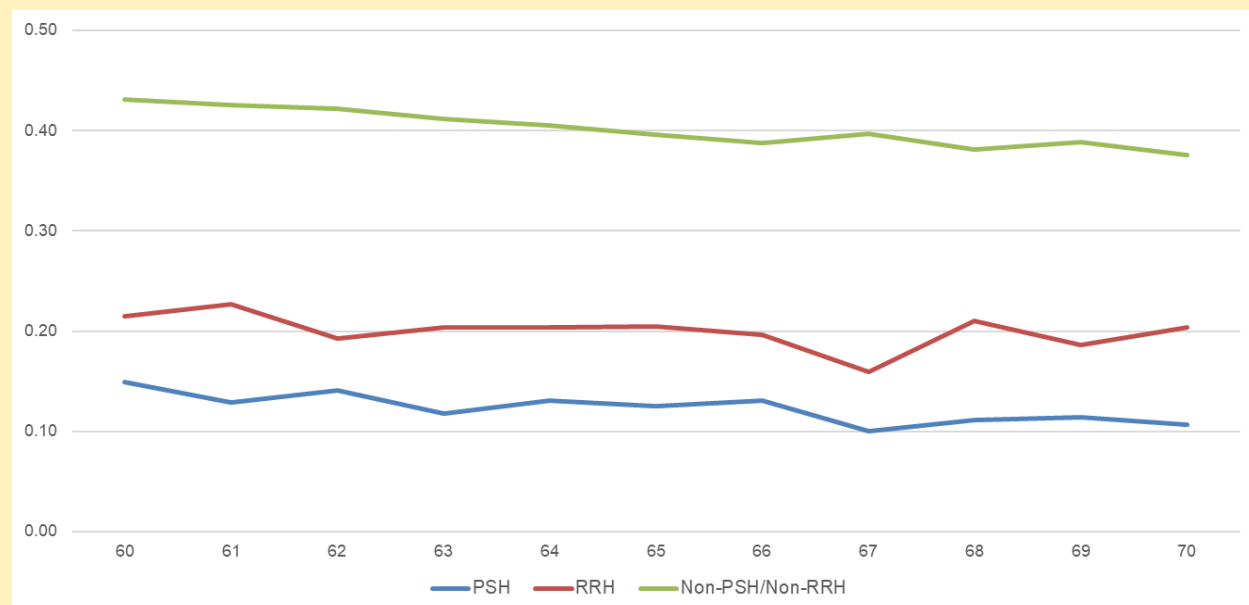
Notes: [1] Age is estimated based on difference between birth year and year of CoC service entry. [2] PSH = Permanent Supportive Housing; RRH = Rapid Rehousing.

Table 12. Age-Stratified Linear Probability Models (OLS) Predicting Probability of Returning for L.A. County CoC Service: Emergency Shelter or Outreach Only, with PSH Disaggregated by Site-Based versus Scattered Site

	Model 1	Model 2	Model 3	Model 4
CoC Service Timeframe	2013-2019		2013-2023	
Age at CoC Entry	62-64	65-67	62-64	65-67
Race/ethnicity X CoC service type interactions				
Black X PSH-site	-0.06 (0.04)	-0.04 (0.05)	-0.03 (0.03)	-0.08* (0.03)
Black X PSH-scatter	-0.05 (0.05)	-0.09 (0.06)	-0.05 (0.03)	-0.11** (0.04)
Black X RRH	-0.03 (0.02)	-0.02 (0.04)	-0.07** (0.02)	-0.06* (0.02)
Black X TH	0.02 (0.04)	-0.11* (0.05)	-0.00 (0.03)	-0.09* (0.04)
Black X PH	-0.19 (0.10)	0.22 (0.15)	-0.15 (0.09)	0.23 (0.14)
Black X OTH	-0.09** (0.02)	-0.06* (0.03)	-0.09** (0.01)	-0.08** (0.02)
Focal CoC service: type of service received (ref: emergency shelter)				
PSH-site	-0.26** (0.08)	-0.34** (0.10)	-0.29** (0.04)	-0.25** (0.05)
PSH-scatter	-0.40** (0.09)	-0.19** (0.11)	-0.29** (0.05)	-0.22** (0.06)
RRH	-0.23** (0.07)	-0.24** (0.09)	-0.21** (0.03)	-0.17** (0.04)
TH	-0.17 (0.09)	-0.16 (0.11)	-0.16** (0.06)	-0.08 (0.07)
PH	-0.13 (0.17)	-0.45** (0.17)	-0.22 (0.14)	-0.49** (0.18)
OTH	0.03 (0.06)	-0.05 (0.08)	0.03 (0.03)	-0.00 (0.03)
Race/ethnicity (ref: Non-Hispanic White)				
Non-Hispanic Black	0.04** (0.02)	0.05** (0.02)	0.04** (0.01)	0.05** (0.01)
CoC Service *N*	18,685	11,363	44,217	28,511
Person *N*	10,196	6,296	21,038	13,918

Notes [1] Analytic sample individuals' age is estimated on based on CoC service entry date and birthdate. [2] Type of CoC service-PSH-site: Permanent supportive housing-site-based; PSH-scatter: Permanent supportive housing-scattered site; RRH: Rapid rehousing; TH: Transitional housing; PH includes: Permanent Housing: Housing Only; Permanent Housing w/ services no disability required. OTH includes: Coordinated entry; Services Only; Homelessness Prevention; Street Outreach; Other. [3] All models include controls for continuous age at entry and age-squared, as well as fixed effects capturing: individuals' first year of CoC service; service entry date year, service month, date year-month combination. Additional controls account for gender/household structure, as well as vulnerabilities and past experiences and vulnerabilities and past experiences interactions with CoC service type indicator variables. [5] Standard errors clustered by person. [5] **p<.01,*p<.05 (two-tailed test).

Probing Disparities in Access to Housing First Interventions by Age, Race, and Vulnerabilities

Our supplementary quantitative analyses presented confirm the key findings from our main analyses: Housing First interventions, specifically RRH and PSH, appear remarkably effective in reducing recurrent homelessness risk during the 2013 through 2023 period in Los Angeles County — particularly for older adults (age 55+) who are Black and potentially American Indian/Native American. Given the encouraging evidence regarding these interventions' effectiveness and their equity implications, a logical next question is whether there are disparities in access to these interventions based on age, race, and vulnerabilities like disabilities or prior homelessness experiences.

To examine these possibilities, Table 13 includes linear probability models predicting the probability a given focal CoC service received by an individual who was age 25–54 was categorized as PSH (Model 1), RRH (Model 2), PH (Model 3), or TH (Model 4) as a function of the full set of service recipient variables (i.e., age, race/ethnicity, and gender/household and time of service controls) included in our prior models. We replicate the same model specifications for older adults (age 55+), as well (Models 5–8). Note that the analytic sample is the same one used for our other supplementary analyses and thus covers the full 2013–2023 period.

Among both younger/middle age adults and older adults, Black individuals are significantly more likely to receive RRH and PSH than White individuals, even after adjusting for our extensive set of control variables. Specifically, among younger/middle age adults, Black individuals are 0.7 and 2 percentage points more likely to receive PSH and RRH, respectively, compared to otherwise-similar White individuals. Among older adults, the respective Black advantages in access are 0.4 and 1.4 percentage points. Although these racial gaps are small in absolute terms, they are nontrivial in relative terms.
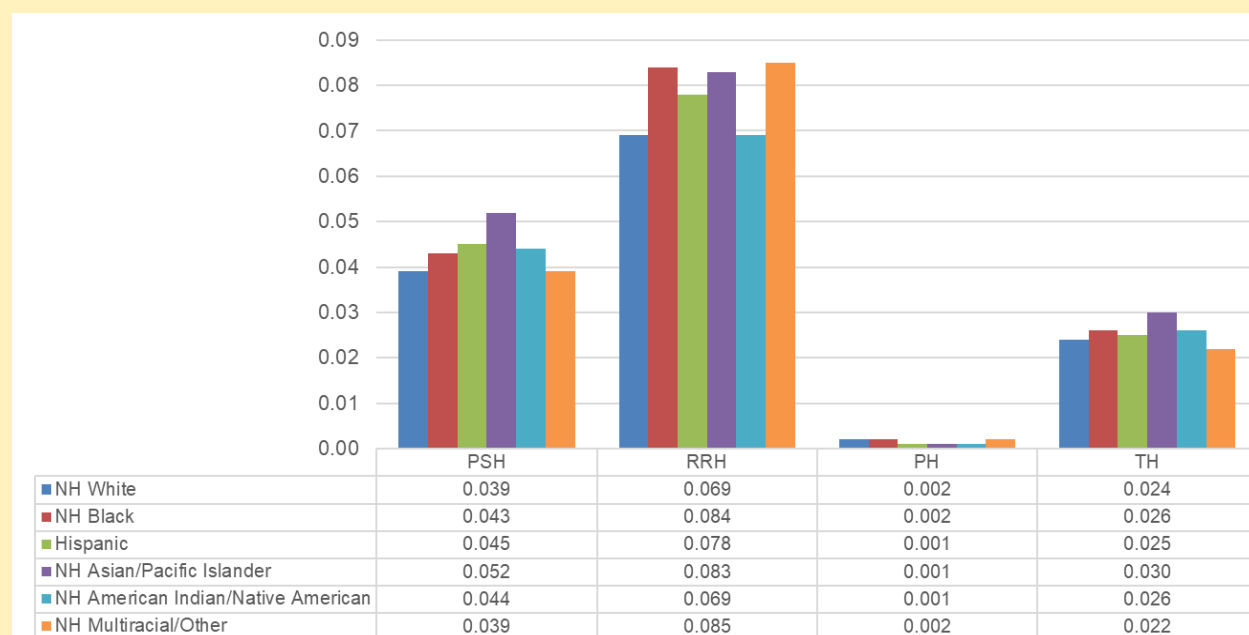
Figure 10 reinforces this intuition, by presenting conditional probabilities of receiving PSH, RRH, PH, or TH among older adults, stratified by race/ethnicity, after statistically adjusting for all control variables. Here, Black older adults are estimated to have a 4.3% likelihood of accessing PSH during a given CoC service spell, which is 0.4 percentage points higher than the analogous figure for otherwise-similar White older adults (3.9% likelihood of accessing PSH) and amounts to a nearly 10% Black versus White gap in relative terms. In terms of RRH, Black older adults are estimated to have an 8.4% likelihood of accessing RRH during a given CoC service spell, compared to just under 7% for otherwise-similar White older adults — a relative gap of approximately 20%.

Among older adults, Hispanics and non-Hispanic Asian/Pacific Islanders also appear to access PSH at significantly higher rates than White individuals, all else equal, and among younger/middle age adults these two groups have significantly elevated access to RRH, as well. Non-Hispanic American Indians/Native Americans do not exhibit significant differences with Whites in PSH and RRH access among older adults though they do access PSH at higher rates than do Whites within the younger age stratum.

Finally, it is worth noting that veteran status and disabilities both confer the expected effects

on PSH and RRH access, with the former conferring large increases to these probabilities, within both age strata, all else equal. In terms of disabilities, those with physical, chronic, and mental health conditions or HIV/AIDS are significantly more likely to access PSH within both age strata, as are individuals with a higher number of prior CoC services between 2013 and 2023, before the focal CoC service. Similar patterns emerge when assessing predictors of RRH access within both age strata, with two key exceptions: for this intervention type, having a mental health disability or HIV/AIDS is significantly associated with a *lower* rate of RRH access, all else equal. Substance abuse is also significantly predictive of a lower probability of RRH access across both age strata. Overall, these patterns suggest RRH and PSH are disproportionately allocated to some of the highest-need groups in Los Angeles County, including Black older adults. However, during the 2013–2023 period, RRH and PSH each constituted less than 10 percent of CoC services, underscoring the importance of rapidly and sharply increasing access to Housing First interventions in Los Angeles County.

Figure 10. Conditional Probability of Accessing L.A. County CoC Service Type by Race/Ethnicity Among Older Adults at CoC Service Entry (2013–2023)

	PSH	RRH	PH	TH
■ NH White	0.039	0.069	0.002	0.024
■ NH Black	0.043	0.084	0.002	0.026
■ Hispanic	0.045	0.078	0.001	0.025
■ NH Asian/Pacific Islander	0.052	0.083	0.001	0.030
■ NH American Indian/Native American	0.044	0.069	0.001	0.026
■ NH Multiracial/Other	0.039	0.085	0.002	0.022

Notes: [1] Age is estimated based on difference between birth year and year of CoC service entry. [2] NH = Non-Hispanic. [3] PSH = Permanent Supportive Housing; RRH = Rapid Rehousing; PH = Permanent Housing; TH = Temporary Housing. [4] Conditional probability estimates above are based on output from Table 13, Models 5–8

Table 13. Age-Stratified Linear Probability Models (OLS) Predicting Probability of Receiving a Given Type of Los Angeles County CoC Service (2013-2023)

CoC Service Type Outcome:	Young/Middle Age Adult at CoC Service Entry (25-54) (Service N=613,857)				Older/Retirement-Age Adult at CoC Service Entry (55+) (Service N=259,767)			
	Permanent Supportive Housing	Rapid Rehousing	Permanent Housing	Transitional Housing	Permanent Supportive Housing	Rapid Rehousing	Permanent Housing	Transitional Housing
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Race/ethnicity (ref: Non-Hispanic White)								
NH Black	0.007** (0.001)	0.020** (0.001)	0.000 (0.000)	-0.004** (0.001)	0.004** (0.001)	0.014** (0.001)	-0.000 (0.000)	0.001 (0.001)
Hispanic	0.004** (0.002)	0.012** (0.001)	0.000 (0.000)	-0.001 (0.001)	0.004** (0.001)	0.002 (0.001)	-0.001** (0.000)	0.001 (0.001)
NH Asian/Pacific Islander	0.007** (0.002)	0.014** (0.003)	0.000 (0.000)	0.003 (0.002)	0.011** (0.003)	0.007 (0.004)	-0.001 (0.000)	0.006** (0.002)
NH AIAN	0.007* (0.003)	0.006 (0.004)	0.000 (0.000)	-0.002 (0.002)	0.002 (0.004)	-0.007 (0.006)	-0.001* (0.001)	0.002 (0.004)
NH Multiracial Other	0.003* (0.001)	0.006** (0.002)	0.000 (0.000)	-0.003** (0.001)	-0.002 (0.002)	0.009** (0.003)	0.000 (0.001)	-0.003 (0.002)
Vulnerabilities/Past Experiences								
Veteran	0.014** (0.001)	0.176** (0.003)	-0.003** (0.000)	0.108** (0.002)	0.012** (0.001)	0.156** (0.002)	-0.003** (0.000)	0.100** (0.002)
Veteran status unknown	-0.007** (0.001)	-0.011** (0.001)	-0.000** (0.000)	-0.004** (0.001)	-0.016** (0.001)	-0.017** (0.002)	-0.001** (0.000)	0.002* (0.001)
Disabilities								
Physical	0.011** (0.001)	0.004** (0.001)	-0.000* (0.000)	-0.003** (0.001)	0.007** (0.001)	0.015** (0.001)	-0.000 (0.000)	0.004** (0.001)
Developmental	-0.007** (0.001)	0.004** (0.001)	-0.000 (0.000)	-0.005** (0.001)	-0.010** (0.002)	0.002 (0.002)	-0.001* (0.000)	-0.008** (0.001)
Chronic	0.013** (0.001)	0.017** (0.001)	0.001** (0.000)	-0.001 (0.001)	0.019** (0.001)	0.026** (0.002)	0.000 (0.000)	-0.000 (0.001)
HIV/AIDS	0.046** (0.003)	-0.022** (0.002)	0.005** (0.001)	0.013** (0.002)	0.031** (0.004)	-0.016** (0.004)	0.003** (0.001)	0.001 (0.003)
Mental	0.030** (0.001)	-0.006** (0.001)	0.001** (0.000)	0.009** (0.001)	0.035** (0.001)	-0.007** (0.001)	0.001** (0.000)	0.007** (0.001)
Substance abuse	0.005** (0.001)	-0.017** (0.002)	-0.000 (0.000)	0.017** (0.001)	0.003 (0.002)	-0.020** (0.002)	-0.000 (0.000)	0.015** (0.002)
# prior CoC services	0.003** (0.001)	0.002** (0.000)	0.000** (0.000)	-0.001** (0.000)	0.004** (0.000)	0.006** (0.000)	0.000** (0.000)	-0.001** (0.000)
# prior CoC services-square	-0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000** (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000** (0.000)	0.000** (0.000)
Times Homeless in Past 3 Years								
Once	-0.014** (0.001)	0.027** (0.001)	-0.002** (0.000)	-0.011** (0.000)	-0.025** (0.001)	0.008** (0.002)	-0.003** (0.000)	-0.012** (0.001)
Twice	-0.023** (0.001)	0.015** (0.001)	-0.001** (0.000)	-0.007** (0.001)	-0.038** (0.002)	-0.004 (0.002)	-0.001** (0.000)	-0.006** (0.001)
Three times	-0.022** (0.001)	0.005** (0.002)	-0.001** (0.000)	-0.005** (0.001)	-0.033** (0.002)	-0.011** (0.003)	-0.002** (0.001)	-0.001 (0.002)
Four or more times	-0.021** (0.001)	0.002 (0.001)	-0.021** (0.000)	-0.008** (0.001)	-0.035** (0.001)	-0.014** (0.002)	-0.003** (0.000)	-0.006** (0.001)
Unknown	-0.004** (0.001)	-0.022** (0.001)	-0.002** (0.000)	-0.003** (0.001)	0.002 (0.002)	-0.037** (0.001)	-0.003** (0.000)	0.006** (0.001)

Notes [1] Analytic sample individuals' age is estimated on based on CoC service entry date and birthdate. [2] Type of CoC service-PH includes: Permanent Housing: Housing Only; Permanent Housing: w/ services but no disability required. [3] All models include controls for continuous age at entry and age-squared, as well as fixed effects capturing: individuals' first year of CoC service; service entry date year, service month, date year-month combination. Additional controls account for gender/household structure. [4] Standard errors clustered by person. [5] ** p <.01, * p <.05 (two-tailed test).

QUALITATIVE ANALYSES

Our quantitative analyses underscored the potentially powerful benefits of Housing First interventions in general, and PSH in particular, on reducing older adults' risk of returning to homelessness services. These positive PSH effects, relative to an ES counterfactual, appear pronounced among Black older adults compared to White ones, even after adjusting for group differences in individual-level vulnerabilities and past homelessness histories.

We thus sought to better understand older adults' tenures in PSH, their placement processes, and — crucially — whether and how these experiences vary across race/ethnicity. To this end, we interviewed a racially-diverse sample of older adult PSH residents from two housing providers. Both providers connected us with single-site PSH residents, while the latter also introduced us to PSH-scattered site residents. Probing residents' first-hand accounts of their experiences in PSH, as well as their needs and personal goals, enriched our understanding of how PSH works — and hinted at why its effectiveness may diverge across race/ethnic lines.

Semi-Structured Interviews

Housing Provider 1

In Spring 2024, we interviewed older adult residents (ages 55+) of Housing Provider 1 (HP1).[1] HP1's PSH building is located in downtown Los Angeles and follows a project-based PSH model, wherein residents live on-site in independent apartments but receive access to on-site services, programming, case management, and some congregant living spaces. HP1 residents have access to courses and certificate programs, daily programming (e.g., art courses, therapy, classes on health management, etc.), occupational therapists and an on-site nurse, case management, and meals. After recruiting respondents at a monthly community meeting, we conducted seven interviews with HP1 residents.

Housing Provider 2

Our remaining project-based and scattered-site participants receive services through a second PSH housing provider, Housing Provider 2 (HP2) HP1 operates several project-based PSH buildings across Los Angeles County, as well as scattered-site PSH. We recruited project-based residents from three project-based buildings that are located in the same service provider area (SPA) as the HP1, SPA 4. Two buildings are located in Northeast Los Angeles, and the third building is restricted to adults 55 and older and is in Central Los Angeles. In all three buildings, residents live in independent apartments but have access to congregant living spaces, such as lounges, meeting rooms, and outdoor patios. Compared to HP1 (which appears to offer an atypically large number of services to residents), there are relatively fewer on-site services at

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1   We anonymize the names of both housing providers.

HP1's project-based buildings. These buildings offer monthly meetings, but hold fewer on-site workshops, healthcare, or meal opportunities. To recruit project-based HP2 residents, program staff advertised a lunch meeting to residents where USC team members presented the project and requested their assistance. We recruited scattered-site residents by working with case managers to circulate recruitment materials to eligible scattered-site clients (ages 55+). Most scattered-site respondents also lived in SPA 4. However, to reach our target of 20 scattered-site participants, in total, we also interviewed clients living in SPAs bordering SPA 4: SPA 5 (two respondents), SPA 6 (four respondents), and SPA 7 (one respondent).

Qualitative Sample Description

Overall, 60% of sample are men (24 respondents), with an average age of 66 (ranging from 55 to 80). 12 were non-Hispanic White, 14 respondents were Black, 11 respondents were Hispanic or Mexican American, two respondents were mixed-race (Native American and non-Hispanic White), and one respondent was Vietnamese. We audio-recorded each interview and transcribed them verbatim. Interviews lasted about 1 hour and 20 minutes, on average (ranging from 26 minutes to nearly three hours). Respondents were compensated with their choice of a $50 Amazon or Visa gift card for their time. We refer to all respondents in the results using a pseudonym of their choice.

Table 14. Interview Sample, Descriptive Statistics

	Scattered-site		Project-based	
	N	% or mean	N	% or mean
Men	13	65	11	55
Age		68		65
Race/ethnicity				
Non-Hispanic White	6	30	6	30
Black	8	40	6	30
Hispanic	5	25	6	30
Asian	1	5	0	0
Multiracial	0	0	2	10
N		20		20

Qualitative Data Analysis

Our qualitative analytic process followed several stages. First, we developed an initial project codebook based on themes from the interview guide and past research on residents' experiences in PSH. We used this initial codebook to code a subset of five interviews, with attention to emerging codes and themes. Then, we revised the codebook and coded the entire sample, recoding the initial five interviews. A team of trained graduate student research assistants helped with coding. Overall, 30 of the 40 interview transcripts were reviewed by at least two team members, and we met weekly to discuss and resolve any coding discrepancies that emerged. After coding was complete, we used individual codes (e.g., "PSH placement process") to write analytic memos that examined differences in residents' experiences across race/ethnicity and PSH site setting (project-based or scattered-site).

Results: Qualitative

In the quantitative section presented above, we considered three key mechanisms that may underlie the race/ethnic differences in the effectiveness of PSH in reducing older adults' returns to homelessness services we observed. First, it is possible that racially stratified PSH enrollment processes could lead to group differences in the quality of PSH services that older adults eventually access. Second, among participants within the same PSH program, older adults of different racial/ethnic backgrounds may have diverging experiences in the PSH setting. For example, within the same PSH program, there could be race/ethnic differences in the quality of services provided, mismatches between services and needs, and perceived support from PSH staff. Third, older adults of different racial/ethnic backgrounds within the same PSH program may endure different exit pressures; in turn, disparities in these exit pressures could stratify rates of premature exits. Of these three explanations, the first (i.e., racially stratified PSH enrollment processes) received the most support in our quantitative analyses; we found that White older adults appear to sort disproportionately into lower quality scattered-site PSH programs.

Our qualitative findings echo this point and underscore that the PSH sorting process unfolds distinctly for White and Black respondents. We systematically examined interview transcripts for racial/ethnic differences across these three same domains: (1) the PSH enrollment and housing search process, (2) residents' experiences while living in PSH, and (3) residents perceived exit pressures. We found that during the placement process, White and Hispanic respondents expressed strong location preferences and that at times, these preferences are rooted in racist appraisals of Los Angeles neighborhoods. We found that differences in residents' experiences while living in PSH are more pronounced across settings, rather than across race/ethnicity within particular settings, per se. Finally, we found few racial/ethnic differences in perceived exit pressures. However, most respondents who had plans to move voluntarily in the short to mid-term future were White, while Black residents were generally more cautious to initiate another move.

Overall, racial/ethnic differences vis-à-vis the first domain (i.e., PSH enrollment and housing search) emerge as the most plausible explanation for racial/ethnic differences in the effectiveness of the PSH intervention in reducing returns to homelessness. Our interviews suggest that White older adults may select PSH providers based on their neighborhood location, paying less consideration to other dimensions of the PSH experience that are consequential for their success in PSH. In contrast, most Black older adults prioritize immediate entry into safe, single-occupant housing options. This likely reflects past challenges that Black clients face in accessing safe shelter in a discriminatory housing market. In their search for placements in relatively Whiter, wealthier neighborhood spaces, White older adults may enter PSH placements that do not adequately meet their other needs, which could lead to premature exits. Holding out for placements in desirable neighborhoods may also partially explain why White older adults access both RRH and PSH at lower rates compared to otherwise-similar Black older adults.

Racial/ethnic differences in PSH enrollment processes

First, we examined whether there are major racially stratified patterns vis-à-vis the PSH placement process. Overall, we found that across race/ethnicity, respondents do not report much agency over the housing *provider* placement process. Respondents become connected to the Coordinated Entry system through a range of street-level bureaucrats, including shelter staff, religious organizations, medical providers, and parole officers. After entering the Coordinated Entry process, White, Black, Hispanic, and mixed-race respondents alike report "being sorted" to their current housing provider. Once they arrive at a housing provider, many respondents express strong preferences for housing placements within neighborhoods. For several non-Hispanic White and Hispanic residents, these preferences were explicitly rooted in racist, anti-Black appraisals of Los Angeles neighborhoods. In their pursuit of a more "desirable" neighborhood, some White respondents churned through several PSH placements as they moved into units and sought transfers to other areas. In contrast, Black respondents adopted an "anywhere but South Los Angeles or Skid Row" approach to neighborhood placement, as they perceived these two contexts as dangerous or as threatening their sobriety. White older adults may potentially trade off PSH placement characteristics that promote their recovery and stability in exchange for access to neighborhoods that they perceive as more "desirable" (typically with more affluent, White residents).

Matches to housing providers are similar across race/ethnicity. Respondents across race/ethnicity describe relatively little control over their housing provider placement process. Most tell us that they "were matched" to their housing provider, and almost all respondents reported that they did not have an alternative outside of their current provider. For instance, Sally (White, PB, HP1) described her placement process as follows: "I didn't know where I was. The next morning, I woke up and some woman in the shelter told me to go to [HP1]." When we probed about the placement process, she elaborated: "You just put in your paperwork, and you're accepted. You don't know where you're going. They don't tell until your paperwork's finalized." Mark (White, PB, HP2) agreed, telling us that he had very little control over where he would live: "I was always looking at [the housing placement] process from the outside…The way they put it, you were matched to it. That's the vocabulary that I like to use." Black respondents described the housing process in similar terms. For instance, Jones (Black, SS, HP2) told us that "[the housing search] was a blur, and I had no idea. Wherever we could end up, we went." In general, respondents describe a confusing, drawn-out placement process that involved a constellation of different housing services and nonprofits. Though other housing services nonprofits are heavily involved in their placement, respondents do not report having other PSH provider options.

Neighborhood preferences among White and Hispanic respondents. In contrast, when it comes to housing rather than provider placements, White and Hispanic respondents reported much stronger neighborhood preferences than Black respondents. Some of these preferences were explicitly rooted in racist appraisals of Los Angeles neighborhoods. For example, soon after Cavallo (White, PB, HP2) moved into his current unit, he was offered another apartment in Inglewood, a historically Black city that borders Los Angeles. He turned the placement down,

explaining: "It was a lot of Blacks, and the building just didn't look right. The maintenance, the office personnel, their attitudes weren't right for me. I just said, 'Heck with it, I'll just stay where I'm at'" (in Northeast Los Angeles). Similarly, Yessenia (Hispanic, PB, HP2) told us: "I would never go to South Los Angeles. I just don't like certain people for certain reasons. I was never brought up that way…I just don't understand why they put Hispanics and Blacks together, anyway. Just to start trouble, I guess."

Some respondents were even willing to endure longer wait times rather than enter a neighborhood that they perceived as less desirable. Using racially coded language, Ross (White, SS, HP2) explained that one of his housing options in Van Nuys was "ghetto," and he refused to move in. He recalled: "I'm not doing ghetto. I just can't. It was trashy outside. It was crappy. I'll be so depressed, I'll die." Instead, he asked for a placement in West Hollywood, where he had lived before he lost his housing: "[I said], 'I'm sorry, but I want to live in West Hollywood.' They go, 'That's a hard one.' I go, 'I don't care. I believe you can do it. Bye.'" Harry (White, SS, HP2) concurred, telling us about one apartment he visited that he subsequently declined: "I didn't want to live in a poor neighborhood…there was trash everywhere, gangs were hanging out around there…I came out of there so depressed. I can't live there."

Clients' neighborhood preferences are also rooted in their own housing histories in Los Angeles, which are deeply shaped by racial segregation. As a result, respondents end up advocating for placements in neighborhoods with which they are most familiar, overlaying onto existing patterns of racial segregation. For example, Gloria (Hispanic, PB, HP2) told us that she grew up in El Sereno, a predominately Hispanic immigrant neighborhood, and she wanted a housing placement that was as close to her family as possible. Michael (White, SS, HP2) was initially placed in Boyle Heights, a predominantly Hispanic immigrant neighborhood, but he advocated for a Hollywood placement, where he had spent most of his adult years. He explained, "Hollywood is my spirit animal. Boyle Heights, 95% of Boyle Heights is Mexican. There's like maybe 1% of us Blancos there. It wasn't anything against the racial makeup of the area. It was just because Hollywood is my home."

Neighborhood preferences among Black respondents. In contrast, Black respondents generally were more open to most neighborhood placements. For instance, Scott (Black, SS, HP2) moved into his current apartment after he experienced an extreme health crisis that led him to lose a well-paying job as a truck driver. After he exited the hospital, a social worker connected him to Housing Provider 2. Here, he describes his placement process:

Interviewer:	Where did you want to live?
Scott:	Oh man, anywhere but the street. I accepted the first available suggestion of the social worker. I'm not in a position to pick and choose where to go.
Interviewer:	Were you hoping to live in Hollywood?
Scott:	I would have chosen anywhere that was available.

Like many Black respondents, Scott felt that he did not have the luxury to pick and choose between apartments or neighborhoods.

When they did express strong neighborhood preferences, Black respondents hoped to avoid South Central Los Angeles or Skid Row, two environments they perceived as unsafe or as threatening their sobriety. For example, Loyce (Black, PB, HP2) was offered a placement in South Central, which he turned down. He told us, "That's like going from the frying pan into the fire. South Central is crime ridden. It's full of gangs, drugs, no shopping center, nowhere to buy food. I'm a recovering addict. For me to go back into an environment like that, the odds are against me staying sober."

We also interviewed several Black respondents who did receive placements in South Los Angeles. These clients typically had family connections to these neighborhoods, valued moving into a community with more Black residents, or felt that safety concerns voiced by other clients were manageable. For instance, Charmaine (Black, SS, HP2) lived in several SPA 6 placements in Watts, a neighborhood in South LA. She reflected, "My kids don't feel safe, but I do really. My grandbabies be like, 'Granny, why are you going through the projects?' Why not?...I don't have no problems." Kim, a Black HP2 client living in a scattered-site placement in South Central , appreciated that she lived in a neighborhood with more Black residents: "I always came back to Los Angeles because I fit in. No one can pinpoint and say, Oh, that's where a Black lady lives. I'm just being real." Similar to White and Hispanic clients, for Charmaine and Kim, their own histories with particular Los Angeles neighborhoods prompted them to accept placements these spaces.

Racial/ethnic differences in obstacles confronted when living in PSH

Second, we examined racial/ethnic differences in obstacles confronted while living in PSH, including racial/ethnic differences in the quality of services provided, mismatches between services and needs, and differences in perceived support from PSH staff. We found that PSH services vary more widely across settings rather than across race/ethnicity We also found that the services/needs mismatch appears largest for residents in scattered-site settings. Finally, among participants in this particular sample, we found overt racial discrimination from PSH staff is uncommon, but that some residents reported discrimination from other neighborhood residents.

Quality of services. Older adults within the same PSH setting reported similar types and quality of services, across race/ethnicity. However, within PSH, and within project-based settings, there is wide variation in the types of services provided. For example, Anne (White, PB, HP1) told us that she has access to an on-site nurse, occupational therapist, and dental care. She also enjoys participating in her housing provider's programming, particularly art therapy and exercise classes, sharing: "I like that there are options to do things that are diversionary, to feel good, to feel like a normal human before any of the crap that got us here." Similarly, Miriam (Hispanic, PB, HP1), who also lives in HP1, appreciates that the building manager keeps a close eye on her wellbeing. Several months before our interview, the manager helped her avert a major health emergency after her knee surgery: "She knew something was wrong. They called the paramedics, and thanks to her, they saved my leg."

Other project-based settings offered relatively fewer wraparound resident services. For instance, some residents living in another project-based building described fewer resident activities. Juan (Hispanic, PB, HP2) hoped for "more social integration" in the building through more frequent community-building activities. He told us tearfully during his interview, "social health, that part of me is really lacking." Unlike Miriam, who felt well supported by PSH staff, Juan also felt that "it's very hard to tell" what PSH staff members are supposed to support him with, and that "to be honest, they don't do a lot." Similarly, Kobe (Black, PB, HP2) also noted that programming in his building was less frequent than what he would like and the activities that are available (such as Bingo) are not tailored to his interests.

Mismatches between services and needs. We also examined potential differences across race/ethnicity in the alignment between residents' needs and the services they ultimately received. We do not observe racial/ethnic differences in residents' needs within the same PSH placement. Black, Hispanic, White, and mixed-race respondents within similar placements all described a range of service needs, with no discernable pattern across race/ethnicity. However, we find that PSH setting (scattered-site versus project-based) appears to be more consequential for residents' needs/services alignment, with residents in scattered-site settings reporting the greatest degree of needs/services mismatch.

Scattered-site residents reported more sporadic contact with PSH providers and services. As a result, some scattered-site residents attempt to enlist others to patchwork gaps in their care. For instance, Michael (White, SS, HP2) struggles with COPD, and recently, his health has steeply deteriorated. To help with day-to-day tasks like medication refills, cleaning, and meal preparation, he hired another building resident to serve as his IHSS worker. However, he says that his neighbor is unreliable, and he will ask for additional wages to run errands. Loyce's (Black, SS, HP2) limited mobility also led him to hire a building resident. Here, he explains the arrangement: "I have a friend who I helped buy a car. In return for loaning him the money, he comes Friday and takes me to the store or to the bank." He also pays someone privately to clean his home — a task that an IHSS worker could typically complete. Loyce also has relatively little contact with his case manager. When we asked about the services he receives from them, he replied, laughing: "You tell me. I don't know because they ain't helping me with nothing."

In contrast, project-based residents' needs appear to be better aligned with the services that they receive. For instance, Mark (introduced above) also has limited mobility, like Loyce and Michael. However, he says that if he requests rides from an on-site manager 24 hours in advance, they will take him to run errands. He explains: "I'm unstable on my feet, so I have a medical reason to get driven to the grocery store. For that, if I give them a heads up, they got a car downstairs, they got a gas ration, they'll do it." Scattered-site residents rarely reported access to these types of services.

Racial discrimination by PSH staff and neighborhood residents. Notably, non-White respondents rarely felt PSH staff had treated them unfairly due to their race/ethnicity. One Black resident felt that he was racially profiled by a building manager, who was later fired for mistreating another resident. Given past work on racial discrimination in PSH (Milburn et al. 2021), this finding is

surprising. Respondents told us that many PSH staff members at the HP1 and HP2 are either Black or Hispanic, which may have reduced overt discriminatory treatment. It is possible that residents were discriminated against in ways that are more difficult to detect and report, such as through tenant steering or access to different quality services. It is also possible that residents did not feel comfortable disclosing discriminatory treatment from staff to the interview team.

Though no respondents reported experiencing discrimination from PSH staff, Black respondents living in Northeast Los Angeles and Hollywood did report racism from other neighborhood residents. For instance, Chuck (Black, PB, HP2) shared that "[Northeast LA] is a mixed bag. I just like living here because it is semi-safe. But this neighborhood is not really for Black people. I don't really see a lot of Black people around here." Loyce (Black, PB, HP2) concurred, telling us: "Blacks here are a minority. When I first moved here, I got a few reckless eyeballs from Hispanics in the community." Discrimination from neighborhood residents was not sufficient to prompt most Black residents to consider exiting their PSH placement. However, more extreme discrimination from an openly racist White building resident did prompt one Black resident, Charmaine, to seek out another PSH placement. As in Charmaine's case, it is possible that these experiences could push other Black residents to premature exits.

Racial/ethnic differences associated with PSH exit

Finally, we also assessed whether there are racial/ethnic differences in who experiences pressure to exit early from PSH. In this section, we highlight three principal findings. First, we find that interactions with building managers shape respondents' displacement fears, across race/ethnicity. These pressures appear heightened in project-based rather than scattered-site where building managers have a stronger presence. Second, we find respondents across race/ethnicity are largely content with their scattered-site and project-based placements, and they turn down opportunities to move into other types of PSH placements. Finally, though a majority of PSH residents planned to remain in place, among those who did have plans to move out, most were non-Hispanic White.

Interactions with building managers shape exit pressures. We asked residents if they worried that they would have to exit their PSH placement prematurely. Respondents' individual experiences with building management practices and building managers shaped their perceptions of exit risk, across race/ethnicity. For example, some Black respondents reported no exit pressures. Darlay (Black, PB, HP1), who lives in a project-based placement, told us, "They can't just throw us out. I'm secure here." In contrast, Anne (White, PB, HP1), who lived in the same placement as Darlay, did feel displacement pressure. After she saw a posted flyer that stated that residents should keep their apartments tidy or risk losing their voucher, Anne shared: "It made me feel, wow, they could kick people out. Not just me, anybody." We do not find evidence that non-White older adults, in general, or Black older adults, in particular, experienced greater frictions with their building managers.

However, we do find differences in perceived exit pressures across scattered-site and project-based placements. Building managers were generally more present in project-based, rather than

scattered-site settings. The managers' heightened presence led to more friction with residents and greater perceived exit pressures. For instance, Kobe (Black, PB, HP2), told us that he worries about being asked to leave because "[the manager] does pick and choose what she wants to complain about." In contrast, scattered-site respondents described a more hands-off approach to building management. Scattered-site residents felt that their building managers were most concerned about on-time rental payment, which is assured with their housing subsidy. For instance, Jones (introduced above) shared, "I'm one of the more stable people [in the building]. They don't want me to leave…they bring some really rough customers in there." Similarly, Ross (introduced above) has not felt any pressure to leave his scattered-site placement: "They love me, actually. They really like me. I'm good for them. It's clean. I'm a good influence on the others." Scattered-site older adults perceive that they offer landlords a non-disruptive and stable source of income, reducing their exit fears.

Though residents *perceive* fewer exit pressures in scattered-site placements, they may nonetheless still be exposed to other displacement risks that project-based residents do not face. For instance, Loyce (Black, SS, HP2) told us his building was recently sold to another owner. With the building changing hands, he received a 60-day notice in the mail and is facing an eviction. In contrast, project-based residents likely face fewer potential disruptions related to events like building sales, changes in management or ownership, and lease renewals, transitions that are ultimately highly consequential for residents' housing security.

Across race/ethnicity, scattered-site and project-based residents are content with PSH placement type. At the time of our interview, scattered-site and project-based respondents were largely content with their placement type. We do not find evidence of racially stratified patterns in respondents' satisfaction with their project-based or scattered-site placement; in fact, many respondents report turning down offers to alternative placements. For instance, Loyce (Black, SS, HP2), told us that he was on a waitlist to move into a project-based setting, but he disliked project-based placements: "I don't like projects. There's tremendous drugs in those places. I didn't want just shooting and killing, so I just gave it up." Sally (White, PB, HP1), a project-based resident, was offered a scattered-site placement after she was assaulted outside her building. However, she ultimately turned down the offer: "I said no, I have other plans. If I leave here, I'm going to be leaving with my own income, bank account, supporting myself."

Most residents with plans to move are non-Hispanic White. Finally, we found that although most respondents across race/ethnicity hoped to remain in place, among the minority of residents who had plans to move, most were non-Hispanic White. For instance, Ross (White, SS, HP2) told us that he hoped to move to a larger home in West Hollywood, his current neighborhood. Mark, who was living in Northeast Los Angeles, shared that he hoped to move closer to the LGBT senior center, which is located about two hours away on public transit from his current home. In contrast, relatively few Black or Hispanic respondents had plans to move voluntarily from their current placement. For instance, Charmaine (Black, SS, HP2) told us: "Even if there were problems here, I wouldn't say nothing. Because I love this place." Jim (Hispanic, SS, HP2) concurred, telling us

that he had no plans to move out of his scattered-site placement: "Not to scare you or nothing, or think that I'm crazy, but I plan to die right in my bedroom." Non-Hispanic White respondents perceive fewer housing market frictions than their Black and Hispanic peers; they anticipate fewer challenges to securing another home, independent of PSH. However, if they misjudge, this could potentially prompt a return to homelessness.

DISCUSSION & CONCLUSION

Motivated by the widely documented aging and browning of America's population, alongside spiraling housing costs within U.S. metropolitan areas, this study examines whether older adults of color exhibit an elevated risk of returning to homelessness services and whether promising Housing First interventions — namely, PSH and RRH — are especially effective in reducing this risk for older adults versus younger adults and for older adults of color versus White older adults. Using an administrative longitudinal dataset tracking nearly all individuals interfacing with CoC services in Los Angeles County, a major epicenter of the homelessness crisis, and in-depth interviews with 40 PSH residents in the City of Los Angeles, we advance past work on Housing First interventions (Gubits, et al. 2018; Henwood, et al. 2013) by mobilizing an intersectional approach to evaluate risk and program effectiveness.

Concretely, we reveal an age-race interaction in the risk of returning to homelessness services, with risk generally increasing with age, Black adults exhibiting higher risk compared to Whites within all age groups, and the Black-White gap increasing considerably at older ages. Black older adults (age 55+) thus emerge as one of the highest-risk subgroups; American Indian/Native Americans age 55–64 also exhibit very high levels of recurrent homelessness risk, as well. Clarifying which interventions are particularly effective for these subgroups is thus especially important.

Encouragingly, we foundthat Housing First interventions, specifically RRH and PSH, are highly effective at preventing returns to CoC services, overall, and they are associated with even larger risk reductions for older adults versus younger adults and for older Black adults than for otherwise-similar older White adults; differences in PSH-scattered site interventions' effects between older Black and White adults were most striking. Specifically, PSH-scattered site's estimated depressive effect on the probability of returning for CoC services was 49 percentage points larger for Black retirement-age (65+) adults than it was for otherwise-similar White retirement-age adults.

Supplementary analyses suggest that RRH and PSH may exhibit larger risk reduction effects for older American Indian/Native Americans, compared to older White adults, as well. Given the equity-promoting impacts of these two Housing First interventions, it is also important to note that Black older adults are more likely to receive them than are otherwise-similar White older adults.

 Although we hypothesized that the disproportionate recurrent homelessness risk reduction effects of Housing First interventions for older adults of color reflect group differences in individual-level vulnerabilities that these interventions are particularly well-equipped to address (e.g., disability profiles), we did not find clear evidence that supports this claim. Nor did we find

much evidence supporting another hypothesis we proposed: that, among older adults, turning 65 and qualifying for social safety net programs like Social Security and Medicare may depress the risk of returning for homelessness, particularly among Housing First participants.

Exploratory analyses probed one of many possible explanations for why Black older adults see larger risk reduction effects from PSH compared to otherwise-similar White older adults. Black and White older adults tend to live in distinct sets of scattered site PSH programs, and the scattered site programs that White older adults disproportionately enroll in are, on average, lower quality than the programs Black older adults disproportionately enroll in.

Our research design could not clarify how the Coordinated Entry system is generating these racially stratified PSH program sorting patterns. One possible hypothesis emerged from interviews with a diverse group of older adult PSH residents. These interviews revealed that White older adults appeared to prioritize neighborhood desirability (i.e., Whiter and wealthier neighborhoods) over other factors of PSH placement that may be more consequential for their long-term stability (e.g., service provider quality or the types of services available). Most Black older adults and some Hispanic older adults, on the other hand, reported openness to placements in any neighborhood and were hesitant to make plans to leave their PSH unit. In general, Black and Hispanic residents frequently face discrimination on the housing market, unplanned moves, and housing quality issues (DeLuca and Rosen 2022). As a result, Black and Hispanic PSH clients may be more inclined to accept "sure bet" placements that provide immediate access to relatively safe and stable shelter. Given that past qualitative research finds that Black PSH residents often view their placements as temporary (Milburn et al. 2021), this finding in the present study may be specific to older adults.

These racial differences in preferences could influence scattered site PSH placement outcomes via the Coordinated Entry system (CES), if White older adults disproportionately reject placements with higher-quality PSH service providers that are in lower desirability neighborhoods. It is also possible that Coordinated Entry staff steer White older adults into program slots on the basis of neighborhood rather than program quality. Ultimately, we do not know why these racially stratified patterns of PSH program sorting emerge and recommend future research that more directly observes how the CES process unfolds. This line of work could clarify why racially stratified patterns of PSH program sorting emerge and the implications of these patterns for the effectiveness of the PSH intervention.

Another possible explanation for PSH appearing more effective in reducing returns to homelessness among Black older adults versus White older adults that emerged from the interviews is that White older adults tended to feel more empowered to exit their PSH unit early and search for housing on their own. Due to the advantages that White movers have during the housing search, White older adults may underestimate the challenges involved with finding and maintaining independent housing, which could lead them to reenter homelessness if they exit PSH too early. In contrast, Black older adults appear to be more risk-averse around moving out, likely due to past housing search and housing quality issues these clients have experienced.

Both channels — i.e., White older adults' (1) stronger preferences for neighborhood desirability, which may come at the cost of PSH service provider and service quality, and (2) their more optimistic view of post-exit prospects in the housing market — could contribute to PSH conferring more modest risk reduction benefits for them than for Black older adults. However, the precise mechanisms by which racial differences in these orientations yield racial differences in outcomes could not be solidified based on the data available. In addition to employing qualitative methods to probe how CES processes may yield racially stratified sorting, future research should track race- and age-based sorting patterns vis-à-vis not only PSH program value-added quality as we did here but also vis-à-vis neighborhood desirability metrics (e.g., racial composition, median household incomes). This mixed-methods approach could clarify whether CES staff members are sorting older adults to PSH programs in a racially stratified manner that reflects their implicit assumptions about neighborhood preferences and "fit." Doing so could inadvertently lead White older adults to PSH units within more desirable neighborhoods but lower-quality programs, with higher exit rates.

Limitations and Extensions

The current study pointed toward both the disproportionate risk of recurrent homelessness faced by Black older adults and the disproportionate effectiveness of Housing First interventions in reducing this risk for this subgroup. However, additional research is needed to address the limitations of the analyses undergirding these findings. Below, we elucidate these key limitations and outline how future research could help overcome them.

1. *Moving beyond observational analyses to causal identification strategies.* Our study was limited in solidifying Housing First interventions' effectiveness in reducing recurrent homelessness risk overall, and in confirming whether its effectiveness varies by age and race, because we relied on observational rather than causal analyses. Although HMIS data enabled us to estimate overall and subgroup-specific intervention effects that statistically adjust for an extensive set of individual-level differences in vulnerability factors and past experiences, the possibility of omitted variable bias contaminating those effect estimates cannot be ruled out. Perhaps difficult-to-measure differences between individuals who receive Emergency Shelter versus RRH or PSH partially explain why the latter two intervention types correspond to lower recurrent homelessness risk. For example, it is possible that individuals who access RRH and PSH services exhibit higher levels of institutional savvy or subtle behavioral indicators of "fitness" on average, compared to those who receive Emergency Shelter. These unmeasured attributes could also correspond to better long-term housing security prospects and might generate biased estimates of each intervention's benefits. Mitigating this risk of bias requires experimental and quasiexperimental designs that re-estimate RRH and PSH overall and age- and race-disaggregated effects. Properly powered studies that randomly assign RRH and PSH slots to a large sample diverse in

age and race composition would be optimal. Another, likely more feasible, option would be a regression discontinuity approach that leverages exogenous shocks to the probability a given individual receives RRH or PSH. For example, in Los Angeles County, the probability of receiving RRH nearly doubled in December 2020 and January 2021 due, perhaps, to an unexpected surge of resources; RRH treatment probability subsequently returned to baseline levels. Comparing recurrent homelessness risk among those who entered CoC service within this two-month period to those who entered immediately before and after, and disaggregating these analyses by age and race, may generate more plausibly causal estimates of RRH effects for each subgroup of interest. A similar strategy could be employed to re-estimate PSH effects if a discontinuity in PSH treatment probability could be identified.

2. *Encompassing a broader set of outcomes.* Although HMIS data provide an extensive amount of information about individuals at risk of homelessness and their trajectories through the CoC service system, reliable outcome measures that can be used to track intervention effectiveness are limited. In this study, we followed prior research by employing returns to additional CoC services as our focal outcome; it is a plausible proxy for recurrent homelessness and ongoing housing insecurity that does not rely on CoC exit dates and destinations input by service providers, given widely held concerns regarding that data's accuracy. However, our selected outcome remains an imperfect measure of intervention effects on housing insecurity. For example, if individuals died during or after CoC service, relocated to other CoCs, or became unsheltered homelessness and were not contacted by street outreach, their outcome was marked as a non-return. The two latter scenarios may be particularly common among Hispanics who have experienced homelessness, given their elevated rates of undocumented status, which may coincide with higher levels of distrust and lower levels of CoC service engagement. Looking forward, data sharing agreements between CoCs, encampment clearance programs, eviction courts, health service providers, criminal justice entities, coroners' offices, and other government entities may help overcome this key limitation of our study and other studies that rely on HMIS data. These agreements may lead to alternative outcome variables that are less susceptible to various sources of bias and more comprehensive, by capturing how various CoC services predict risk of unsheltered homelessness (without street outreach), as well as mortality, emergency room visits, criminal justice involvement, eviction, and educational degree/job training enrollment and completion. This more expansive approach to examining homelessness service effectiveness would provide valuable clarification regarding how various types of services drive various types of outcomes to varying extents among various age-race subgroups. It would also facilitate more comprehensive cost-benefit analyses that may spur policymakers to invest much-needed resources in Housing First interventions, potentially in ways that are better-targeted from an equity perspective.

3. *Scrutinizing racial heterogeneity and other sources of variation in risk and intervention effectiveness in a finer-grained manner.* This study primarily focused on heterogeneity in recurrent homelessness risk and in Housing First intervention effectiveness between Black versus White older adults. This approach reflected several considerations, including the particularly elevated rates of disproportionality in homelessness risk exhibited by Black individuals in the United States and the particularly severe and longstanding structural disadvantages that underlie it. Evidence on disproportionality among Latinos and Asian/Pacific Islanders in the homeless population is more mixed, and multivariate models of recurrent homelessness risk and intervention effectiveness often did not yield significant differences between Whites and Latinos or Whites and Asian/Pacific Islanders, in contrast to consistently significant differences between White and Black older adults. This consistent pattern reflects, in part, the fact that within our HMIS dataset, the number of Black older adults was sufficiently large to estimate statistically significant differences. We had much less statistical power to identify differences between White and American Indian/Native American older adults, even though there was a strong rationale for highlighting heterogeneity between these two groups. Another challenge related to the American Indian/Native American group is how it is defined. We followed prior research in limiting this group to individuals who *only* identify as American Indian/Native American, but scholars and activists have recently critiqued this approach, arguing that it undercounts the population of individuals who have indigenous roots and obscures crucial variation within. Future work research should employ the emerging four-category classification of this subpopulation — American Indian and Hispanic; Multiracial American Indian and Hispanic; Multiracial American Indian; and American Indian/Native American alone — and assess whether risk and intervention effectiveness vary across these four subgroups (Los Angeles City/County Native American Indian Commission 2023). A similar logic might motivate disaggregating the Asian/Pacific Islander and Hispanic groups into finer-grained subgroups, given a growing recognition of the considerable heterogeneity in cultural identities and experiences within these broad categories. Beyond considerations of race/ethnicity, future research applying an intersectional lens should encompass gender identity and sexual orientation. Theorizing whether and why recurrent homelessness risk and intervention effectiveness might vary along each of these axes will be an important part of this line of inquiry.

4. Accounting for contextual effects. This study, like many others on homelessness — particularly those based on HMIS data, was limited in that it analyzed patterns within only one metropolitan area and did not disaggregate these patterns by the location within the metro where the services were received. This inattention to "contextual effects" may constrain the external generalizability of the study's findings; the patterns identified in Los Angeles County during the timeframe of interest may not necessarily apply to other places

and other time periods. A similar analytic framework that was employed for this study should be used to analyze data in other geographic and temporal contexts. Although we expect Housing First interventions to be similarly effective, and perhaps disproportionately for older adults of color as we saw in Los Angeles County during the 2010s, this should be empirically confirmed. Future studies conducted in Los Angeles and elsewhere should also attend to spatial variation in recurrent homelessness risk and intervention effectiveness within the metropolitan area. This form of contextual effects has been undertheorized in homelessness research, yet there are reasons to believe they matter. For example, different areas of a given metro may vary sharply vis-à-vis: public service and medical access/quality; concentrations of crime, violence, and over policing; degree of environmental toxicity and excessive heat; and access to viable employment opportunities and social support networks. These differences may have material implications for overall and subgroup-specific recurrent homelessness risk and for the effectiveness of various types of interventions. Future research should probe these possibilities.

5. *Opening the "black boxes" of Coordinated Entry and RRH/PSH program quality.* Two important findings emerging from this study's exploratory analyses — i.e., that PSH program quality varies considerably and that Black older adults tend to sort into higher-quality PSH programs compared to White older adults — point to two important lines of research that should be pursued moving forward. First, scholars should identify potential sources of variation in PSH effectiveness — at the neighborhood, building, and service provider levels. These explanatory factors might include, for example, buildings' sociodemographic/disability mix of residents; staffing resources/characteristics; services provided; quality of amenities/common spaces. Scholars should also gauge whether the factors identified vary in their effects based on client sociodemographics and disability profile. Once these key explanatory factors are identified, models should be developed to identify which groups of PSH recipients disproportionately sort into programs with different "levels" of these factors. Discrete choice models, for example, would help illuminate whether and why there are racial differences in sorting across PSH programs in ways that generate racial differences in access to high- versus low-quality programs. These analyses should be complemented by mixed-methods studies that specifically probe how Coordinated Entry systems sort people into various RRH and PSH programs. Our qualitative findings could not directly penetrate this "black box" of Coordinated Entry but opening it up seems crucial to explaining why there might be racially stratified patterns in who enrolls in which RRH and PSH program. One path forward might include examining whether and why the Los Angeles County CoC's Coordinated Entry System's transition away from the VI-SPDAT intake/risk assessment tool to the new Los Angeles Housing Assessment Tool (LA HAT) starting in 2020 led to shifts in racial differences vis-à-vis the probability of accessing RRH and PSH in general, and racial differences in

the quality of RRH and PSH to which they are matched, in particular. These analyses should be complemented by interviews with CES staff to help clarify whether and how perceptions of racial differences in neighborhood desirability preferences may contribute to sorting patterns, under the previously employed VI-SPDAT intake system and under the new LA HAT system.

Policy and Practice Implications

Given this study's core finding — that Housing First interventions appear highly effective in reducing levels of, and racial inequities in, recurrent homelessness risk among older adults — its key policy implication is that the number of RRH and PSH slots should be rapidly and exponentially increased. Precisely how this might be achieved remains less clear, particularly in a federal policy environment marked by resource retrenchment and a reflexive skepticism of Housing First interventions and equity-oriented arguments for them.

These challenging circumstances may necessitate a focus on expanding Housing First interventions for older adults by leveraging resources at the state and local levels. States with racially diverse and rapidly aging populations that are facing severe housing market headwinds are particularly important to invest in. State Medicaid systems may be one key intervention point. A growing number of states' Medicaid programs are allowing funds to support housing-related support (e.g., California Medicaid's CalAIM program). Channeling those funds to Housing First interventions may yield substantial returns on investment. Quantifying these returns through rigorous cost-benefit analyses would be valuable in expanding the share of Medicaid resources devoted to these interventions and in helping policymakers secure other sources of funds for them (e.g., via local propositions, like Measure A in Los Angeles County).

In addition to reinforcing the economic benefits conferred by investing in Housing First interventions among older adults, it will also be important to convey to policymakers and the public that Housing First appears to have important racial equity benefits. In recent years, policymakers have made lofty promises regarding how the state could combat longstanding structural disadvantages underlying stubbornly large racial inequities, particularly with regard to housing. But many of those promises remain unfulfilled. This study and others could help policymakers position Housing First as a key pillar of a racial equity agenda.

Foregrounding the racial equity implications of Housing First is imperative, especially given this study's findings that the program's effects appear to vary along race/ethnic lines. One way to institutionalize this orientation is to ensure state and local governments' measures of their interventions' effectiveness are disaggregated by fine-grained race/ethnic categories capturing participants' identities. Los Angeles County's Anti-Racism, Diversity, and Inclusion is taking such an approach as it implements Measure A; the strategies it adopts should be closely watched and potentially emulated in other jurisdictions.

Finally, it is important to consider the policy implications of a potentially surprising pattern

revealed by this study: that there may be substantial variation in RRH and PSH effectiveness based on the particular program, location, and service provider. Understanding the sources of this variation and attempting to reduce it, so that all programs exhibit a comparably high level of effectiveness, should be a key priority for policymakers and service providers. Achieving this will require designing and executing a peer learning agenda, where best practices are identified and implemented across the entire service provider sector, with ongoing monitoring and resource support provided by government entities. Ensuring consistently high quality in service provision is likely crucial to ensuring broad support for the Housing First interventions that will be needed to stem the looming crisis of older adult homelessness.

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