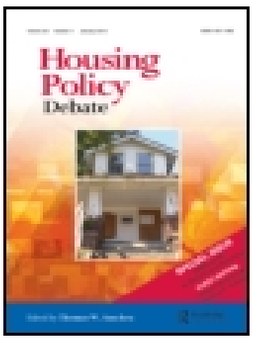

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The Effects of Rental Assistance on Housing Stability, Quality, Autonomy, and Affordability

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ABSTRACT

Federal rental assistance is an important source of affordable housing for low-income households, given a growing and severe affordable housing crisis. However, few studies have examined the extent to which rental assistance may improve housing access. This article examines associations between rental assistance receipt and four dimensions of housing: quality, stability, autonomy, and affordability. We draw on data from a longitudinal cohort study of low-income adults in New Haven, Connecticut, and use generalized estimating equations to examine associations between rental assistance receipt and housing measures. We find that participants receiving rental assistance had lower odds of reporting housing instability, low-quality housing, lack of autonomy related to housing, and some measures of housing unaffordability compared with those not receiving assistance. The large and highly significant effects remain after adjusting for demographic variables and factors that can impact access to rental assistance.

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Low-income U.S. households have seen housing costs grow dramatically while their incomes have plateaued or declined, leading to a severe shortage of affordable housing (Desmond, 2018; Sandel & Desmond, 2017). According to the U.S. Department of Housing and Urban Development (HUD), affordable housing should cost no more than 30% of a household's income. Households paying above about 30% are considered cost burdened (Center on Budget and Policy Priorities, 2019). Approximately 40% of Americans making 80% or less of the local median income are severely cost burdened, spending more than 50% of their income on housing (Center on Budget Policy and Priorities, 2019). HUD-funded rental assistance, in the form of project-based and voucher-based subsidies, is an important source of affordable housing for this group. However, because of supply constraints and lack of funding, fewer than 1 in 4 eligible households currently receive this assistance (Collinson, Ellen, & Ludwig, 2015; Fischer & Sard, 2017). A growing body of research indicates that this unmet need for rental assistance may be detrimental to the health and well-being of millions of Americans who would benefit from this resource but are unable to access it (Desmond, 2018; Keene, Niccolai, Rosenberg, Schlesinger, & Blankenship, 2020; Kim, Burgard, & Seefeldt, 2017; Swope & Hernández, 2019).

Rental assistance is designed to increase access to housing, for people who would otherwise be unable to afford it, by limiting tenants' rent to approximately 30% of their income. HUD provides housing assistance to approximately five million families in two forms: project-based assistance and tenant-based assistance (Center on Budget and Policy Priorities, 2019). Project-based housing includes public housing developments that are operated by local housing authorities, as well as privately owned affordable units

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and developments that are subsidized through grants to their owners. Tenant-based housing is provided in the form of Housing Choice Vouchers (HCVs), formerly called Section 8 Vouchers, which are issued to tenants to subsidize private market rent. These rental assistance programs, available to families earning below 50% of the area median income, make housing affordable by setting a tenant's rent at approximately 30% of their income.

By making housing affordable, rental assistance may also allow households to access safer and better quality housing, prevent evictions and forced moves, prevent doubling up and crowding, and provide individuals with more control over their home environment. Although recipients of rental assistance may still face a number of housing challenges (Ellen, 2018), on balance, because their rent is subsidized, rent-assisted households are likely to have more options than those who are waiting for these subsidies. As such, recipients of rental assistance may also have higher quality housing than those on wait lists, despite common narratives of poor quality rent-assisted housing (Buron, Kaul, & Patterson, 2003). However, more research is needed to examine the effects of rental assistance receipt on these dimensions of housing access. Thus, the purpose of this study is to examine the relationship between rental assistance receipt and four dimensions of housing access that are associated with well-being: housing stability, housing quality, housing autonomy, and housing affordability (Keene, Henry, et al., 2018; Swope & Hernández, 2019). To do this, we use data from JustHouHS, a longitudinal cohort study of 400 low-income adults in New Haven, Connecticut. We test the hypothesis that individuals on the wait list for rental assistance will report less housing stability, lower housing quality, less autonomy related to housing, and greater challenges with housing affordability compared with those receiving assistance.

Previous Research

Some prior research suggests that by making housing affordable, rental assistance may improve access to several aspects of housing that are important to health and well-being. First, some evidence indicates that rental assistance can improve housing stability and prevent evictions and forced moves (Desmond, 2018; Swope & Hernández, 2019). One study examining the association between rental assistance and change in housing stability among renters in the wake of the Great Recession found that receiving rental assistance reduced the chance of experiencing cost-related moves, evictions, and homelessness (Kim et al., 2017). Similarly, another recent study found lower rates of eviction among households receiving rental assistance compared with similar households below 200% of the poverty line that were not receiving rental assistance (Lundberg, Gold, Donnelly, Brooks-Gunn, & McLanahan, 2020). Other research finds that only public housing (not vouchers) reduced the overall number of moves that households experienced (Geller & Curtis, 2011; Geller & Franklin, 2014; Gold, 2018). One explanation for these findings may be that tenant-based assistance in the form of vouchers gives households the opportunity to move voluntarily by creating more affordable housing options. Whereas the existing literature has focused on the effects of rental assistance on actual moves, to our knowledge, no research has examined the effects of rental assistance on renters' subjective sense of stability, which may also have implications for health and well-being (Fenelon, Slopen, Boudreaux, & Newman, 2018; Keene, Henry, et al., 2018; Suglia, Duarte, & Sandel, 2011).

In addition to preventing housing instability, some existing evidence suggests that rental assistance may facilitate access to better quality housing than recipients could otherwise afford (Ahrens, Haley, Rossen, Lloyd, & Aoki, 2016; Sharfstein, Sandel, Kahn, & Bauchner, 2001). For example, one study found that voucher holders were more likely to report high or adequate quality housing than were a matched control group of unassisted renters (Buron et al., 2003). Another study compared children in rent-assisted households with an unassisted control group and found that the former had lower blood lead levels, suggesting less exposure to lead paint in rent-assisted housing (Ahrens et al., 2016). In contrast, the findings of a more recent study suggest that the quality of assisted and unassisted housing is comparable (Newman & Holupka, 2018).

The relationship between rental assistance and autonomy is largely unexplored in the existing literature. Autonomy includes volitional actions and the sense of self-motivation behind those actions, which scholars have argued is a vital human need (Marbell-Pierre, Grolnick, Stewart, & Raftery-Helmer, 2019). Housing autonomy may encompass both the ability to control one's current living conditions (for example, being able to control noise levels or the use of space) and the ability to control mobility (for example, choosing to move from undesirable housing or to avoid forced moves). In the latter case, the concept of autonomy adds to our understanding of residential stability. In a qualitative study of rental assistance and diabetes self-management, Keene, Henry, and colleagues (2018) found that rental assistance provided some participants with control over their living situation and daily routines by allowing them to afford their own housing instead of having to share housing. Another study suggested that housing vouchers reduced crowding and the shared housing arrangements that individuals often use to reduce the financial burden of housing costs (Wood, Turnham, & Mills, 2008). These few studies suggest that rental assistance may improve housing autonomy by providing tenants with control over their living spaces. However, to our knowledge, no research has examined relationships between rental assistance receipt and indicators of housing autonomy.

Finally, by holding rent at approximately 30% of an individual's income, rental assistance is designed to make housing more affordable. As expected, the large body of evidence on housing affordability indicates that rental assistance does indeed make housing more affordable for low-income renters (Getsinger, Posey, MacDonald, & Leopold, 2017; Kutty, 2005; Wood et al., 2008). Furthermore, some research suggests that the receipt of rental assistance can reduce the likelihood that renters with incomes near the poverty line will fall into housing-induced poverty (Kutty, 2005).

Each of the four housing dimensions investigated contributes to health (Braverman, Dekker, Egerter, Sadegh-Nobari, & Pollack, 2011; Keene, Henry, et al., 2018; Taylor, 2018). For example, studies suggest that housing instability is associated with limited health care access, poor mental health outcomes, and poorer self-rated health (Jaworsky et al., 2016; Keene & Geronimus, 2011; Reid, Vittinghoff, & Kushel, 2008; Suglia et al., 2011; Swope & Hernández, 2019). Poor housing conditions are associated with pests, which can trigger attacks of allergic sensitization and asthma (Do, Zhao, & Gao, 2016; Olmedo et al., 2011); dampness and mold, which negatively impact respiratory health and mental health (Institute of Medicine 2004); and a variety of other harmful environmental exposures, including lead, which can cause significant and irreversible adverse health effects (Centers for Disease Control and Prevention [CDC], 2012). Some research finds that housing autonomy can facilitate control over one's environment, which can capacitate the creation and maintenance of consistent health routines (Aidala, Cross, Stall, Harre, & Sumartojo, 2005; Padgett, 2007). Furthermore, unaffordable housing is associated with poorer self-rated health, hypertension, arthritis, and poor mental health (Bentley, Baker, Mason, Subramanian, & Kavanagh, 2011; Burgard, Seefeldt, & Zelner, 2012; Meltzer & Schwartz, 2016; Pollack, Griffin, & Lynch, 2010), and worrying about having enough money to pay rent is associated with depression and frequent mental distress (Burgard et al., 2012). Therefore, understanding the link between rental assistance and these housing dimensions can further our knowledge about the potential health benefits of rental assistance programs. Indeed, an emerging body of research suggests that rental assistance may have positive impacts for health (Fenelon et al., 2017, 2018; Keene et al., 2020; Slopen, Fenelon, Newman, & Boudreaux, 2018).

Research on the housing impacts of rental assistance is largely limited to single outcomes (Buron et al., 2003; Kim et al., 2017; Newman & Holupka, 2018; Wood et al., 2008), and the findings have, in some cases, been inconsistent (Buron et al., 2003; Newman & Holupka, 2018). In the current study, we extend the research on the impact of rental assistance on housing access, by examining multiple dimensions of housing including stability, quality, and affordability, and using comprehensive measures across these outcomes. We also use a wait list comparison group to partially account for unobserved differences between households that do and do not receive rental assistance, a limitation of some existing research.

Methods

Study Design and Setting

Data utilized in this analysis are drawn from JustHouHS, which was conducted in New Haven, Connecticut. The city of New Haven has approximately 130,000 residents (U.S. Census Bureau, 2019), and, like many cities throughout the United States, is experiencing a shortage of affordable housing. In 2016, more than half of renters in New Haven spent more than 30% of their incomes on rent, and 80% of those in the lowest quintile spent more than 50% of their income on rent (Abraham, Seaberry, Ankrah, & Clavette, 2019).

Rental assistance is a key component of New Haven's affordable housing landscape (Keene et al., 2020). In 2019, 9,111 New Haven households and 19,267 individuals received HUD-funded rental assistance in the form of Housing Choice Vouchers, traditional public housing, and project-based Section 8 (Office of Policy and Development Research, 2020). The state of Connecticut also provides rental assistance through the Rent Assistance Program (RAP), in the form of housing certificates for families with very low incomes, administered by the Connecticut Department of Housing. Some New Haven residents receive other kinds of rental assistance, often through HUD, in the form of long-term supportive housing programs specifically for individuals living with HIV/AIDS, recovering from addiction, with a mental illness, or who are chronically homeless.

The JustHouHS study includes a survey of low-income residents of New Haven designed to explore the intersection of housing, mass incarceration, and health. All data collection and recruitment procedures were approved by the Yale Institutional Review Board. JustHouHS utilized flyers posted in the community (e.g., bus stops, clinics, public libraries), outreach from service providers, and snowball sampling to recruit participants. Participation in the study was restricted to individuals who were 18 years of age or older, and residents of the city of New Haven. To obtain a low-income sample, eligibility was further restricted to individuals who (a) had received food or rental assistance in the past year, (b) were a Medicaid recipient, (c) were experiencing homelessness, or (d) resided in census tracts where more than 20% of residents lived below the federal poverty level. As one of the study's main interests was the intersection of mass incarceration and health, the sample was stratified to include 200 individuals who had been released from jail or prison in the previous year and 200 individuals who had not been incarcerated in the previous year but who may have had prior histories with incarceration. Data from the Connecticut Department of Corrections were used to verify incarceration history. Individuals who were interested in participating ($N = 616$) contacted the study office and completed eligibility screening either by phone or in person. Eligible participants were enrolled until their arm of the study was full.

Data Collection

Qualtrics surveys, which took 1–2 hours, were completed by participants in the study office. Participants received a $50 gift card as compensation. The analyses presented in this article rely on survey data from four waves of the study collected between October 2017 and October 2019. Four hundred participants completed the baseline survey. The first follow-up survey had an 80% retention rate. The second and third follow-up surveys each had a 78% retention rate from baseline.

Measures

The primary independent variables are measures of current rental assistance status. Three mutually exclusive categories were created: those receiving any form of rental assistance, those on a wait list for assistance and not currently receiving another form of assistance, and those who are neither receiving assistance nor on a wait list. Whereas previous studies suggest that the use of self-report of rental assistance may be unreliable (Boudreaux, Fenelon, & Slopen, 2018), this finding may be due to inconsistent terms used by individuals to describe participation in rental assistance programs. To

improve reporting consistency and decrease confusion for participants, JustHouHS asked participants if they have ever applied for or were currently receiving each of the specific forms of rental assistance that are available to residents of New Haven.

A variety of dependent variables were tested relating to housing stability, housing quality, autonomy related to housing, and housing affordability. To evaluate housing stability, three survey questions were used. One asked participants "How do you feel about your current housing situation? Do you feel…very stable and secure, fairly stable, just somewhat stable, fairly unstable, or very unstable?" We dichotomized the responses to examine the odds of feeling unstably housed. We classified responses of just somewhat stable, fairly unstable, and very unstable as unstable and all others as stable. Another question asked participants "Do you worry about being evicted from the place that you live: always, often, sometimes, rarely, or never?" We dichotomized responses to investigate the odds of reporting worrying about eviction always or often. The third survey question asked participants to respond to the statement "My place is only temporary: agree, somewhat agree, somewhat disagree, disagree." Responses were dichotomized to explore the odds of participants agreeing or somewhat agreeing to this statement. These subjective measures of stability may capture the stress that individuals feel about the possibility of moving or eviction.

Two survey questions were used to evaluate housing quality. Participants were asked to respond to the statement "I am satisfied with my current housing: agree, somewhat agree, somewhat disagree, disagree." Responses were dichotomized to explore the odds of participants somewhat disagreeing or disagreeing. Another survey question asked participants "Overall, how would you describe the conditions of the place you stay: excellent, good, average, poor?" Responses were dichotomized to investigate the odds of participants describing their housing as poor relative to all other categories.

We used two variables to assess housing autonomy. To examine the ability of participants to have control over their place of residence, they were asked to respond to the statement "I wish to move but am unable to: agree, somewhat agree, somewhat disagree, disagree." Responses to this statement were dichotomized to analyze the odds of agreeing or somewhat agreeing to the statement relative to disagreeing or somewhat disagreeing. To capture the capacity of participants to determine their own daily routines, they were asked to respond to the statement "I am able to sleep when I want: always, some of the time, rarely, never." We dichotomized responses to this statement to explore the odds of reporting rarely or never being able to sleep when desired relative to the other categories.

Two variables were used to investigate housing affordability. Participants were asked "In the last six months have you had any utilities (gas, electric, water) shut off due to nonpayment?" We examined the odds of experiencing a utility shutoff relative to not experiencing a utility shut off in the past 6 months. Additionally, we asked participants "Do you worry about being able to pay the rent or mortgage each month: always, often, sometimes, rarely, never?" We dichotomized responses to this statement to explore the odds of reporting always or often worrying about this topic relative to the other categories.

In the analysis, we included other factors that may affect an individual's probability of receiving rental assistance. As some housing is specifically designated for individuals with disabilities, having a documented disability may provide increased access to rental assistance (Helms, Sperling, & Steffer, 2017). We adjusted for disability status using a sequence of questions. In baseline data collection, individuals were first asked if they had "ever applied for disability from the Social Security Administration" and then asked whether this application had ever been approved. A measure of age as a continuous variable was included as older adults may have increased access to public housing, because some public housing is specifically designated for seniors and thus unavailable to younger adults (Hudson, 2005). A measure of whether participants live with children under the age of 18 was also included, as this factor can lead to preferential receipt of rental assistance (Moore, 2016).

Factors that may act as barriers to receipt of rental assistance were also included in the analysis. Having a history of involvement with the carceral system has been shown to create real and perceived barriers to obtaining rental assistance (Curtis, Garlington, & Schottenfeld, 2013; Keene, Rosenberg, et al., 2018). Two

measures were included to account for these barriers. One measure was having been released from prison in the last 2 years at baseline or in the past 6 months during the follow-up data collection, to account for people who were incarcerated and released during the study period. The other measure of involvement with the carceral system was whether the individual had ever been convicted of a felony. Reported drug use in the last 30 days was included as the final factor that could create a barrier to receipt of rental assistance.

Demographic variables related to rental assistance were also included. We assessed race using one question that asked participants about their racial identify. A different question asking participants if they identified as Hispanic or Latino assessed ethnicity. Employment is reported as a dichotomous variable of any versus no employment in the past 6 months.

Analyses

First, we compared the characteristics of rent-assisted, waitlisted, and neither rent-assisted nor waitlisted groups (referred to from here on as *neither*). We used analysis of variance (ANOVA) to test for statistical significance across groups. Next, we used generalized estimating equations (GEE) to model the predictors of our outcome variables over four waves of the study. The GEE method accounts for the nonindependence of repeated data from the same subject. We did not assume an equal correlation between responses from the same subject, so we fitted an unstructured correlation structure. Outcome variables were dichotomous and were modeled assuming a binomial distribution. SAS v. 9.4 software ® (2020) was used to run the models. The effect of time was modeled using study waves.

We undertook the analysis in three stages. First, we examined our outcome variables as a function of waitlist status (Model 1). Then, we added basic demographic factors (Model 2). Finally, we included additional factors that may impact access to rental assistance (Model 3).

Results

Table 1 describes the sample at baseline and differences between the *rent-assisted, waitlisted*, and *neither* groups. Of the 400 participants at baseline, 81 received rental assistance, 100 were waitlisted, and 219 were neither rent assisted nor on a wait list. The average age of participants in the study was 44.8 years. The groups differed significantly by age, with the rental assistance group being older, on average. This likely reflects increased access to public housing among seniors because of specially designated public housing for this age cohort. Just over two thirds of the sample is male, which likely reflects the study's oversampling of recently incarcerated individuals. A significant gender difference exists between groups, with men making up the majority of the *waitlisted* and *neither* groups and women making up the majority of the *rent-assisted* group. The groups had a similar racial and ethnic composition. However, non-Hispanic White participants were concentrated in the *neither* group. About half of the participants were employed, with no significant difference between the groups. Nearly one fourth of the sample had their most recent application for disability benefits approved, and receipt of disability benefits was significantly more common among participants receiving rental assistance. The presence of children in the household was not significantly different between the groups.

Given the study's oversampling of recently incarcerated individuals, previous involvement with the carceral system was very common, with 52.5% of the participants in the study at baseline reporting being incarcerated in the past 2 years and 63.5% reporting any prior felony convictions. Prior involvement in the carceral system, as expected, varied significantly across the three groups. The majority of those in the *waitlist* and *neither* groups reported recent incarceration compared with only 18.5% of those receiving assistance. Similarly, the majority of those in the *waitlist* and *neither* groups reported a felony conviction, compared with 44.4% of those receiving assistance. There were no significant differences between the groups in reported drug use in the past 30 days, with approximately one fourth of the sample reporting recent drug use.

Table 1. Descriptive statistics.

	Receiving assistance	Waitlisted (and unassisted)	Neither waitlisted nor assisted	Total (%)	*p*
N	81	100	219	400	
Demographics					
Mean age (years)	49.5	45.7	42.7	44.8	<.001
% Male	40.7	61	80.8	67.8	<.001
Race					
% Non-Hispanic Black	64.2	61	52.1	56.8	.104
% Non-Hispanic White	13.6	15	27.9	21.8	.005
% Other	9.9	18	14.6	14.5	.305
Ethnicity					
% Latino/Hispanic	17.3	16	15.1	15.8	.894
Potential barriers and facilitators to rental assistance					
% Employed	42.0	53	50.2	49.3	.309
% Ever received disability	40.7	29	13.7	23.0	<.001
% With children in home	18.5	14	10.5	13.0	.177
% Ever convicted of a felony	44.4	63	70.8	63.5	<.001
% Recent incarceration	18.5	56	63.5	52.5	<.001

Table 2 presents results from GEE models predicting measures of housing stability as a function of rental assistance status. In the unadjusted model (Model 1) there were significant differences among the *rent-assisted, waitlisted*, and *neither* groups across all outcome variables relating to housing stability. The significant differences among the groups remained in Model 2, which adjusted for basic demographics, and in Model 3, which added other variables that can affect receipt of rental assistance. The results are presented as odds ratios (OR) with 95% confidence intervals (95% CI). In the fully adjusted model (Model 3), individuals on the wait list and in the *neither* group had, respectively, 4 times higher (OR = 4.19, 95% CI [2.81, 6.24]) and 2 times higher odds (OR = 2.24, 95% CI [1.57, 3.19]) of feeling unstably housed compared with those receiving rental assistance. In the fully adjusted model, compared with those receiving rental assistance, individuals on the wait list and in the *neither* group had, respectively, 4 times higher (OR = 4.17, 95% CI [2.44, 7.12]) and 2 times higher odds (OR = 2.15, 95% CI [1.25, 3.67]) of worrying about eviction always or often. Finally, individuals on the wait list and in the *neither* group had, respectively, 4 times (OR = 4.18, 95% CI [2.81, 6.22]) and 3 times the odds (OR = 3.08, 95% CI [2.17, 4.38]) of viewing their current place as only temporary compared with those receiving rental assistance, in the fully adjusted model.

Table 3 displays the results from GEE models predicting measures of housing quality as a function of rental assistance status. Model 1 shows significant differences among the *rent assisted, waitlisted*, and *neither* groups across all of the outcome variables related to housing quality. The significant differences among the groups remained in Models 2 and 3. In the fully adjusted model, compared with those receiving rental assistance, participants on the wait list and in the *neither* group had, respectively, 4 times higher (OR = 4.04, 95% CI [2.75, 5.95]) and 2 times higher odds (OR = 2.60, 95% CI [1.83, 3.71]) of feeling unsatisfied with their current housing. In the fully adjusted model, both participants on the wait list and those in the *neither* group had just over twice the odds (OR = 2.41, 95% CI [1.27, 4.55] and OR = 2.11, 95% CI [1.98, 3.71], respectively) of reporting the conditions of the place they stay as poor compared with those receiving rental assistance.

Table 4 displays results from GEE models predicting measures of housing autonomy as a function of rental assistance. Significant differences among the groups were found in Model 1 and remained in both adjusted models. Compared with those receiving assistance, individuals on the wait list and in the *neither* group had, respectively, just under 3 times higher (OR = 2.96, 95% CI [1.99, 4.41]) and 2 times higher odds (OR = 2.38, 95% CI [1.66, 3.43]) of wishing to move but feeling unable to in the fully adjusted model. In the fully adjusted model, individuals on the wait list and in the *neither* group had, respectively, 2 times higher (OR = 2.74, 95% CI [1.55, 4.85]) and nearly 2 times higher odds (OR = 1.97, 95% CI [1.15, 3.35]) of rarely or never being able to sleep when they wanted compared with those receiving assistance.

Table 2. Housing stability.

	Odds of feeling unstably housed (N = 1337)						Odds of worrying about eviction always or often (N = 851)						Odds of viewing current residence as only temporary (N = 1337)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Rental assistance																		
Wait List	4.68***	[4.87, 6.87]	4.32***	[2.91, 6.40]	4.19***	[2.81, 6.24]	4.15***	[2.58, 6.65]	4.27***	[2.56, 7.11]	4.17***	[2.44, 7.12]	4.50***	[3.06, 6.63]	4.14***	[2.80, 6.13]	4.18***	[2.81, 6.22]
Neither	2.92***	[2.09, 4.07]	2.36***	[1.66, 3.37]	2.24***	[1.57, 3.19]	2.49***	[1.58, 3.92]	2.30**	[1.38, 3.85]	2.15**	[1.25, 3.67]	4.01***	[2.91, 5.52]	3.28***	[2.32, 4.63]	3.08***	[2.17, 4.38]
Assisted	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Wave/time	0.87**	[0.79, 0.95]	0.87**	[0.79, 0.96]	0.920	[0.83, 1.03]	0.90	[0.79, 1.02]	0.91	[0.80, 1.04]	0.99	[0.84, 1.16]	0.91	[0.83, 1.00]	0.92	[0.83, 1.02]	0.960	[0.85, 1.09]
Demographics																		
Male			1.91***	[1.39, 2.64]	1.58**	[1.14, 2.20]			0.90	[0.58, 1.41]	0.81	[0.50, 1.30]			1.82***	[1.32, 2.51]	1.55*	[2.71, 2.18]
Female			Ref.		Ref.				Ref.		Ref.				Ref.		Ref.	
Age (years)			0.99	[0.98, 1.00]	0.99	[0.97, 1.00]			0.98	[0.97, 1.00]	0.98	[0.97, 1.00]			0.92**	[0.97, 0.99]	0.98**	[0.96, 0.99]
Race/ethnicity																		
Non-Hispanic Black			0.75	[0.52, 1.09]	0.81	[0.56, 1.16]			0.55*	[0.32, 0.94]	0.56*	[0.33, 0.96]			0.86	[0.60, 1.25]	0.96	[0.66, 1.39]
Hispanic			0.69	[0.42, 1.13]	0.73	[0.45, 1.20]			1.12	[0.58, 2.15]	1.20	[0.62, 2.33]			0.79	[0.49, 1.29]	0.84	[0.51, 1.36]
Other			1.25	[0.60, 2.62]	1.28	[0.61, 2.69]			0.95	[0.37, 2.45]	0.95	[0.37, 2.43]			1.61	[0.78, 3.35]	1.61	[0.77, 3.36]
Non-Hispanic White			Ref.		Ref.				Ref.		Ref.				Ref.		Ref.	
Potential barriers and facilitators to rental assistance																		
Employment					0.95	[0.723, 1.24]					0.93	[0.64, 1.37]					0.84	[0.64, 1.10]
Disability					0.88	[0.62, 1.25]					0.52*	[0.30, 0.88]					0.67*	[0.46, 0.98]
Children under 18					0.53**	[0.35, 0.81]					0.93	[0.54, 1.62]					0.56*	[0.36, 0.88]
Felony					1.09	[0.75, 1.56]					1.52	[0.83, 2.81]					0.93	[0.62, 1.39]
Recent incarceration					1.40	[0.99, 1.99]					1.12	[0.59, 2.13]					1.75**	[1.18, 2.60]
Drug use in the past 30 days					1.50**	[1.13, 1.99]					1.62*	[1.10, 2.40]					1.07	[0.78, 1.45]

Note. *p <.05. **p <.01. ***p < .001.

Table 3. Quality.

	Odds of feeling unsatisfied with current housing (N = 1337)						Odds of reporting conditions of place one is staying in as poor (N = 897)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Rental assistance												
Wait List	4.30***	[2.94, 6.27]	4.13***	[2.81, 6.05]	4.04***	[2.75, 5.95]	2.55**	[1.34, 4.84]	2.49**	[1.31, 4.71]	2.41**	[1.27, 4.55]
Neither	2.94***	[2.12, 4.09]	2.70***	[1.91, 3.81]	2.60***	[1.83, 3.71]	2.588***	[1.50, 4.48]	2.30**	[1.35, 3.92]	2.11**	[1.98, 3.71]
Assisted	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Wave/time	0.83***	[0.76, 0.91]	0.83***	[0.76, 0.91]	0.88*	[0.79, 0.99]	1.12	[0.90, 1.41]	1.15	[0.92, 1.45]	1.17	[0.92, 1.49]
Demographics												
Male			1.04	[0.76, 1.41]	0.90*	[0.66, 1.24]			0.85	[0.53, 1.36]	0.77	[0.473, 1.245]
Female			Ref.		Ref.				Ref.		Ref.	
Age (years)			0.98**	[0.97, 1.00]	0.98**	[0.97, 0.99]			0.97***	[0.95, 0.99]	0.97**	[0.95, 0.99]
Race/ethnicity												
NH Black			1.00	[0.70, 1.44]	1.03	[0.72, 1.48]			0.95	[0.53, 1.71]	1.01	[0.58, 1.78]
Hispanic			0.69	[0.43, 1.10]	0.72	[0.45, 1.14]			1.09	[0.51, 2.35]	1.18	[0.56, 2.47]
Other			1.03	[0.52, 2.07]	1.04	[0.50, 2.11]			0.95	[0.34, 2.70]	1.09	[0.39, 3.04]
NH White			Ref.						Ref.		Ref.	
Potential barriers and facilitators to rental assistance												
Employment					0.95	[0.74, 1.22]					1.10	[0.70, 1.73]
Disability					0.98	[0.67, 1.41]					0.55	[0.23, 1.30]
Children under 18					0.65*	[0.43, 0.97]					0.89	[0.48, 1.63]
Felony					1.23	[0.86, 1.76]					0.67	[0.15, 3.06]
Recent incarceration					1.12	[0.79, 1.58]					2.18	[1.00, 4.76]
Drug use in the past 30 days					1.23	[0.92, 1.63]					1.65*	[1.01, 2.70]

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 5 displays the results from GEE models predicting measures of housing affordability as a function of rental assistance status. The odds of worrying about paying rent or a mortgage always or often differed significantly among the *rent assisted, waitlisted*, and *neither* groups across all three models. Compared with those receiving assistance, participants on the wait list and in the *neither* group had, respectively, 2 times higher (OR = 2.86, 95% CI [1.66, 4.93]) and just under 2 times higher odds (OR = 1.98, 95% CI [1.25, 3.13]) of worrying about paying rent or a mortgage in the fully adjusted model. The odds of having a utility shut off in the past 6 months did not differ significantly among the groups in any model.

Discussion

In the analysis of data from New Haven residents who participated in the JustHouHS survey over four waves, we found that participants who were receiving rental assistance had lower odds of reporting housing instability, low-quality housing, lack of autonomy related to housing, and some measures of housing unaffordability compared with those on waiting lists and those who were neither receiving housing assistance nor on waiting lists. The large and highly significant effects remained after adjusting for demographic variables and factors that can impact access to rental assistance, such as recent employment, disability, having children in the household, recent drug use, a prior felony conviction, and recent incarceration. These findings serve to counter the narrative that rent-assisted housing is low quality and negatively impacts recipients (Semuels, 2015). Although it is true that people receiving rental assistance do not always have access to the best housing stock (Ellen, 2018), we found that people receiving assistance had significantly better outcomes across nearly all measures explored here compared with those on the wait list for assistance and those not receiving assistance. Our findings are consistent with some prior studies that found that rental assistance may improve housing outcomes (Ahrens et al., 2016; Buron et al., 2003; Kim et al., 2017).

In our analysis, we found that rent-assisted individuals had better housing outcomes than both waitlisted individuals and individuals who were neither on waiting lists nor receiving rental assistance. Our use of a waitlisted comparison group allows us to compare individuals who receive rental assistance with similar individuals who would be likely to receive rental assistance were it not for the supply shortage of this resource. Nationally, individuals applying for rental assistance spend, on average, over 2 years on the wait list, but some localities have longer wait times and others are no longer accepting new applicants (Fischer & Sard, 2017). However, given that up to 40% of low-income individuals (those earning less than 80% of the area median income) in the United States are severely rent burdened and most do not receive assistance (Center on Budget and Policy Priorities 2019), the unmet need for rental assistance may include nearly all low-income renters, even those who are not currently on a wait list. This may explain why we observe worse housing outcomes among the *neither* group, relative to those who receive rental assistance. Whereas some individuals in this *neither* group may have acceptable unassisted housing, many may stand to benefit from rental assistance yet face application or eligibility barriers (Geller & Curtis, 2011; Quinn, Dickson-Gomez, McAuliffe, & Owczarzak, 2014). Comparisons between this *neither* group and those who are receiving assistance are difficult to interpret. Factors that create barriers to applying for rental assistance, such as criminal justice involvement, may also create barriers to private market housing. However, some barriers to assistance, such as closed waiting lists, may be exogenous to the individual. More research is needed to understand the extent to which unmet need for rental assistance may adversely affect those who are not on waiting lists. Such research would also require a deeper examination of the barriers that individuals face in applying for rental assistance.

One common barrier to applying for or receiving rental assistance explored in this sample is involvement with the carceral system. A qualitative study that explored navigating access to rental assistance after prison found that recently incarcerated individuals often believe that they are not eligible for rental assistance (Keene, Rosenberg, et al., 2018). Other studies confirm the difficulties that recently incarcerated individuals often contend with when trying to access this resource within a system that frequently determines eligibility on a case-by-case basis (Dickson-Gomez, Convey, Hilario, Corbett, & Weeks, 2007; Quinn et al., 2014). We did not find that controlling for variables

Table 4. Autonomy.

	Odds of wishing to move but feeling unable to (N = 1337)						Odds of reporting rarely or never being able to sleep when one wants (N = 937)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Rental assistance												
Wait List	3.00***	[2.03, 4.42]	2.98***	[2.01, 4.42]	2.96***	[1.99, 4.41]	2.68***	[1.52, 4.72]	2.56**	[1.45, 4.52]	2.74***	[1.55, 4.85]
Neither	2.35***	[1.70, 3.25]	2.36***	[1.67, 3.35]	2.38***	[1.66, 3.43]	2.10**	[1.24, 3.56]	1.97*	[1.17, 3.31]	1.97*	[1.15, 3.35]
Assisted	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Wave/time	0.97	[0.88, 1.06]	0.97	[0.89, 1.07]	1.01	[0.90, 1.12]	1.13	[0.92, 1.38]	1.13	[0.92, 1.38]	1.13	[0.92, 1.39]
Demographics												
Male			0.89	[0.65, 1.23]	0.83	[0.59, 1.16]			1.13	[0.75, 1.72]	1.03	[0.67, 1.58]
Female			Ref.		Ref.				Ref.		Ref.	
Age (years)			0.98*	[0.97, 1.00]	0.98*	[0.97, 1.00]			0.99	[0.97, 1.01]	0.99	[0.97, 1.00]
Race/ethnicity												
NH Black			1.40	[0.98, 2.01]	1.44*	[1.01, 2.06]			1.16	[0.68, 1.98]	1.18	[0.69, 2.02]
Hispanic			1.09	[0.69, 1.72]	1.14	[0.72, 1.79]			1.07	[0.53, 2.19]	1.08	[0.53, 2.20]
Other			1.12	[0.57, 2.23]	1.14	[0.57, 2.29]			1.41	[0.62, 3.21]	1.42	[0.61, 3.30]
NH White			Ref.		Ref.				Ref.		Ref.	
Potential barriers and facilitators to rental assistance												
Employment					0.97	[0.75, 1.26]					0.88	[0.60, 1.28]
Disability					0.96	[0.67, 1.37]					1.28	[0.76, 2.16]
Children under 18					0.77	[0.53, 1.12]					0.68	[0.37, 1.25]
Felony					1.25	[0.84, 1.84]					0.38	[0.08, 1.92]
Recent incarceration					0.90	[0.62, 1.30]					1.74	[0.91, 3.33]
Drug use in the past 30 days					1.28	[0.98, 1.68]					0.68	[0.37, 1.25]

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 5. Affordability.

	Odds of worrying about paying rent/mortgage always or often (N = 851)						Odds of having any utility shut off in the last month (N = 1337)					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Rental assistance												
Wait List	2.83***	[1.71, 4.70]	2.90***	[1.71, 4.93]	2.86***	[1.66, 4.93]	0.86	[0.52, 1.41]	0.85	[0.51, 1.44]	0.84	[0.49, 1.44]
Neither	2.02***	[1.34, 3.04]	2.05**	[1.32, 3.18]	1.98**	[1.25, 3.13]	0.96	[0.62, 1.50]	1.01	[0.62, 1.65]	0.99	[0.60, 1.61]
Assisted	Ref.		Ref.		Ref.		Ref.		Ref.		Ref.	
Wave/time	0.90	[0.80, 1.01]	0.90	[0.799, 1.016]	0.96	[0.84, 1.12]	0.86*	[0.76, 0.98]	0.87*	[0.76, 0.99]	0.83*	[0.70, 0.97]
Demographics												
Male			0.81	[0.54, 1.22]	0.77	[0.51, 1.17]			0.68	[0.45, 1.03]	0.68	[0.43, 1.06]
Female			Ref.		Ref.				Ref.		Ref.	
Age (years)			0.99	[0.98, 1.01]	0.99	[0.98, 1.01]			0.98**	[0.96, 0.99]	0.98	[0.96, 1.00]
Race/ethnicity												
NH Black			0.85	[0.52, 1.38]	0.84	[0.52, 1.37]			2.08**	[1.22, 3.55]	2.07**	[1.19, 3.58]
Hispanic			1.16	[0.62, 2.18]	1.17	[0.62, 2.21]			1.64	[0.80, 3.39]	1.74	[0.84, 3.59]
Other			1.12	[0.98, 1.01]	1.13	[0.50, 2.53]			2.33	[0.94, 5.77]	2.25	[0.92, 5.52]
NH White			Ref.		Ref.				Ref.		Ref.	
Potential barriers and facilitators to rental assistance												
Employment					0.99	[0.70, 1.41]					1.65**	[1.16, 2.35]
Disability					0.86	[0.56, 1.32]					0.68	[0.38, 1.22]
Children under 18					1.15	[0.71, 1.86]					1.09	[0.64, 1.85]
Felony					1.46	[0.88, 2.43]					0.97	[0.54, 1.77]
Recent incarceration					1.07	[0.61, 1.88]					0.87	[0.49, 1.58]
Drug use in the past 30 days					1.29	[0.91, 1.84]					1.31	[0.86, 1.99]

Note. *$p < .05$. **$p < .01$. ***$p < .001$.

related to criminal justice involvement (felony convictions or recent incarcerations) significantly changed the observed association between rental assistance and housing stability, quality, affordability, or autonomy. Furthermore, in additional analyses (results not shown), the relationship between rental assistance receipt and housing outcomes remained when using only data from those without recent incarceration histories. Thus, our analyses suggest that rental assistance may be beneficial regardless of prior involvement with the carceral system. However, we did find that, independent of rental assistance status, recently incarcerated individuals were 67% more likely to view their current place as only temporary compared with those who had not been recently incarcerated. This may indicate that other forms of support in addition to rental assistance are needed to increase housing stability for this group.

Our finding that rental assistance is associated with improved access to acceptable housing may also have implications for health and well-being. A recent study using these data found a positive association between rental assistance and better self-rated health. Other research finds associations between rental assistance and improved child and adult health in nationally representative samples (Boudreaux et al., 2020; Fenelon et al., 2017, 2018; Meltzer & Schwartz, 2016; Slopen et al., 2018). By examining housing characteristics, our article identifies some of the possible mechanisms through which receipt of rental assistance may lead to better health. In doing so, the article contributes to the increasing literature on the potential health costs of the unmet need for this vital resource (Keene, Henry, et al., 2018; Sandel & Desmond, 2017; Sharfstein et al., 2001).

When interpreting the findings of this article, there are some limitations to consider. Whereas the *waitlisted* and *neither* groups act as useful controls of individuals who are similar to those receiving rental assistance, unobserved differences may exist between these groups due to potential prioritization of some households over others or to possible eligibility barriers that may arise between the time of rental assistance application and receiving housing. In particular, individuals with criminal justice histories may face barriers to both quality private market housing and rental assistance. Although controlling for incarceration history and felony conviction did not affect our findings, there may be unobserved differences related to criminal justice histories that are not captured by these variables. Furthermore, there may be cohort differences between those who received rental assistance in an era when this resource was more available, and those who are currently waiting for it. Nevertheless, the findings of this study remain statistically significant and large even after controlling for various factors that may affect access to rental assistance.

Furthermore, the ability to infer causality is precluded by the cross-sectional nature of the analyses. The possibility of reverse causality cannot be ruled out. It is possible that those who are more stably housed, have better quality and more affordable homes, and have more autonomy have more bandwidth to apply for rental assistance and are thus more likely to have this resource also. Additional longitudinal research is needed to address the possibility of reverse causality.

Furthermore, this sample is not representative of rental assistance recipients and applicants in New Haven or nationally. The sample receiving rental assistance is more male (39.7% vs. approximately 20% in New Haven vs. 25% nationally) and less likely to have children in the household (17.8% vs. 37% in New Haven vs. 60% nationally; Center on Budget and Policy Priorities, 2019). Because of JustHouHS's purposeful sampling of recently incarcerated individuals, people with a history of recent incarceration and felony convictions are likely overrepresented compared with the general population of households receiving or on the wait list for rental assistance in New Haven and in the United States as a whole. Thus, this sample may represent particularly disadvantaged individuals. Although the findings described above may not be generalizable to all individuals receiving or on the wait list for rental assistance, they indicate that rental assistance impacted the well-being of study participants, despite the many challenges that they face.

Additionally, the sample size in combination with the heterogeneity of types of rental assistance received precluded us from examining the difference between types of rental assistance. Although little research has specifically explored housing outcomes in relation to the rental assistance type, prior research suggests that different forms of rental assistance may have varied benefits. For

example, some previous studies found that project-based housing, but not voucher-based rental assistance, may be associated with health benefits and housing stability (Fenelon et al., 2017; Wood et al., 2008). However, other studies suggest that vouchers may modestly improve housing stability (Mills et al., 2006). Further research is needed in this area as understanding possible disparities across types of rental assistance is vital for informing future housing policy, especially as current policy moves away from project-based housing toward vouchers and tenant-based assistance (Keene & Geronimus, 2011).

Finally, misclassification of the rental assistance measure is possible, as with any self-reported variable. We attempted to mitigate misclassification by using detailed and locally relevant questions about each form of rental assistance available to residents of New Haven. Correspondingly, not all participants receiving voucher-based assistance may actually live in rent-assisted housing, as voucher holders can face significant challenges in finding eligible units and landlords who are willing to take vouchers (Ellen, 2018). However, this type of misclassification would likely diminish any observed effects, indicating that the findings of this study are conservative. We were also unable to ascertain whether participants on the wait list had access to other forms of affordable housing (e.g., via tax credits that create affordable units or via family members), which would reduce group differences. Our findings suggest that despite the possible availability of other forms of affordable housing, rental assistance was still associated with improved housing stability, quality, autonomy, and affordability.

Conclusion

In a sample of low-income individuals, we find that those receiving rental assistance significantly benefitted from this resource. They had lower odds of reporting housing instability, low-quality housing, lack of autonomy related to housing, and some measures of housing unaffordability compared with those on waiting lists and those who were neither receiving housing nor on waiting lists.

This study contributes to a growing literature on the benefits of rental assistance. Although additional research is still necessary, evidence from this study indicates that the expansion of rental assistance could benefit many low-income Americans, perhaps reducing poor health outcomes, health inequities, and even healthcare spending.

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