



Housing First Charlotte-Mecklenburg Research & Evaluation Project Final Report

November 2020/ Outcomes Evaluation & Service Utilization Study

Funded by Mecklenburg County, UNC Charlotte College of Health & Human Services,
School of Social Work, and the UNC Charlotte Urban Institute

In memory of Nancy Crown & John Yaeger.
In honor of HFCM research participants.



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Housing First Charlotte-Mecklenburg Outcomes Evaluation & Utilization Study Final Report

Key Findings

Housing First Charlotte-Mecklenburg (HFCM) is a multi-sector collaboration to end chronic homelessness by scaling housing first, and particularly the housing first permanent supportive housing model. Housing first programs prioritize housing as an early step in service delivery, have low barrier admissions policies with minimal eligibility criteria, maximize client choice in housing and services, use a harm reduction approach to substance use and other personal challenges, and do not require service compliance or success in order for a tenant to maintain housing.

The Housing First Charlotte-Mecklenburg Research & Evaluation Project examined the implementation and outcomes of the effort. This report focuses on individual and service utilization outcomes. The study was funded by Mecklenburg County and the UNC Charlotte College of Health and Human Services, School of Social Work, and the UNC Charlotte Urban Institute. The study suggests evidence of positive impact and opportunities for improvement at program and community levels. Key findings include:



Housing First Improves Lives

Study participants who were housed through HFCM showed substantial improvements across multiple dimensions of their lives.

+ High Housing Retention

Housing Retention was high overall (73%), but highest for those in housing first permanent supportive housing (80%). HF PSH secures housing through a permanent subsidy and builds stability through the ongoing availability of wrap-around services.

+ Better Quality of Life

Quality of life scores improved 30% after housing. Housed participants scored 19 points higher on a standardized quality of life assessment than did unhoused participants who only scored 2 points higher after baseline.

+ Reduced Trauma Symptoms

Trauma-related symptoms decreased 26% after housing. Housed participants, who had high lifetime rates of traumatic stress, scored 11 points lower on a standardized measure of trauma-related symptoms than did unhoused participants who only scored 1 point lower after baseline.

+ Improved Mental Health

Mental illness symptom scores decreased 35% after housing. Housed participants scored 9 points lower on a standardized measure of mental illness-related symptoms than did unhoused participants who only scored 1 point lower after baseline.

+ Reduced Substance Use

Housing first does not require sobriety or abstinence. Nevertheless, after housing the percent of housed participants that used any drug fell 37% and the average number of days in the last 30 days that housed participants used alcohol to intoxication fell an average of 3 days more than it did for unhoused participants. Other substance use measures didn't change after housing, a reminder that harm reduction does not result in increased use of alcohol or drugs.

+ The Value of Quality of Life Improvements

When examined through a health economics lens of a quality adjusted life year (QALY), improvements in health related quality of life due to housing first permanent supportive housing can be valued annually from \$4,120 to \$33,372 depending on the value assigned to a year of full and perfect health. This monetary estimation of health benefits is another way of understanding the benefits of housing first.

Housing First Reduces Service Use

Study participants who were housed through HFCM used fewer community service associated with homelessness including emergency shelters, criminal justice services and health services. Use of furniture and financial assistance at Crisis Assistance Ministry increased a small but significant amount suggesting that some additional service utilization may be necessary to help individuals remain housed.



Fewer Nights in Emergency Shelter

The average number of nights in emergency shelter dropped by 93% for housed participants. Unhoused participants use of shelter increased an average of 8 nights, while relative to that increase, housed participants use fell 61 nights, on average. Housing effectively ended the use of emergency shelter.



Fewer People Arrested and Fewer People Incarcerated

The share of housed individuals arrested fell 59% and share of housed individuals incarcerated fell 58%. The decline in the percentage of participants arrested is approximately 5 times what would have been expected without housing and the decline in percentage of participants incarcerated is 11.5 times what would have been expected without housing.



Fewer Health Department Visits

The percent of housed individuals using the Mecklenburg County Health Department fell 56% and the average number of visits in this group fell 71%. The decline in the percentage of participants who visited the health department is 7 times what would have been expected without housing and the decline in average number of visits is 11 times what would have been expected without housing.



Fewer Emergency Department Visits

The percentage of housed participants using the ED did not change statistically after housing, but the average number of ED visits fell 59%. On average, housed participants had 2 fewer visits to the ED than unhoused participants in the year after housing.



More Use of Crisis Assistance Ministry Financial & Furniture Services

66% of housed participants used financial assistance services and 45% used furniture assistance services in the 1 month period immediately before or following their housing date. More housed participants used Crisis Assistance Ministry, however, even after the housing period was over. Relative to unhoused participants, only 5% of housed participants used financial assistance before housing, but 24% used it after the immediate housing period and only 2% used furniture services before housing, but 12% used the services after the housing period.



Costs are Partially Offset in Other Community Services

For every \$10 invested in housing first permanent supportive housing, there is a \$2.54 reduction in other community services. This reduces the average annual cost of housing first permanent supportive housing from \$17,256 to \$12,688.

Housing First Response can Improve

While the findings discussed above reflect a number of successes, the study suggests several key areas where Charlotte-Mecklenburg's response to chronic homelessness could improve, including addressing:



Similar Patterns of Inpatient and Outpatient Health Services Use

Housed participants continued to use inpatient and outpatient services at rates statistically similar to their use before they were housed. These findings align with more rigorous studies examining health utilization of individuals housed in HF PSH. While there are opportunities to improve health-related services within housing programs, the findings serve also as a caution to those expecting drastic reduction in utilization and related costs. The impact of years without housing and access to preventative care may require some ongoing investment from the community to effectively address.



Continued Poor Perceptions of Physical Health

Housed participants' perceptions of their own physical health improved slightly, however, scores on a standardized health assessment started and remained below those of the general U.S. population. Given that the majority of study participants have 2 or more disabilities, this isn't surprising and suggests opportunities to improve and better integrate health services.



Persistent & Worsening Food Insecurity

Rates of low and very low food security remained high - 83% - for housed participants after housing and increased 26.8 percentage points more for PSH participants than it did for non-PSH participants, a 32% increase in the rate of low and very low food security. The percentage of households that experience food insecurity is higher in Mecklenburg County (14.9%) than it is in North Carolina (13.9%) and the U.S. (11.1%) suggesting elevated risk for low-income individuals, particularly those with multiple disabilities and limited access to transportation. As one study participant noted, "It's not as easy to get to food and everything" (E-907:5).



Low Housing Retention

Housing retention rates were lower for those placed in Rapid Re-Housing or in permanent placements with family or friends. If affordable housing and funding to provide long-term subsidies remains scarce, further study of these models are warranted as is testing innovations that may increase their effectiveness.

Housing First Charlotte-Mecklenburg Research & Evaluation Project

Outcomes & Service Utilization Final Report / November 2020

The Housing First Charlotte-Mecklenburg Research and Evaluation Project (Project) examined the implementation and impact of Housing First Charlotte-Mecklenburg, which has housed 1011 individuals experiencing chronic homelessness.

Housing First Charlotte-Mecklenburg (HFCM) is a multi-sector collaboration to end chronic homelessness in Charlotte, North Carolina through the community-wide implementation of the housing first model. HFCM began formally in January 2015 during the annual Point-in-Time count, a federally mandated one-day census of all individuals who meet the federal definition of homeless. The census efforts included a vulnerability assessment of those who met the federal chronically homeless definition. Over 200 volunteers joined the count and extended it for two additional days to create the Chronic Homeless Registry, now called the By-Name List. The 516 placed on the registry during those three days became the starting point for the housing and supportive services efforts of HFCM. As additional individuals were identified as chronically homeless through Coordinated Entry they were added to the registry. As housing became available, it was offered to individuals on the registry prioritized by vulnerability and length of time homeless. HFCM developed eight strategies to facilitate this process. Table 1 lists the eight original strategies developed by the HFCM steering committee and project managers.

Table 1. HFCM Strategies

- 1 Create and maintain a chronic homeless registry
- 2 Expand outreach efforts
- 3 Create 250 units of new permanent supportive housing units, including at least one new single site building.
- 4 Coordinate moves into housing for those experiencing chronic homelessness
- 5 Train organizations and staff in the housing first model
- 6 Engage the community to be a part of the solution
- 7 Ensure adequate leadership and staff
- 8 Evaluate the effort to end chronic homelessness

HFCM seeks to end chronic homelessness by scaling up housing first and particularly, the housing first permanent supportive housing model (HF PSH), an evidence-based model with local, national, and international evidence of effectiveness (Thomas, Priester, Shears, & Pate, 2015; Padgett, Henwood, & Tsemberis, 2016; Busch-Geertsema, 2014). HF PSH secures permanent, independent housing for tenants and ensures access to necessary supportive services. It emphasizes housing as an early step in service delivery, maximizes client choice in housing and services, has low barrier admissions policies with minimal eligibility criteria, uses a harm reduction approach to substance use and other personal challenges, and does not require service compliance or success in order for a tenant to maintain housing. HF PSH effectively ends homelessness, reduces the cost of emergency and crisis services, and provides a foundation for wellness and recovery. Successful HF PSH programs maintain fidelity criteria established by research (Stefancic, Tsemberis, Messeri, Drake, & Goering, 2013) and described below in Table 2.

Table 2. Housing first permanent supportive housing fidelity criteria

Housing Choice & Structure	Tenants have a choice of neighborhood, unit, & living environment.
Separation of Housing & Services	Housing is not dependent on service success or compliance. Tenant has same rights and responsibilities as those with a standard lease.
Service Philosophy	Services are voluntary & client-driven. Services utilize a harm-reduction approach and active, person-centered, non-coercive engagement.
Service Array	A range of necessary services are provided directly or brokered. Crisis response is available 24/7.
Program Structure	Programs prioritize those with severe and complex needs. Programs maintain low staff to client ratios. Structure supports above characteristics.

The Housing First Charlotte-Mecklenburg Research & Evaluation Project (research project) included three components - a process evaluation, an outcomes evaluation, and a service utilization study. The process evaluation component examines how HFCM is implemented and how implementation is related to HFCM outcomes. The outcomes evaluation component examines individual housing, quality of life, health, and mental health outcomes of HFCM. The service utilization component examines the community impact of HFCM, including the utilization of health and human services. Together the three components examine the implementation and effectiveness of Charlotte's effort to end chronic homelessness.




This final report describes findings from the outcomes and services utilization study. Findings from the process evaluation are presented in a separate report. These reports provide evidence of positive impact and opportunities for improvement at program and community levels. The reports should be approached as living, learning documents that can support ongoing personnel, program, and system development to effectively address chronic homelessness.

Study Methods




Research Questions

The research questions addressed by the outcomes evaluation and service utilization study and discussed in this report are listed below. The logic model and theory of change that guided the overall project is available in Appendix A and additional information about the study methods is available in Appendix B.

Outcomes Evaluation

-  Does the housing first model as implemented by HFCM lead to improved housing stability, quality of life, and mental and physical health?
-  How do outcomes compare to homeless adults who were not housed but received other usual homeless services?
-  How do research participants describe their own housing, clinical, and social stability before and after being housed?

Utilization Study

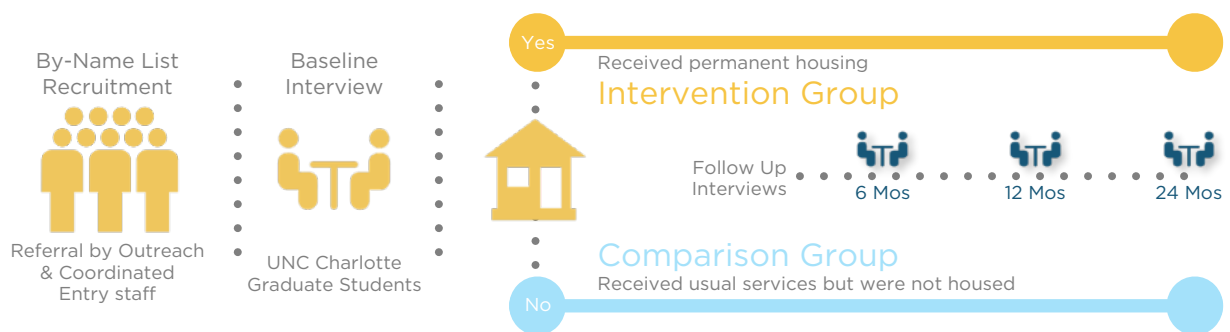
-  How does the housing first model as implemented by HFCM impact how individuals experiencing chronic homelessness utilize area health and human services?
-  How does the housing first permanent supportive housing model impact the cost of area health and human services?
-  How do utilization and cost outcomes compare to homeless adults who were not housed but received other services as usual?

Research Design

We used a quasi-experimental, non-equivalent comparison group design to answer the research questions and examine effort outcomes, including quality of life, mental health, and physical health, as well as service utilization outcomes. We used the structure of HFCM to create a natural experiment that allowed us to recruit participants and then compare individuals who were housed (i.e., the intervention group) with the individuals who were on the By-Name List to be housed (the comparison group) who continued to receive other homeless services such as shelter and outreach until housing became available. Examining longitudinal changes in a comparison group is a more rigorous method to assess the impact of the intervention on outcomes than only examining the change in the group that received the intervention. The intervention for this study is permanent housing provided by the Housing First Charlotte-Mecklenburg effort including Housing First Permanent Supportive Housing, Rapid Re-Housing, permanent placements with family or friends, and other permanent housing. In addition to the quantitative design, we asked open-ended questions to help us better understand the outcomes findings. The process evaluation, available in a separate report, further contextualized findings and its insights are integrated into the report discussion.

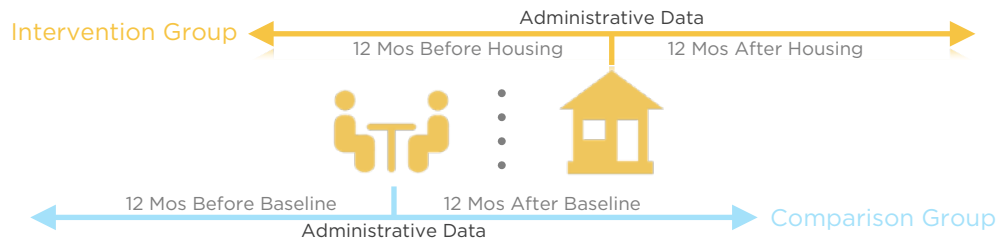
Data Collection

Research participants were referred to the research team by Outreach and Coordinated Entry staff. In order to be referred and included in the sample, individuals had to meet several conditions: 1) they had to consent to participate; 2) they had to be on the chronic homeless registry, now called the By-Name List; 3) they had to be at least 18 years old; and 4) they had to meet the HUD definition of chronic homelessness, meaning they must have a disabling condition and have been homeless for 12 or more months, or have had three or more episodes of homelessness totaling 12 or more months over the past four years (24 CFR 91.5, 578.3). The intervention group consisted of those recruited from the By-Name List who eventually exited homelessness for permanent housing. The comparison group consisted of those who were recruited from the By-Name List, but were not housed during the study period.



Individual Outcomes. Data for individual outcomes were collected during 702 individual interviews conducted by UNC Charlotte undergraduate and graduate students. Interviews took approximately 1-1.5 hours to complete and consisted of demographic questions, standardized measures, and qualitative questions. Standardized measures assessed many facets of the participant's life such as psychological symptoms, substance use, community integration, exposure to traumatic events, food security, and recent housing situations (all instruments are listed in Appendix B). Interviews took place at an initial baseline meeting and then at 6, 12, and 24 months after the baseline interview if the participants weren't housed or 6, 12, and 24 months after their housing date if they were. Interviews began in March 2016 and ended in December 2018. Individuals were provided a \$20 gift card for participating in each interview.

Service Utilization. With permission of each individual who participated in baseline interviews and provided a signed release of information form, we obtained administrative data from health and human services partners. Utilization data were made available to the research team either through the Institute for Social Capital (social service, criminal justice and mental health data) or individually negotiated data sharing agreements between the research effort and the data partner (Medic, and inpatient and outpatient health data). The data allowed us to examine participants utilization of services. For those in the comparison group, administrative data on service utilization were collected during the 12 month period prior to their baseline interview date and the 12 month period after their baseline interview date. For the intervention group, administrative data on service utilization were collected during the 12 month period prior to the participant's housed date and the 12 months period following the housed date.



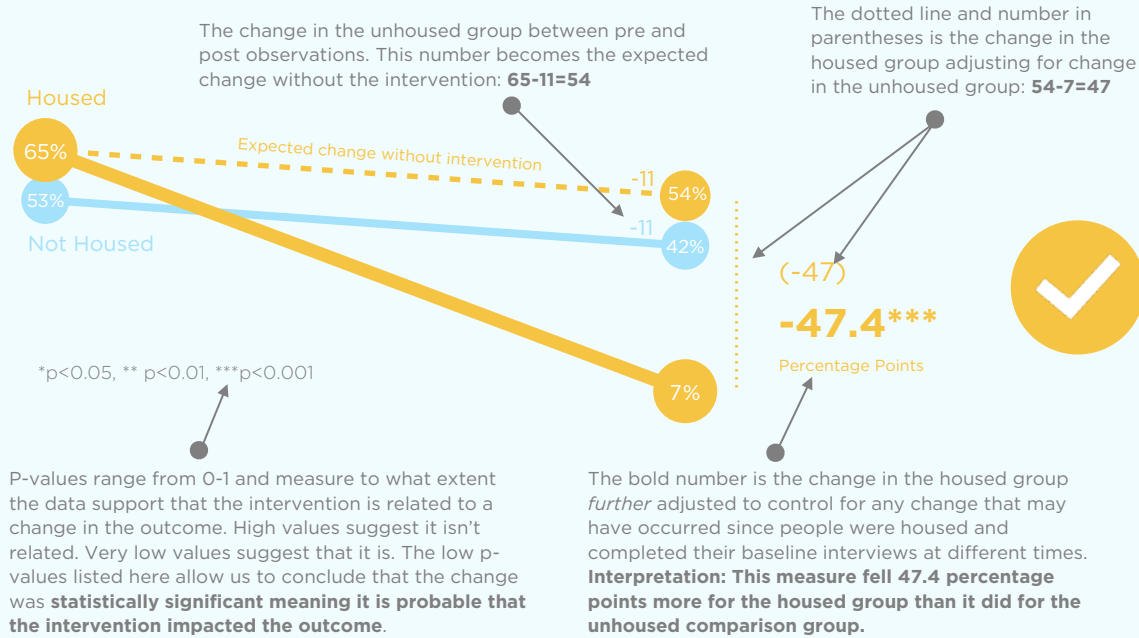
Cost Analysis. The cost analysis used data from the utilization records described above. The cost study focused on individuals who had been housed in Housing First Permanent Supportive Housing (HF PSH; n=112) compared to those who were not housed (n=129). Participants housed in PSH represent the largest percentage of the housed individuals in the study (68% of participants housed for 12 months or more), as well as the largest portion of those housed from the By Name List (n= 301, or 50% of those housed from the BNL during the study time period).

In addition to data from the outcomes survey and administrative data on utilization, the team collected cost data from a survey of housing providers based on the cost survey used in the HUD Family Options Study and likewise sought to capture all costs including capital costs and costs of donated or in-kind goods which are integral to the operations of the program. Where possible, the team used utilization data to impute the cost of other services. Where local costs were not available, costs were derived from the literature. The portion of the cost analysis that focuses on the economic benefit of improvements in perceived health and mental health uses data from individuals who completed the SF-12 instrument in the outcomes evaluation and had at least 12 months of utilization data post housing (n=70) or baseline (n=47).

Data Analysis

The research team used several techniques to analyze data for the outcomes portion of the study. Univariate and bivariate statistics were used to describe the characteristics of people who participated in the study. Differences among demographic subpopulations were determined using T-Tests or Chi-Square analyses. To examine differences between the intervention and comparison groups over time, we used a Difference-in-Difference (DiD) estimation technique. DiD is an analytic technique that can be used when randomized groups are not possible. DiD analysis compares the change over time between the intervention group and a similar comparison group. DiD uses any change in the outcome experienced by the comparison group as an indicator of the change that may have occurred in the intervention group without the intervention. When it is statistically significant, the difference in change over time between the two groups can then be attributed to the intervention. We use an additional analytic technique to adjust or control for time effects that may have occurred since study participants were housed at different times. This additional technique sometimes results in change scores that are slightly higher or lower than a simple difference in the outcome of the intervention and comparison group. Figure 1 on the following page provides guidance to interpret the longitudinal graphs used in this report. Additional analytic techniques for the Cost Analysis are described in that section.

Figure 1: How to understand the difference-in-difference graphs



The adjusted numbers suggest a statistically significant **improvement** of the outcome.



The adjusted numbers suggest **no statistically significant difference** between the intervention and comparison group.



The adjusted numbers suggest a statistically significant **worsening** of the outcome.

Study Limitations

As with all research projects, this project has several limitations that where possible, we worked to address through research design and analysis. First, the intervention and comparison group were not randomly assigned. Random assignment ensures that there are no systematic differences in the intervention and control group and is the best estimate of the true effect of an intervention on an outcome. Random assignment was not a feasible option for this study, so we chose a comparison group design in which the comparison group is as similar to the treatment group (i.e., the housed group) as possible, in this case, individuals experiencing chronic homelessness on the By-Name List. The group is demographically similar, however, several measures suggest that the housed group has more acute needs and was utilizing some services at higher rates before housing than the comparison group. If the comparison group had similar conditions as the housed group, the differences we found may be understated - there may have been an even greater difference. However, if the housed participants' health was more consistent with the comparison group and the housed participants had fewer health conditions, the differences we found may be overstated - there may have been less of a difference between the two groups.

Second, the participants were not randomly selected and represent only about a quarter of those on who are or have been on the chronic homeless registry through December 31, 2017. This suggests some caution in generalizing findings to the larger chronically homeless population in Charlotte. Additional analyses were conducted to compare the final study sample to the By-Name List to determine similarities and differences. Our sample is demographically similar to the By-Name List and has similar VI-SPDAT scores, suggesting some confidence that findings can be generalized to the larger chronically homeless population.

Third, because this was a natural experiment, creating distinct groups to compare was challenging. The Non-HF PSH grouping was particularly challenging. None of the Non-HF PSH subgroups (Rapid ReHousing, permanent housing with family and friends, and other permanent housing) had enough participants for stand alone comparisons, yet they were different than HF PSH, from each other, and also different from the comparison group who were not housed but receiving usual services (i.e., shelter, outreach, etc., but no permanent housing). To address this challenge, the research team combined them with the housed HF PSH group and also tried excluding them. Neither including or excluding the group changed the results much in either direction so we left the other categories in the larger housed category since HFCM effort considered them successfully housed. In addition, we conducted analyses comparing HF PSH and Non-HF PSH and report findings in the report.

Also because the study was a natural experiment, each interview phase happened at different times for each person, and the average dates were different for the treatment and control groups. This means that if there were general trends in outcomes or other events or changes going on in Charlotte during the study period that would cause outcomes to improve or decline over time, it might impact the study. To address this, we used controls for time in each regression analysis. More specifically, for survey items we controlled for month of interview; for utilization, we control for the quarter that the year of data begins in. For example, if someone's baseline utilization data covers 7/15/2017-7/15/2018, we controlled for the fact that it begins in Q3 of 2017 and that their post data begins in Q3 2018.

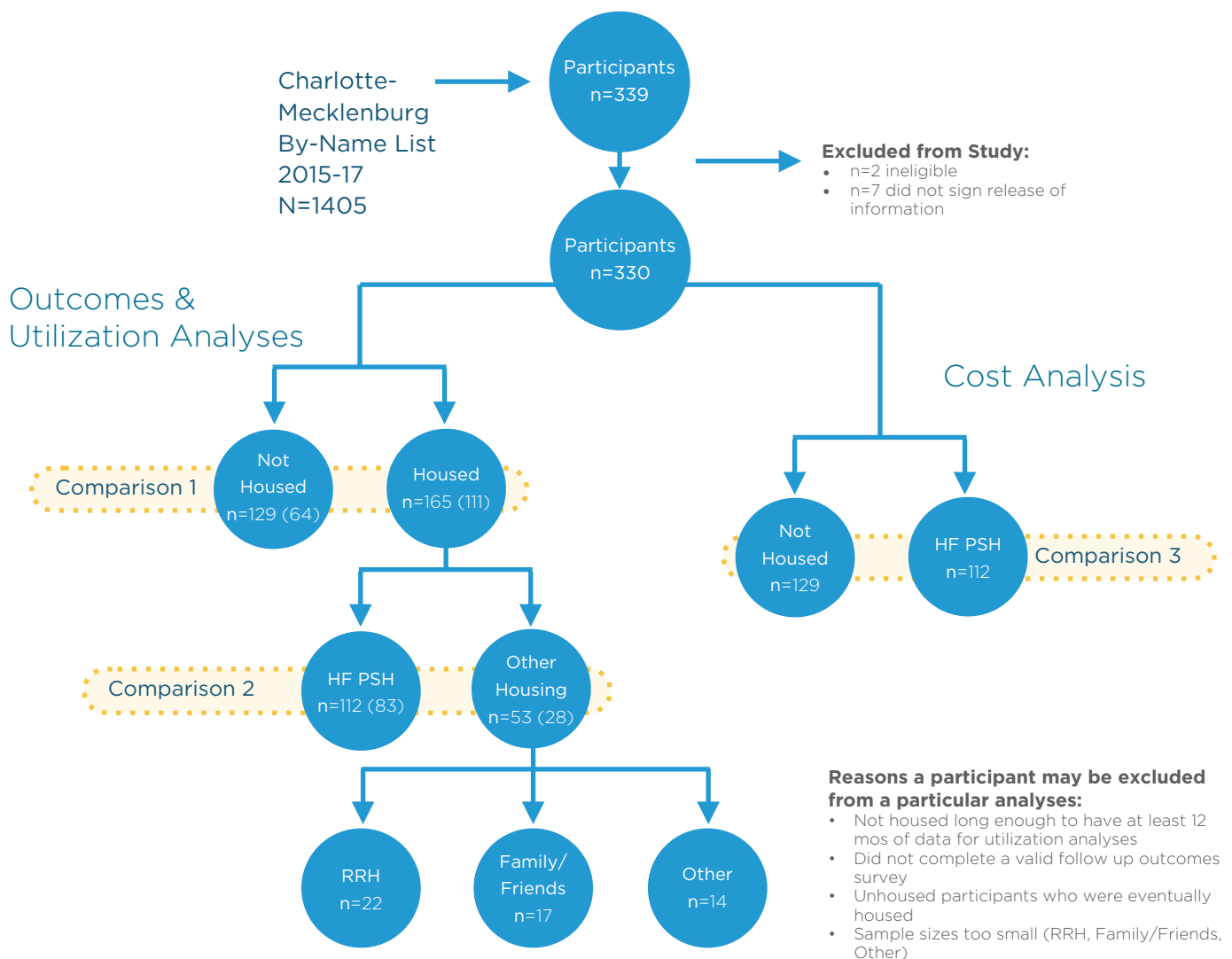
In addition, a portion of the study reflected in this report depends on self-report data and as such may be subject to social desirability bias. Study participants may respond to questions with answers they feel are more socially acceptable to those collecting the data. Study participants, many with extensive histories of homelessness, are familiar with programs that have little to no tolerance for substance use or behavioral disturbances that result from mental health disorders. Despite being assured of confidentiality and that their answers would have no bearing on their ability to obtain housing, they may have answered questions in a way that is more acceptable to the programs with which they are familiar in order to preserve their opportunities for housing. This may result in an underreporting of some behaviors or feelings.

Finally, we made every effort to gather comprehensive local criminal justice, shelter, and health data in order to more confidently conclude that housing is impacting the change in service utilization and not other interventions that we haven't accounted for. For example, if we missed some health related visits because they are not captured in the major networks that shared their data, it could bias the results. The housed group could receive treatment that we are not aware of and if the comparison group did not receive the treatment, we may assume that the change was due to the intervention instead of the health treatment we missed. If we missed visits for both treatment and comparison group, that isn't a problem. To address this concern, we extended data collection efforts to include as many major health services as the study participants may seek including major hospitals, local federally qualified health clinics, the health department, and Cardinal Health Innovations (to be included in a subsequent report).

Study Participants

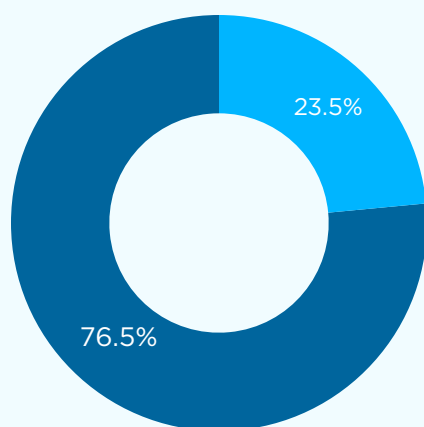
Sample. Over 330 individuals experiencing chronic homelessness participated in the HFCM study, although 9 individuals were excluded from the study because they did not meet the definition of chronic homelessness or they did not complete updated release of information paperwork. For utilization analyses, an additional 36 individuals were excluded from the sample because they were not housed long enough to have at least 12 months of data. For analyses of standardized measures, the sample includes participants for whom we have a valid follow up survey (depicted in parentheses in Figure 2 below). The majority of this report primarily focuses on Comparison 1 between individuals housed through the effort and those who weren't housed but received usual homeless services (i.e., shelter, outreach, food, etc.). When Comparison 2 provides statistically relevant insights, findings are also included. The Cost Analysis uses a third comparison between those housed in Housing First Permanent Supportive Housing and those not housed who had completed outcomes follow-up survey(s) and had sufficient post housing/baseline utilization data. This section of the report describes the characteristics of the final sample of 330 chronically homeless individuals who participated in baseline data collection that ended in December 2017 and follow-up data collection that ended in December 2018.

Figure 2: Sample sizes and study comparisons for utilization, standardized measures(measures in parentheses), and cost analyses



Response Rate. As of December 31, 2017, 23.5% (n=330) of individuals on the Chronic Homeless Registry, now called the By-Name List had participated in baseline data collection for the Housing First Charlotte-Mecklenburg Research & Evaluation Project (Project). The By-Name List consists of all individuals in the Charlotte-Mecklenburg area who meet the federal definition of chronic homelessness. The study population consists of all individuals who were on the By-Name list from the Point-in-Time count in January 2015 and individuals added to the registry through December 2017 at the close of baseline data collection.

Figure 3: Total response rate at close of baseline data collection, December 2017, N=1,405



SEVERAL FACTORS IMPACTED THE RESPONSE RATE, INCLUDING:

Participant agency - Individuals experiencing chronic homelessness were not forced or persuaded to participate in the research. A person could tell a member of the Outreach Team, Coordinated Entry, or the research team that they were not interested in participating in the research at any point and their wishes were respected.

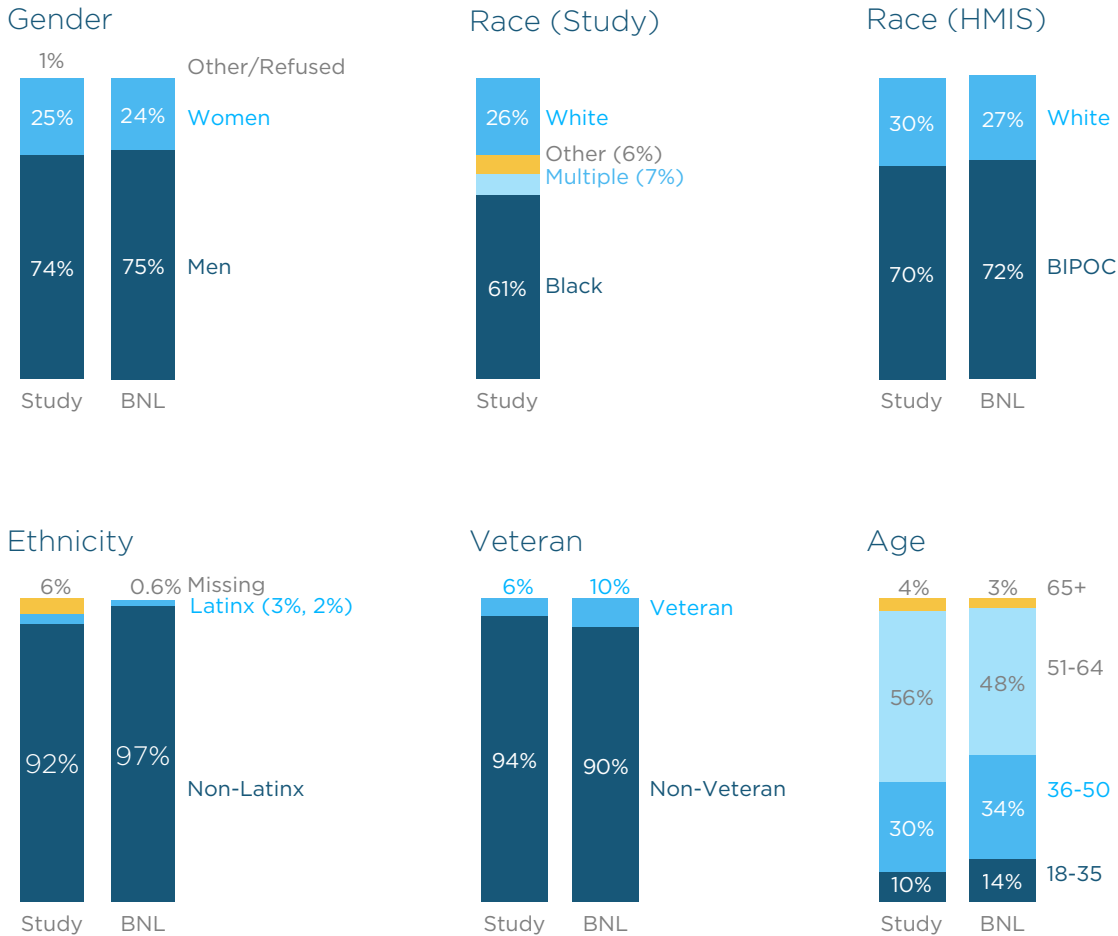
Timing - If a person was housed before they could be recruited, they were no longer eligible to participate in the individual outcomes portion of the study.

Transient population - Lack of regular housing and limited funds to maintain cell phones can make reaching participants difficult. Often potential participants who were at one time added to the By-Name List could no longer be located.

Study recruitment - The research team partnered with and relied on the Roof Above/Urban Ministry Center Outreach Team, Coordinated Entry, flyers, and word of mouth to initiate recruitment since HMIS and registry-related data sharing agreements prevented the research team from recruiting directly from the registry. HMIS staff provided a monthly report of individuals who had agreed during their Coordinated Entry assessment to share their contact information with the study. Frequently, the contact data was missing or no longer accurate. While the intention was to offer every person added to registry the opportunity to participate, sometimes the Coordinated Entry or Outreach worker did not ask potential participants if they wanted to share their name with the research team and when they did ask, the potential participants may have refused to share their information. In addition, flyers may not have reached the individual on the registry. Since Coordinated Entry began asking chronically homeless individuals if they were willing to share their contact information with the research team (n=670), 66% (n=442) gave permission to share their information, but only 39% (n=261) also provided contact information.

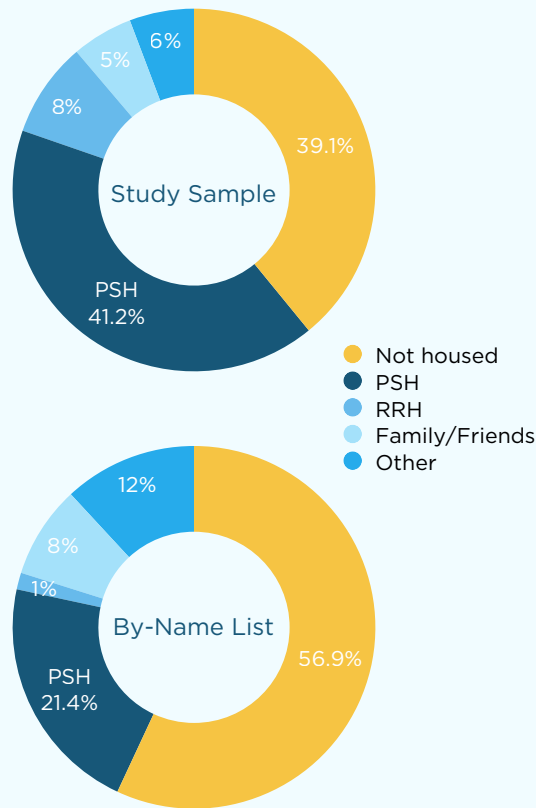
Characteristics compared to the By-Name List. A majority of study participants identify as male (74%, n= 244) and as Black or African American (61%, n=201) and as Non-Latinx (92%, n=302). This is similar to the overall list of individuals on the By-Name List. While not captured in the figure below to protect confidentiality, 26 (7.8%) participants identified as American Indian or Alaskan Native either in that category only or with other racial categories. Study participants were able to select more than one racial category (explaining how the percentages of White study participants varied by study data and HMIS data). Black individuals are disproportionately represented in chronic homelessness in Mecklenburg County where individuals who identify as Black alone make up only 32.9% of the population (U.S. Census Bureau, 2019). The other category includes participants who selected Other and those who selected categories with less than 10 people. In the remainder of analyses, the research team uses the category of Black and Indigenous people/People of Color (BIPOC) in analyses. The median age of both the By-Name List (51) and the study population (53) is higher than the general population in Mecklenburg County that is 35.2 (U.S. Census Bureau, 2019). While not included in the figure below, slightly more than 6% (n=16) of study participants indicated they were veterans and the majority of individuals had graduated high school or the equivalent (68%, n=223). The study participants are slightly older than individuals on the By-Name List, but otherwise are demographically similar.

Figure 4: Participant Characteristics, By-Name List (By-Name List; N=1405) and study sample (n=330).



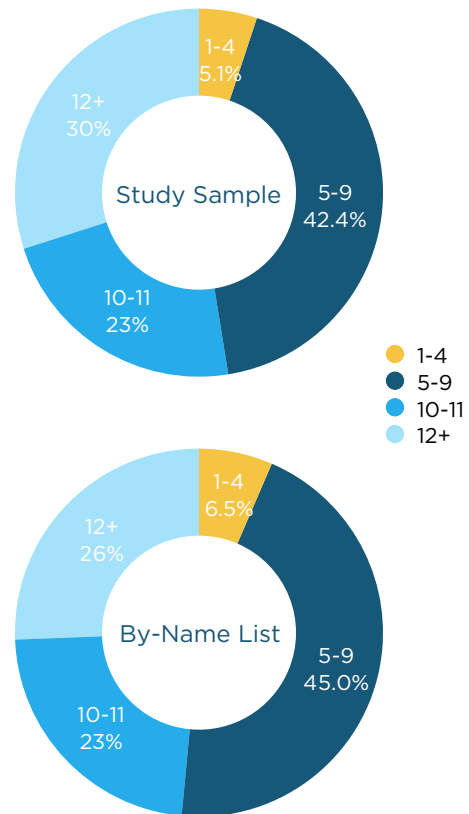
Housing Status. The majority of individuals housed as of December 31, 2017 from the study participants and from the By-Name List were housed in permanent supportive housing (PSH). However, a larger percent of study participants were housed than on the By-Name List and of those housed, a larger percent were housed in PSH than on the By-Name List. This is likely due to who was initially referred to the study as well as the difficulty of keeping a highly transient and unhoused population in the study with limited access to cell phones or other means of contact.

Figure 5: Housing status at close of baseline data collection, December 2017, By-Name List (N=1405) and study sample (n=330)



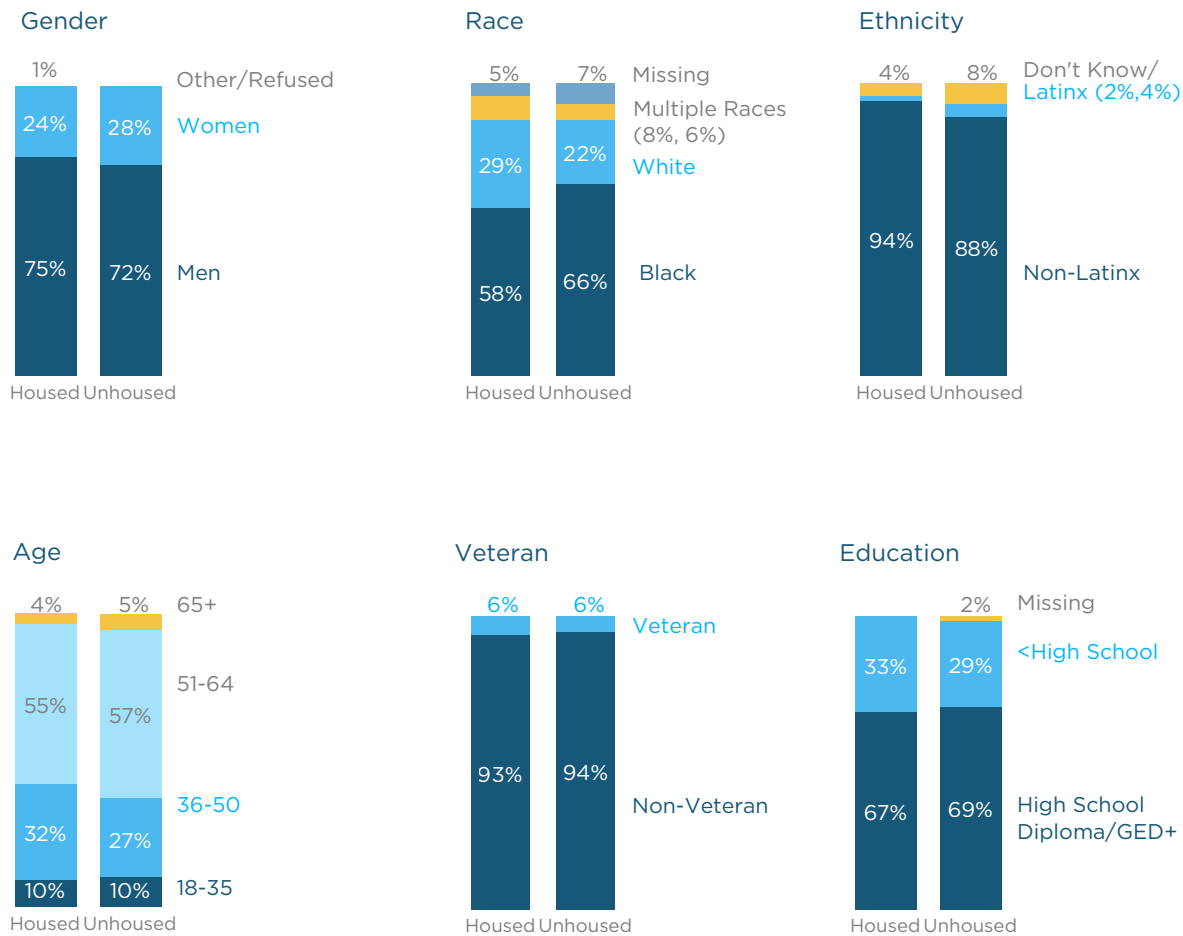
VI-SPDAT. The Vulnerability Index-Service Prioritization and Decision Assistance Tool (VI-SPDAT) is a measure that is used by Charlotte-Mecklenburg Coordinated Entry to prioritize individuals experiencing chronic homelessness for housing. Homeless service sector leaders involved with HFCM brought the VI-SPDAT to Charlotte-Mecklenburg to assist in the effort to end chronic homelessness. Individuals may take the VI-SPDAT at multiple points - the charts below show individual's initial scores for consistency. Scores range from 1 through 17, with higher scores suggesting greater vulnerability. The average VI-SPDAT score for the project participants was 9.7 (SD=3.0) as compared to 9.2 (SD=3.02) for the By-Name List. VI-SPDAT scores were similar between study participants and the By-Name List. Note, 77 individuals on the By-Name List between 2015-2017 are missing VI-SPDAT scores and 16 of participants are missing VI-SPDAT scores.

Figure 6: VI-SPDAT scores, By-Name List (n=1328) and study sample (n=330)



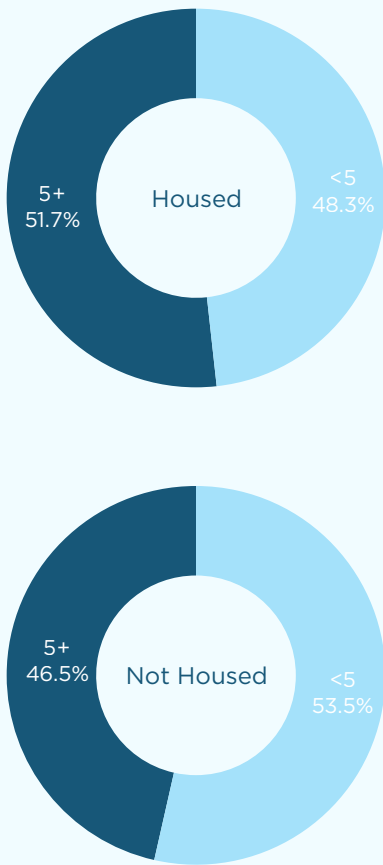
Characteristics of housed and unhoused participants. Housed and unhoused research participants were demographically similar to each other. The majority of both groups identified as Male, as Black and Indigenous people/People of Color (BIPOC), and as Non-Latinx. The median age for both housed and unhoused participants was 53. Most participants did not serve in the Armed Forces. Approximately two-thirds had earned a high school diploma or completed their GED. No demographic characteristics were statistically different between the housed and unhoused participants.

Figure 7: Participant Characteristics, Housed (n=201) and Not Housed (n=129)



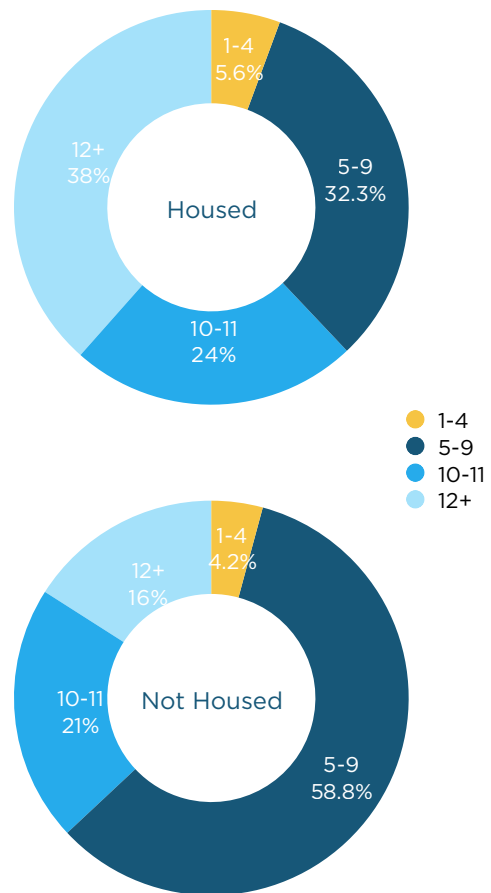
Years Homeless. Both housed and homeless participants reported a similar number of years of homelessness prior to their baseline interview. Housed participants were homeless an average of 7.7 years and unhoused participants in the comparison group were homeless an average of 7.9 year. The housed group had slightly more participants with longer histories of homelessness, but the differences between the groups were not statistically significant.

Figure 8: Years homeless at baseline data collection, Housed (n=201) and Not Housed (n=129)



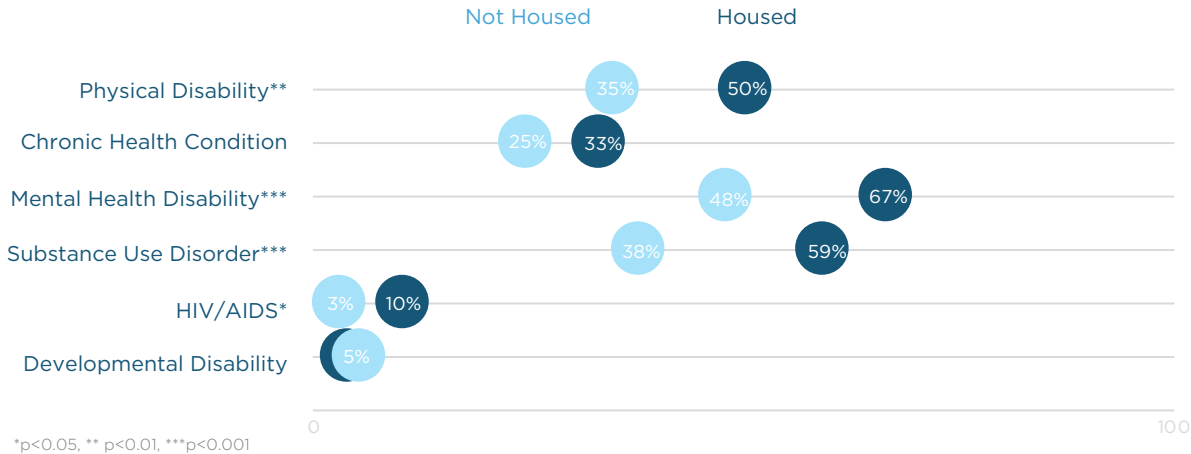
VI-SPDAT. As should be expected since it is the primary housing prioritization tool, housed participants scored higher on the VI-SPDAT (M=10.2) than did the participants who weren't housed during the study (M=8.8). More housed participants scored in the highest score range than did the unhoused participants. According to instrument developers, higher scores should reflect greater vulnerability (Community Solutions & OrgCode, 2014). A larger percentage of study participants in the housed group have higher VI-SPDAT scores than those in the comparison group. Figure 9 describes the VI-SPDAT scores according to cut points that were established toward the end of the initial phase of the HFCM effort.

Figure 9: VI-SPDAT scores at close of baseline data collection, December 2017, Housed (n=195) and Not Housed (n=119)



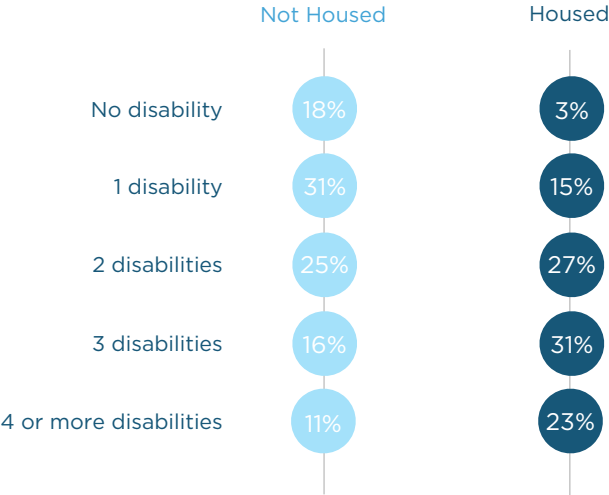
Disabling conditions. Integrating the list of study participants with Homeless Management Information System (HMIS) data at the Institute for Social Capital provided a description of the disabilities of participants. To meet the definition of chronic homelessness requires third party verification of a qualifying disability. The majority of housed participants had mental health and/or substance use disorders. More housed participants had physical disabilities, mental health disabilities, substance use disorders, and HIV/AIDS than did unhoused participants. The differences were statistically significant. The groups had similar rates of chronic health conditions and developmental disabilities.

Figure 10: Type and percent of disabilities, Housed (n=201) and Not Housed (n=129)



Nationally, the chronically homeless population experiences high rates of multi-morbidity related to the co-occurrence of physical, cognitive, and mental disorders (National Health Care for The Homeless Council, 2010). Dual diagnosis is especially common among individuals experiencing chronic homelessness and affects 52% of individuals in this group (Foster, 2010). Most participants, housed and unhoused, had more than one disability. 81% of housed participants, however, had two or more disabilities compared to 52% of unhoused participants. Further, nearly a quarter of housed participants had 4 or more disabling conditions. This suggests that housed study participants may have more extensive health and mental health related challenges and service needs, although both housed and unhoused participants have high rates of co-morbid conditions. Figure 11 describes the number of disabilities in both groups.

Figure 11: Type and percent of disabilities, Housed (n=201) and Not Housed (n=129)



Summary. The characteristics of the study participants and the larger By-Name List suggest a chronically homeless population that is disproportionately Black, disproportionately male, and older than the population in Charlotte-Mecklenburg. Analyses of participant characteristics suggest that study participants are demographically similar to those on the By-Name List. Participant and By-Name List VI-SPDAT scores also suggest they are similar. The similarities provide confidence that study findings based on the sample reflect the broader population of individuals experiencing chronic homelessness in Charlotte-Mecklenburg.

When we examined differences between the housed intervention group and the comparison group that were unhoused but received usual services, the demographic characteristics were similar as well. The VI-SPDAT scores and the number of disabling conditions, however, suggest that housed participants seem to have more extensive disability and vulnerability profiles. This suggests that community prioritization of the most acute needs may have been effective, but it also suggests the need for caution in interpreting some longitudinal findings. As noted in the limitations section, if the comparison group had a similar high profile of disabling health conditions as the housed group at baseline, there may have been an even greater difference between outcomes for the housed and comparison groups. However, if the housed participants' health was more consistent with the comparison group and had fewer health conditions, differences between the groups may have been more muted.

Outcomes Evaluation

The HFCM Outcomes Evaluation examined the impact of housing on individuals' housing retention, quality of life, physical health, and mental health. Findings, discussed in detail below, suggest positive and often marked improvements after housing in most areas, particularly in quality of life, mental health, and substance use. Food security and perceived health scores, however, offer opportunities for improvement and service sector development.

Except for housing retention data, outcomes data were collected during 690 interviews with 330 individuals experiencing chronic homelessness who agreed to participate in the study. Housing retention data were also collected from HMIS. The sample for data from standardized measures includes participants who completed valid follow up surveys (not housed n=64; housed participants n=111). Sample sizes may vary depending on the instrument. In a few cases, participants didn't answer enough questions on a particular measure to include it. In addition, the research team used a pooled sample analytic technique for the longitudinal instrument analyses that included 6 month, 12 month, and 24 month responses in the "after" score. This method allowed analyses to summarize the effect of receiving housing on each outcome, while controlling for potential time trends in the data that are unrelated to HFCM. The estimated effect is more descriptive of the shorter term, with a large number of 6 month responses, followed by 12 and 24 months. Additional notes about the research methodology are available in Appendix B.

Housing

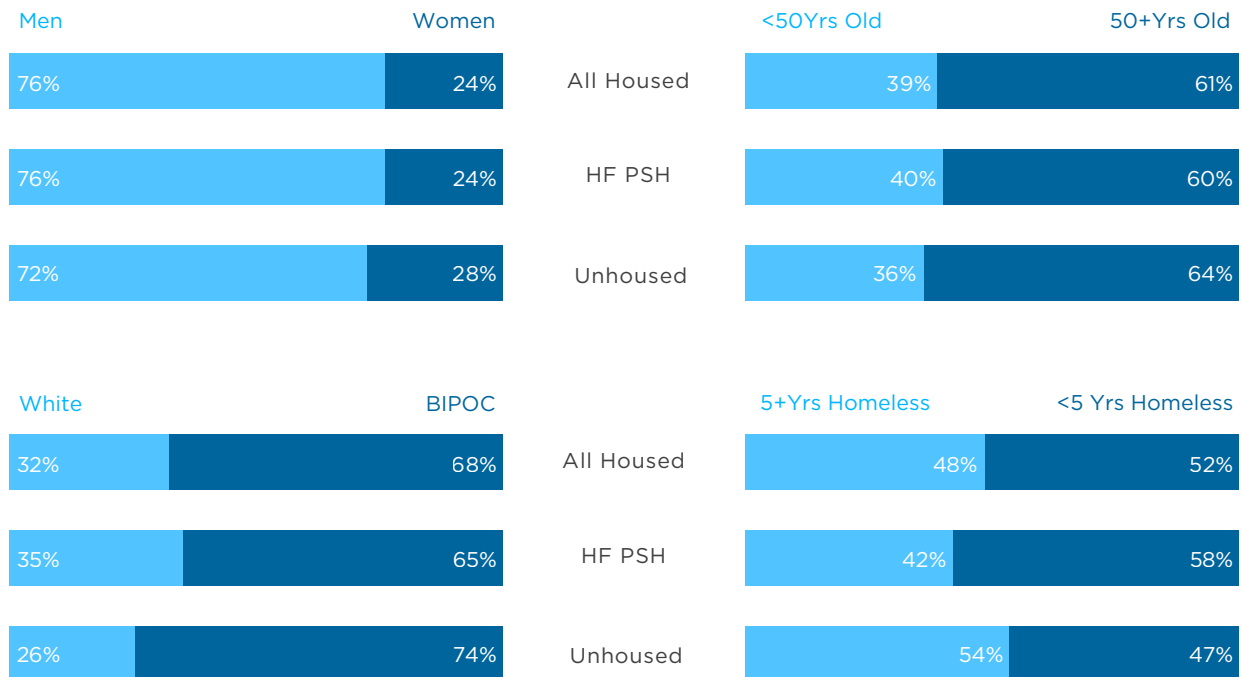
The majority (73%) of housed participants retained their housing and either remained continuously housed in the same program or had a positive exit to another permanent housing setting during the study period. Retention rates varied, however, among housing models. To understand the housing trajectories of housed study participants, we gathered data from three primary sources - the research participant during individual interviews, standard HMIS measures, and an examination of HMIS case notes.

Housing Placement. Of the 330 individuals participating in the research project as of December 15, 2017, 61% (n=201) had been placed in housing since completing their baseline interview for the research project, compared to 43% who were housed from the By-Name List between the beginning of the HFCM initiative and December 31, 2017 (see Figure 5 above).

Most research participants (68%, n=136) were housed through housing first permanent supportive housing programs (HF PSH), 28 (14%) were housed through a rapid rehousing program, and 18 (9%) were permanently placed with family or friends. Finally, 19 (9%) were housed in other housing, which includes market rate housing and other subsidized housing programs. The majority of individuals (50%, n=301) housed from the By-Name List in the same period were likewise housed in housing first permanent supportive housing (See Figure 12 below). The second highest placement rate for individuals on the By-Name List were permanent placements with friends or family (19%, n=116), while for participants it was Rapid Re-Housing (4%, n=21).

Characteristics of Housed individuals. The majority of research participants housed in any placement identified as male (76%, n=151) and BIPOC (68%, n=136) and most were age 50 or over (61%, N=123) and homeless for five or more years (52%, n=104).

Figure 12: Characteristics of housed research participants as of December 15, 2017 (n=201)



73%

Retained Housing

Retention rates in housing placements ranged from 41%-80%

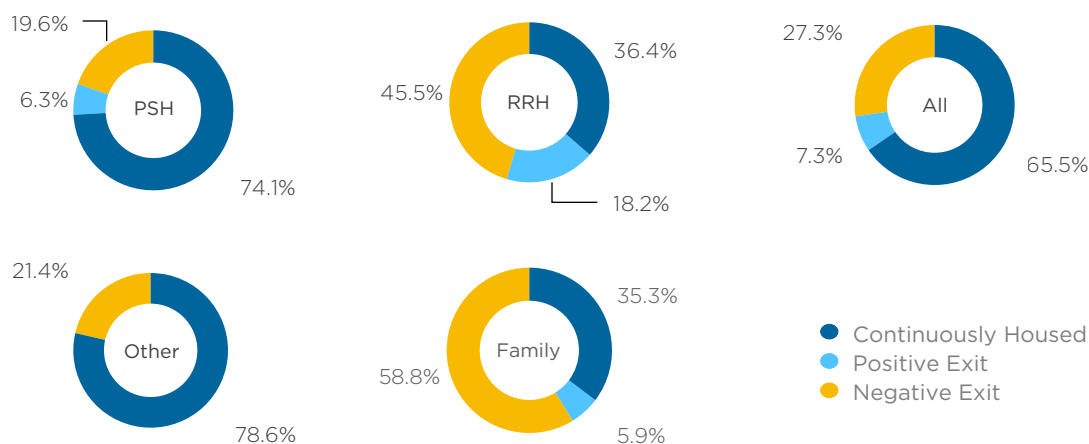
Housing Retention. Of the 201 research participants housed, we were able to follow 165 individuals (82%) for 12 months or more and track their housing retention. Overall, the majority (66%, n=108) of these participants were housed continuously in their initial housing placement, with an additional 7% (n=12) who exited for positive reasons. Positive exits were defined as those who left their initial housing placement for another stable placement based on HUD HMIS exit codes including transferring to a different PSH program or moving in with family and friends. The study also considered a permanent move into a long-term care facility as a positive move (considered a negative exit by HUD). The combined number of continuously housed and those who exited for another stable housing placement suggests a housing retention rate of 73% (n=120).

Slightly over a quarter (27%, n=45), however, exited their initial housing placement for negative reasons. Negative exits were defined as those who left their initial housing placement for negative reasons as defined by HUD HMIS exit codes including homelessness or another temporary location, including jail or moving into a shelter or a place not meant for human habitation. This number also includes individuals (n=4) for whom HMIS had no data after the participant exited housing, which is considered a negative exit by HUD.

The housing stability rate, however, varied by housing placement. Individuals whose initial placement was into a housing first permanent supportive housing program had the highest stability rate of 80% (n=90). Individuals who were placed in “Other” housing had a 79% (n=11) retention rate. Other housing included the Key program, a state program with some subsidy; units with other ongoing subsidies but no supportive services; McCreesh Place, a sobriety-based PSH program; and units with no ongoing subsidy. Rapid Re-Housing and permanent placements with friends and family members with no subsidy had the lowest overall retention and continuous housing rates.

The study used several sources of information to determine whether research participants continuously maintained their housing, or left for positive or negative reasons. The primary source for determining moves and reason for moves was HMIS, and specifically HMIS notes. Other sources included individual follow-up interviews and information provided by the Roof Above/Urban Ministry Center Outreach team.

Figure 13: Housing retention rates of participants housed 12 or more months (n=165)





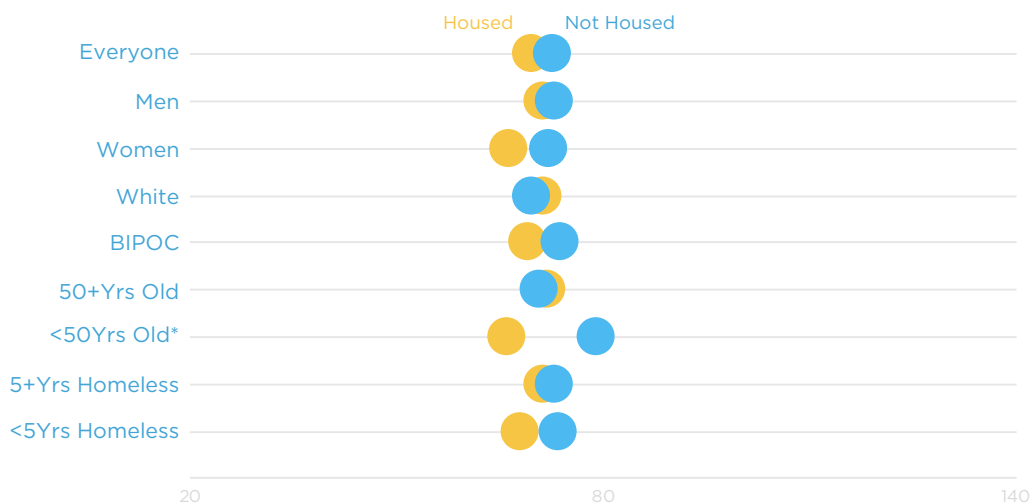
Quality of Life

The experience of homelessness induces high levels of physiological and psychological stress (Goodman, Saxe, & Harvey, 1991) and symptoms of stress lead to a poorer quality of life (Lehman, Kernan, DeForge, & Dixon, 1995). Higher quality of life is associated with greater levels of social support and decreased use of substances among those who are homeless (Lam & Rosenheck, 2000) and it is used as an overall measure of housing success among formerly homeless individuals who have been housed (Aubry & Myner, 1996).

The project measured quality of life using the Quality of Life Inventory (QOLI), a standardized measure consisting of six sub-scales - family, finances, leisure, living situation, safety, and social - and a final item to assess the individual's overall satisfaction with life. Scores range from 20 to 140 with higher scores indicating greater satisfaction with life. Several studies using the instrument indicate that homeless individuals report a better quality of life after being housed (Patterson et al., 2013; Stergiopoulos et al, 2015, Henwood et al., 2019). The average overall score at baseline for participants in the current study was 69.6 (SD=20.2). This score was consistent with pre-housing scores from a study of homeless or precariously housed individuals with mental illness (Patterson et al., 2013).

Baseline quality of life scores. The average QOL score for those housed was 69.7 (SD=21.5) and was slightly lower than those who were not housed (M=72.7, SD=19.1) and the difference was statistically significant ($p < .001$). Figure 14 describes the average quality of life scores at baseline for study participants who were housed and those who were not housed but received usual homeless services. Among demographic groups, baseline QOL scores between those housed and those who were not housed were not statistically different, except for individuals under the age of 50 (See Figure 14; the data table is available in Appendix C- Table 5). Younger housed participants reported a lower quality of life (M=66.1, SD=21.9) than did those who were not housed (M=78.9, SD=18.6)

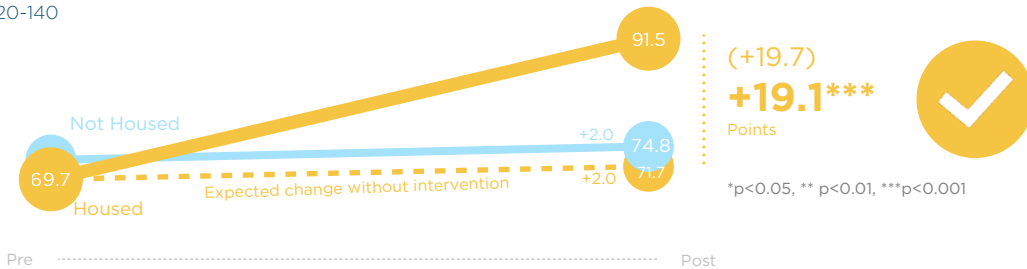
Figure 14: Baseline quality of life scores, Housed (n=111) v. Not Housed (n=64)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Change after housing. Once housed, participants' quality of life improved an average of 19.7 points more than those who were not housed, whose quality of life improved only an average of 2 points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly smaller, 19.1, and statistically significant ($p < .001$). The adjusted change represents a 27% improvement in quality of life. Figure 15 describes the change among the overall housed group (See Table 6 in Appendix C for the related data table).

Figure 15: Adjusted change in quality of life scores after housing, Housed (n=111) v. Not Housed (n=64) Scale 20-140



Among demographic subgroups, quality of life likewise improved significantly for those who were housed. Housed women and younger adults improved the most, but all groups saw significant improvements in their quality of life because of housing. Figure 16 describes improvements among housed groups beyond that of their unhoused counterparts (See Table 6 in Appendix C for the related data table)

Figure 16: Average adjusted improvements in quality of life scores for housed demographic groups (n=111)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

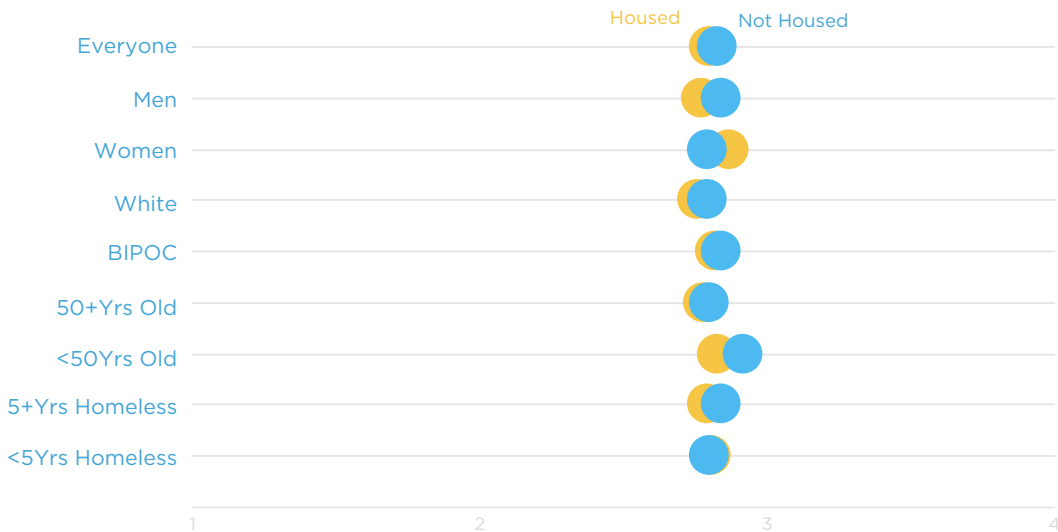


Empowered Decision-Making

Perceptions of personal power and control have been linked to recovery from mental illness (e.g., Blankertz, 2001), substance use disorders (e.g., Gonzalez & Rosenheck, 2002), and the effectiveness of the Housing First Permanent Supportive Housing model (Greenwood, Schaefer-McDaniel, Winkel, & Tsemberis, 2005). To measure related concepts, the research team used the Making Decisions Empowerment (EMP) scale that consists of an overall empowerment score and five sub-scale scores that measure self-efficacy/self-esteem; optimism/control over the future; community activism; power/powerlessness; and, righteous anger, a construct measuring the ability to discern anger toward inappropriate action. Scores range from 1 to 4 and higher scores suggest greater perceived empowerment.

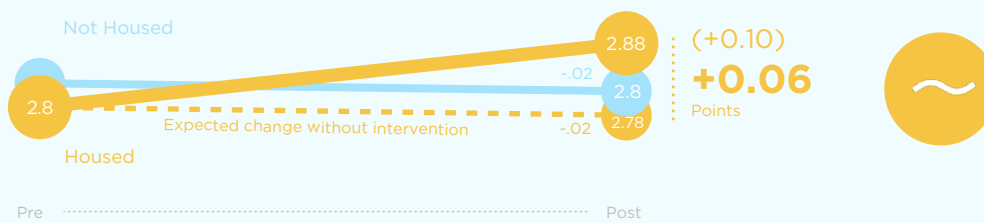
Baseline empowered decision-making scores. The average empowered decision-making score for those housed was 2.80 (SD=0.28), similar to those who were not housed (M=2.83, SD=0.27) and the difference was not statistically significant, $p=0.5374$. Figure 17 describes the empowered decision-making scores at baseline for study participants who were housed and those who were not housed but received usual homeless services. Among demographic groups, baseline EMP scores between those housed and those who were not housed were also similar and were not statistically different (See Figure 17; data table available in Appendix C- Table 7). The scores are consistent with scores from individuals with mental illness in instrument validation studies (Rogers, Chamberlin, Ellison, & Crean, 1997; Rogers, Ralph, & Salzer, 2010)

Figure 17: Baseline empowered decision-making scores, Housed (n=111) v. Not Housed (n=64)



Change in empowered decision-making after housing. Once housed, participants' perceived empowerment in decision-making improved only 0.10 points more, compared to those who were not housed, whose average scores fell slightly (0.02). After further controlling for any change that may have happened since participants were housed at different times, the improvement was even smaller, 0.06, and was not statistically significant (p=0.1313). While the scores indicate that participants had room for improvement, baseline scores also suggest empowered decision-making prior to housing. It may be that participants perceive more power in their day-to-day decisions than typically recognized, however, it would take additional research to establish and better understand the dynamics of empowerment among the population. Figure 18 describes the change among the overall housed group (See Table 8 in Appendix C for the related data table).

Figure 18: Adjusted change in empowered decision-making scores after housing
 Housed (n=111) v. Not Housed (n=64)
 Scale 1-4





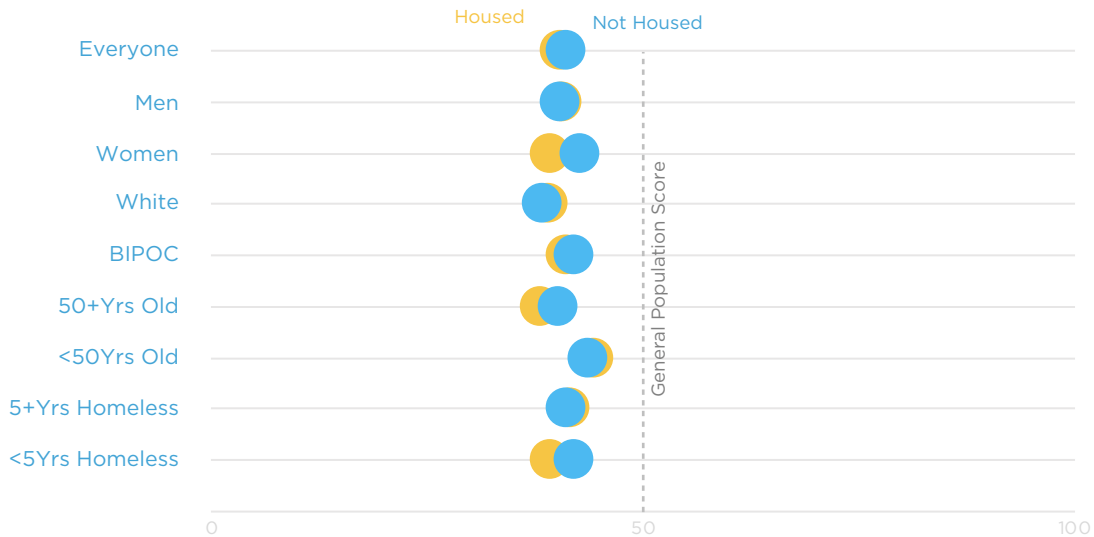
Health

Homeless individuals typically experience disproportionate rates of illnesses, reflected by a mortality rate that is between three and four times that of the general U.S. population (Henwood, Byrne, & Scriber, 2015; Zlotnick & Zerger, 2008). Physical conditions commonly influencing this population's health include hypertension (37% prevalence) asthma or chronic obstructive pulmonary diseases (26% prevalence), and hepatitis C (23% prevalence) (Lin et al., 2015). Those conditions, along with HIV, liver cirrhosis, congestive heart failure, ischemic heart disease, and diabetes affect 65% of homeless individuals in the United States (Lin et al., 2015). The living conditions associated with homelessness put individuals at high risk for tuberculosis (CDC, 2020). Among the cases diagnosed with the disease in the United States, 5% experienced homelessness during the year preceding infection (CDC, 2020). High rates of chronic and acute illness lead to poor perceptions of health, which can further exacerbate the negative impacts of health and impact the utilization of health services. The research team examined health using a variety of measures, most of which are captured in the utilization section of the report. However, two self-report measures were used to capture perceived health and food insecurity, both important components of health that are not captured in the administrative data of health providers.

The SF-12 version 2 Physical Component Score (SF-12v2 PCS). We used the SF-12v2 to measure perceived health and health-related quality of life. The SF-12v2 consists of 12 items that measure 8 health components. Four of the components are used to create a physical health component score (PCS) and four of the components are used to create a mental health component score (MCS). The PCS is derived from the Physical Functioning component, the Role-Physical component, the Bodily Pain component, and the General Health component of the measure. Scores range from 0 to 100. Higher scores on the SF-12v2 indicate better perceptions of health. A score of 50 represents the norm for the general population.

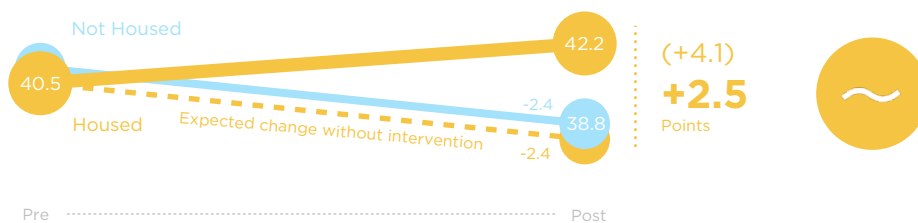
The average perceived physical health score for those housed was 40.5 (SD=11.4), similar to those who were not housed (M=41.2, SD=11.5) and the difference was not statistically significant, $p= 0.7199$. This is consistent with reports from other studies on homelessness but higher than general surveys of Medicaid populations (Huo et al., 2018) and lower than the general U.S. population. Figure 19 describes the perceived physical health scores at baseline for study participants who were housed and those who were not housed but received usual homeless services. Among demographic groups, baseline scores between those housed and those who were not housed were also similar (See Figure 19; data table available in Appendix C- Table 9). Despite the housed group having more co-morbid disabilities, housed and unhoused participants perceived their physical health similarly before housing.

Figure 19: Baseline perceived physical health scores, Housed (n=111) v. Not Housed (n=64)



Change in perceived physical health after housing. Once housed, participants' perceived physical health improved, but the change was not statistically significant. Scores improved an average of 4.1 points more than those who were not housed, whose scores fell slightly (-2.4). After further controlling for any improvement or change that may have occurred since participants were housed at different times, the improvement was smaller, 2.5, and was not statistically significant ($p=.0768$). The scores, which remained below general population scores, suggest that housing had only a slight impact on how participants felt about their physical health. There were also no significant changes once housed within demographic subgroups. Figure 20 describes the change among the overall housed group (See Table 10 in Appendix C for the related data table).

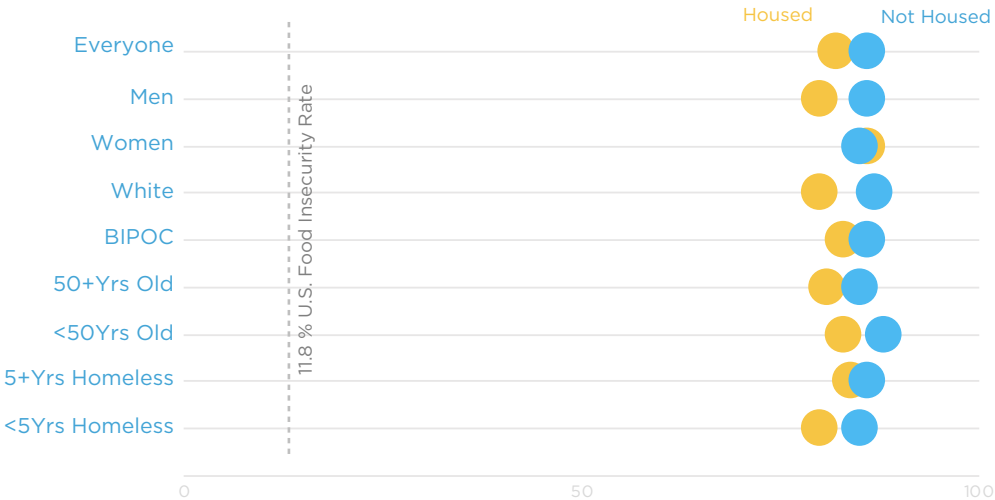
Figure 20: Adjusted change in perceived physical health score after housing
Housed (n=111) v. Not Housed (n=64)
Scale 1-100



USDA Food Security Scale (USDA). Access to nutritious food is a key component of health and particularly important for individuals experiencing chronic homelessness who have high rates of illnesses like diabetes and cardiovascular disease where effective disease management depends on a healthy diet. Food security was measured with the United States Adult Food Security Survey developed by the U.S. Department of Agriculture. Food insecurity is the condition of limited or uncertain access to adequate food (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). This instrument measures an individual's access to nutritionally adequate and safe food sources through 10 questions (Bickel, Nord, Price, Hamilton, & Cook, 2000). Individuals with a score of 2 or lower, are considered food secure, 3 or higher is considered food insecure. Food insecurity can be divided further into two categories: low food security (score of 3 to 5) indicating a person has a reduced quality or variety of diet, but no reduction in food intake; or very low food security (score of 6 or higher) suggesting food intake was disrupted at multiple times (Coleman-Jensen et al., 2017). We report the percentage of participants that fall into each category below.

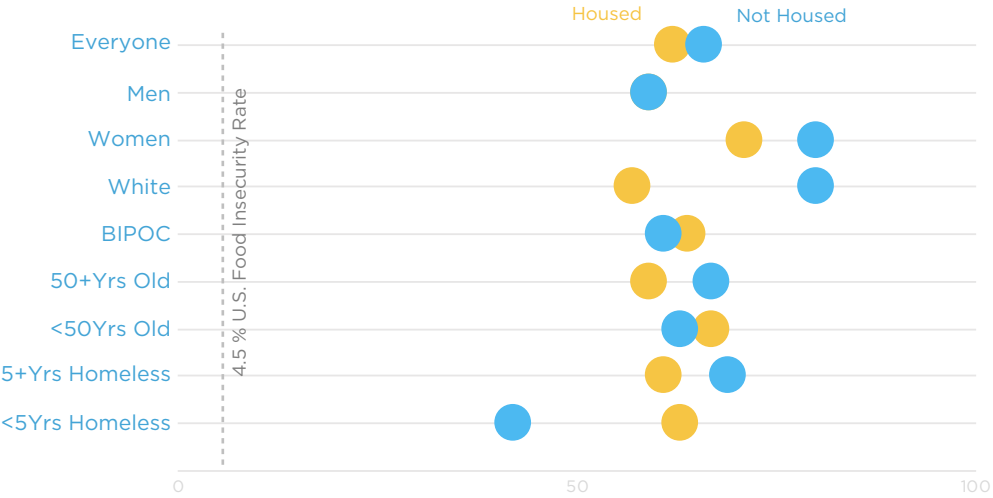
Over 80% of those housed (82%, n=91) experienced *low or very low food security* at baseline, similar to those who were not housed (86%, n=55); the difference was not statistically significant, p=0.4979. This rate is over 6 times higher than the rate of food insecurity in the US (11.8%) (Coleman-Jensen et al., 2017), and exceeds the rate of food insecurity found in homeless adults with mental illness in Canada (64%) (Parpouchi, Moniruzzaman, Russolillo, & Somers, 2016). The rate also challenges the anecdotal notion that homeless individuals “don’t go hungry in Charlotte” because they have ample opportunity to eat through soup kitchens and various food and hunger initiatives. Figure 21 depicts the rates of low and very low food security at baseline for study participants who were housed and those who were not housed but received usual homeless services. Among demographic groups, baseline scores between those housed and those who were not housed were also similar (See Figure 21; data table available in Appendix C- Table 11).

Figure 21: Baseline percent with low or very low food security, Housed (n=111) v. Not Housed (n=64)



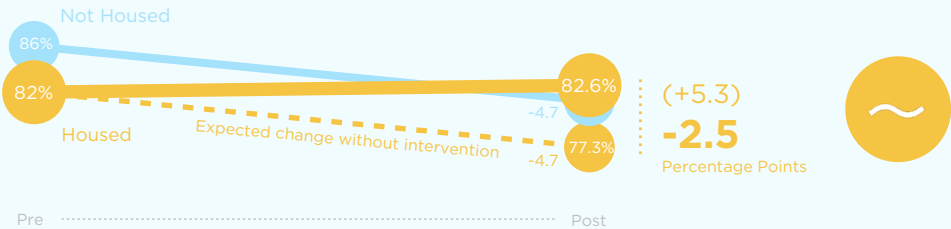
Further, a majority of housed (62%, n=69) and unhoused participants (66%, n=42) had *very low food security*, which is nearly 14 times the rate of very low food security in the U.S. general population (4.5%; Coleman et al., 2017). Chi square analyses suggested similar rates of low and very low food security among demographic subgroups. Figure 22 depicts the rates of very low food security at baseline for study participants who were housed and those who were not housed but received usual homeless services (See data table available in Appendix C- Table 13).

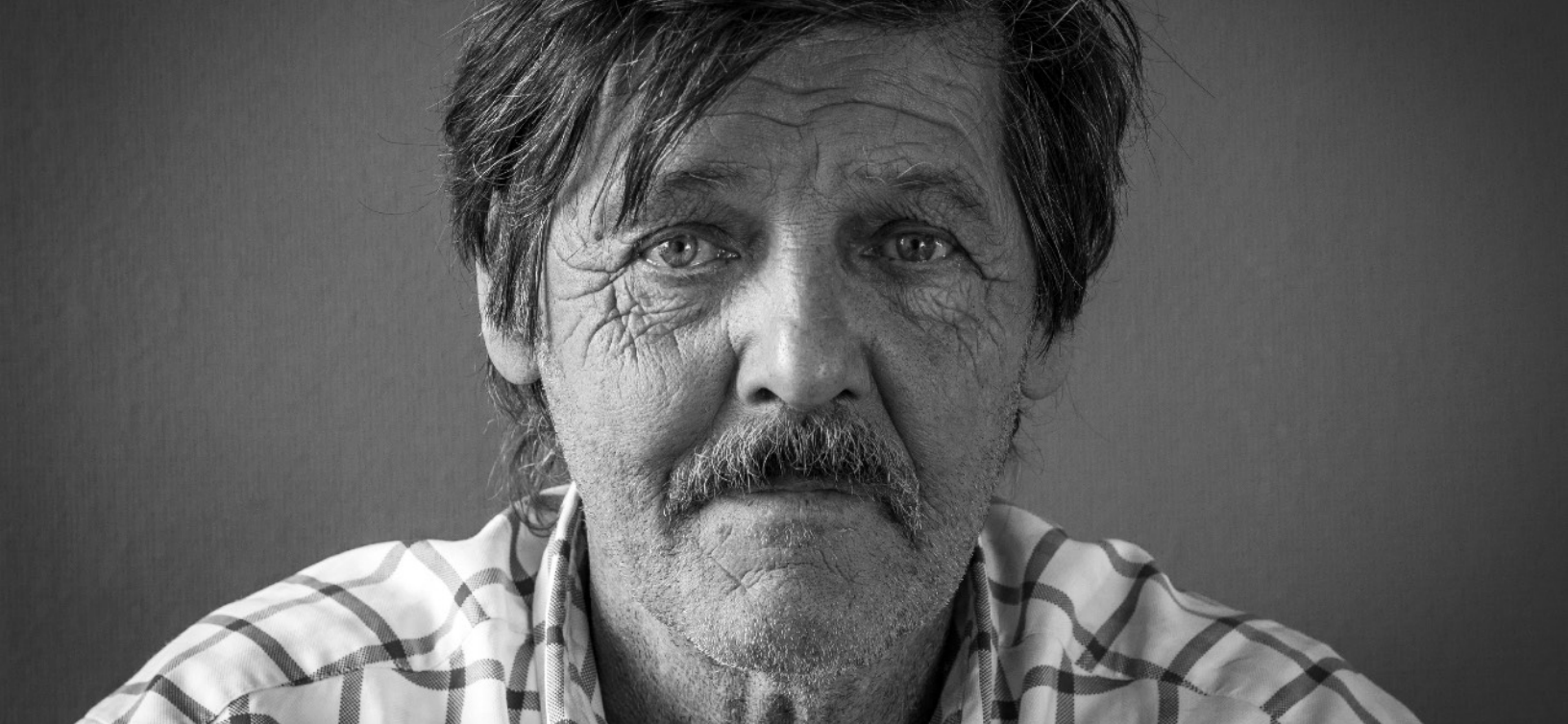
Figure 22: Baseline percent with very low food security, Housed (n=111) v. Not Housed (n=64)



Changes in low and very low food security after housing. Once housed, rates of housed participants experiencing low and very low food security increased 5.3 percentage points compared to those who were not housed, whose rates dropped 4.7 percentage points. Once we further controlled for change that may have happened because participants were housed at different times, rates for housed participants fell 2.5 percentage points, but the change was not statistically significant (p=0.6502) suggesting that it is likely that housing had little impact on participants’ food security. There were also no significant changes within demographic subgroups once participants were housed. These findings point to the ongoing difficulty homeless and formerly homeless individuals have accessing nutritionally adequate food and the need to specifically address food security in housing settings like permanent supportive housing and rapid re-housing. Housing alone does not address the larger community issues that impact households in poverty - affordable housing tends to be located in food deserts and households often lack transportation to access nutritious food in distant neighborhoods (Cannuscio, Weiss, Asch, 2010; Sallis & Glanz, 2009; Henwood, Cabassa, Craig, & Padgett, 2013). Figure 23 describes the change among the overall housed group (See Table 12 in Appendix C for the related data table).

Figure 23: Adjusted change in percent of participants with low or very low food security after housing Housed (n=111) v. Not Housed (n=64) Scale 0-100



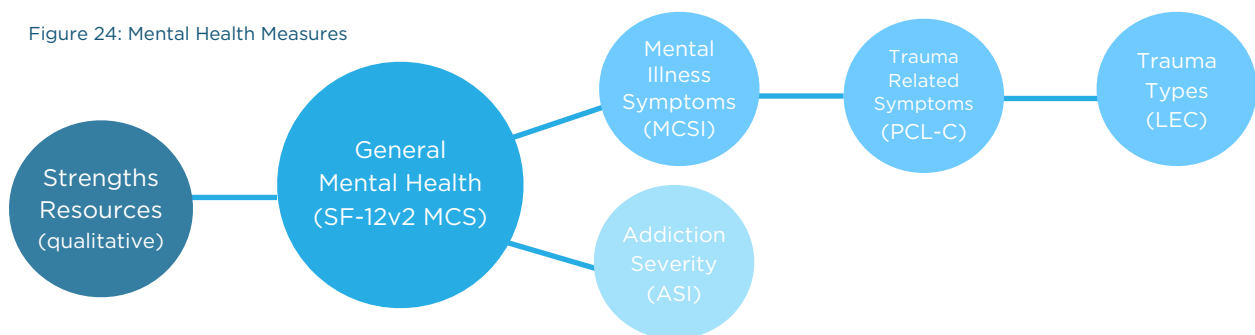


Mental Health

Mental health disorders are disproportionately represented in the chronically homeless population (e.g. North, Eyrich, Pollio, & Spitznagel, 2004) and are a qualifying disability to meet the federal definition of chronic homelessness (HUD, 2016). The majority of evidence on housing first permanent supportive housing programs is based on programs that focus on chronically homeless individuals experiencing a mental health disorder (e.g., Goering et al., 2011; Tsemberis & Einsenberg, 2000).

Because mental health is a complex phenomenon, we used multiple measures to understand research participants including the SF-12 version 2 Mental Component Score (SF-12v2 MCS), the Modified Colorado Symptom Index (MCSI), the Post Traumatic Stress Disorder (PTSD) Checklist - Civilian Version (PCL-C), the Life Events Checklist for DSM5 (LEC), and the Addiction Severity Index (ASI). Each measure allowed us to understand various layers of mental health (See Figure 24). In addition to standardized quantitative measures, we also ended each participant interview with an open-ended, qualitative question about the strengths and resources that helped them survive homelessness. This allowed participants to focus on their strengths as they left homelessness and gave the research team insight into the sources of their resilience. Their responses are described in the qualitative section of this report.

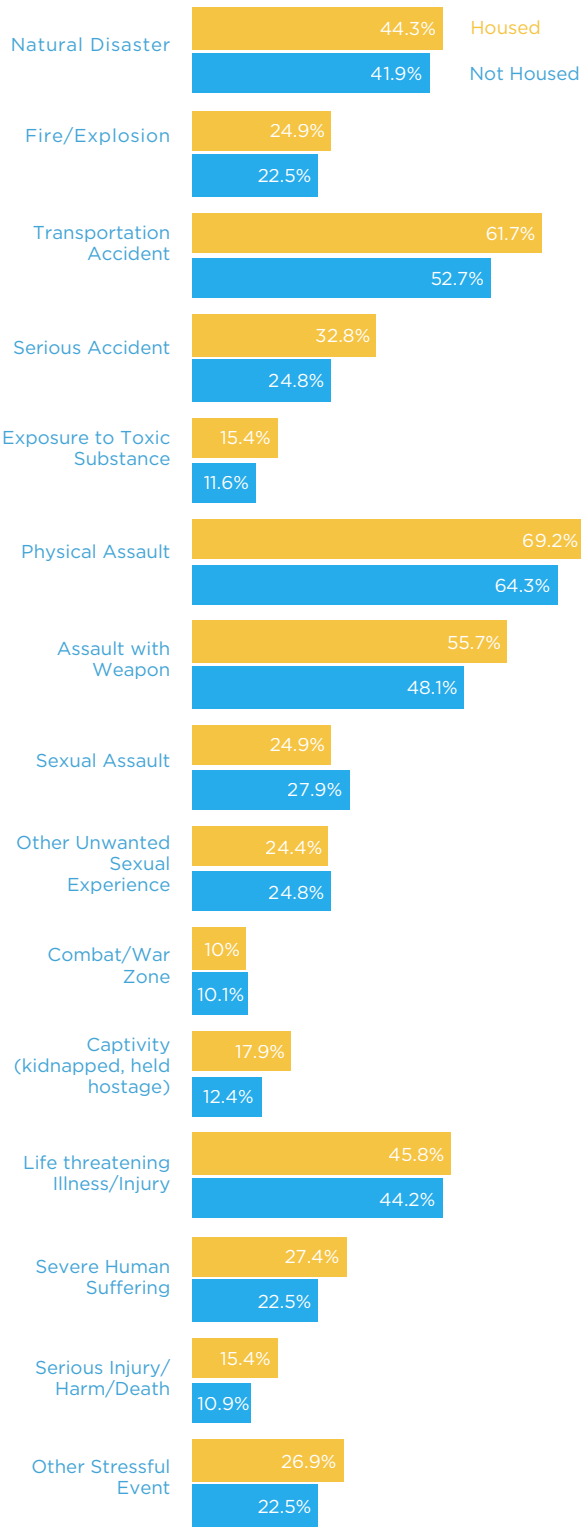
Figure 24: Mental Health Measures



The Life Events Checklist for DSM-5

(LEC-5). To contextualize the mental health and lives of the participants, we measured their lifetime exposure to extraordinary stressful events that occur outside the stress of usual human experiences using the Life Events Checklist for the DSM-5 (LEC-5). Exposure to such traumatic phenomena could cause significant symptoms of distress and has the potential to lead to the development of PTSD (Breslau & Kessler, 2001). The LEC-5 is a subjective, 17-item measure that assesses exposure to 16 types of events known to potentially result in PTSD, or distress, and includes one additional item assessing any other extraordinarily stressful type of event not captured in the first 16 items. These events include events such as natural disasters, physical assault, sexual assault, serious accidents (including transportation accidents), or life threatening injuries or illnesses. This instrument does not measure the frequency of occurrence but only whether participants have experienced or witnessed the stressful event type at least one time. Figure 25 describes the percentage of the study participants that experienced each type of life events. The more types of stressful events a person experiences, the greater the risk for PTSD.

Figure 25: Percent of number of types of traumatic life events experienced, Housed (n=201) v. Not Housed (n=129)



Overall, 93% of study participants had experienced at least one type of stressful event over the course of their lifetime; 93.5% of housed participants and 92.2% of unhoused participants experienced at least one type of traumatic event. On average, housed participants experienced slightly more types of events (M= 5; SD= 3.05) as compared to participants who were not housed (M=4.4; SD=2.7), although the difference was not statistically significant (p=0.0947). In addition to the direct experience of stressful life events, 77.5% of housed participants and 75.2% of unhoused participants witnessed at least one type of stressful event over the course of their lifetime. On average, both housed and unhoused participants witnessed approximately 3 types of stressful events (Housed M= 3.3; SD= 3.24; Unhoused M= 2.9; SD = 2.98). Figures 26 and 27 describes the number of types of events housed and unhoused study participants witnessed (Figure 26) and experienced (Figure 27) in their lifetime. See Table 16 in Appendix C for the related data table.

Figure 26: Number of types of trauma witnessed, Housed (n=201) v. Not Housed (n=129)

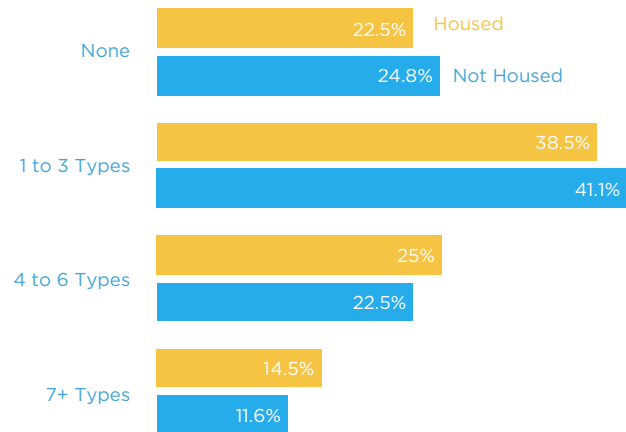
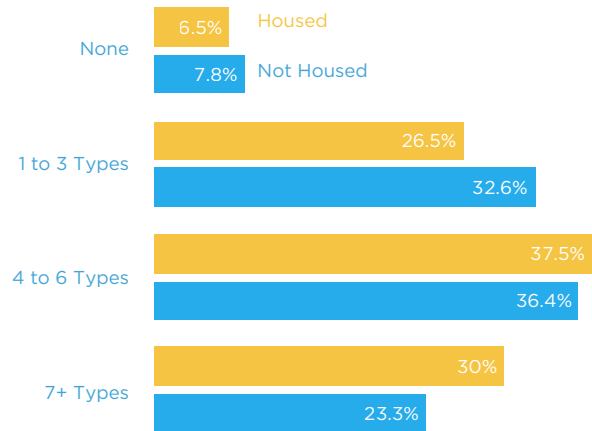


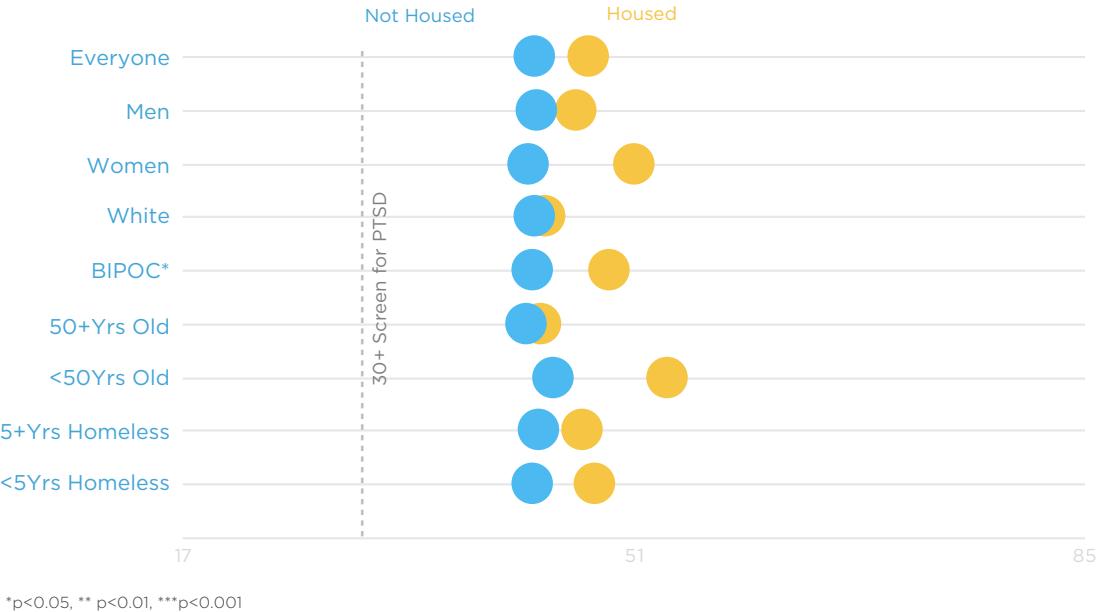
Figure 27: Number of types of trauma experienced, Housed (n=201) v. Not Housed (n=129)



PTSD Checklist-Civilian Version (PCL-C) baseline scores. We measured trauma-related symptoms using the PCL-C, a subjective 17-item measure. Total scores range from 17 to 85, with higher scores suggesting greater symptom severity. Scores that range from 30-35 are considered cut-point scores and if the instrument is used by physicians or qualified mental health professionals, these and higher scores would suggest the need for a more thorough assessment for PTSD. The average PCL-C baseline score was 47.6 (SD=17.0) for housed study participants and 43.5 (SD=13.6) for those who were not housed. The scores were not statistically different from one another, $p=0.0980$. However, both scores are higher than the average score of 29.4 (SD= 12.9) among general civilian populations (Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

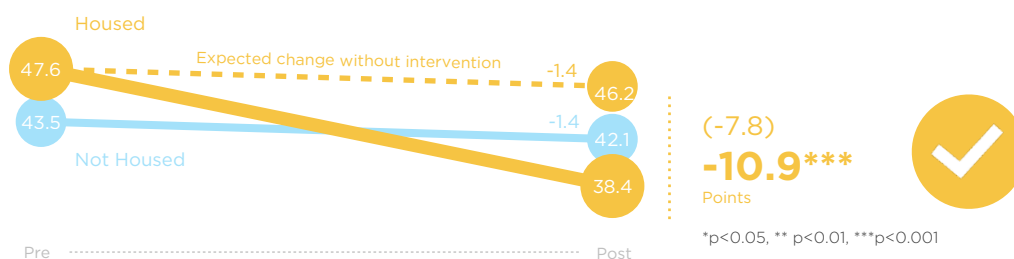
Except for BIPOC individuals, scores were statistically similar across subgroups. BIPOC housed individuals had more trauma symptoms (M=49.1, SD=17.4) at baseline than did participants in the unhoused comparison group (M=43.4, SD=13.2; $p<0.05$). Figure 28 depicts subgroup differences between housed and unhoused participants at baseline and the change statistics are available in Appendix C- Table 17.

Figure 28: Baseline trauma-related symptom scores, Housed (n=111) v. Not Housed (n=64)



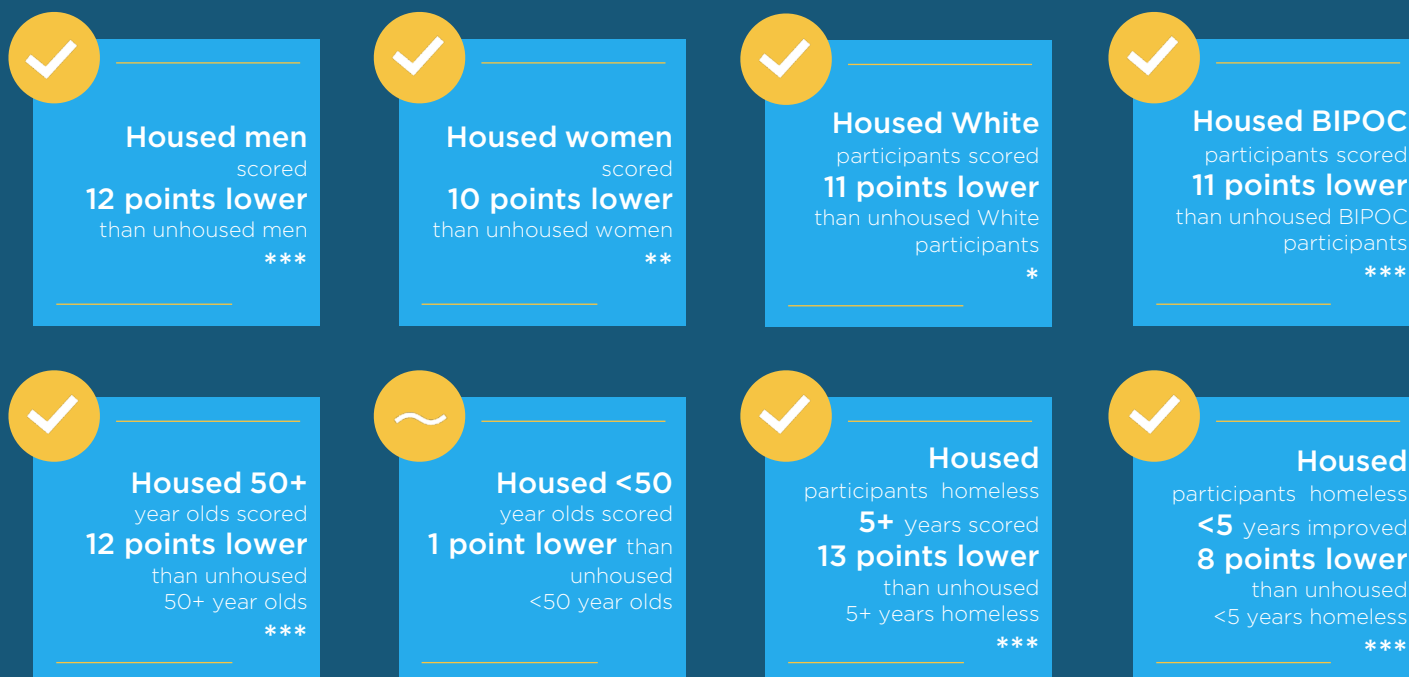
PTSD Checklist–Civilian Version (PCL-C) changes after housing. Once housed, participants’ trauma symptoms improved an average of 7.8 points more than it did for those who were not housed, whose trauma symptoms improved only an average of 1.4 points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement increased to 10.9 points more than the unhoused group and was statistically significant ($p < .001$). The Veterans Administration National Center for PTSD suggests that a 5-10 point change is a reliable indicator that a person has responded to an intervention and a 10-20 point change suggests that the change is clinically meaningful (Monson et al., 2008). This improvement suggests that housing improved the trauma-related symptoms of research participants compared to those who remained unhoused. Figure 29 describes the change among the overall housed group (See Table 18 in Appendix C for the related data table).

Figure 29: Adjusted change in Trauma-Related Symptom score after housing
 Housed (n=111) v. Not Housed (n=64)
 Scale 17-85



Among demographic subgroups, trauma-related symptoms improved significantly for all housed groups beyond that of unhoused groups, except for housed participants under the age of 50. Figure 30 describes improvements among housed groups (See Table 18 in Appendix C for the related data table and change statistics).

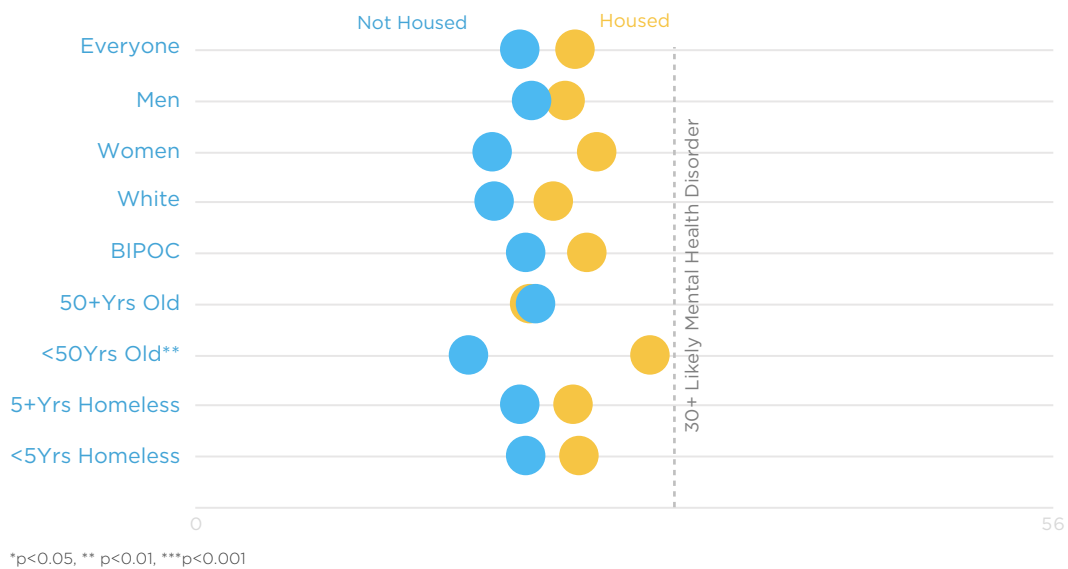
Figure 30: Average adjusted improvements in trauma symptom scores for housed demographic groups (n=111)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

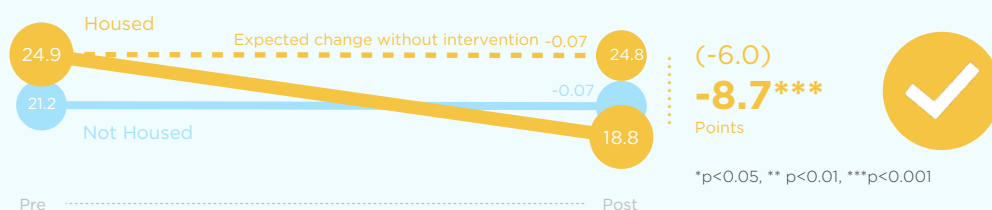
Modified Colorado Symptom Index (MCSI) Baseline Scores. The study measured mental illness symptoms with the MCSI, a subjective measure with scores ranging from 0 to 56. Higher scores indicate more psychiatric symptoms and a clinical cut-off score of 30 and above suggests the presence of a mental health disorder. The average mental illness symptom score for those housed was 24.9 (SD=13.3), slightly higher than those who were not housed (M=21.1, SD=12.2) but the difference was not statistically significant (p=.0682). 36.8% of housed participants and 29.5% of unhoused participants had scores of 30 or above, meaning they met criteria for a likely mental health disorder (p=0.1683). Figure 31 describes the average perceived mental health scores at baseline for study participants. Among demographic groups, baseline scores between those housed and those who were not housed were also statistically similar, except for individuals under the age of 50. Younger housed participants had higher symptom scores (M=29.8, SD=12.5) than did those who were not housed (M=17.9, SD=9.4; p=0.0010). The data table is available in Appendix C- Table 19.

Figure 31: Baseline mental health symptoms scores, Housed (n=111) v. Not Housed (n=64)



Modified Colorado Symptom Index (MCSI) changes after housing. Once housed, participants' mental illness symptoms scores fell an average of 6.0 points more than those who were not housed, whose mental health symptoms improved only an average of 0.1 points. Lower scores indicate fewer mental health symptoms. After further controlling for any time effects that may have occurred since participants were housed at different times, the improvement was 8.7 points more than the unhoused group and it was statistically significant (p<.001). This improvement suggests that housing improved the mental illness symptoms of research participants compared to those who were not housed. Figure 32 describes the change among the overall housed group (See Table 20 in Appendix C for the related data table)

Figure 32: Adjusted change in perceived mental health symptom scores after housing
Housed (n=111) v. Not Housed (n=64)
Scale 0-56



Among demographic subgroups, mental illness symptoms improved significantly for all housed groups, except for White participants and participants under the age of 50. Figure 33 describes adjusted improvements among housed groups (See Table 20 in Appendix C for the related data table).

Figure 33: Average adjusted improvements in mental illness symptom scores for housed demographic groups (n=111)

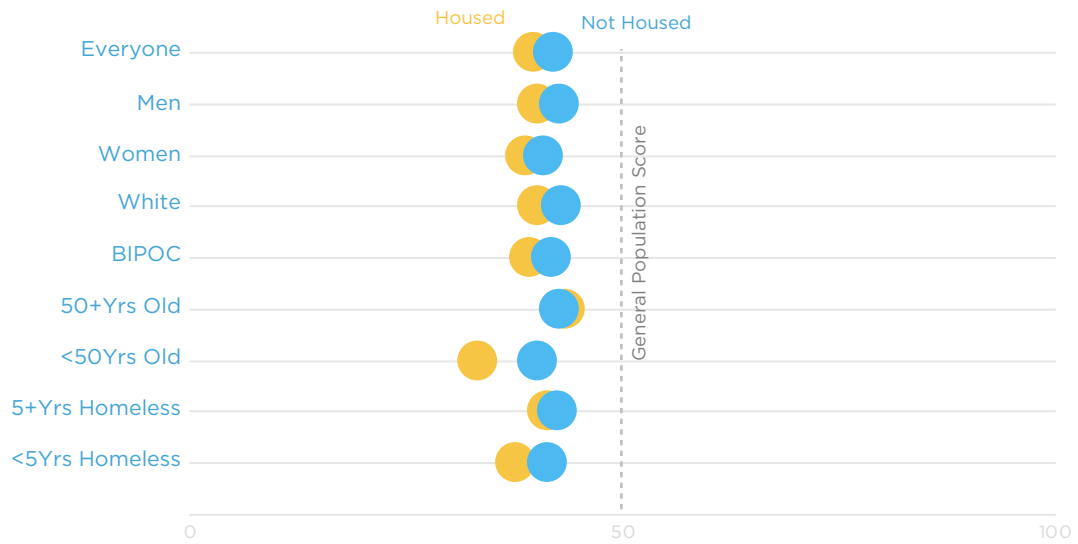


*p<0.05, ** p<0.01, ***p<0.001

The SF-12 version 2 Mental Component Score (SF-12v2 MCS) baseline scores. We used the SF-12v2 to measure perceived health and health-related quality of life. The SF-12v2 consists of 12 items that measure 8 health components. Four of the components are used to create a physical health component score (PCS) and four of the components are used to create a mental health component score (MCS). The MCS is derived from the Vitality component, the Social Functioning component, the Role-Emotional component, and the Mental Health component. As noted above, this report examines the MCS and PCS. Higher scores on the SF-12v2 indicate better perceptions of health. Scores range from 0 to 100. A score of 50 on the PCS or MCS represents the norm for the general population.

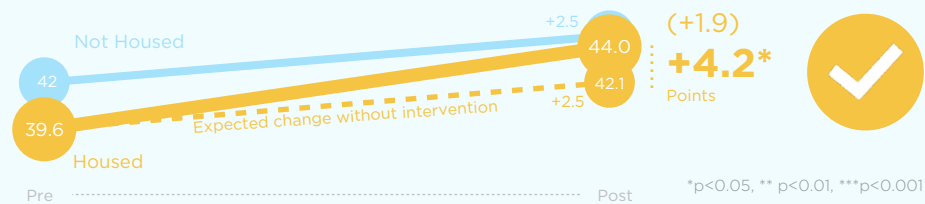
At baseline, the average perceived mental health score for those housed was 39.6 (SD=13.2), lower than those who were not housed (M=42.1, SD=10.7) however the difference was not statistically significant. Figure 34 describes the average perceived mental health scores at baseline for study participants who were housed and those who were not housed but received usual homeless services. Among demographic groups, baseline scores between those housed and those who were not housed were also similar (See Figure 34; data table available in Appendix C- Table 21) and all participants perceived their health worse than the general U.S. population. Overall, these scores compare with existing research measuring psychiatric symptomatology using the SF-12 (MCS) in a homeless sample (M= 41.67; SD= 12.77) (Larson, 2002).

Figure 34: Baseline perceived mental health scores, Housed (n=111) v. Not Housed (n=64)



SF-12v2 MCS changes after housing. Once housed, participants' perceived mental health improved an average of 1.9 points more compared to those who were not housed, whose perceived mental health improved only an average of 2.5 points. After further controlling for any change that may have happened since participants were housed at different times, the improvement was greater, 4.2 points, and it was statistically significant ($p < .05$). This improvement suggests that housing improved the perceived mental health of research participants compared to those who were not housed. Figure 35 describes the change among the overall housed group (See Table 22 in Appendix C for the related data table).

Figure 35: Average adjusted change in perceived mental health scores after housing
Housed (n=111) v. Not Housed (n=64)
Scale 1-100



Among demographic subgroups, perceived mental health improved statistically for housed women, compared to those who were not housed and received usual services. No other demographic group had statistically significant improvements in perceived mental health. Figure 36 describes improvements among housed groups (See Table 22 in Appendix C for the related data table).

Figure 36: Average adjusted improvements in perceived mental health scores for housed demographic groups (n=111)



*p<0.05, ** p<0.01, ***p<0.001

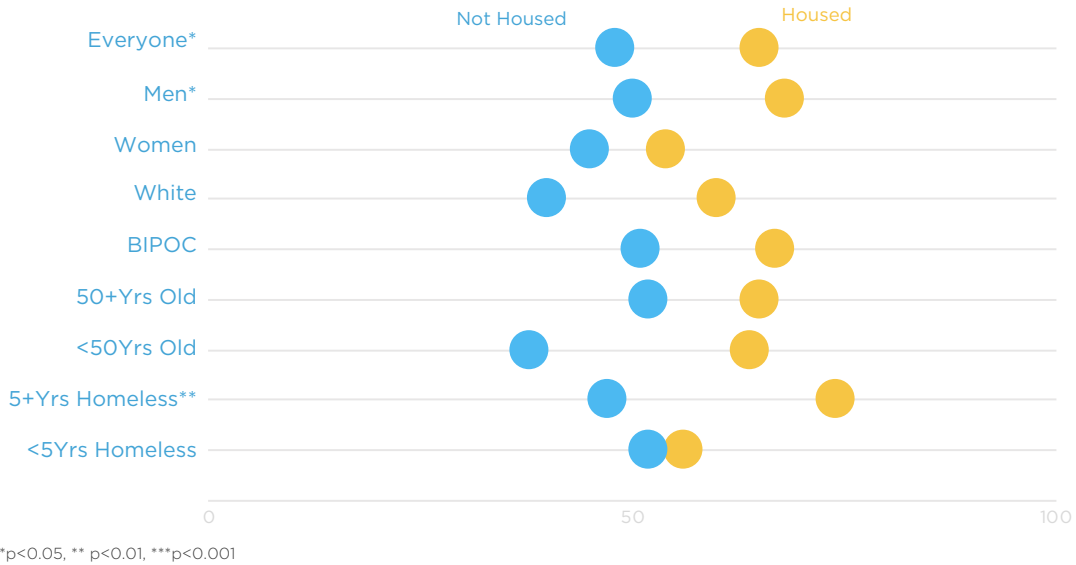
Addiction Severity Index (ASI). Estimates suggest that approximately 38% of the homeless population in Western countries experience dependence to alcohol and 24% to drugs, compared to 6% and 11% in the general U.S. population, respectively (Fazel, Khosla, Doll, Geddes, & Mcgrath, 2008; Yerby, 2019; CDC, 2017). However, the causal relationship between substance use disorders and homelessness is not straightforward - in some cases, substance use disorders contribute to homeless and in others, homelessness leads to substance use disorders (Gomez, Thompson, & Barczyk, 2010). Regardless, housing first is based on harm-reduction principles (Stefancic et al., 2013) and commits to meeting individuals where they are and using housing as a platform for long-term recovery, instead of a reward for abstinent behavior (Padgett et al., 2016).

While abstinence is not a requirement or planned outcome of housing first programs, understanding utilization of substances and the impact of programming on the utilization of substances is an important part of understanding the mental health of individuals experiencing chronic homelessness. Evidence suggests the effectiveness of permanent supportive housing in inducing modest, albeit significant, changes in alcohol and drug use among formerly homeless individuals (Tsai et al., 2012). Specific to HF PSH, existing research demonstrates the intervention’s potential to have a greater impact on the substance use of formerly homeless adults with severe mental illnesses, as compared to individuals who are not housed and receiving usual services (Padgett, Stanhope, Henwood, & Stefancic, 2011).

The research team used the ASI to measure study participants’ use of substances. The self-report instrument counts the number of days a participant used a substance over the past 30 days and the number of years participants used a substance over their lifetime. The number of years participants used a substance in their lifetime was reported in the 2018 HFCM Interim Report. This section reports on 1) the percentage of individuals who used substances and the number of days they used them at baseline and 2) if there were any statistically significant changes in the number of individuals reporting use or in the number of days of use after participants were housed compared to those who were not housed.

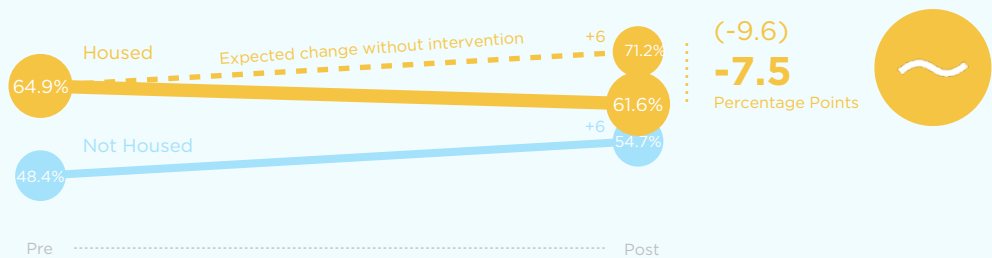
Percent of alcohol use before baseline. The majority of housed study participants (65%, n=72) reported using alcohol in the last 30 days compared to 48% (n=31) of unhoused individuals, a statistically significant difference, $p < .05$. Among demographic groups, more housed men (68%, n=56) and housed participants who had been homeless for more than 5 years (74%, n=42) reported use of alcohol than did their unhoused counterparts (50%, n=22; 47%, n=17, respectively). Those differences were statistically significant ($p < .05$; $p < .01$, respectively). Figure 37 depicts subgroup differences between housed and unhoused participants at baseline and the data tables are available in Appendix C- Table 23.

Figure 37: Baseline percent of participants using alcohol in last 30 days, Housed (n=111) v. Not Housed (n=64)



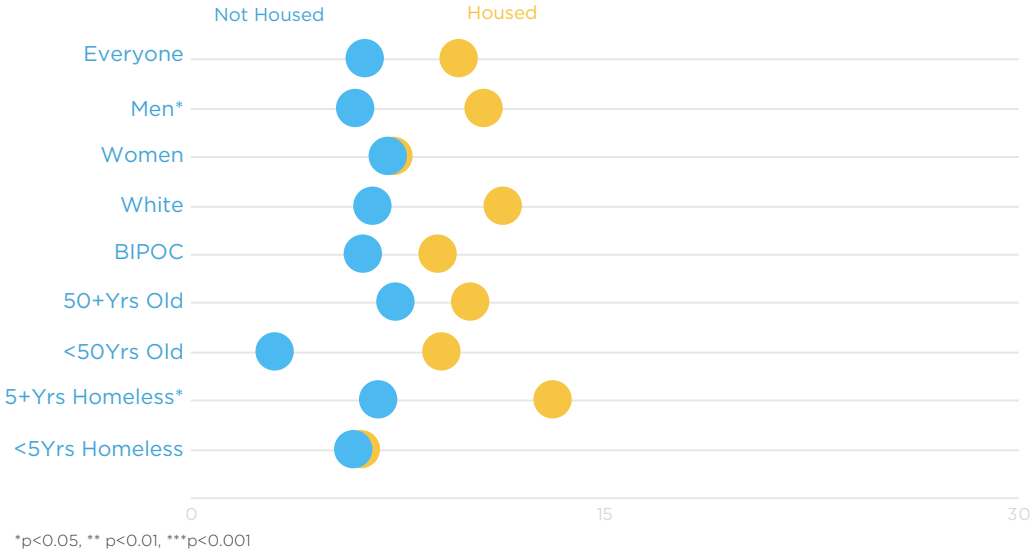
Percent of alcohol use after housing. Once housed, the percent of housed participants who reported use of alcohol in the previous 30 days fell 9.6 percentage points compared to those who were not housed, whose percentage actually increased 6.3 percentage points. After further controlling for any change that may have occurred since participants were housed at different times, the reduction was 7.5 percentage points; it was not statistically significant ($p = 0.2667$). Among demographic subgroups, the percent of housed participants who used alcohol in the last 30 days also did not change statistically. Figure 38 describes the change among the overall housed group (See Table 24 in Appendix C for the related data table and change statistics).

Figure 38: Change in percent of participants who use alcohol in last 30 days after Housing Housed (n=111) v. Not Housed (n=64) Scale 0-30



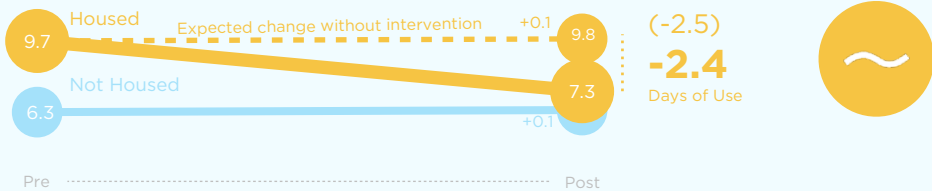
Days of alcohol use before baseline. At baseline, housed study participants reported using alcohol an average of 9.7 days (SD=11.7) in the last 30 days compared to 6.3 days (SD=10.4) by unhoused individuals, however, the groups were not statistically different, $p=0.0537$. Among demographic groups, housed men reported 10.6 days (SD=11.6) of alcohol use in the last 30 days at baseline compared to unhoused men who reported 5.9 days (SD=10.0) of use, a statistically significant difference, $p < .05$. Housed participants who had been homeless over five years also reported more days of use than those who were not housed, 13.1 (SD=12.5) and 6.8 (SD=11.0) respectively, also a statistically significant difference, $p < .05$. Figure 39 depicts subgroup differences between housed and unhoused participants at baseline; data tables are available in Appendix C- Table 25.

Figure 39: Baseline average days using alcohol in last 30 days, Housed (n=111) v. Not Housed (n=64)



Days of alcohol use after housing. Once housed, participants reported using alcohol an average of 2.5 days less in the last 30 days compared to those who were not housed, whose days of use increased 0.1 days. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was nearly the same, 2.4 days and it was not statistically significant ($p=0.0657$). Figure 40 describes the change among the overall housed group (See Table 26 in Appendix C for the related data table).

Figure 40: Adjusted change in days participants used alcohol after housing Housed (n=111) v. Not Housed (n=64) Scale 0-30



Among demographic subgroups, once housed, White participants used alcohol an average of 10 days fewer than their unhoused counterparts, a statistically significant change ($p < .01$). There were no statistically significant changes among other demographic subgroups. See Figure 41 below and Table 26 in Appendix C for the related data table.

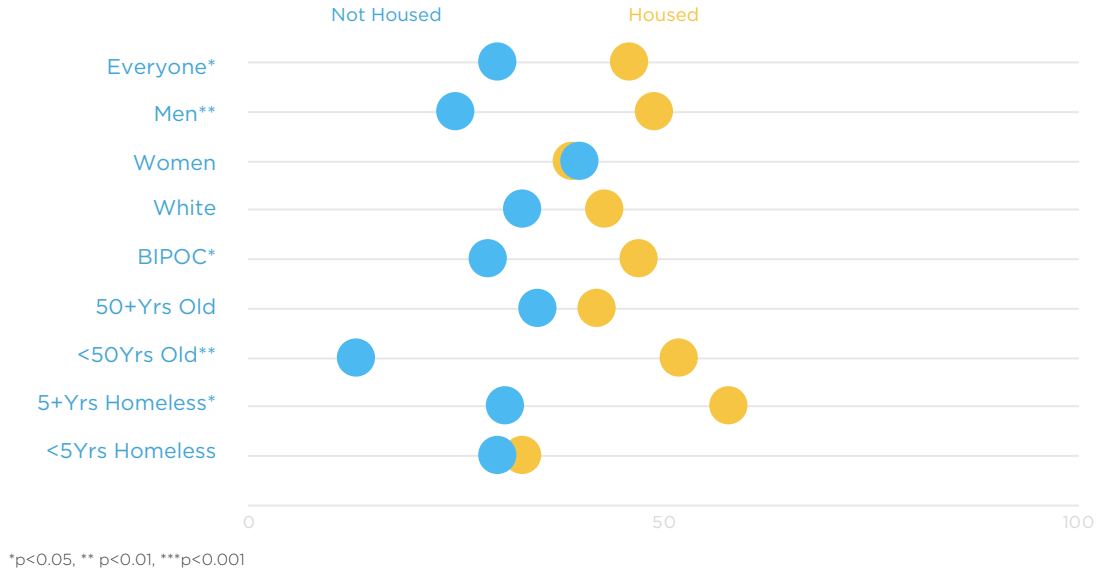
Figure 41: Average adjusted reduction in days of alcohol use in last 30 days for housed demographic groups (n=111)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Percent of alcohol use to intoxication before baseline. During baseline interviews, more participants in the housed group than the comparison group reported drinking to intoxication in the last month (46%, n=111; 30%, n=64, respectively), a statistically significant difference, $p < .05$. Among demographic groups, there were statistically significant differences between several housed and unhoused subgroups. More housed men (49%, n=40) than unhoused men (25%, n=11) reported drinking to intoxication in the last 30 days in their baseline interview. More BIPOC housed participants (47%, n=36) than BIPOC unhoused participants, (29%, n=14), more housed participants under the age of 50 (52%, n=22) than unhoused younger participants (13%, n= 6), and more housed participants who had been homeless for over five years (58%, n=33) than unhoused individuals who had been homeless for more than 5 years (31%, n=8) reported use of alcohol to intoxication at baseline. Figure 42 depicts subgroup differences between housed and unhoused participants at baseline (See Table 27 in Appendix C for the related data table).

Figure 42: Baseline percent of participants using alcohol to intoxication in last 30 days, Housed (n=111) v. Not Housed (n=64)



Percent of alcohol use to intoxication after housing. Once housed, the percent of housed participants who reported use of alcohol to intoxication in the previous 30 days fell 4 percentage points compared to those who were not housed, whose percentage actually increased 8 percentage points. When we further controlled for time effects, the percent of housed participants who reported use to intoxication fell 11.6 percentage points, however, the improvement was not statistically significant (p=0.0770). Among demographic subgroups, only housed men saw a significant reduction in the percent of housed participants who used alcohol to intoxication in the last 30 days compared to unhoused men, a 17.1 percentage point, or a 35% reduction (p<.05). Figure 43 describes the change among the overall housed group (See Table 28 in Appendix C for the related data table) and figure 44 describes the change among demographic groups.

Figure 43: Adjusted change in percent who use alcohol to intoxication after housing Housed (n=111) v. Not Housed (n=64) Scale 0-100

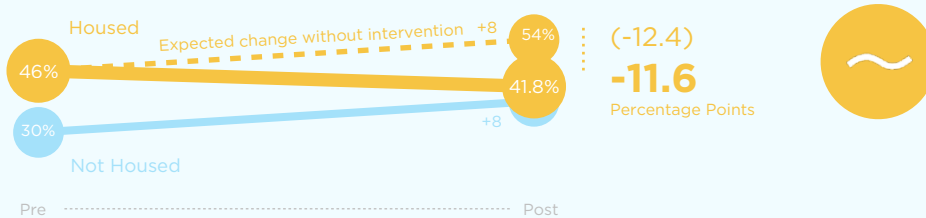
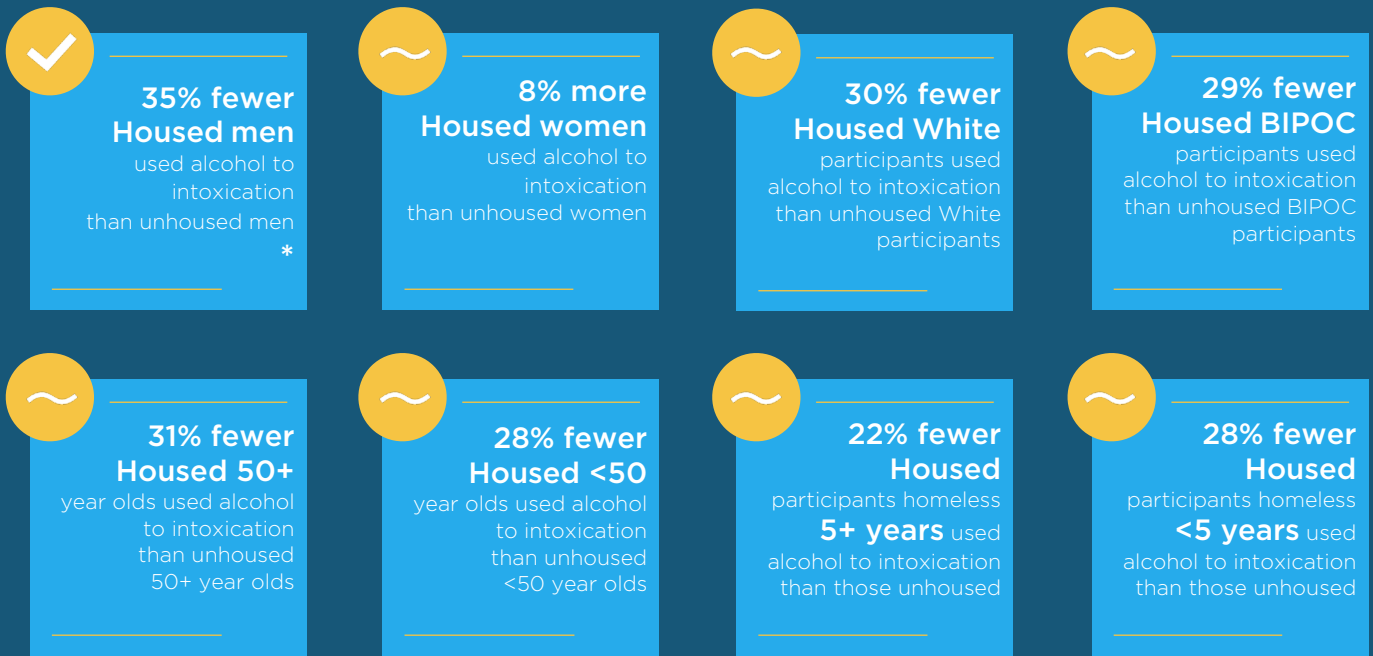


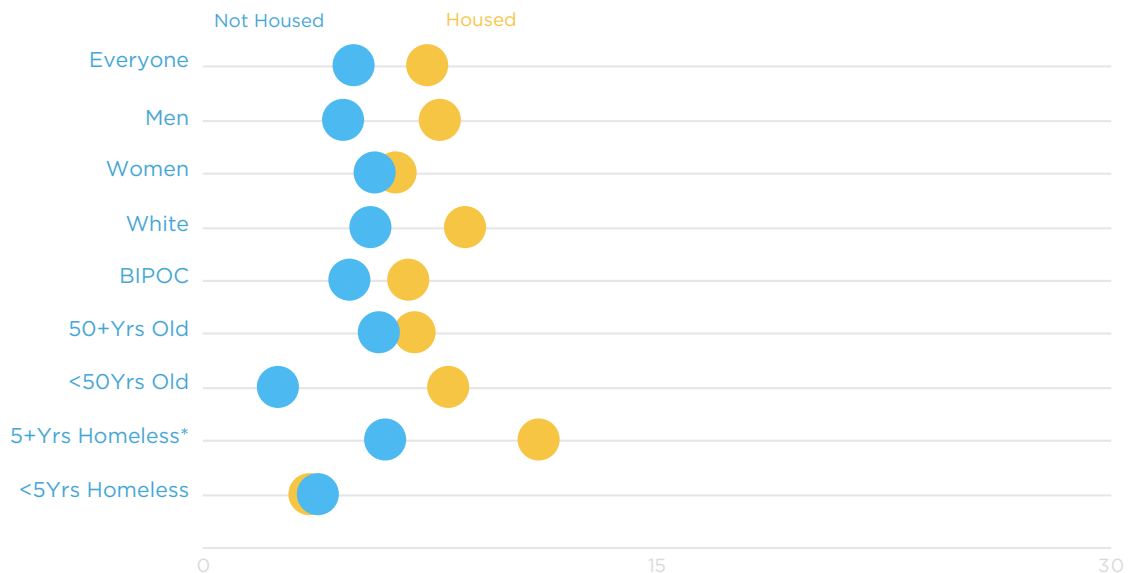
Figure 44: Average adjusted change in percent that used alcohol to intoxication in last 30 days for housed demographic groups (n=111)



*p<0.05, ** p<0.01, ***p<0.001

Days of alcohol use to intoxication before baseline. At baseline, housed study participants reported using alcohol to intoxication an average of 7.4 days (SD=11.0) in the last 30 days compared to 5.0 days (SD=9.6) by unhoused individuals, however, the groups were not statistically different, p=0.1467. Among demographic groups, housed participants who had been homeless over five years also reported more average days of use (M=11.1, SD=12.6) than did those who were unhoused with longer histories of homelessness, (M=6.0, SD=10.5), a statistically significant difference, p< .05. All other demographic subgroups were statistically similar. Figure 45 depicts subgroup differences between housed and unhoused participants at baseline; the data table is available in Appendix C- Table 29.

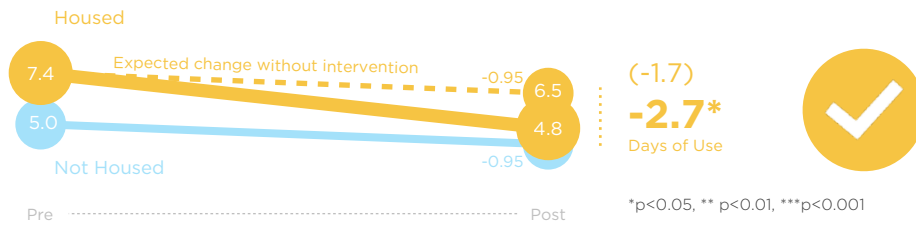
Figure 45: Baseline average days using alcohol to intoxication in last 30 days, Housed (n=111) v. Not Housed (n=64)



*p<0.05, ** p<0.01, ***p<0.001

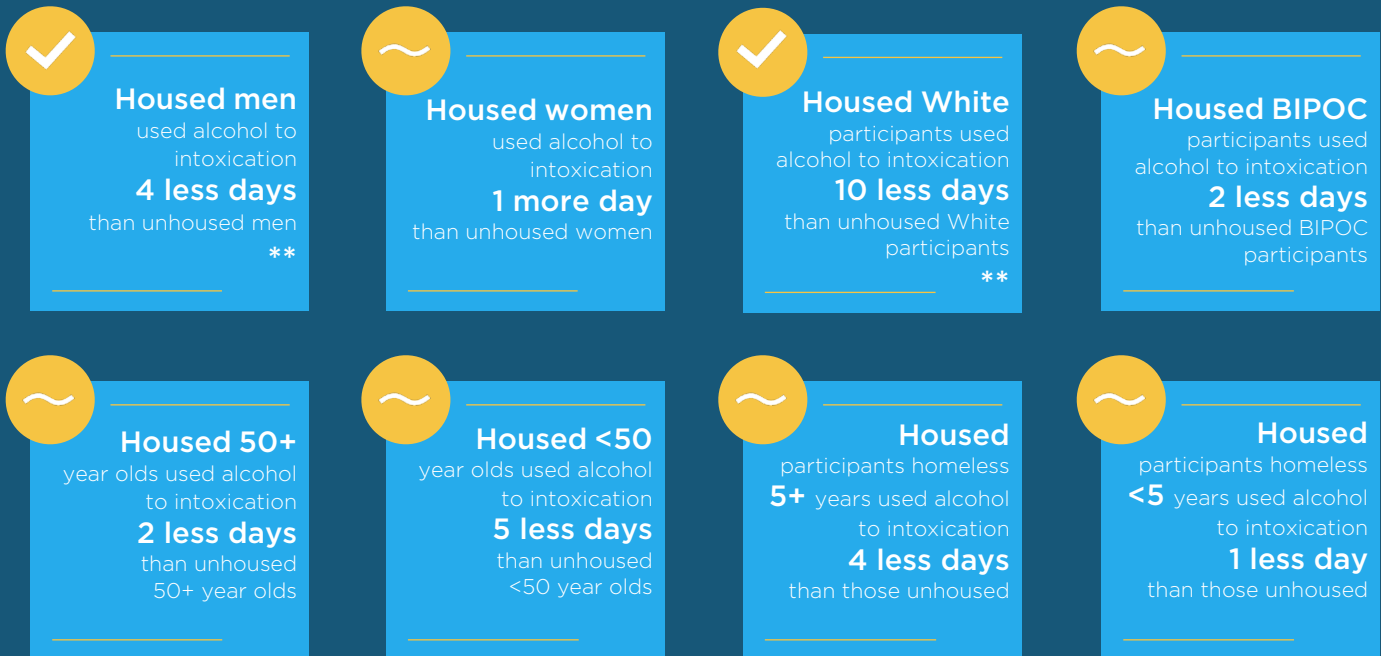
Days of alcohol use to intoxication after housing. Once housed, participants reported 1.7 fewer average days of alcohol use to intoxication in the previous 30 days compared to those who were not housed, who reported an average of 1 less day. After further controlling for any improvement or change that may have occurred since participants were housed at different times, the improvement was slightly greater, 2.7 days, and it was statistically significant ($p < .05$). Figure 46 describes the change among the overall housed group (See Table 30 in Appendix C for the related data table and change statistics).

Figure 46: Adjusted change in days of alcohol use to intoxication after housing
 Housed (n=111) v. Not Housed (n=64)
 Scale 0-30



Among demographic subgroups, once housed, housed men used alcohol to intoxication 3.8 fewer days than unhoused men ($p < .01$) and housed White participants ($p < .01$) used alcohol to intoxication an average of 9.9 fewer days than unhoused White participants, both statistically significant changes. Although all groups except for women reported fewer days of intoxication in the last 30 days, there were no statistically significant changes among other demographic subgroups. See figure 47 below and Table 30 in Appendix C for the related data table and change statistics.

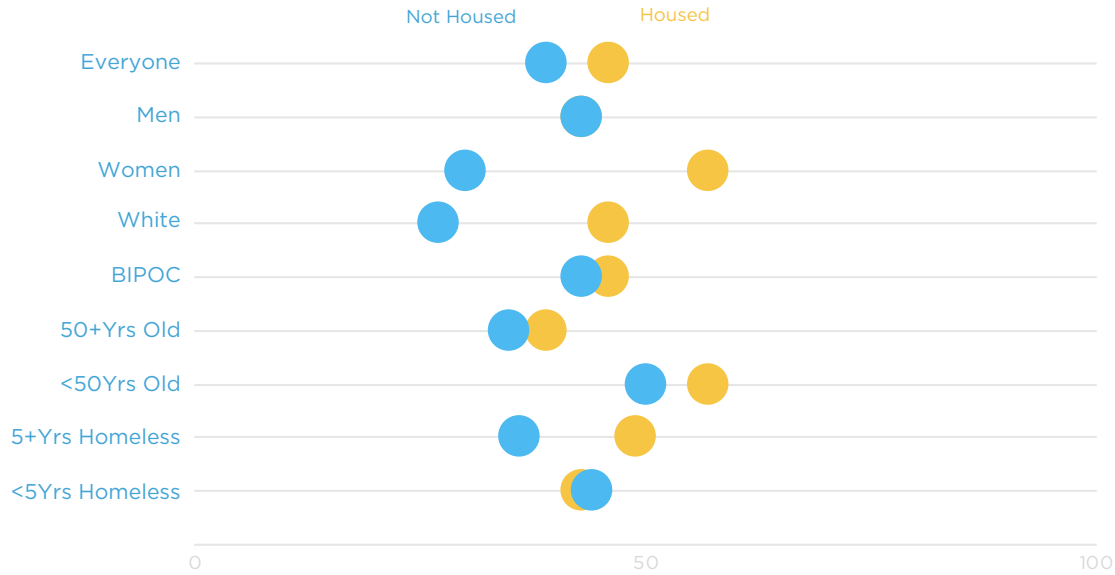
Figure 47 Average adjusted reduction in days of alcohol use to intoxication in last 30 days for housed demographic groups (n=111)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

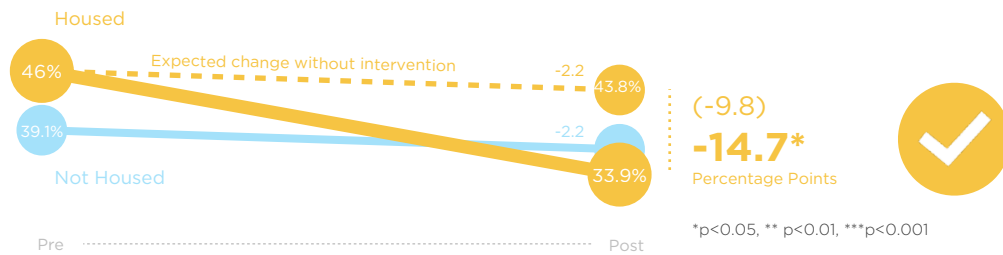
Percent of any drug use before baseline. During baseline interviews, there was no statistical difference between the percentage of participants in the housed group and the comparison group who reported the use of any drug in the last 30 days (46%, n=51; 39%, n=25, respectively; p=.3763). Among demographic groups, there were also no statistically significant differences. Figure 48 depicts subgroup differences between housed and unhoused participants at baseline (see Appendix C- Table 31 for related data table).

Figure 48: Baseline percent of participants using any drug in last 30 days, Housed (n=111) v. Not Housed (n=64)



Percent of any drug use after housing. Once housed, the percent of housed participants who reported use of drugs in the previous 30 days fell 9.8 percentage points more than it did for those who were not housed for whom it fell 2.2 percentage points. After controlling for any change that may have occurred since participants were housed at different times, the improvement was greater at 14.7 percentage points or a 32% reduction for those participants that were housed. The change was statistically significant (p<.05). Among demographic subgroups, there were no statistically significant changes. Figure 49 describes the change among the overall housed group (See Table 32 in Appendix C for the related data table).

Figure 49: Adjusted change in percent who use any drug in last 30 days after housing Housed (n=111) v. Not Housed (n=64) Scale 0-100



Utilization Study

The Housing First Charlotte-Mecklenburg (HFCM) utilization study examined how individuals experiencing chronic homelessness use a number of key community services in a variety of sectors, particularly after they were housed. This section examines the use of services in the Mecklenburg County Sheriff’s Office (MCSO), Mecklenburg County Food & Nutrition Services, Crisis Assistance Ministry, Emergency Shelter, Mecklenburg County Health Department, Emergency Health Services, Inpatient Health Services, Outpatient Health Services, Mecklenburg County Medic, and Cardinal Healthcare Innovations for participants who received services as usual (n=129) and those who were housed for at least 12 months (n=165). Utilization data were made available to the research team either through the Institute for Social Capital (social service, criminal justice and mental health data) or individually negotiated data sharing agreements between the research effort and the data partner (Medic, and inpatient and outpatient health data). Data sources and partners are listed in Table 3. All data were integrated using the Institute for Social Capital integrated data system.

Table 3: Data sources and partners for HFCM utilization study

Criminal Justice	Institute for Social Capital & Publicly Available Data: Mecklenburg County Sheriff’s Office Publicly Available Data: Charlotte-Mecklenburg Police Department
Human Services	Institute for Social Capital: Homeless Management Information System; Department of Social Services; Crisis Assistance Ministry
Health Services	Atrium Health, Novant Health, Mecklenburg County Medic, Mecklenburg County Health Department, Charlotte Community Health Clinic, CW Williams Community Clinic
Mental Health Services	Institute for Social Capital: Cardinal Innovations Healthcare*

*Utilization patterns will be reported in subsequent research.



Criminal Justice

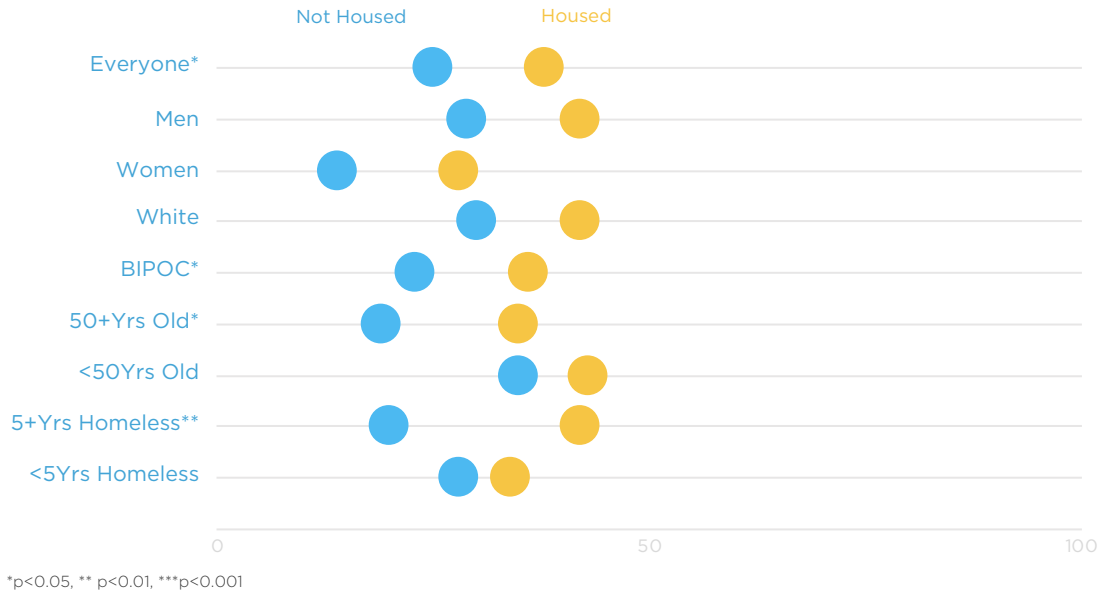
Involvement in the criminal justice system was examined through the Charlotte-Mecklenburg Police Department (public data) and the Mecklenburg County Sheriff's office (through the Institute for Social Capital and public data). CMPD was actively involved in HFCM and the community effort to address chronic homelessness.

Lifetime rates of arrest for individuals experiencing homelessness range between 63% and 90%, actual convictions over the course of the lifetime range between 28% and 80%, and incarcerations range between 48% and 67% (Roy et al., 2014). Approximately 30% of chronically homeless adults were not incarcerated during their lifetime, about 35% show an incarceration history of one year or less, and the same proportion of individuals in this group demonstrate a incarceration history that is greater than one year (Tsai & Rosenheck, 2012). Chronically homeless individuals spend a median number of 4 months in jail or prison over the course of the lifetime (Tsai & Rosenheck, 2012).

While research suggests rates of involvement with the criminal justice system that surpass that of the housed public (e.g., Roy et al., 2014), housing first programs have shown to decrease the number of times formerly homeless individuals come into contact with the criminal justice system (Whittaker et. al., 2016; Somers et. al., 2013; Clifasefi et al., 2012; Bean, Shafer & Glennon, 2013; Hanratty, 2011; O'Campo et. al., 2016). Some research suggests that individuals living in scattered-site housing are more likely to have a reduction in interactions with the justice system (Whittaker et. al., 2016; Somers et. al., 2013) than those in congregate housing sites, but an overall reduction was found for both scattered and congregate housing (Bean, Shafer & Glennon, 2013; Hanratty, 2011; O'Campo et. al., 2016). Importantly, the presence of a criminal background does not predict a person's chances of achieving housing stability (Clifasefi et al., 2012; Malone, 2009).

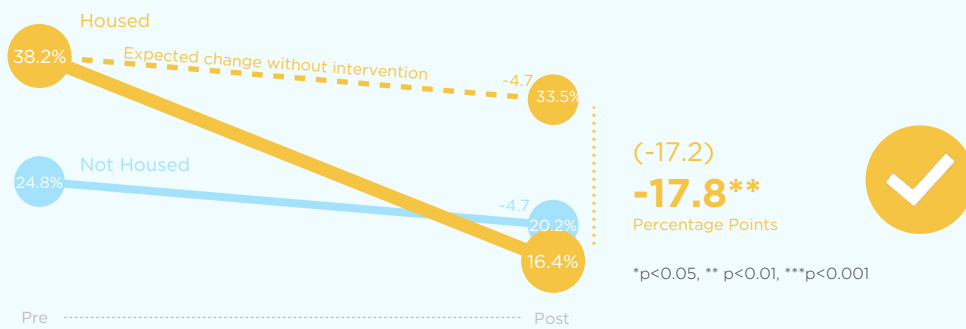
Percent of participants arrested before baseline. The majority of housed and unhoused participants were *not* arrested the year preceding housing or their baseline interview. A greater percentage of housed participants were arrested in the year prior to housing (38%, n=63) than unhoused participants in the year prior to their baseline interview (25%, n=32) and the difference was statistically significant ($p < .05$). Among demographic groups, there were also statistically significant differences between BIPOC housed (36%, n=41) and unhoused participants (23%, n=22); older housed (35%, n=34) and unhoused participants (19%, n=16); and, housed participants who had been homeless over 5 years (42%, n=36) and their unhoused counterparts (20%, n=12). Figure 50 depicts subgroup differences between housed and unhoused participants at baseline and the data table is available in Appendix C- Table 33.

Figure 50: Baseline Percent of participants arrested, Housed (n=165) v. Not Housed (n=129)



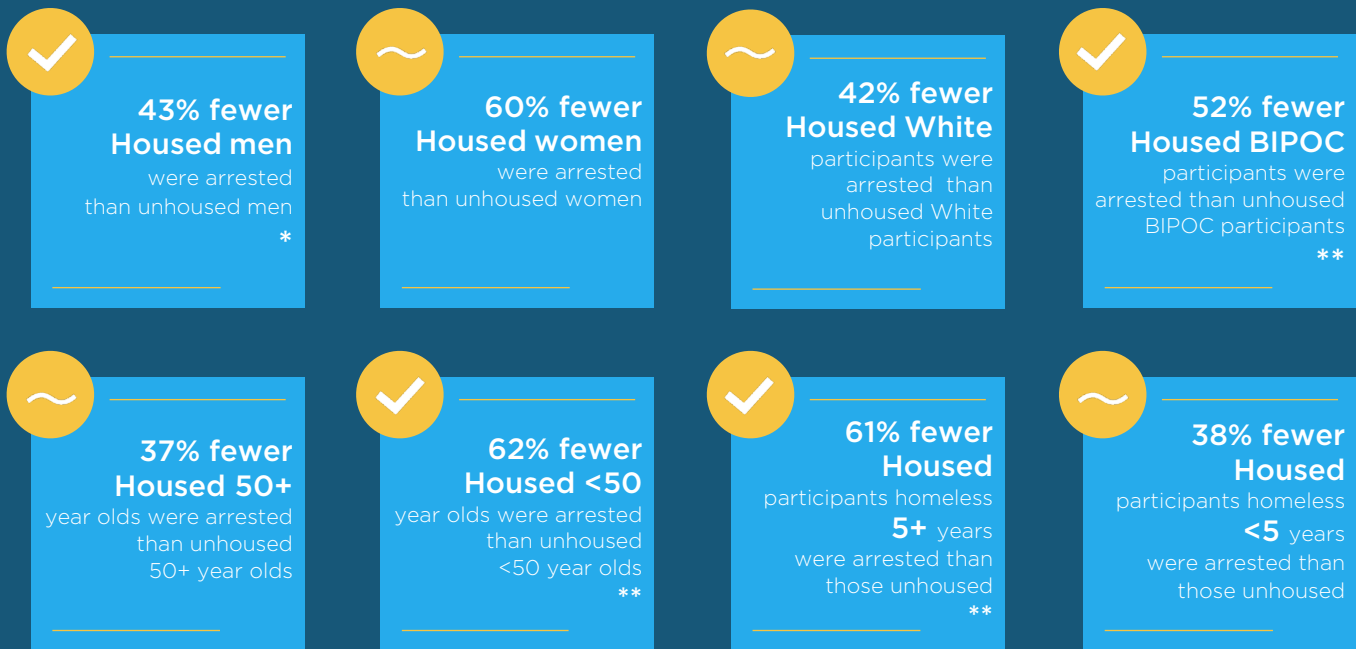
Percent of participants arrested after housing. Once housed, the percent of housed participants who were arrested fell 17.2 percentage points more than it did for those who were not housed, which fell 4.7 percentage points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly greater at 17.8 percentage points, or a 47% reduction of housed participants who were arrested. The change was statistically significant (p<.01). Figure 51 describes the change among the overall housed group (See Table 34 in Appendix C for the related data table and change statistics).

Figure 51: Adjusted change in percent arrested after housing
Housed (n=165) v. Not Housed (n=129)
Scale 0-100



Among demographic subgroups, once housed, rates of arrests fell for all housed participants. Arrest rates for housed men fell 18 percentage points more than it did for unhoused men (p<.05), 18.8 percentage points more for housed BIPOC participants than unhoused BIPOC participants (p<.01), 26.4 percentage points more for housed participants under the age of 50 than younger unhoused participants (p<.01), and 25.7 percentage points more for housed participants who had been homeless over 5 years than their unhoused counterparts (p<.01). See figure 52 below and Table 34 in Appendix C for the related data table.

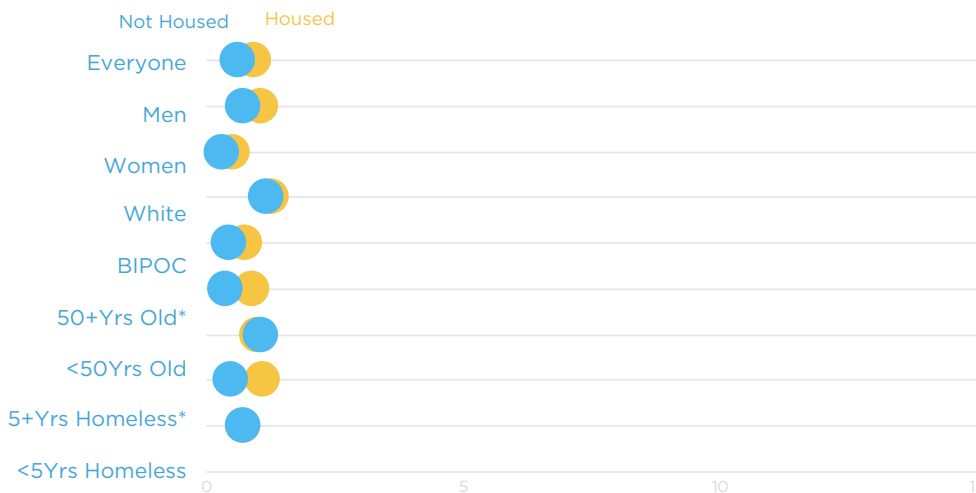
Figure 52: Average adjusted change in percent of participants arrested by demographic groups (n=165)



*p<0.05, ** p<0.01, ***p<0.001

Arrests before baseline. In the year prior to housing, housed participants were arrested a total of 152 times and in the year prior to their baseline interview, unhoused individuals were arrested 78 times. At baseline, housed study participants were arrested an average of 0.92 times (SD=1.82) compared to unhoused participants who were arrested an average of 0.60 times (SD=1.59), however, the groups were not statistically different, p=0.1199. Among demographic groups, housed older adults averaged more arrests (M=0.88,SD=1.77) than did unhoused older adults (M=0.36, SD=1.07; p<.05) and housed participants who had been homeless over five years were also arrested more (M=1.1, SD=1.95) than did those who were unhoused with longer histories of homelessness, (M=0.47, SD=1.38), a statistically significant difference, p<.05. All other demographic subgroups were statistically similar. Figure 53 depicts subgroup differences between housed and unhoused participants at baseline; the related data table is available in Appendix C- Table 35.

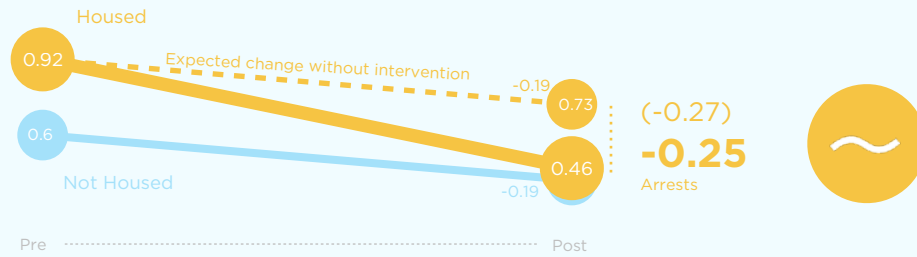
Figure 53: Average number of participants arrested before baseline, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

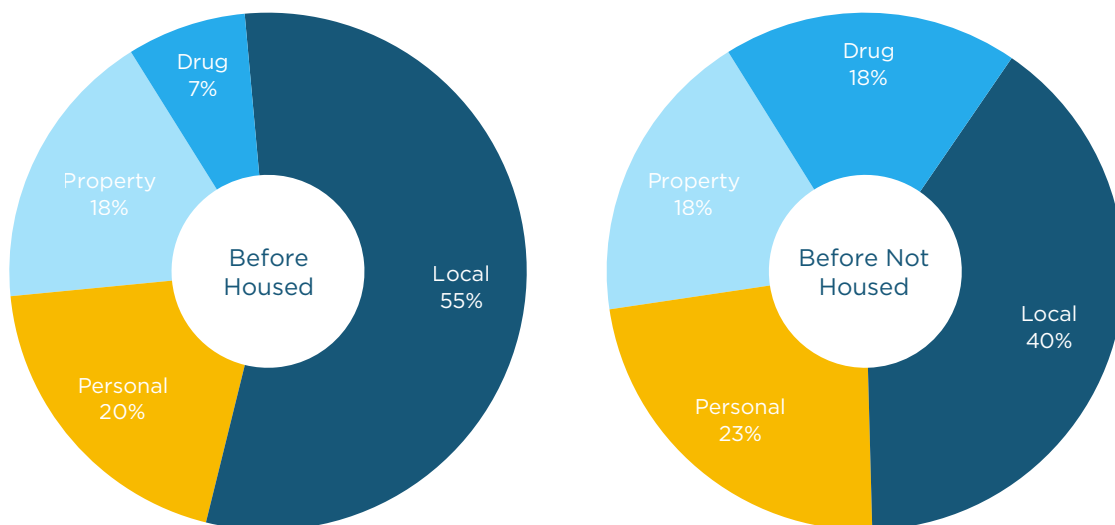
Average arrests after Housing. Once housed, participants were arrested an average of 0.27 times less in the year after housing than those who were not housed, who were arrested an average of 0.19 fewer times. After further controlling for any improvement that may have occurred since participants were housed at different times, the improvement was slightly smaller, an average of 0.25 fewer arrests, or a 28% reduction in the average number of arrests beyond that of the comparison group. The reduction was not statistically significant (p=0.1855). Among demographic subgroups, there were no statistically significant changes. Figure 54 describes the change among the overall housed group (See Table 36 in Appendix C for the related data table).

Figure 54: Adjusted change in average number arrests after housing
Housed (n=165) v. Not Housed (n=129)



Types of Charges at baseline. The research team also examined the charges associated with arrests. During the year before housing, housed participants who were arrested had 38 different types of charges, falling into four major categories: 1) Local ordinances and citations, 2) Crimes against persons, 3) Crimes against property, and 4) Drug offenses. Local ordinance violations included trespassing, public panhandling, and alcohol-related offenses. The majority of the charges in both groups were for violating local ordinances, however, a greater percentage of charges for housed individuals (55%, n=141) were for local ordinance violations than were the charges for unhoused participants (40%, n=89). A greater number of charges for unhoused individuals, however, were for drug-related offenses than were charges for housed individuals (18%, n=24; 7%, n=19; respectively). Figure 55 describes the percentage of types of charges for housed and unhoused participants before housing.

Figure 55: Types of charges before housing, Total charges housed (n=255) v. Total charges not housed (n=52)



Figures 56-59 describes the largest percentages of specific types of charges in the 12 months before and after baseline or housing. Among local ordinances, most charges are alcohol-related or trespassing, two charges often associated with not having a place to live. A detailed table on charges is not provided in order to protect participants from potential re-identification. A list of all charges without frequencies is available in Appendix C- Table 37. Future research can examine the difference in types of charges before and after housing.

Figure 56: Types of specific charges at baseline, Total charges housed (n=255)

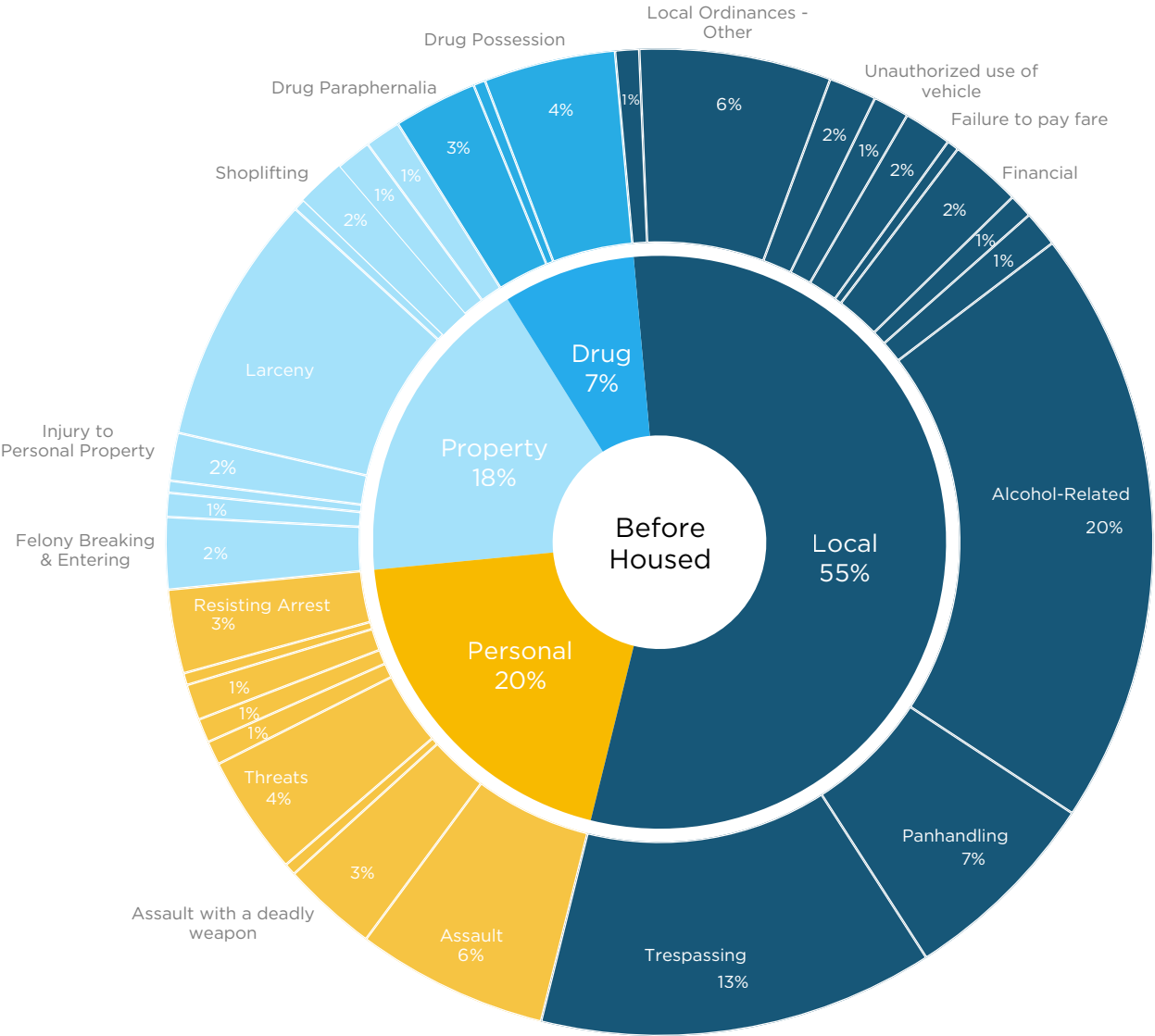


Figure 57: Types of specific charges before baseline, Total charges not housed (n=130)

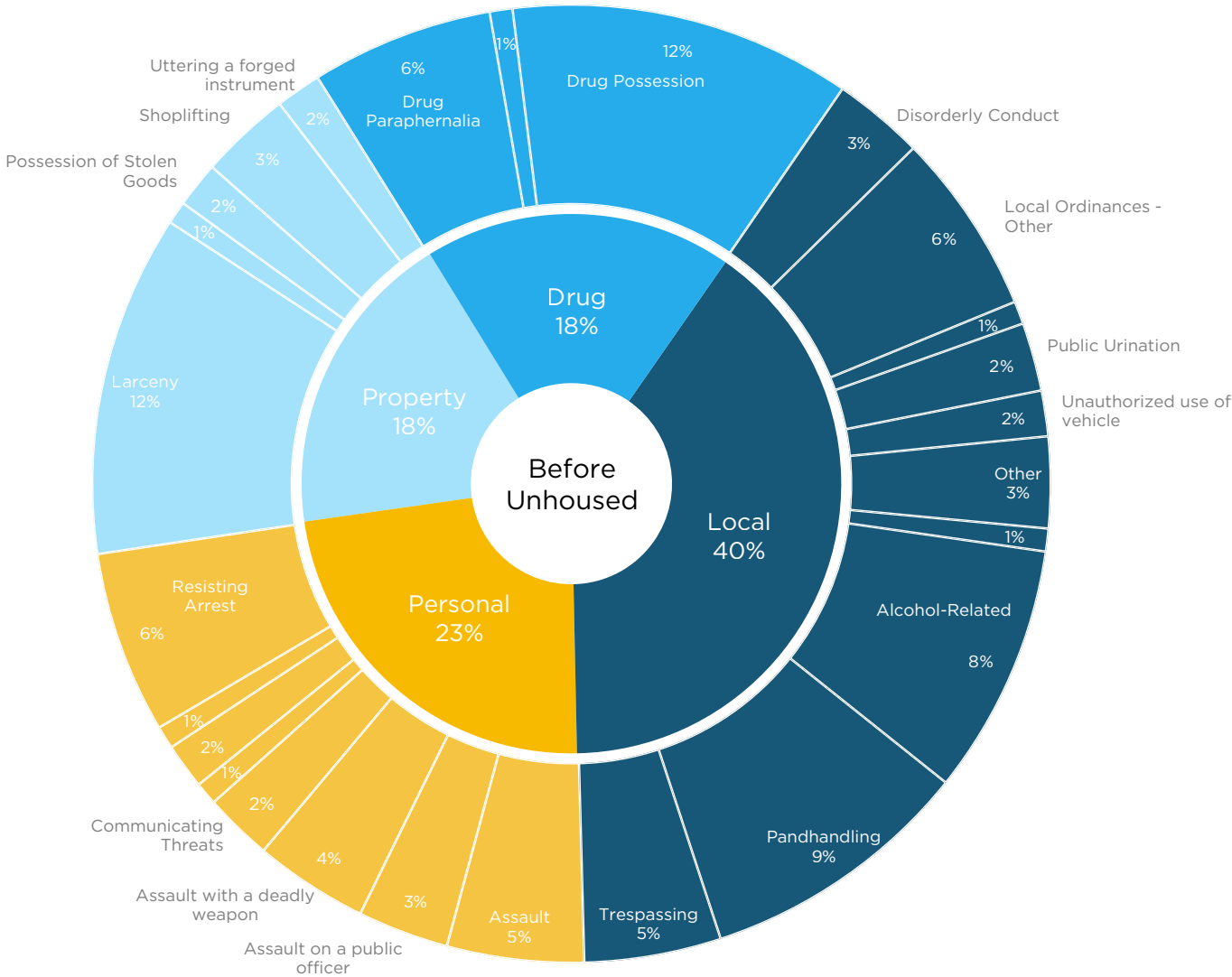


Figure 58: Types of specific charges the year after housing, total charges housed (n=146)

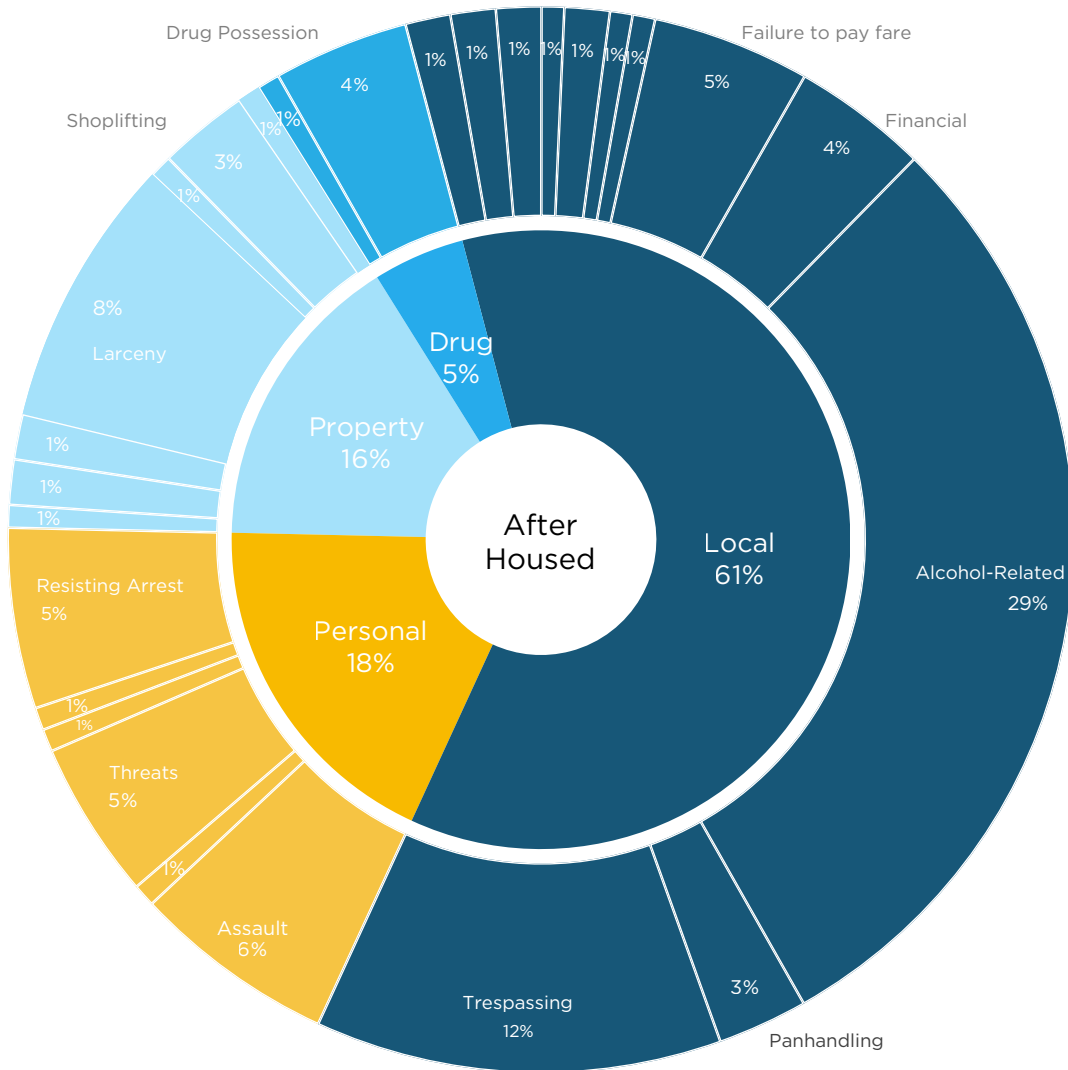


Figure 59: Types of specific charges year after baseline, total charges not housed (n=82)

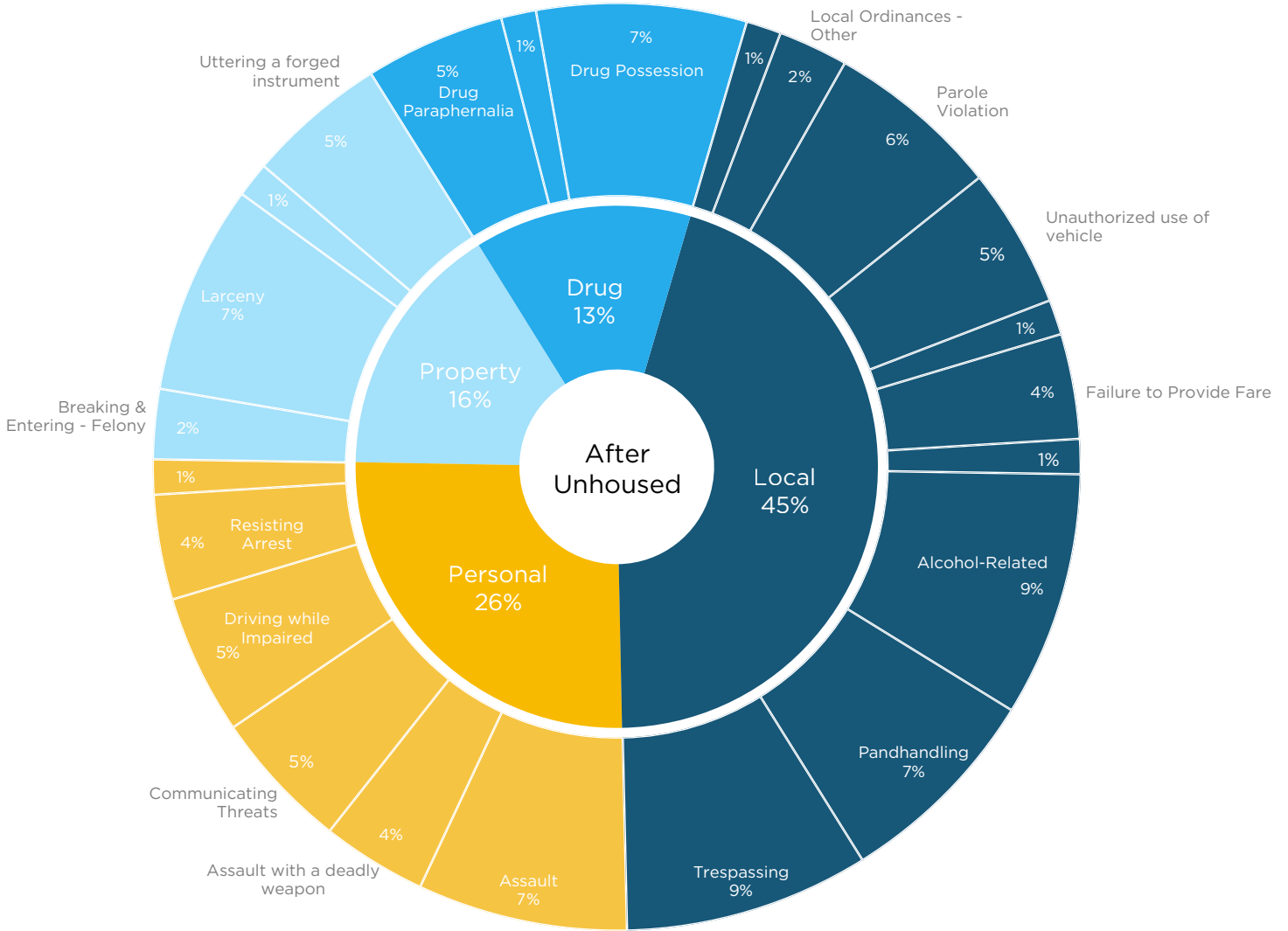
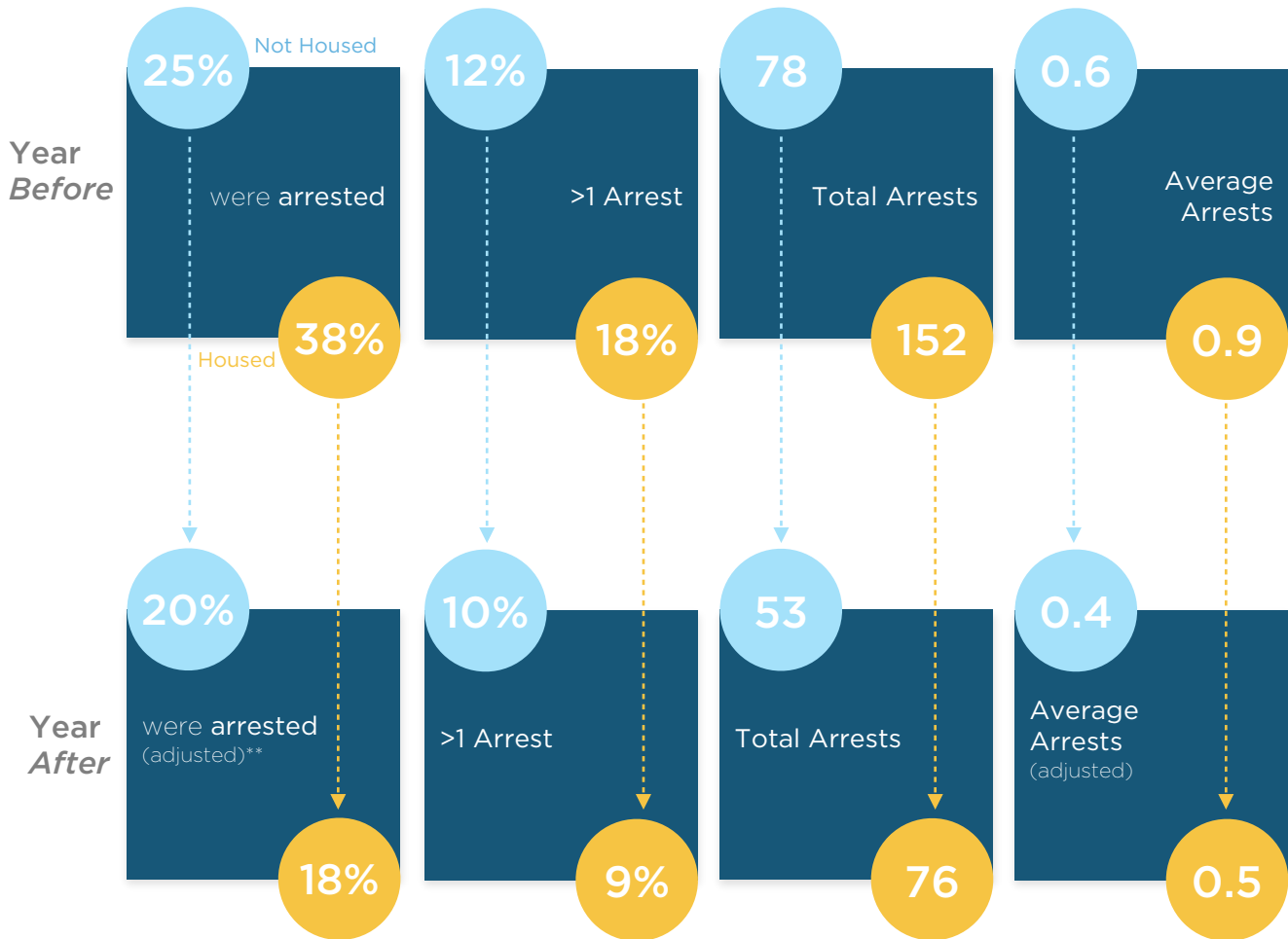


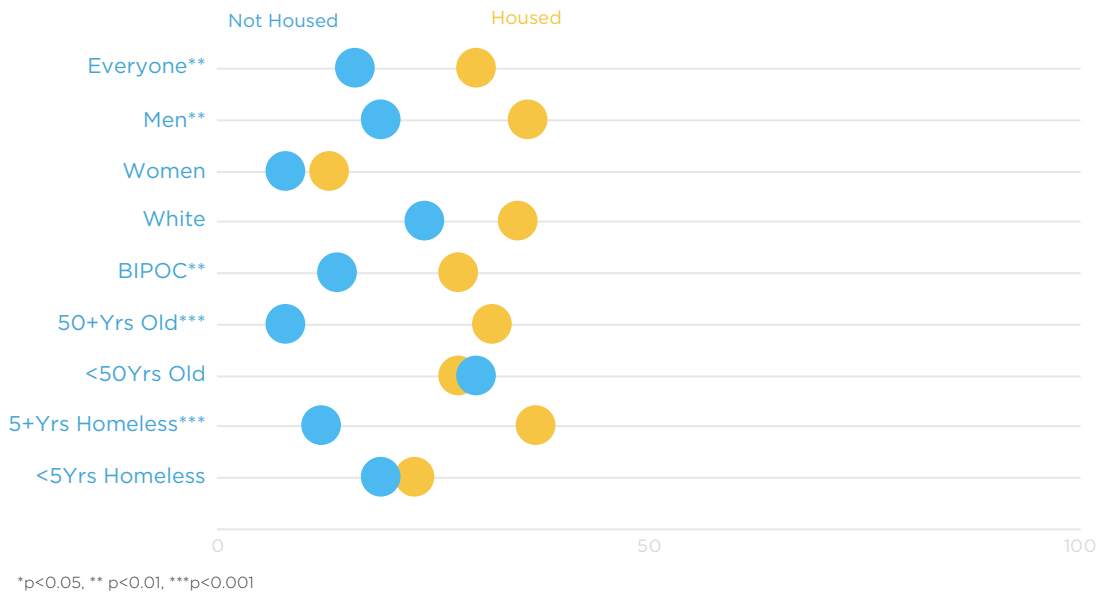
Figure 60: Summary of Changes in Arrests, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

Percent of participants incarcerated before baseline. The majority of housed and unhoused participants were not incarcerated the year preceding housing or their baseline interview. A greater percentage of housed participants were incarcerated in the year prior to housing (30%, n=50) than unhoused participants in the year prior to their baseline interview (16%, n=21) and the difference was statistically significant (p<.01). Among demographic groups, there were also statistically significant differences between housed (36%, n=45) and unhoused men (19%, n=18), housed (28%, n=32) and unhoused BIPOC participants (14%, n=13), housed (32%, n=31) and unhoused older participants (8%, n=7), and housed participants who had been homeless over 5 years (37%, n=32) and their unhoused counterparts (12%, n=7). Figure 61 depicts subgroup differences between housed and unhoused participants at baseline and the data table is available in Appendix C- Table 38.

Figure 61: Baseline Percent of participants incarcerated, Housed (n=165) v. Not Housed (n=129)



Percent of participants incarcerated after housing. Once housed, the percent of housed participants incarcerated in the year following housing fell 15.4 percentage points more for housed participants than it did for those who were not housed in the year following their baseline, for whom it fell only 1.6 percentage points. After further controlling for any reduction that may have occurred since participants were housed at different times, the improvement was slightly greater at 16.2 percentage points or a 54% reduction of housed participants who were incarcerated in Mecklenburg County. The change was statistically significant ($p < .01$). Figure 62 describes the change among the overall housed group (See Table 39 in Appendix C for the related data table)

Figure 62: Adjusted change in percent incarcerated after Housing
 Housed (n=165) v. Not Housed (n=129)
 Scale 0-100

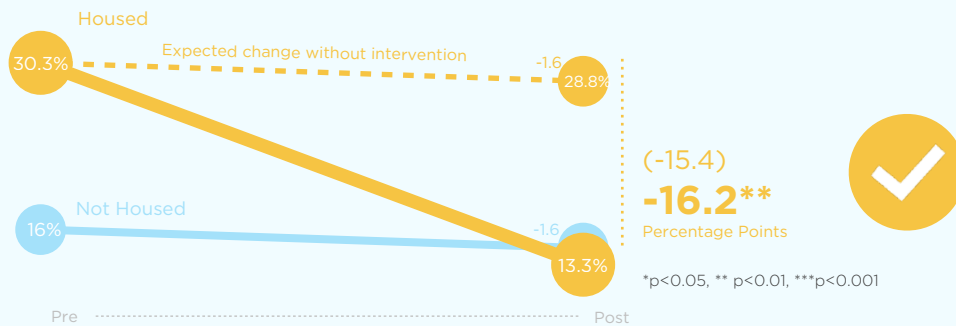
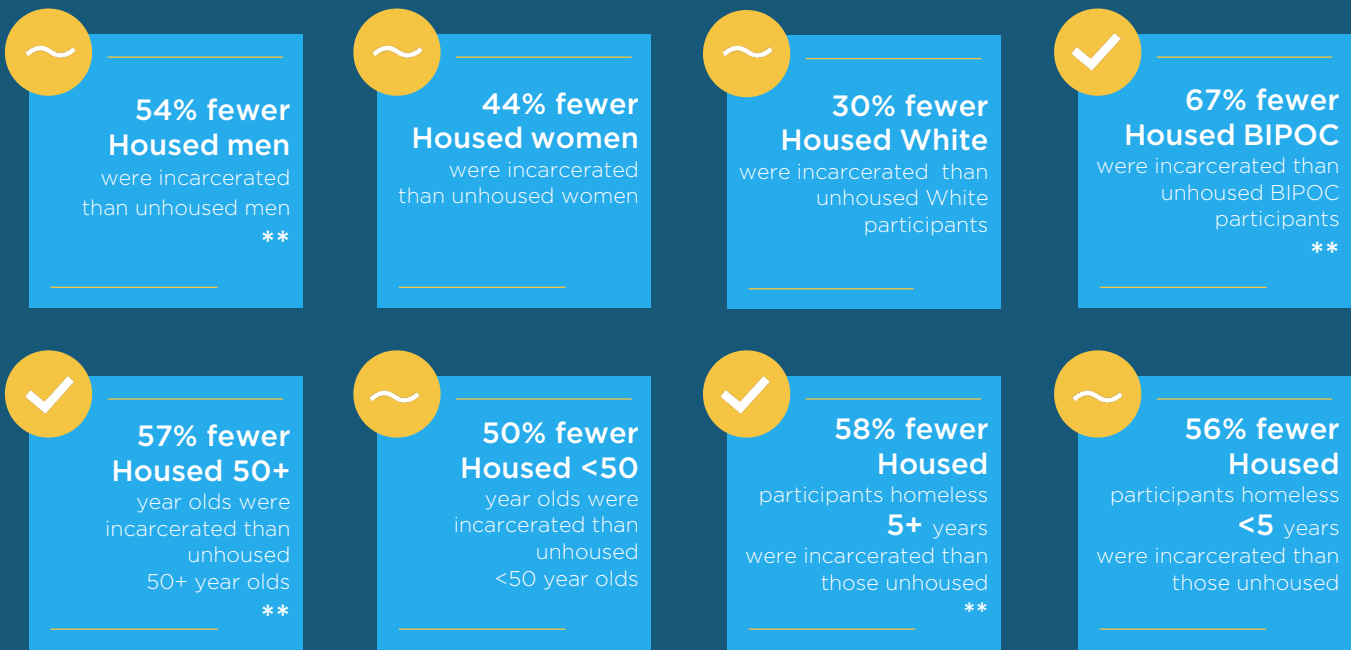


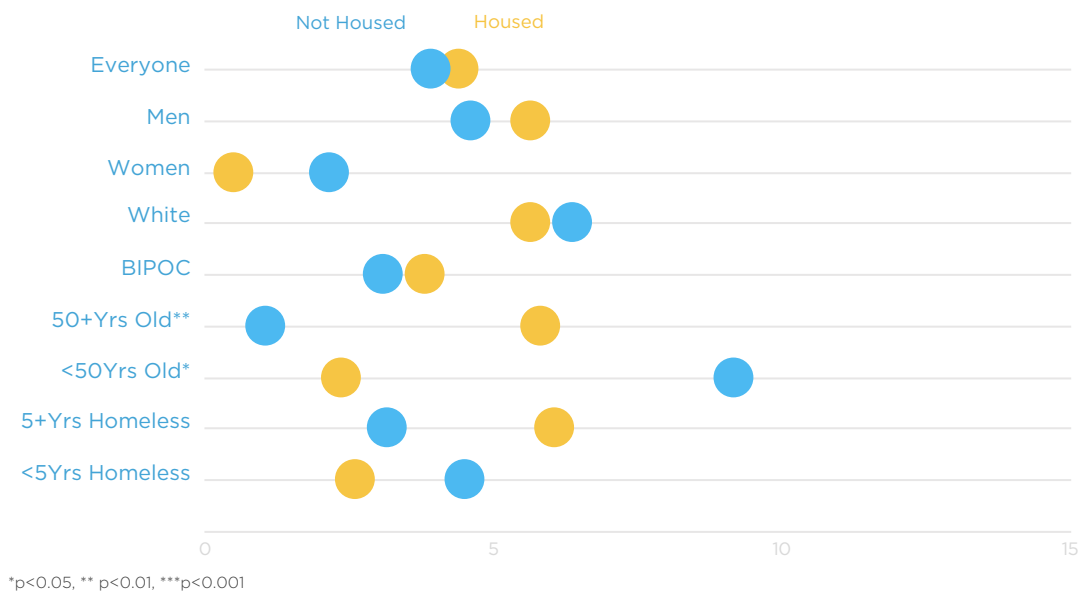
Figure 63: Average adjusted change in percent of housed participants incarcerated by demographic groups (n=165)



*p<0.05, ** p<0.01, ***p<0.001

Length of jail stays before baseline. At baseline, housed study participants were incarcerated an average of 4.4 nights (SD=13.0) compared to unoused participants who were incarcerated an average of 3.9 nights (SD=13.4), however, the groups were not statistically different, p=0.7621. Among demographic groups, older housed adults averaged more nights incarcerated (M=5.8,SD=15.9) than did unoused older adults (M=1.0,SD=5.1; p< .01) and younger unoused participants spent more nights in jail (M=9.2,SD=20.5) than did those who were housed (M=2.4, SD=6.5), a statistically significant difference, p< .05. All other demographic subgroups were statistically similar. Figure 64 depicts subgroup differences between housed and unoused participants at baseline (Data table is available in Appendix C- Table 40).

Figure 64: Average length of jail stays for participants before baseline, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

Average length of jail stays after housing. Once housed, housed participants were arrested an average of 3.8 fewer nights in the year after housing than those who were not housed, whose nights in jail increased an average of 1.3 nights. After further controlling for any time effects that may have occurred since participants were housed at different times, the improvement was slightly smaller and the reduction was not statistically significant ($p=0.2526$). Among demographic subgroups, there were no statistically significant changes. Figure 65 describes the change among the overall housed group (See Table 41 in Appendix C for the related data table and change statistics).

Figure 65: Adjusted change in average length of jail nights after housing, Housed (n=165) v. Not Housed (n=129)

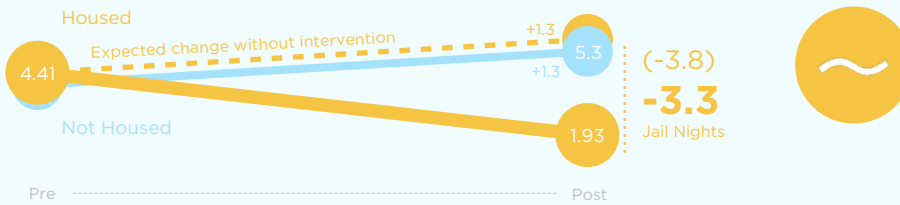
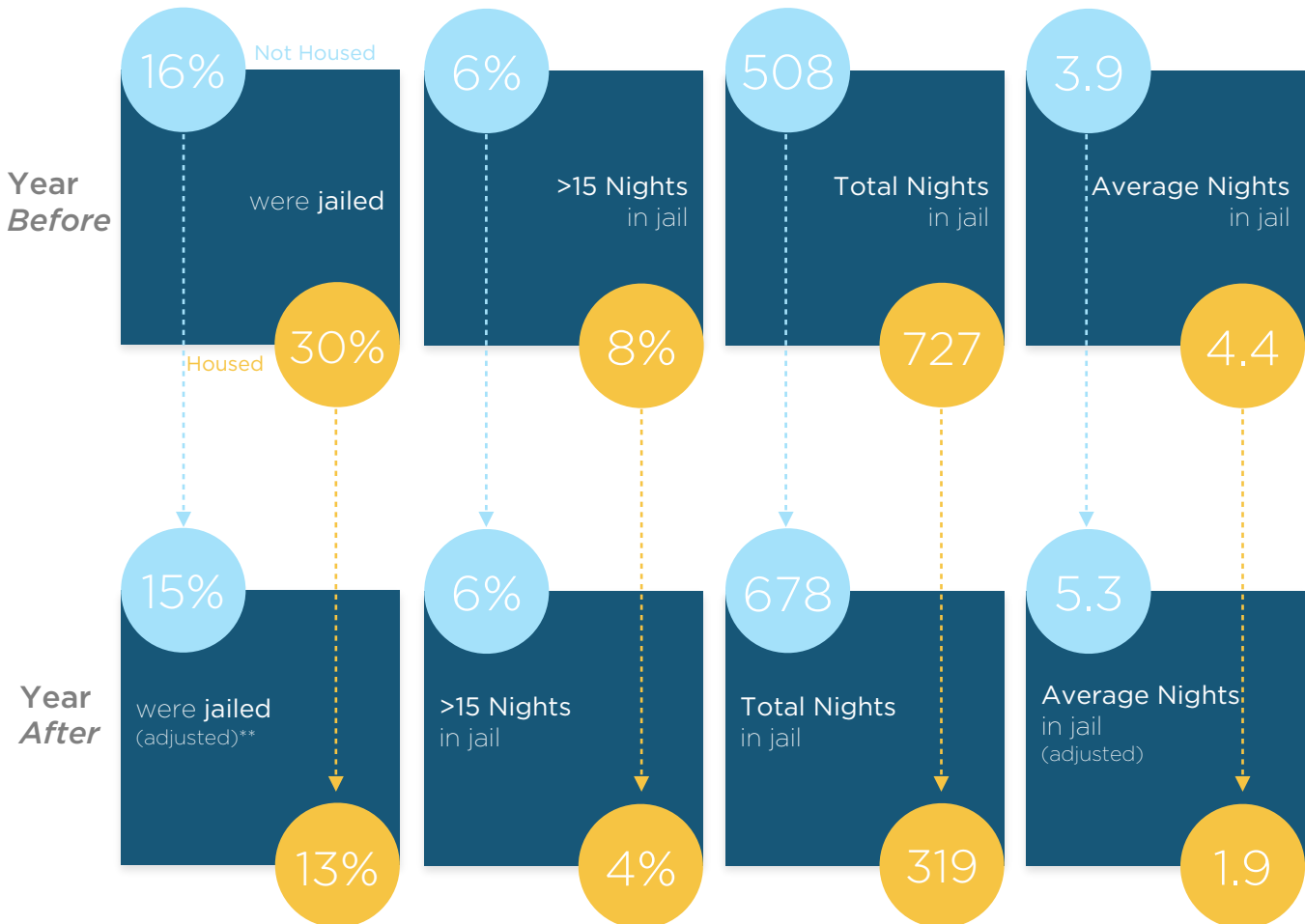


Figure 66: Summary of Changes in Incarceration, Housed (n=165) v. Not Housed (n=129)



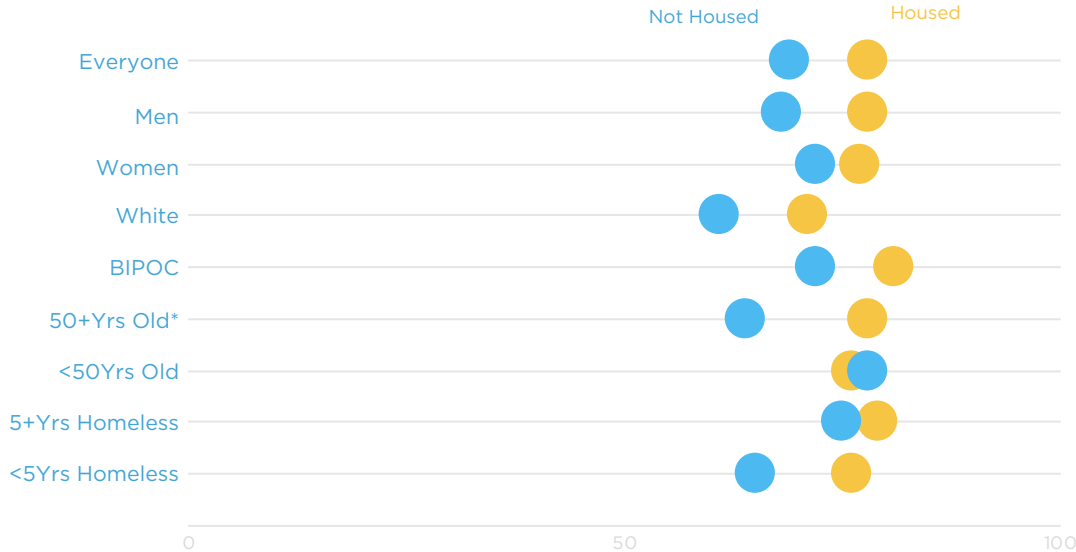
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Mecklenburg County Food & Nutrition Services

Formerly known as food stamps, the Supplemental Nutrition Assistance Program (SNAP) is a federally funded program targeting nutrition in low-income populations. The program aims to improve food security and food quality in this population by providing non-cash benefits that can be used to purchase food in various stores and locations throughout the country. Percentage of SNAP benefits use in homeless populations vary, and this variation appears to be driven by the study samples' levels of food security. One study focused on homeless individuals and showed a food insecurity prevalence of 94% in its sample (Martins et al., 2015). In this study, about 80% of individuals had received SNAP benefits at some point, about 70% had used them within 12 months preceding data collection, and 55% were currently receiving them (Martins et al., 2015). Another study conducted among homeless and unstably housed individuals demonstrated a sample food insecurity prevalence of 56% (Weiser et al., 2013). A meager proportion of approximately 18% of these individuals had received SNAP benefits within the last 12 months, while about 10% had received them within the last month (Weiser et al., 2013). Research examining the effect of Housing First on SNAP benefits receipt found a significant increase in the proportion of recipients receiving SNAP after entry into the HF program (15% increase; $p < .01$) (Collins et al., 2019). In terms of costs, another study demonstrated that Housing First decreased SNAP benefit-related costs at the community level (Flaming et al., 2009).

Percent of participants using SNAP the year prior to baseline. The majority of housed and unhoused participants received Supplemental Nutrition Assistance Program benefits in the year preceding housing or their baseline interview. More housed participants received SNAP in the year prior to housing (78%, $n=128$) than unhoused participants in the year prior to their baseline interview (69%, $n=89$), but the difference was not statistically significant ($p=0.0967$). Among demographic groups, more older housed participants (78%, $n=76$) used SNAP in the year prior to housing than did older unhoused participants (64%, $n=53$; $p < .05$). Other groups were statistically similar Figure 67 depicts subgroup differences between housed and unhoused participants at baseline and the data table is available in Appendix C- Table 42.

Figure 67: Baseline Percent of participants using SNAP, Housed ($n=165$) v. Not Housed ($n=129$)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Percent of participants using SNAP in the year after housing. The majority of participants continued to use SNAP benefits after housing and at statistically similar rates to unhoused participants. Once housed, the percent of housed participants that used SNAP increased less than 1 percentage point (0.1) more than those who were not housed who increased 2.3 percentage points. After further controlling for any time effects that may have occurred since participants were housed at different times, the increase was slightly greater (0.2). The change was not statistically significant ($p=0.9469$). Figure 68 describes the change among the overall housed group (See Table 43 in Appendix C for the related data table).

Figure 68: Adjusted change in percent using SNAP after housing
 Housed (n=165) v. Not Housed (n=129)
 Scale 0-100

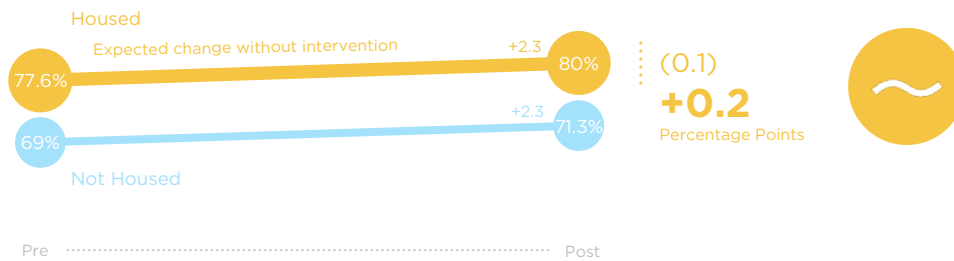
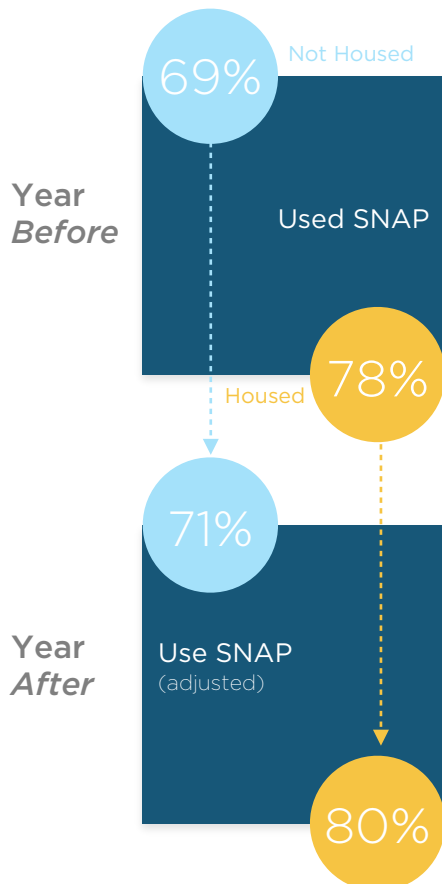


Figure 69: Summary of Changes in SNAP use, Housed (n=165) v. Not Housed (n=129)





Crisis Assistance Ministry

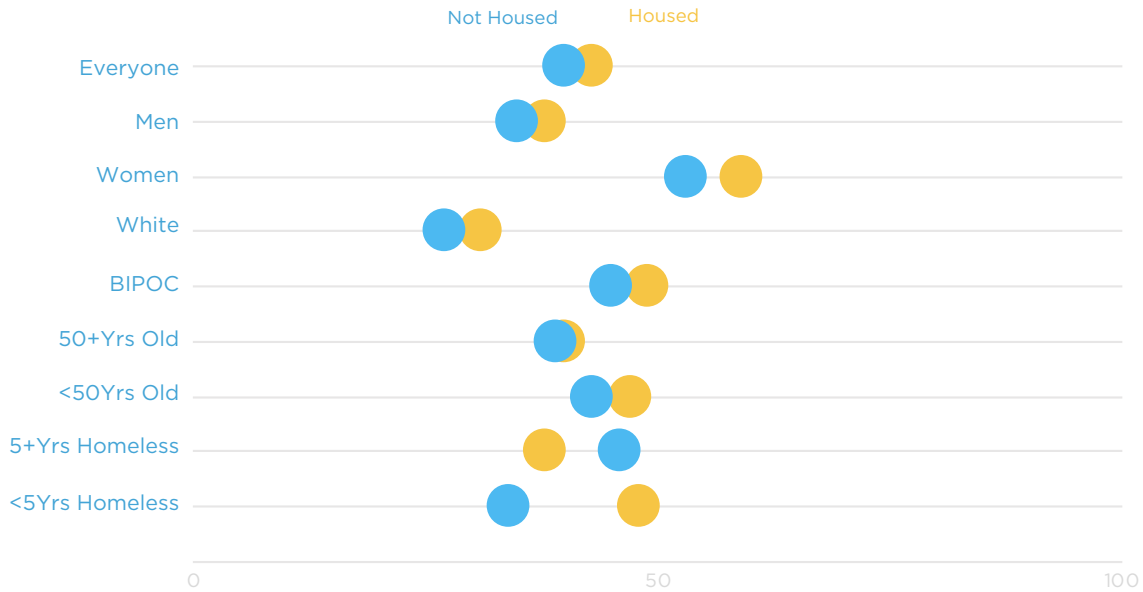
Crisis Assistance Ministry provides services and assistance for individuals and households who are in a financial crisis, including those who are experiencing or at risk of homelessness. Homeless individuals and individuals with limited financial resources often access their Free Store for clothing and shoes. The organization was a key partner in the Housing First Charlotte-Mecklenburg effort and developed additional internal capacity to serve the individuals experiencing chronic homelessness, particularly through their Furniture Bank and financial assistance for security deposits as individuals were placed in permanent housing. The research team examined how study participants utilized these resources both before and after housing.

The Free Store

The Crisis Assistance Ministry Free Store provides donated clothes, shoes, and household items to individuals and families free of charge. Individuals are eligible to shop at the Free Store once every 30 days and what they are able to choose and take with them depends on their household size. A picture ID and social security documentation is required to shop. The Free Store is the service at Crisis Assistance Ministry that participants used most prior to housing since other available services were more applicable for housed or soon-to-be housed individuals.

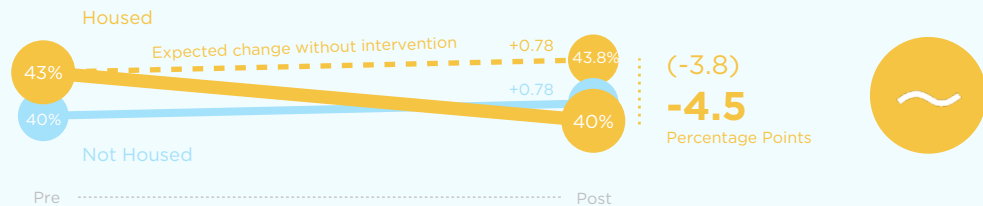
Percent of participants using the Free Store before baseline. Under half of housed and unhoused participants used the Crisis Assistance Ministry Free Store in the year preceding housing (or if not housed, their baseline interview). Slightly more housed participants used the Free Store in the year prior to housing (43%, n=71) than unhoused participants in the year prior to their baseline interview (40%, n=52), but the difference was not statistically significant ($p=0.6389$). Among demographic groups, there were no statistically significant differences between housed and unhoused groups at baseline. Figure 70 describes subgroup differences between housed and unhoused participants at baseline; data tables are available in Appendix C- Table 44.

Figure 70: Baseline Percent of participants using the Free Store, Housed (n=165) v. Not Housed (n=129)



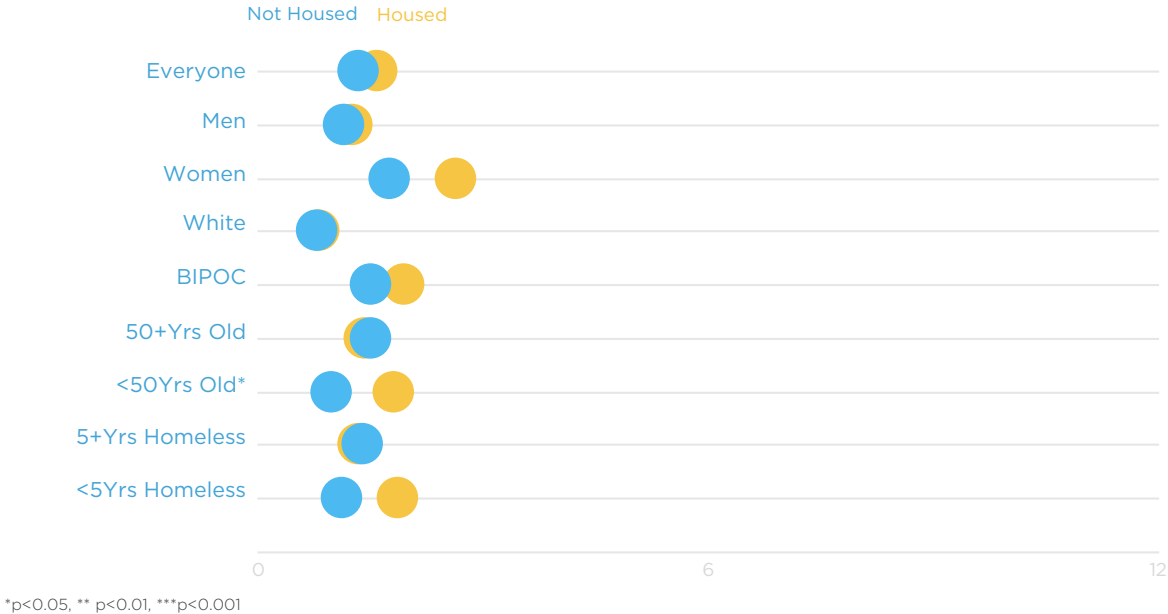
Percent of participants using the Free Store after housing. In the year after housing, the percent of participants who used the Crisis Assistance Ministry Free Store fell an average of 3.8 percentage points more for those who were housed than for those who were not, whose percentage of use increased less than 1 percentage point. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly greater at 4.5 percentage points; the change was not statistically significant ($p=0.4356$). Figure 71 describes the change among the overall housed group compared to those who were not housed (See Table 45 in Appendix C for the related data table). Among demographic groups, the percent of housed participants who were homeless under 5 years homeless who visited the free store fell 12.7 percentage points, while the percent of housed participants rose 8.8 percentage points. This change was statistically significant ($p<0.01$)

Figure 71: Adjusted change in percentage using the Free Store after housing
 Housed (n=165) v. Not Housed (n=129)
 Scale 0-100



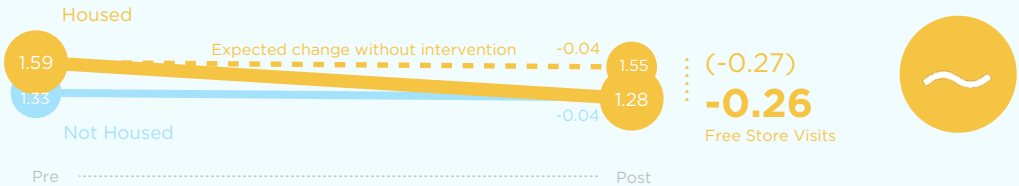
Visits to the Free Store the year before baseline. In the year before housing, housed participants visited the Free Store an average of 1.6 times (SD=2.7) compared to unhoused participants who visited an average of 1.3 times (SD=2.4), however, the slight difference was not statistically significant, $p=0.3781$. Among demographic groups, housed participants under the age of 50 visited the Free Store more times (M=1.8, SD=2.7) than did unhoused younger participants (M=1.0, SD=1.4), a statistically significant difference, $p<.05$. All other demographic subgroups were statistically similar. Figure 72 depicts subgroup differences between housed and unhoused participants at baseline; the data table is available in Appendix C- Table 46.

Figure 72: Average number of Free Store visits before baseline, Housed (n=165) v. Not Housed (n=129)



Average number of Free Store visits the year after housing. Housed study participants visited the Free Store 262 times in the year prior to housing. In the year following housing, housed study participants visited a total of 206 times, a 21% decrease. Housed participants visited the Free Store an average of 0.27 fewer times than those who were not housed. The reduction only changed slightly to 0.26 fewer visits after controlling further for time effects; the reduction was not statistically significant ($p=0.2394$). Figure 73 describes the change among the overall housed group compared to those who were not housed (See Table 47 in Appendix C for the related data table).

Figure 73: Adjusted change in average Free Store visits after housing Housed (n=165) v. Not Housed (n=129)



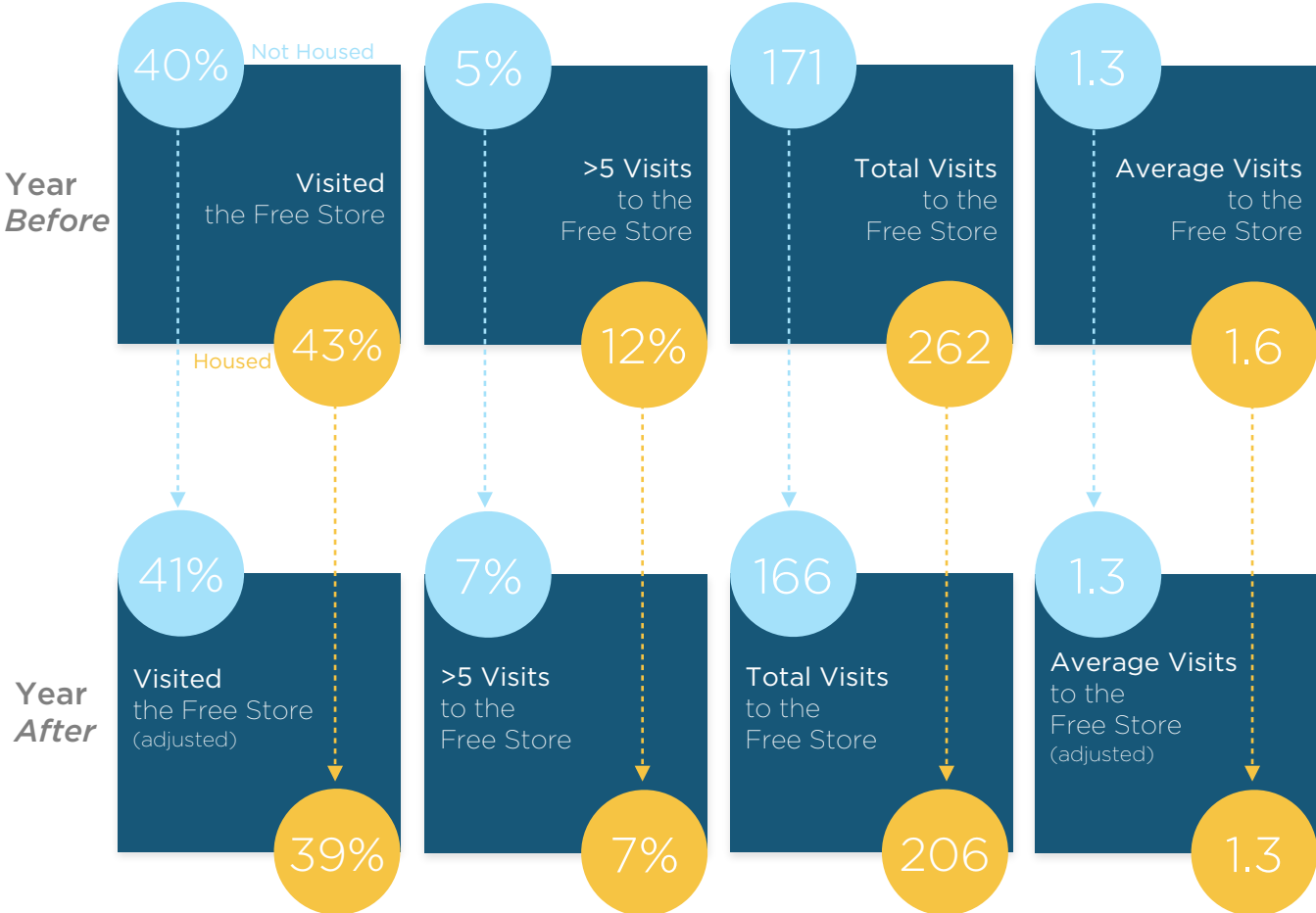
Among demographic subgroups, once housed, Free Store visits decreased statistically for three groups. Housed White individuals visited an average of 0.73 fewer times than unhoused White participants ($p < .05$), housed participants under 50 years old visited an average of 0.86 fewer times than younger unhoused participants in this age group ($p < .01$), and individuals homeless for less than 5 years visited an average of 0.80 times less than their unhoused counterparts ($p < .01$). The change among other groups once housed was not statistically different than that of the unhoused comparison group. See figure 74 below and Table 47 in Appendix C for the related data table.

Figure 74: Average adjusted change in housed participant Free Store visits by demographic groups (n=165)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 75: Summary of Changes in Crisis Assistance Ministry Free Store use, Housed (n=165) v. Not Housed (n=129)



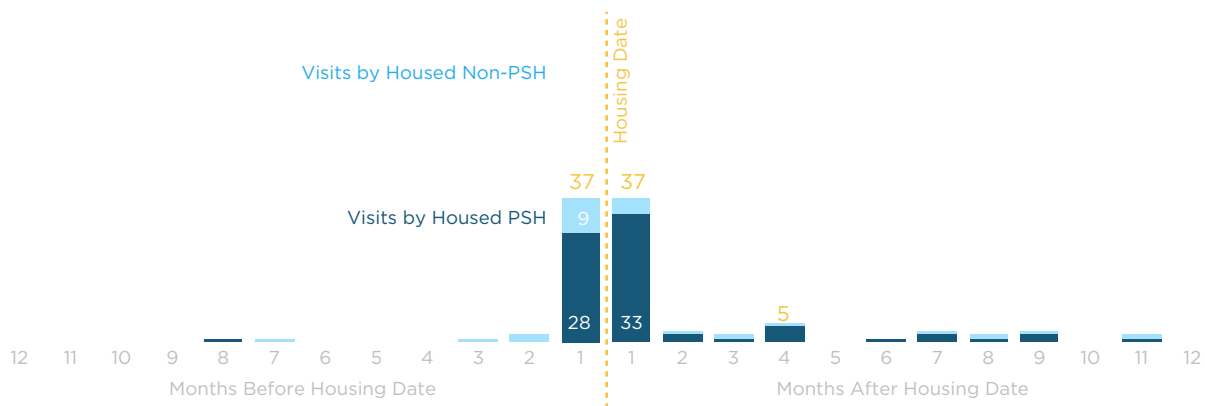


Visits to the Furniture Bank

Mecklenburg County residents can visit the Furniture Bank with a qualifying referral in order to access gently used furniture and appliances for free, including bed frames and mattresses, tables and chairs, and other necessary furniture to set up a home. Qualifying referrals are available from over 100 partner organizations, including major homeless service and housing organizations. Note: To protect research participants from re-identification, specific cell sizes under 5 are not reported.

Percent of visits during housing period. Over 50% (n=89) of housed participants accessed the Furniture Bank at some point during the 12 months before and after being housed. Among housed participants, 37% (n=37) of visits to the Furniture Bank occurred in the one month period prior to their housing date and 37% (n=37) of visits occurred in the one month period after their housing date. Figure 76 shows the percentage of visits from housed participants that occurred in the months prior to and following the housed participants housed date.

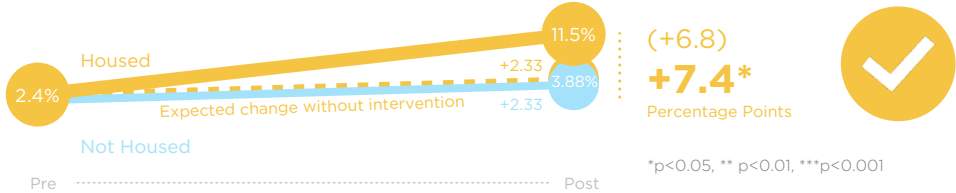
Figure 76: Number of furniture bank visits before and after housing date, Total visits (n=100)



Percent of participants using the Furniture Bank before housing period. To assess typical use of the Furniture Bank, we removed the one month period before and after participants housed date from our baseline and longitudinal analyses (the housing period). As expected, very few individuals in either the housed group (<5) or the unhoused comparison group (<5) used the furniture bank in the 11 months prior to the housed period. Because of the small sample size, we did not look at differences among demographic groups.

Percentage using Furniture Bank after housing period. Once housed and after the one month period following housing, the percent of housed participants who visited the Furniture Bank in the 11 months after the housing period increased 6.8 percentage points more than it did for those who were not housed, which increased 2.3 percentage points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly greater at 7.4 percentage points; and the change was statistically significant ($p < 0.05$). There were no statistically significant changes among demographic subgroups. Figure 77 describes the change among the overall housed group (See Table 49 in Appendix C for the related data table).

Figure 77: Adjusted change in percentage using the Furniture Bank after housing
 Housed (n=165) v. Not Housed (n=129)
 Scale 0-100



Visits to Furniture Bank before housing period. In the 11 months prior to the housing period, housed participants visited the Furniture Bank an average of only 0.03 times (SD=0.20) compared to unhoused participants who visited an average of 0.02 times (SD=0.12), and the difference was not statistically different, $p = 0.4693$. Because of insufficient sample sizes, we did not look at differences among demographic groups.

Average number of visits to the Furniture Bank after housing period. Once housed, housed participants visited the Furniture Bank 0.07 times more than unhoused participants in the 11 months after their housing period. After further controlling for any changes that may have happened because participants were housed at different times, the change remained the same. The increase was statistically significant ($p < 0.05$). Among demographic subgroups, there were no statistically significant changes. Figure 78 describes the change among the overall housed group (See Table 50 in Appendix C for the related data table and change statistics).

Figure 78: Adjusted change in average Furniture Bank visits after housing
 Housed (n=165) v. Not Housed (n=129)

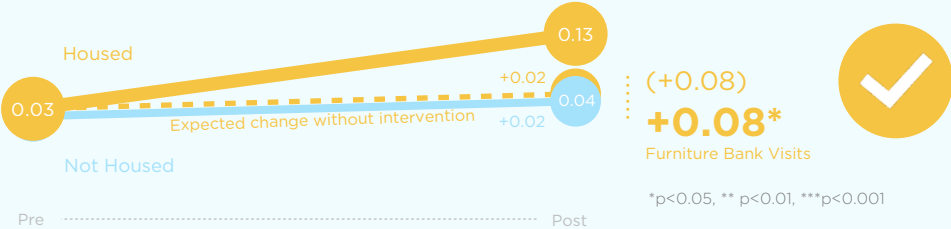
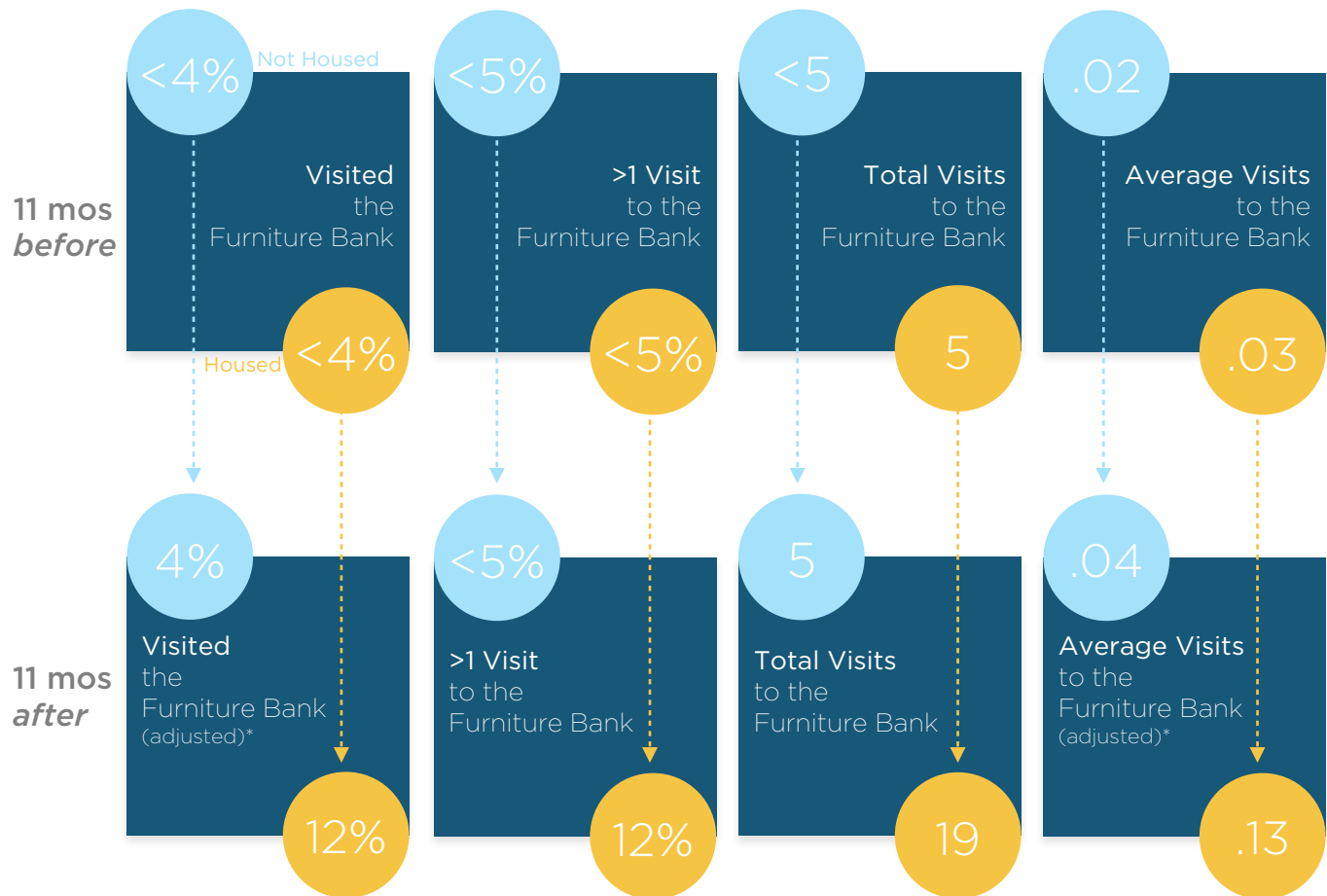


Figure 79: Summary of Changes in Crisis Assistance Ministry Furniture Bank use before and after housing period, Housed (n=165) v. Not Housed (n=129)



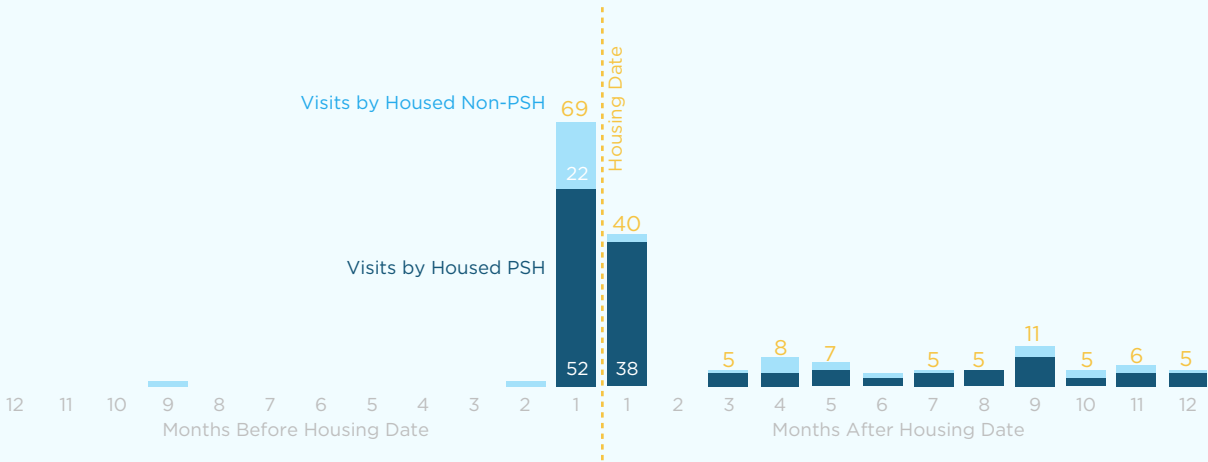
*p<0.05, **p<0.01, ***p<0.001
 Note: Exact percentages are not provided when it represents fewer than 5 people

Financial Assistance

Crisis Assistance Ministry provides emergency financial assistance to households to cover rent and utilities. Payments are made directly to the landlord or utility company. A picture ID, social security documentation, proof of household income over the past 30 days, a past due notification, and a copy of the lease are required to be considered for assistance. The typical program guidelines were expanded for the HFCM effort to support individuals who needed assistance with security deposits. Before the HFCM effort and excluding the 1 month prior to housing for housed participants, emergency financial assistance was not regularly accessed by participants.

Percent of participants using financial assistance. Financial assistance (for example, for security and utility deposits) from Crisis Assistance Ministry was a key part of initial Housing First Charlotte-Mecklenburg services for many individuals when approved for housing. Of housed participants, 73% sought some form of financial assistance from crisis ministry at some point during the 12 months before or after housing; 38% (n=69) of visits for financial assistance occurred in the one month period prior to their housing date and 22% (n=40) of visits occurred in the one month period after their housing date. Figure 80 shows the percentage of visits from housed participants that occurred in the months prior to and following the housed participants housed date.

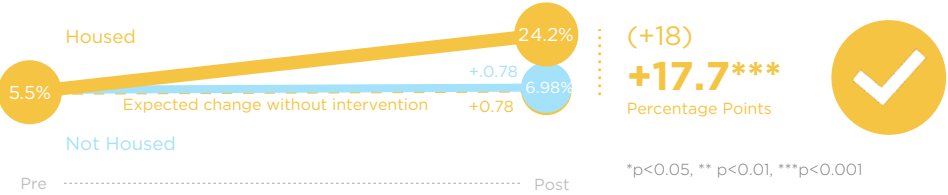
Figure 80: Number of financial assistance visits before and after housing date, Total visits (n=181)



Percent of participants using financial assistance before housing period. To assess typical use of the financial assistance, we removed the one month period before and after participants housed date from longitudinal analyses. As expected very few individuals in either the housed group (5%) or the unhoused comparison group (6%) used the financial assistance in the 11 months prior to the housed period, or 12 months prior to their baseline interview date. The housed and unhoused groups were statistically similar. Because the small sample sizes, we did not look at differences among demographic groups.

Percentage using financial assistance after Housing. Once housed and after the one month period following housing, the percent of housed participants who visited for financial assistance increased 18 percentage points more than it did for those who were not housed, which increased 0.78 percentage points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly less at 17.7 percentage points; and the change was statistically significant ($p < .001$). Figure 81 describes the change among the overall housed group (See Table 52 in Appendix C for the related data table).

Figure 81: Adjusted change in percentage using financial assistance after housing
 Housed (n=165) v. Not Housed (n=129)
 Scale 0-100



Financial assistance visits prior to baseline. In the 11 months prior to the housing period, most housed participants did not access financial assistance and among those who did, the majority of housed participants visited only once. Housed participants received financial assistance an average of 0.06 times (SD=0.26) compared to unhoused participants who received assistance an average of 0.11 times (SD=0.55). Because of the small sample sizes, we did not look at differences among demographic groups.

Average number of financial assistance visits in the year after Housing. Once housed, housed participants visited Crisis Assistance Ministry for financial assistance 0.29 times more than unhoused participants in the 11 months after their housing period. After further controlling for any changes that may have happened because participants were housed at different times, the change remained about the same (0.28). The increase was statistically significant ($p < .001$). Because of the small sample sizes, we did not look at differences among demographic groups. Figure 82 describes the change among the overall housed group (See Table 53 in Appendix C for the related data table and change statistics).

Figure 82: Adjusted change in average financial assistance visits after housing
 Housed (n=165) v. Not Housed (n=129)

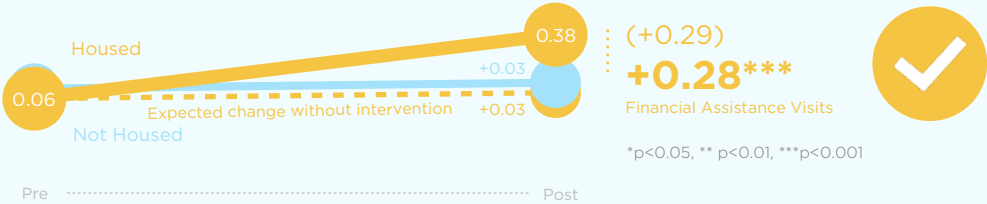
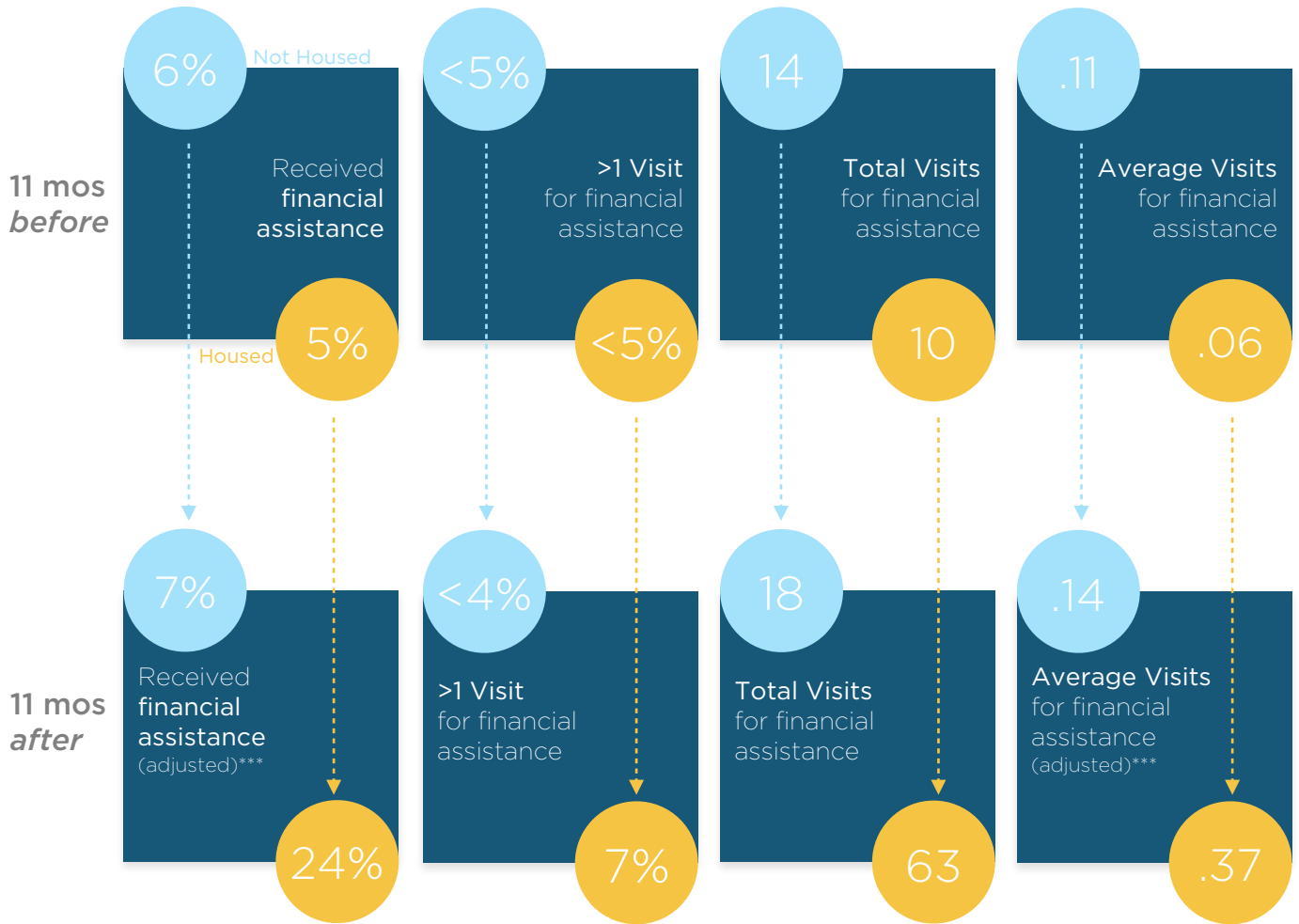


Figure 83: Summary of Changes in Crisis Assistance Ministry Financial Assistance use before and after the housing period, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001
 Note: Exact percentages are not provided when it represents fewer than 5 people

Emergency Shelter

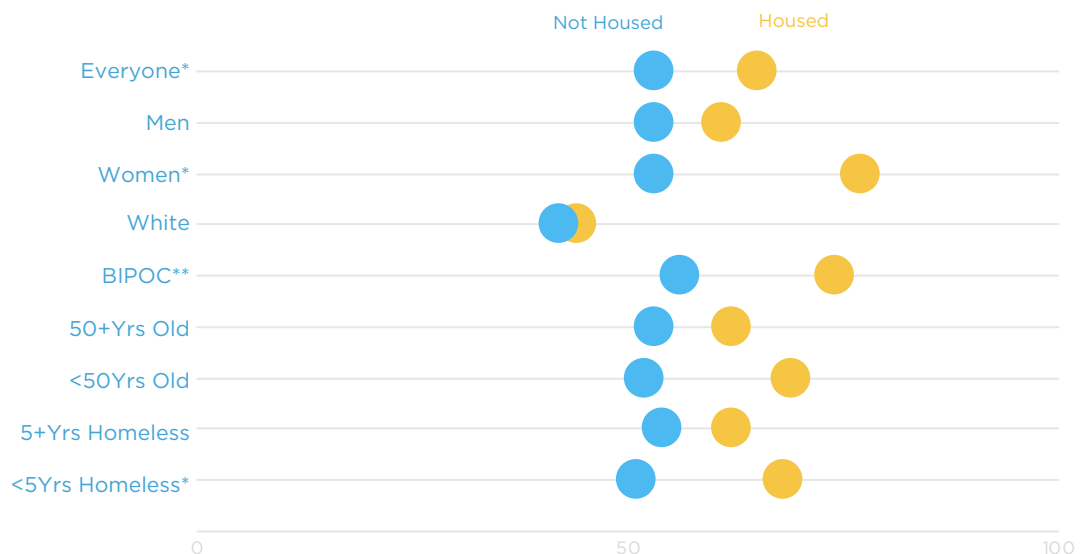
Emergency Shelter data was captured in the Homeless Management Information System, a part of the ISC integrated data system. HMIS is managed by Mecklenburg County Community Support Services and includes over 20 agencies. Emergency shelter is provided primarily by the Roof Above Men’s Shelter of Charlotte and Room In The Inn program and the Salvation Army Center of Hope. The community often has insufficient emergency shelter beds to meet demand, particularly low barrier options for individuals, which are important for individuals who are experiencing chronic homelessness.

Evidence suggests that without intervention, individuals who are experiencing chronic homelessness use a disproportionate number of emergency shelter beds. The first longitudinal study that examined shelter use patterns among individuals experiencing homelessness found that 10% of the shelter populations in New York City and Philadelphia, used 50% of shelter resources (Kuhn & Culhane, 1998). Housing first permanent supportive housing (HF PSH) has been shown to effectively reduce the use of emergency shelter (e.g. Tsemberis, Gulcur, & Nakae, 2004), prevent returns to shelter (e.g., Stefancic & Tsemberis, 2007), and is considered an important component in a coordinated system that opens up emergency shelter for others in an acute housing crisis (Padgett et al., 2016).

It is important to note that not all individuals who experience chronic homelessness use the emergency shelter system or other community services. In the 2019 local Point-in-Time count, 31% (n=73) of chronically homeless individuals were unsheltered and 69% (n=162) were sheltered (HUD Exchange). Nationally, the trend is reversed, 63% (n=60,941) of chronically homeless individuals were unsheltered in 2019 and 37% (n=35,200) were sheltered (Henry, Watt, Mahathey, Ouellette, & Sitler, 2020).

Percent of participants using emergency shelter the year prior to baseline. More housed participants used shelter in the year prior to housing (65%, n=107) than unhoused participants in the year prior to their baseline interview (53%, n=68), and the difference was statistically significant (p<.05). Among demographic groups, there were statistically significant differences between housed and unhoused women, BIPOC participants, and those homeless for less than 5 years at baseline. In all cases, a greater percent of participants in the housed group used shelter than those in the unhoused group. Figure 84 describes subgroup differences at baseline. The data table is available in Appendix C- Table 54.

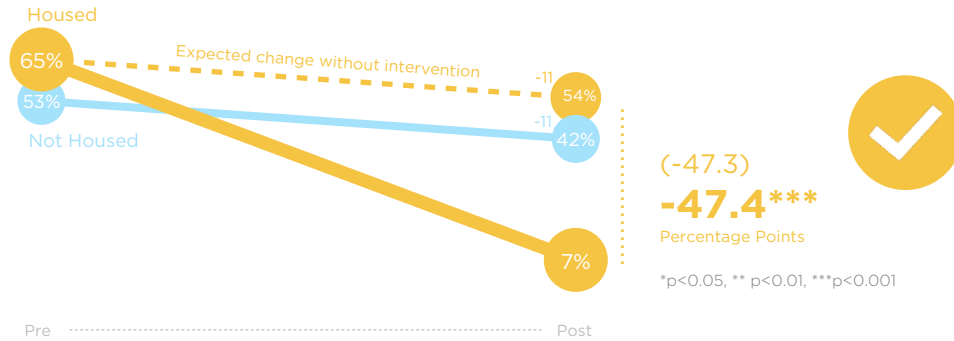
Figure 84: Baseline percent of participants using emergency shelter, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

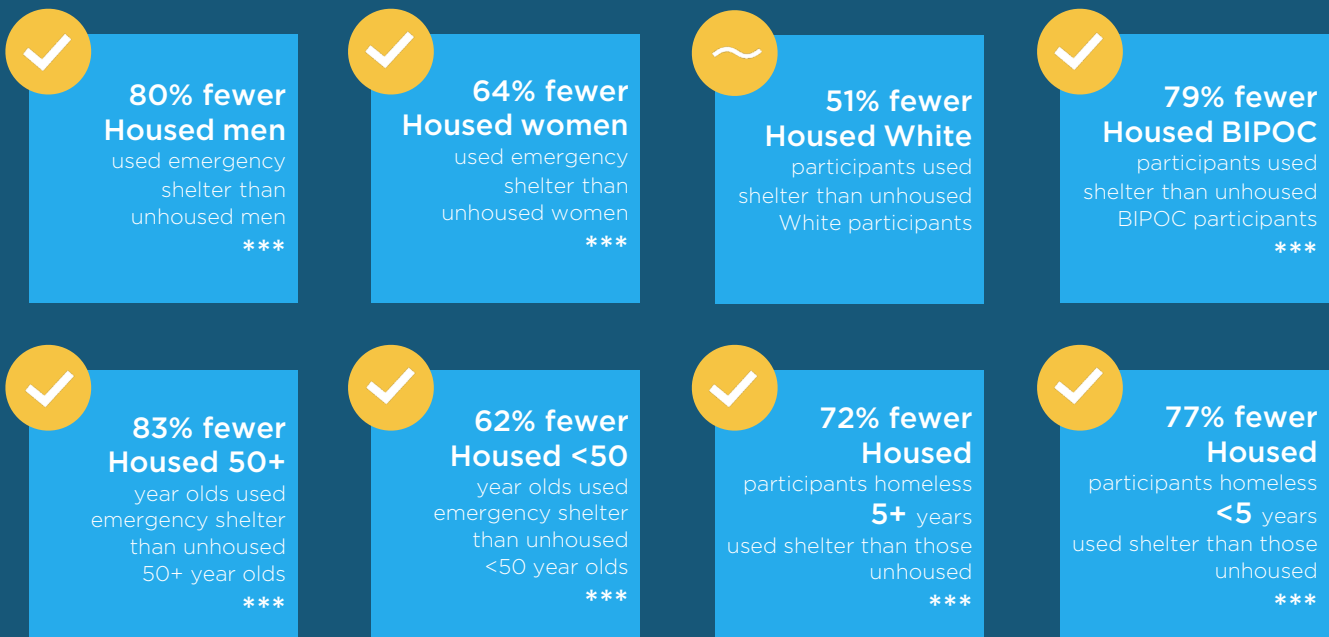
Percent using emergency shelter after housing. The year after housing, the percent of participants who used emergency shelter fell substantially. Use of emergency shelter fell an average of 47.3 percentage points more than it did for those who were not housed, for whom it fell an average of 10.9 percentage points. When we further controlled for any improvement or change that may have happened because participants were housed at different times, use of emergency shelter fell slightly more, 47.4 percentage points, a statistically significant difference ($p < .001$). The percentage point change represents a 73% reduction in housed participants using emergency shelter. Figure 85 describes the change among the overall housed group compared to those who were not housed (See Table 55 in Appendix C for the related data table)

Figure 85: Adjusted change in percent of participants using emergency shelter after Housing, Housed (n=165) v. Not Housed (n=129)



Among demographic subgroups, once housed, the percent of participants using the emergency shelter decreased for all housed versus unhoused groups. When we controlled for any improvement or change that may have happened over time without housing, the decrease in the percent of those using shelter was statistically significant for all groups, except White participants. Figure 86 below describes the reduction in percentage points for each of the subgroups. See Table 55 in Appendix C for the related data table.

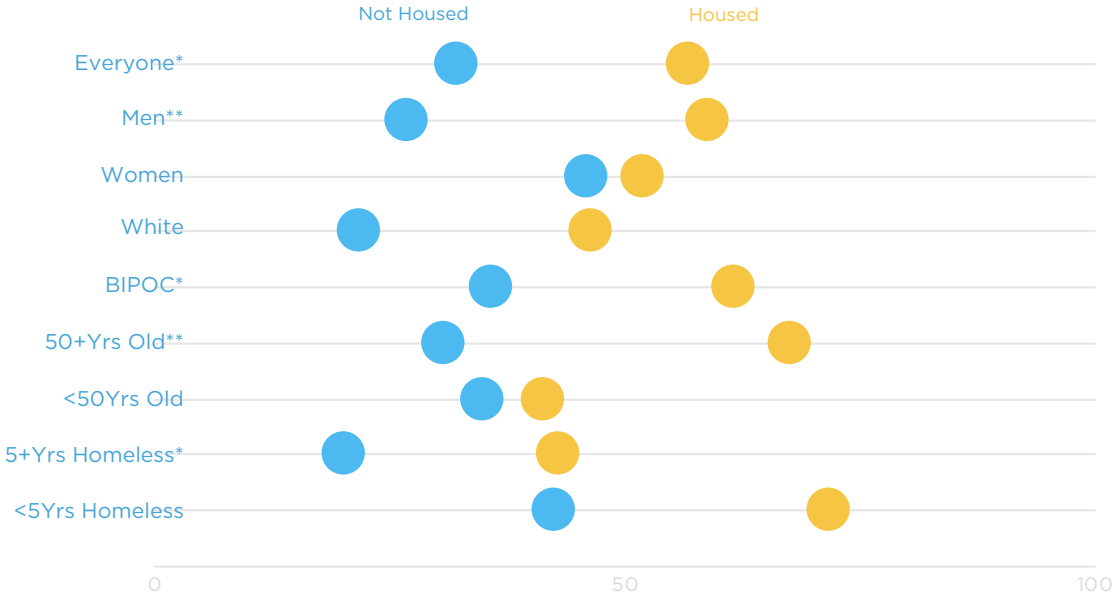
Figure 86: Adjusted change in percent of housed participants using emergency shelter by demographic groups (n=165)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Emergency shelter nights prior to baseline. Housed participants stayed in shelter more nights in the year prior to housing (M=56.8, SD=96.9) than unhoused participants in the year prior to their baseline interview (M=32.2 SD=72.1), and the difference was statistically significant ($p<0.05$). Among demographic groups, housed men stayed more nights (M=58.7, SD=101.2) than unhoused men (M=26.9, SD=67.2), and the difference was statistically significant ($p<0.01$). Housed BIPOC participants stayed at the shelter 62 nights (SD=100.8) as compared to unhoused, BIPOC, participants who stayed 35.8 nights ($p< 0.05$). Older housed participants, and housed participants who were homeless 5 or more years spent more nights in the shelter (M=67.6, SD=109.4; M=30.7, SD=83.6, respectively) relative to older unhoused participants and those who were homeless for 5 or more years (M=43.0, SD=69.0; M=20.1, SD=48.2, respectively), and the differences were statistically significant ($p<0.01$ and $p<0.05$, respectively). Figure 87 describes subgroup differences at baseline. The data table is available in Appendix C- Table 56.

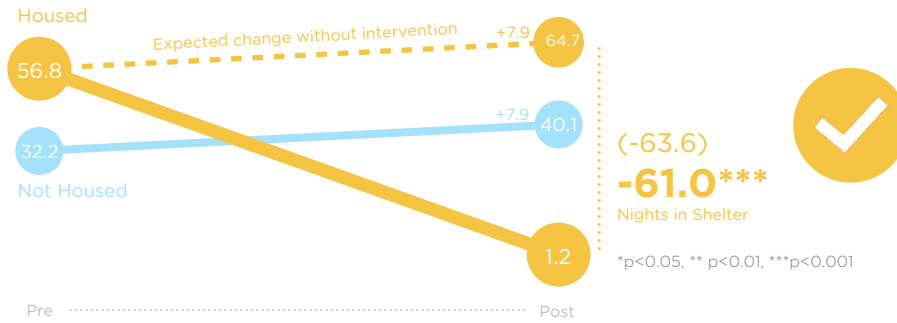
Figure 87: Average nights in emergency shelter at baseline, Housed (n=165) v. Not Housed (n=129)



* $p<0.05$, ** $p<0.01$, *** $p<0.001$

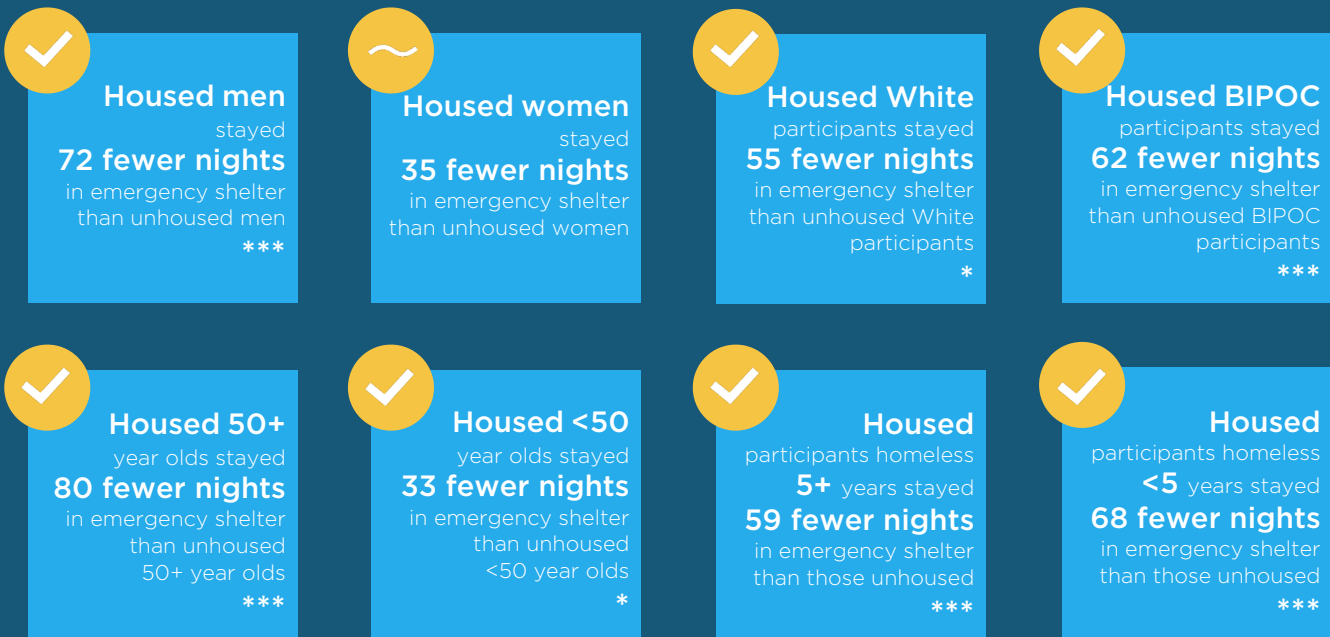
Emergency shelter nights after housing. Housed study participants stayed a total of 9,372 nights in shelter in the year prior to housing. In the year following housing, housed study participants stayed a total of 192 nights, a 98% decrease. Once housed, participants stayed an average of 63.5 fewer nights in shelter than did unhoused participants, whose shelter use actually increased an average of 7.9 nights. After further controlling for any reduction that may have occurred since participants were housed at different times, the improvement was slightly less at 61 nights or in essence, a 100% reduction in the use of emergency shelter. The reduction was statistically significant ($p < .001$). Figure 88 describes the change among the overall housed group compared to those who were not housed (See Table 57 in Appendix C for the related data table).

Figure 88: Adjusted change in average number of nights in emergency shelter after housing, Housed (n=165) v. Not Housed (n=129)



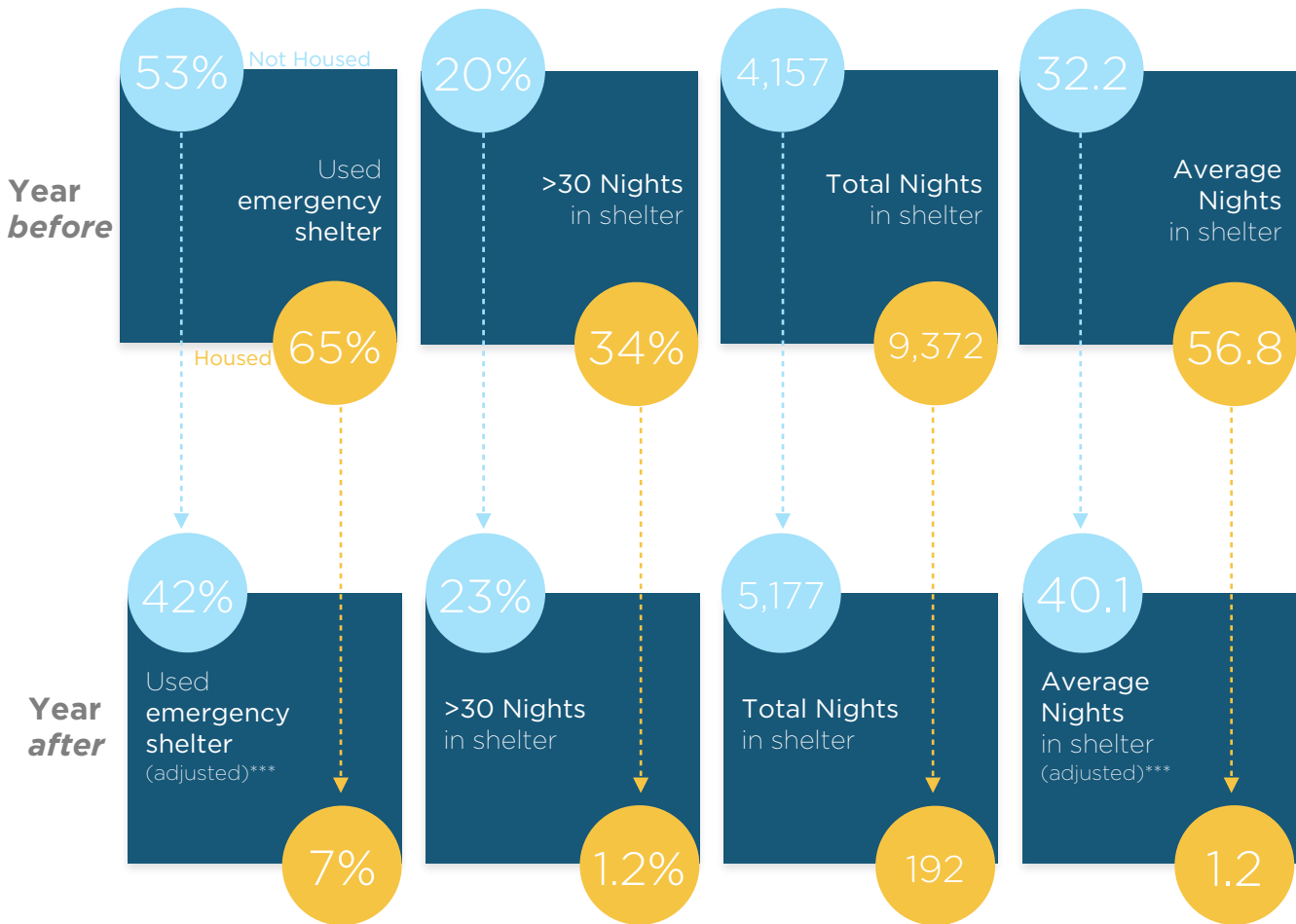
Among demographic subgroups, once housed, the average number of nights in emergency shelter decreased for all subgroups. All decreases were statistically significant except for housed women when compared to unhoused women ($p = 0.987$). This simply suggests that housing effectively ended most use of emergency shelter. See figure 89 below and Table 57 in Appendix C for the related data table.

Figure 89: Adjusted change in housed participants nights in emergency shelter by demographic groups (n=165)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 90: Summary of Changes in Emergency Shelter use, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001



Health Services

Because of the many health challenges faced by individuals who are homeless, and particularly individuals experiencing chronic homelessness, they can be more reliant on the health care system than the general population (Amato, Nobay, Amato, Abar, & Adler, 2019).

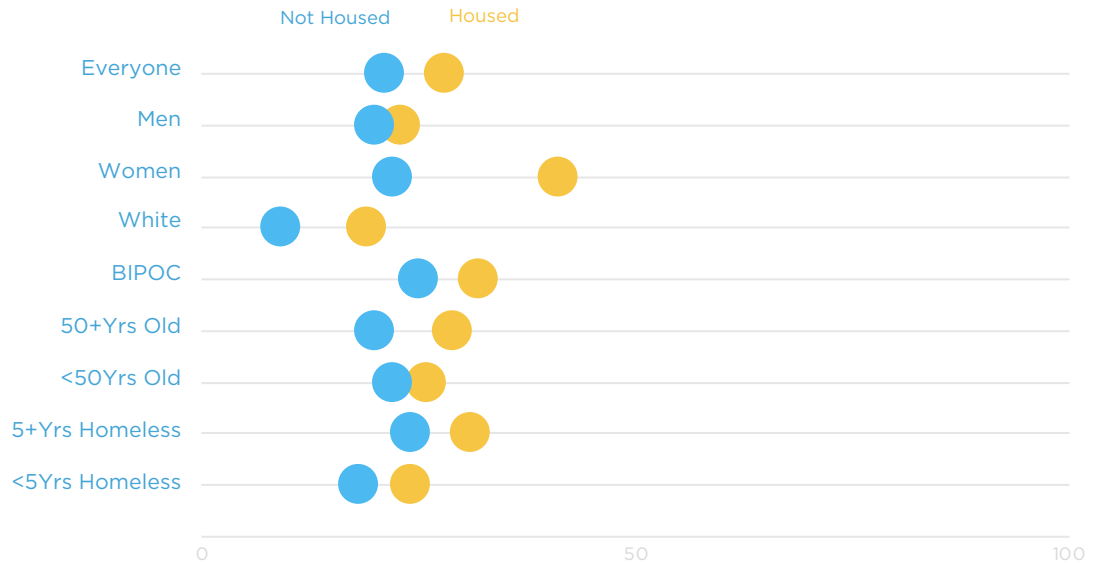
To gain a comprehensive understanding of the impact of housing on the utilization of health services, we gathered data on a range of health services including Mecklenburg County Health Department; Mecklenburg County Medic, emergency department services, inpatient hospital services, and outpatient services. Emergency and inpatient services were provided by the largest providers in Mecklenburg County - Atrium Healthcare Systems and Novant Health. Outpatient services data were provided by Atrium and Novant as well as Charlotte Community Health Clinic and CW Williams Community Health Clinic. All data were deposited and integrated using the UNC Charlotte Urban Institute/Institute for Social Capital Integrated Data System. Note: We also gathered data from Cardinal Innovations and due to data anomalies, findings will be discussed in a subsequent brief report.

Mecklenburg County Health Department

Health services for adults provided by the Health Department include women's health, family planning, sexual health such as STD testing and counseling, immunizations, and screening for infectious diseases. Approximately a third (30%) of the sample visited the health department at some point during the study. The primary reason participants in the sample visited the Health Department was for HIV counseling. Other services accessed by our participants included screening for STDs and evaluation and treatment of tuberculosis.

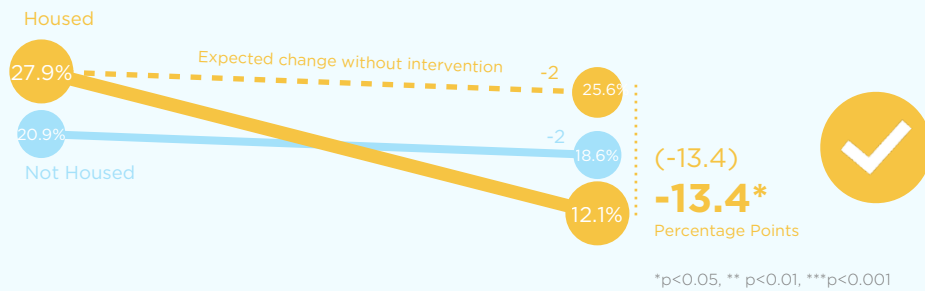
Percent of participants using the health department the year prior to baseline. The majority of study participants did not utilize the Mecklenburg County Health Department in the year prior to housing, or if they weren't housed, in the year prior to baseline. Housed and unhoused participants used the Health Department services at similar rates. More housed participants used the Health Department in the year prior to housing (28%, n=46) than unhoused participants in the year prior to their baseline interview (21%, n=27), however the difference was not statistically significant ($p=0.1712$). Among demographic groups, there were no statistically significant differences between housed and unhoused groups. Figure 91 describes subgroup differences at baseline. The data table is available in Appendix C Table 58.

Figure 91: Baseline percent of participants using health department services, Housed (n=165) v. Not Housed (n=129)



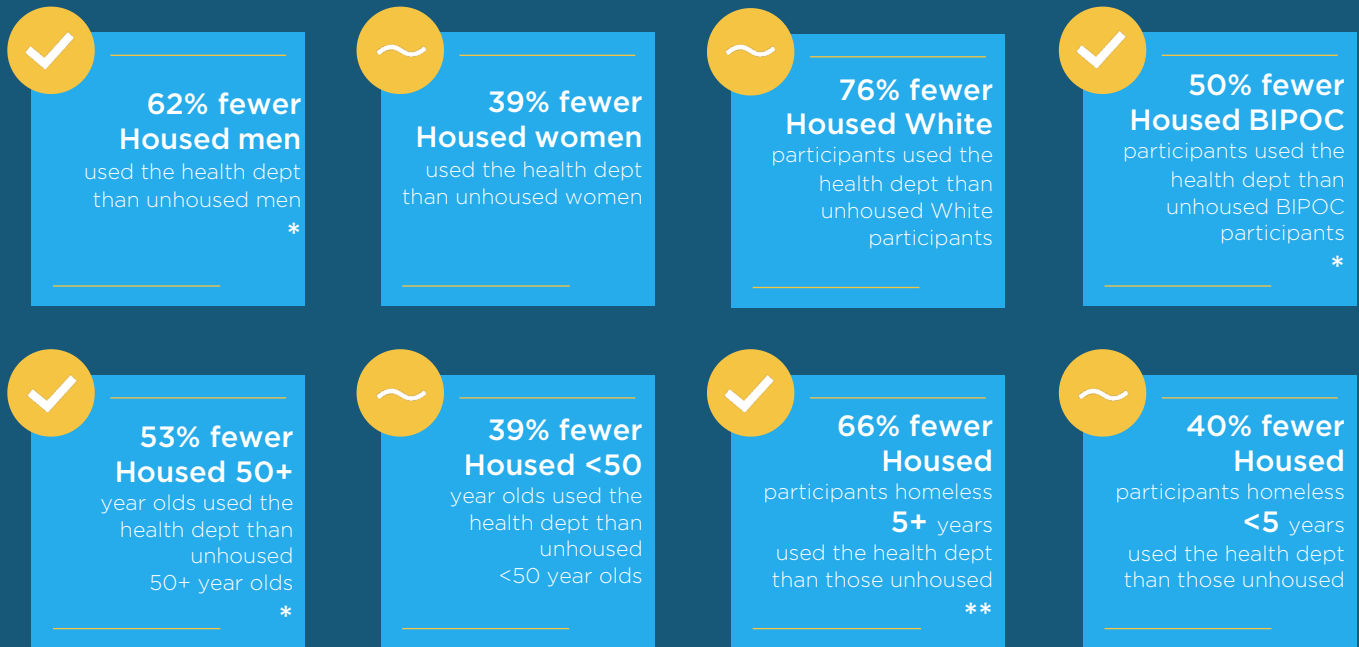
Percent using the health department after housing. The year after housing, the percent of participants who used the health department fell substantially. Use of the health department fell an average of 13.4 percentage points more for those housed than it did for those who were not housed, for whom it fell an average of 2 percentage points. When we controlled for any change that may have happened over time, the improvement remained the same, and showed a statistically significant difference ($p < 0.05$). The percentage point change represents a 48% reduction in participants using emergency shelter. Figure 92 describes the change among the overall housed group compared to those who were not housed (See Table 59 in Appendix C for the related data table).

Figure 92: Adjusted change in percent of participants using the health department after housing, Housed (n=165) v. Not Housed (n=129)
Scale 0-100



Among demographic subgroups, the percent of participants using the health department decreased more in the year after housing for men, BIPOC participants, older participants, and those who were homeless for over 5 years than their unhoused counterparts. When we controlled for any improvement or change that may have happened over time without housing, the decrease in the percent of those using the health department was statistically significant ($p < 0.05$). Figure 93 below describes the reduction in percentage points for each of the subgroups. See Table 59 in Appendix C for the related data table.

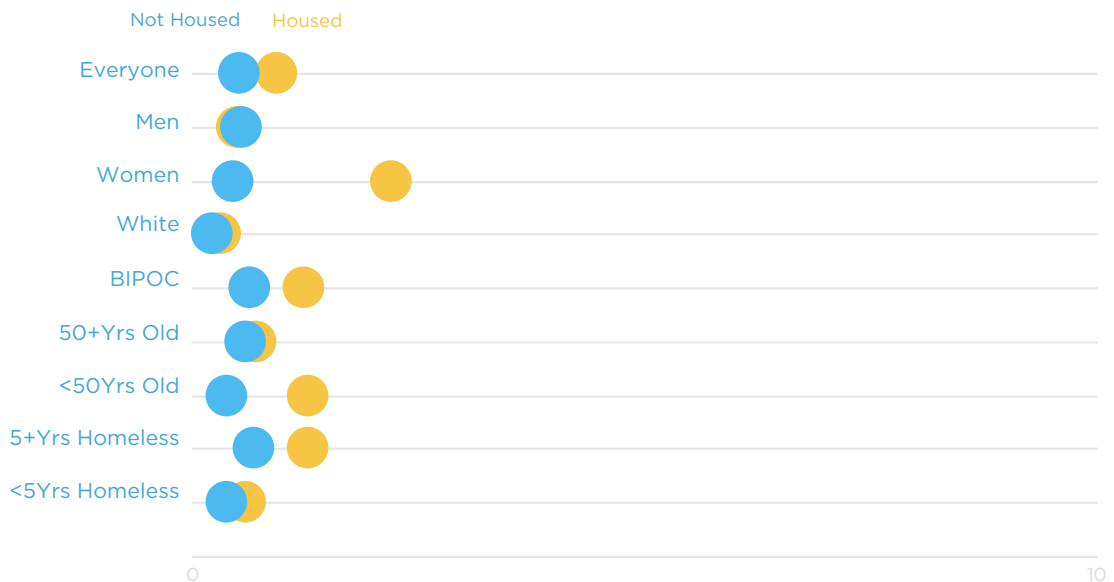
Figure 93: Average adjusted change in percent of housed participants using the health department by demographic groups (n=165)



*p<0.05, ** p<0.01, ***p<0.001

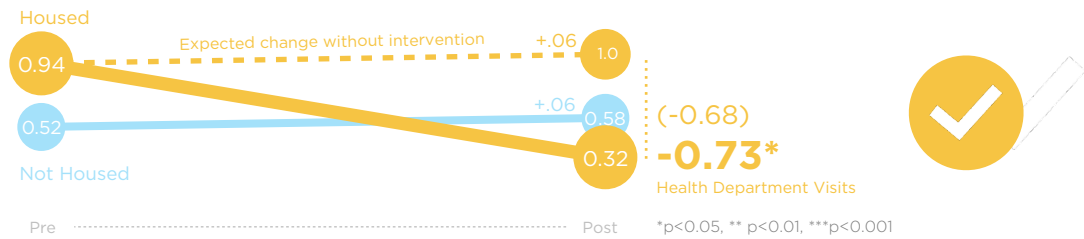
Health department visits prior to baseline. In the year prior to housing, housed participants visited the Health Department between 0 and 50 times and unhoused participants visited between 0 and 18 times. At baseline, housed study participants visited the health department an average of 0.94 times (SD=4.1) compared to unhoused participants who visited an average of 0.52 times (SD=1.8), however, the groups were not statistically different, p=0.2340. Among demographic subgroups, there were no statistically significant differences between housed and unhoused groups. Figure 94 describes subgroup differences at baseline. The data table is available in Appendix C- Table 60.

Figure 94: Average visits to the health department before baseline, Housed (n=165) v. Not Housed (n=129)



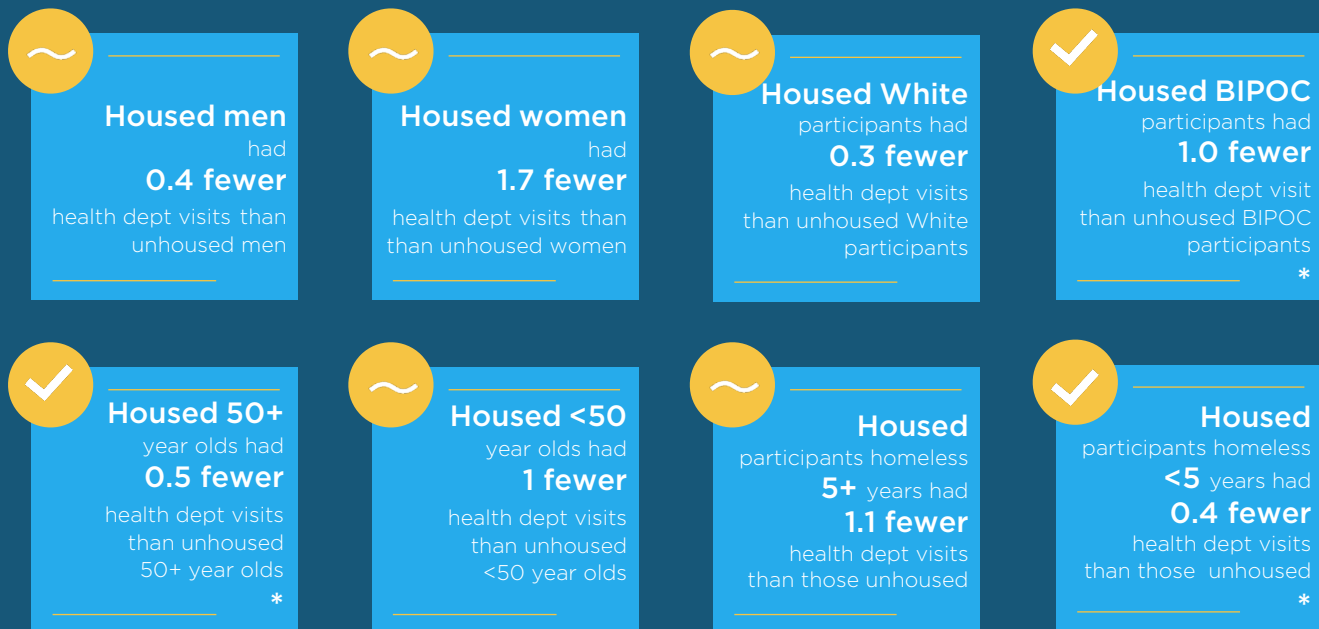
Health Department visits after housing. In the year following housing, housed study participants visited a total of 53 times, a 66% decrease. After housing, the average number of visits among those housed fell an average of 0.68 more than among those who weren't housed, whose use increased an average of 0.06 after baseline. After controlling for any improvement or change that may have happened without the intervention as well as any time effects that may have occurred since participants were housed at different times, the improvement was slightly greater at 0.73 visits, a statistically significant difference ($p < .05$). Figure 95 describes the change among the overall housed group compared to those who were not housed (See Table 61 in Appendix C for the related data table).

Figure 95: Adjusted change in average number of health department visits after housing, Housed (n=165) v. Not Housed (n=129)



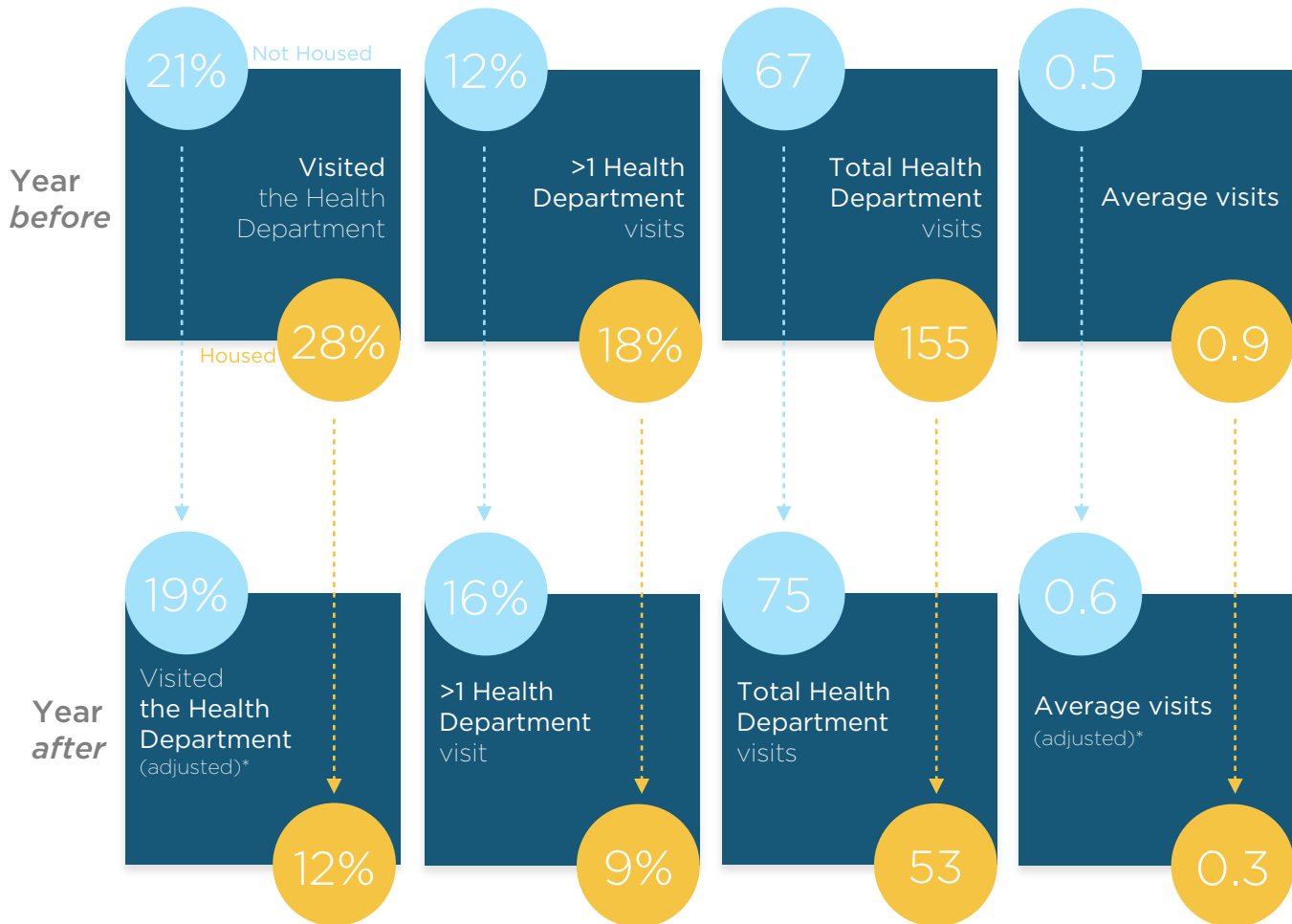
Among demographic subgroups, once housed, the average number of health department visits decreased for all subgroups, however, only those housed participants that were BIPOC, older than 50, and homeless for less than 5 years showed changes that were statistically different from that of their unhoused counterparts. See figure 96 below and Table 61 in Appendix C for the related data table.

Figure 96: Adjusted change in housed participants health department visits by demographic groups (n=165)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 97: Summary of Changes in use of Health Department services, Housed (n=165) v. Not Housed (n=129)



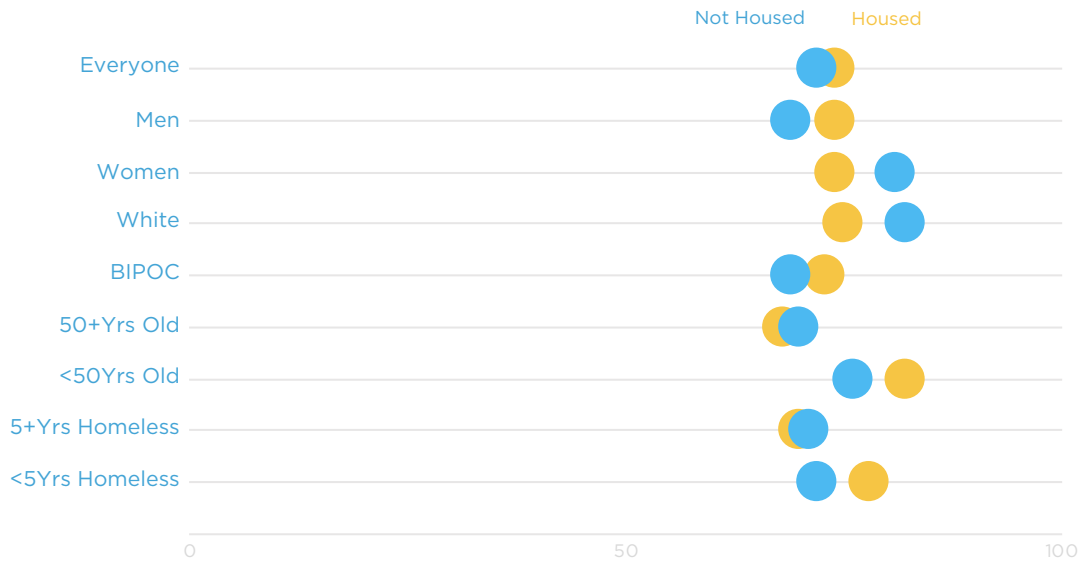
*p<0.05, ** p<0.01, ***p<0.001

Emergency Department Visits

The vast majority of study participants (83.3%, n=275) visited at least one of the two major hospital systems during the study period. The high rates of utilization are similar to those in other studies. Nationally, homeless adults utilize the emergency department (ED) at higher rates compared to the general population with higher numbers of ED visits (e.g. Amato et al., 2019), higher risk of 30 day readmission (e.g. Lam, Arora, Menchine, & Lam, 2016; Ku, Scott, Kertesz, & Pitts, 2010), and longer duration in the ED (e.g. Pearson, Bruggman, & Haukoos, 2007). The estimated rate of ED utilization among homeless populations is 72 visits per 100 homeless people in the US per year, based on a nationally representative dataset for the 2005 to 2006 time period (Ku et al., 2010). The majority of evidence on ED utilization by individuals experiencing chronic homelessness suggests that HF PSH reduces utilization (e.g., Ly & Latimer, 2015). Findings vary according to housing type. Russolillo and colleagues (2014) found that scattered site housing had lower rates of ED visits than single site models (Russolillo, Patterson, McCandless, Moniruzzaman, & Somers, 2014). Findings also vary by research methodology. Simple pre-post designs without a comparison group tend to find greater reductions in utilization, while more rigorous quasi-experimental and experimental designs with a comparison group tend to find smaller reductions (Ly & Latimer, 2015).

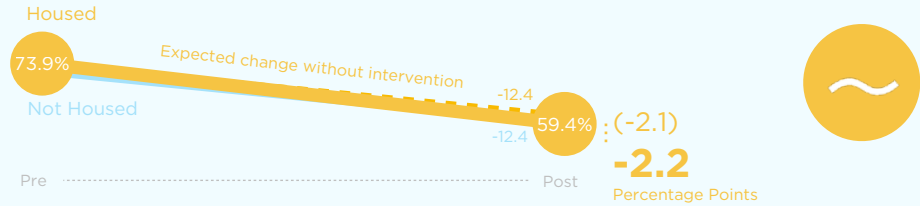
Percent of participants using emergency departments the year before baseline. The majority of study participants used the Emergency Departments at Atrium Health or Novant Health in the year prior to housing, or if they weren't housed, in the year prior to baseline. In addition, housed and unhoused participants used emergency services at similar rates. Slightly more housed participants visited the Emergency Departments in the year prior to housing (74%, n=122) than unhoused participants in the year prior to their baseline interview (72%, n=93), however the difference was not statistically significant (p=0.7230). Among demographic groups, there were no statistically significant differences between housed and unhoused groups. Figure 98 describes subgroup differences at baseline. The data table is available in Appendix C Table 62.

Figure 98: Baseline percent of participants using the emergency department, Housed (n=165) v. Not Housed (n=129)



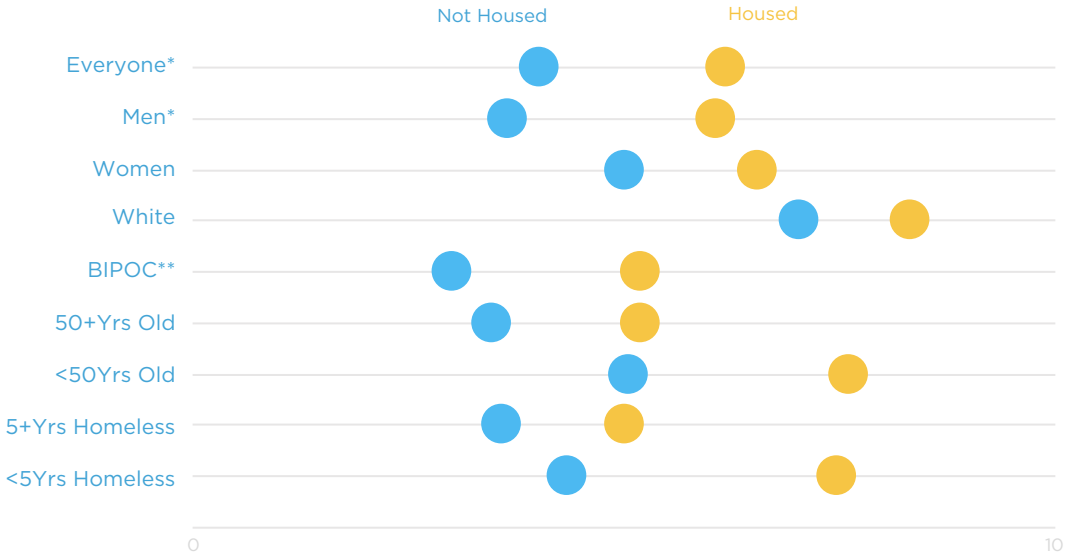
Percent using emergency departments after housing. The year after housing, the percent of participants who used emergency department fell for both the housed and unhoused groups. After housing, use of emergency department fell an average of 2.1 percentage points more for those housed than it did for those who were not housed, for whom it fell an average of 12.4 percentage points. The reduction in use remained similar (2.2 percentage points) when we further controlled for any improvement or change that may have happened since participants were housed at different times. The change was not statistically significant ($p=0.7098$). There were also no significant reductions or increases among demographic subgroups. Figure 99 describes the change among the overall housed group compared to those who were not housed (See Table 63 in Appendix C for the related data table).

Figure 99: Adjusted change in percent of participants using emergency departments after housing, Housed (n=165) v. Not Housed (n=129)



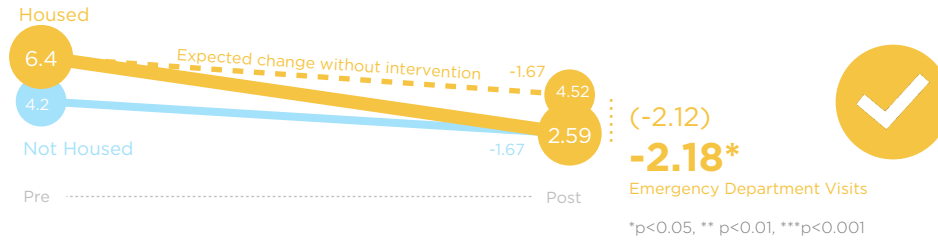
Emergency department visits prior to baseline. In the year prior to housing, housed participants visited between 0 and 100 times and unhoused participants visited between 0 and 50 times. At baseline, housed study participants visited a local ED an average of 6.4 times (SD=11.2) compared to unhoused participants who visited an average of 4.2 times (SD=6.8), and the difference was statistically significant, $p<.05$. Among demographic subgroups, housed BIPOC participants used emergency department services more often than their unhoused counterparts ($p<.01$) but there were no other statistically significant differences between housed and unhoused groups. Figure 100 describes subgroup differences at baseline. The data table is available in Appendix C- Table 64.

Figure 100: Average visits to the emergency department before baseline, Housed (n=165) v. Not Housed (n=129)



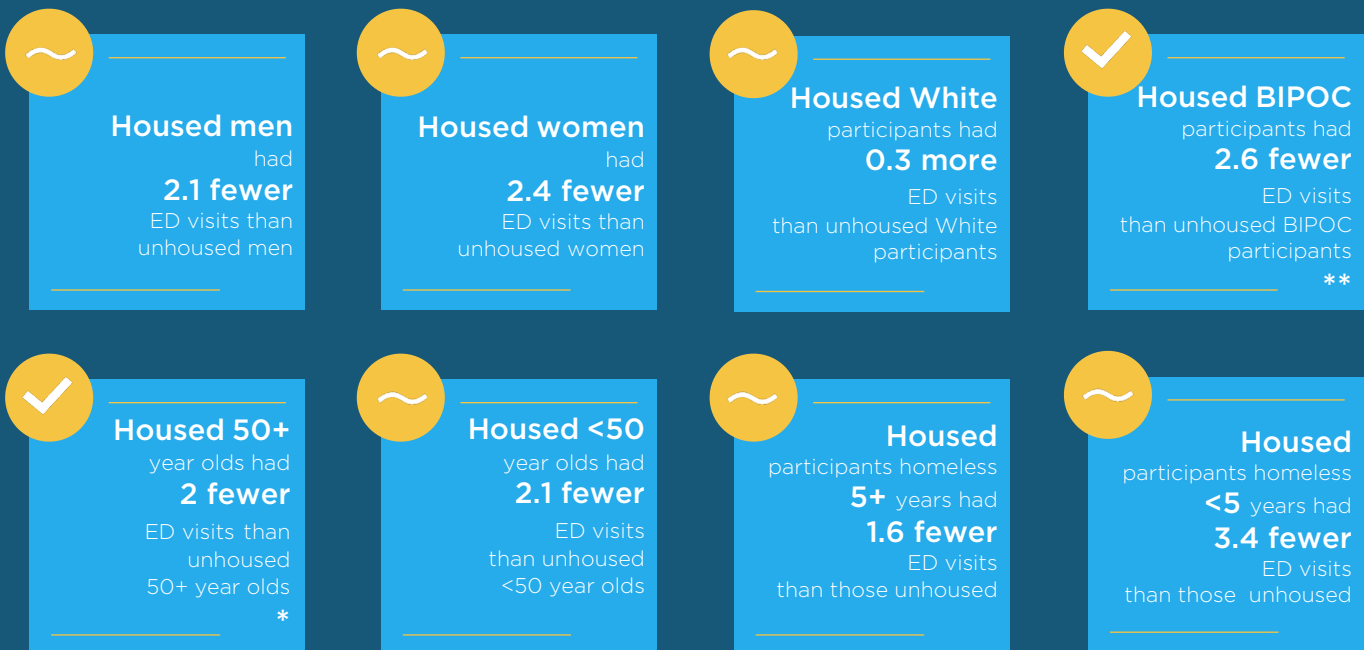
Emergency department visits after housing. Housed study participants visited local emergency departments 1042 times in the year prior to housing. In the year following housing, housed study participants visited a total of 427 times, a 59% decrease. Total visits decreased 37% for unhoused participants. After housing, the number of ED visits fell an average of 2.18 more visits among those housed than they did among those who weren't housed, whose use decreased an average of 1.67 visits after baseline. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly less at 2.12 visits, however, a statistically significant difference ($p < .05$). Figure 101 describes the change among the overall housed group compared to those who were not housed (See Table 65 in Appendix C for the related data table).

Figure 101: Adjusted change in average number of emergency department visits after housing, Housed (n=165) v. Not Housed (n=129)



Among demographic subgroups, once housed, the average number of emergency department visits decreased for all subgroups, except for White participants, whose average number of visits increased slightly. However, reductions were statistically significant only for those housed participants that identified as BIPOC and were older than 50 ($p < 0.01$, $p < 0.05$, respectively). See figure 102 below and Table 65 in Appendix C for the related data table.

Figure 102: Adjusted change in housed participants ED visits by demographic groups (n=165)



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Emergency Department Diagnoses. Diagnosis records associated with the ED utilization discussed above include both primary and secondary diagnoses for any participant with more than one diagnosis. Diagnosis designation within the data does not reflect the relative importance of each diagnosis but solely the order in which the various diagnoses were recorded. Diagnoses records suggest that the majority of diagnoses are for conditions related to Mental, Behavioral and Neuro-developmental disorders (see Figures 103 & 104 below). This category includes diagnoses involving drug and alcohol use as well as diagnoses concerning mental health disorders. This is consistent with existing findings that approximately 60% majority of emergency department visits by homeless people with no inpatient stay involve a substance use or mental health disorder (Sun, Karaca, Wong, 2014). The top five categories did not differ by housed and comparison group (see Figures 103 & 104 below). Table 70 in Appendix C includes examples of diagnoses within each category.

Figure 103:Types of emergency department diagnoses at baseline, housed diagnoses (n=2151)

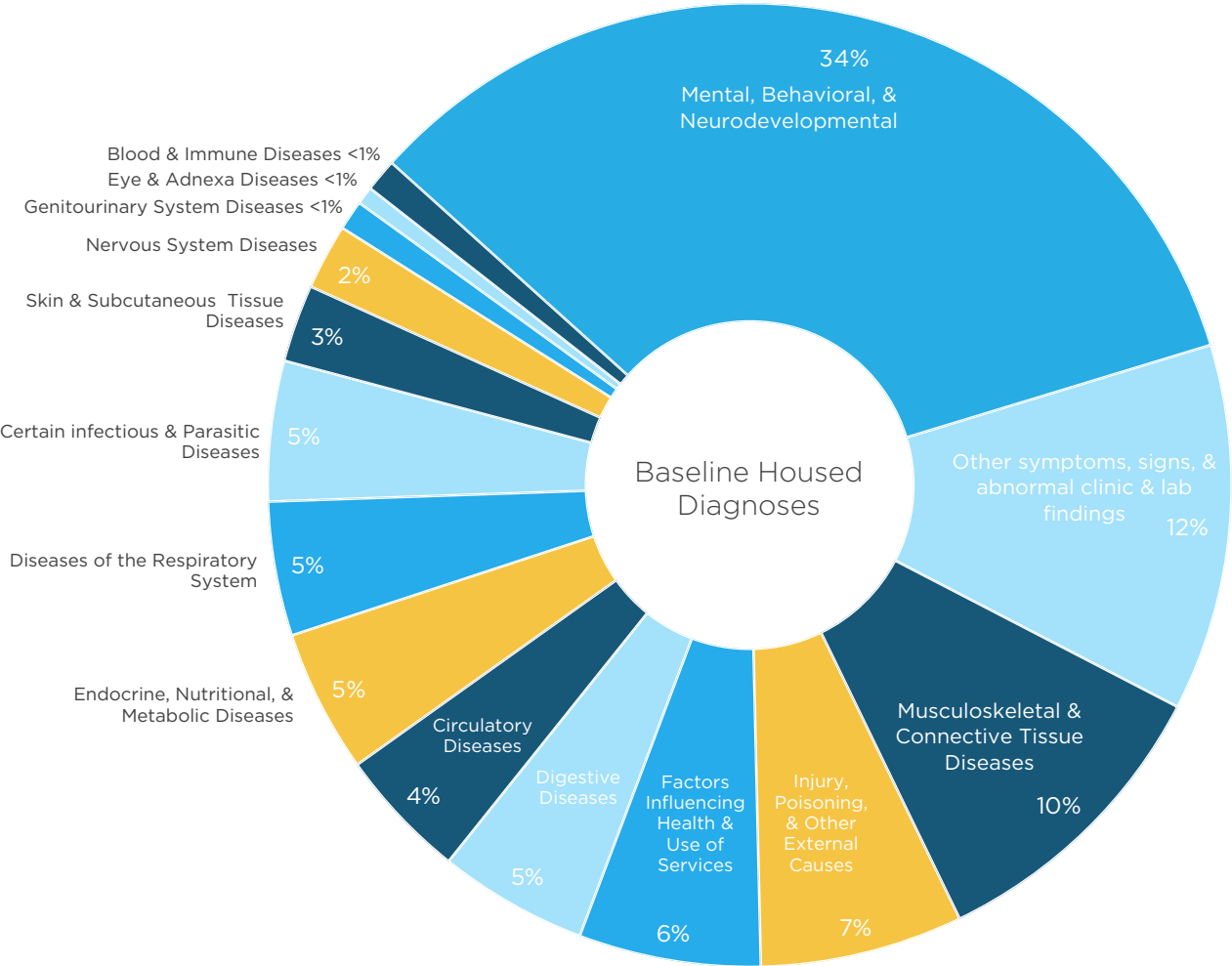


Figure 104: Types of emergency department diagnoses at baseline, unhoused diagnoses (n=814)

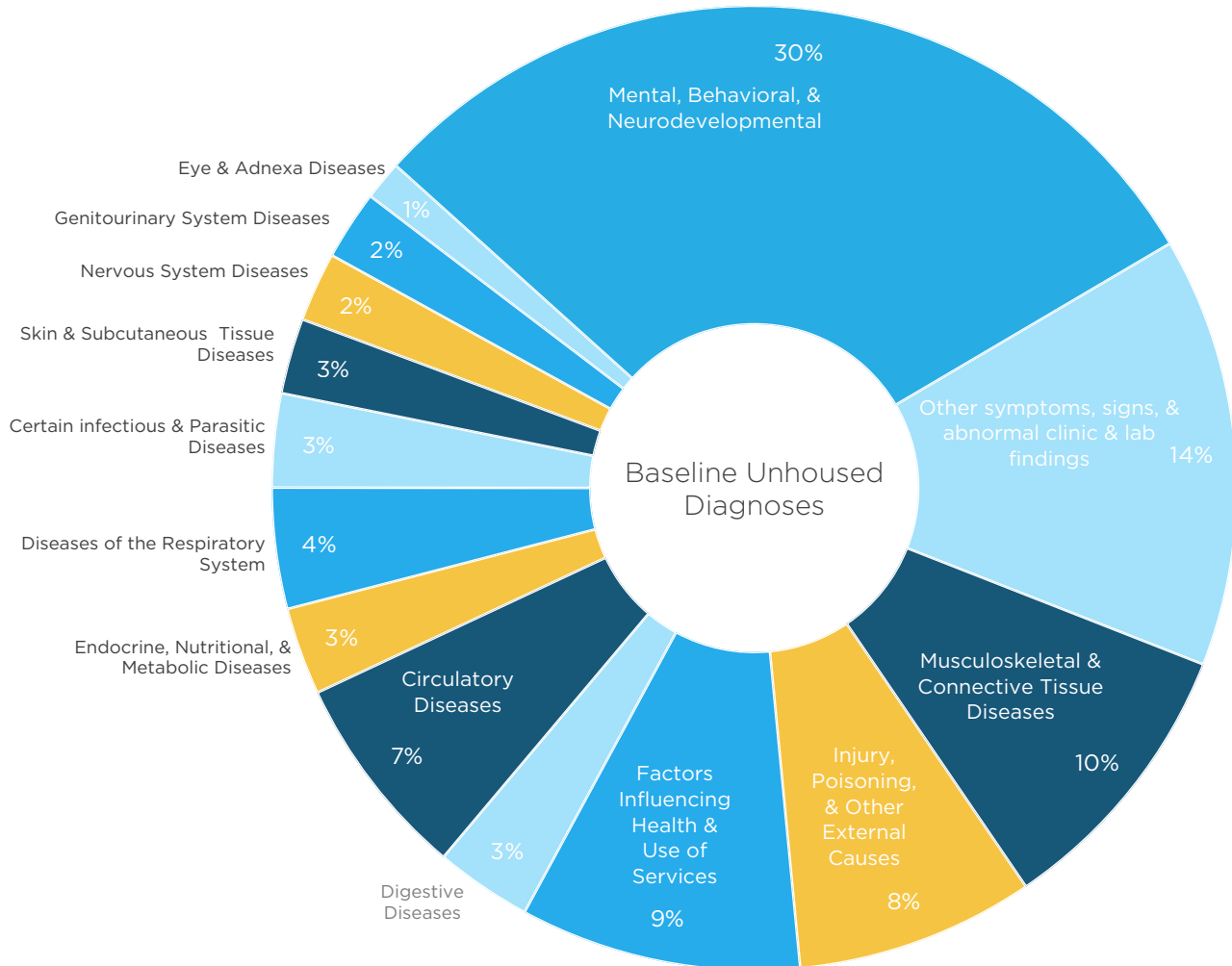
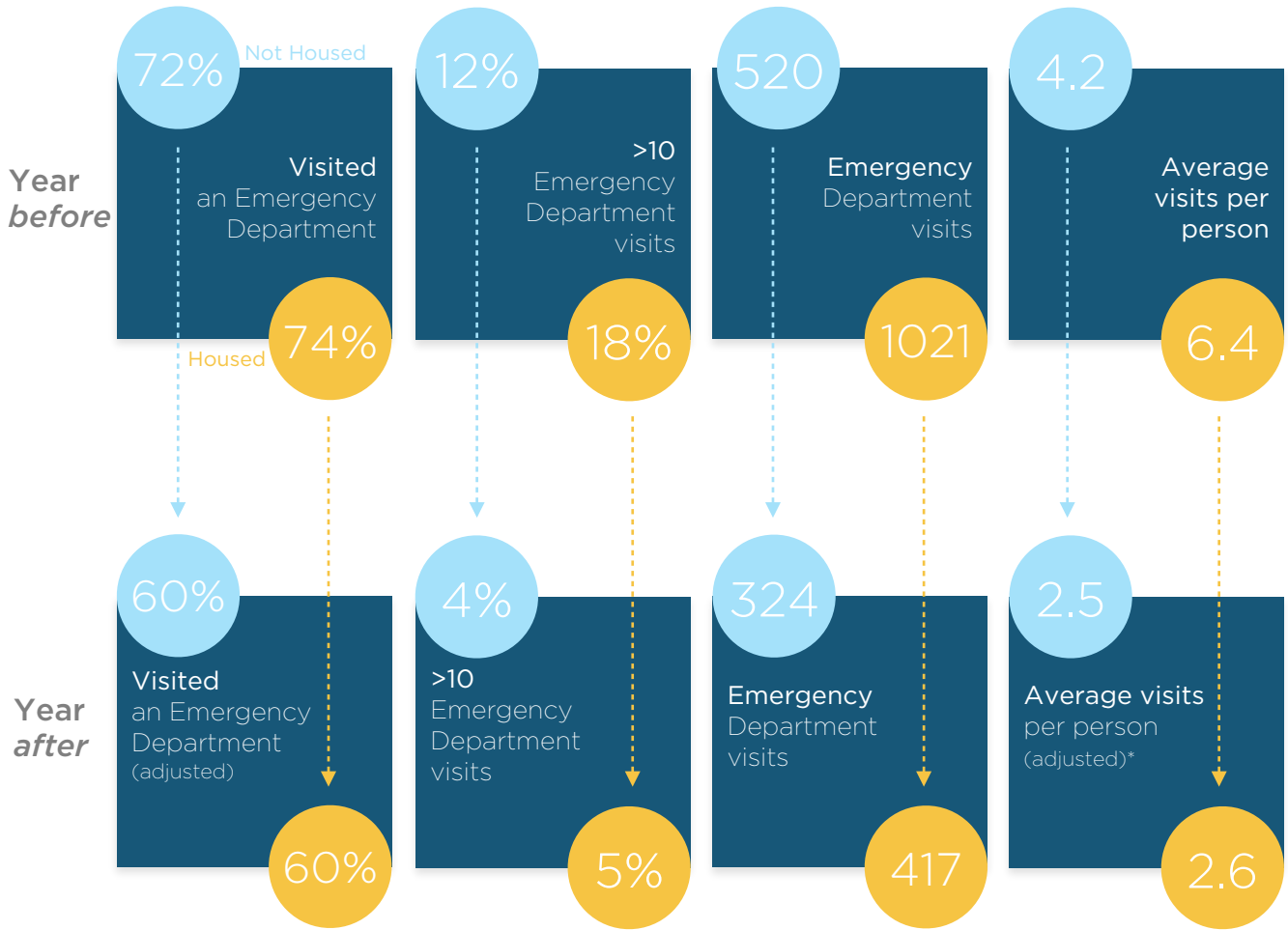


Figure 105: Summary of Changes in use of Emergency Department services, Housed (n=165) v. Not Housed (n=129)



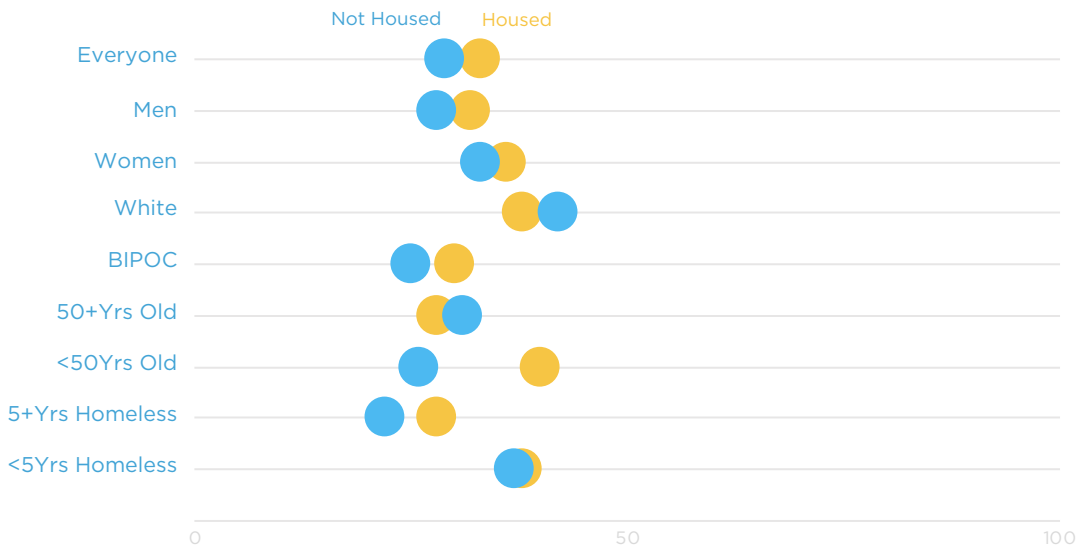
*p<0.05, ** p<0.01, ***p<0.001

Inpatient Visits

Approximately 16% of the emergency department visits by study participants resulted in an admission for inpatient hospitalization and all but 2% of total inpatient stays originated in the ED. Annually, the hospitalization rate of those experiencing homelessness is approximately four times that of the U.S. population (Kushel, Vittinghoff, & Haas, 2001). Medicaid recipients in the Boston Health Care for the Homeless Program are hospitalized at least once a year, on average (Bharel et al., 2013). The impact of housing and particularly HF PSH is less clear in the research (Ly & Latimer, 2015). Several studies have demonstrated the promise of HF PSH in reducing the number (e.g., Stergiopoulos et al., 2015) and length of hospitalizations, particularly psychiatric hospitalizations (e.g., Brown, Jason, Malone, Srebnik, & Sylla, 2016). However, like research syntheses on emergency utilization suggest, the occurrence and extent of hospitalization may vary according to program factors and research approach, with again more rigorous research designs finding more modest improvements (Ly & Latimer, 2015).

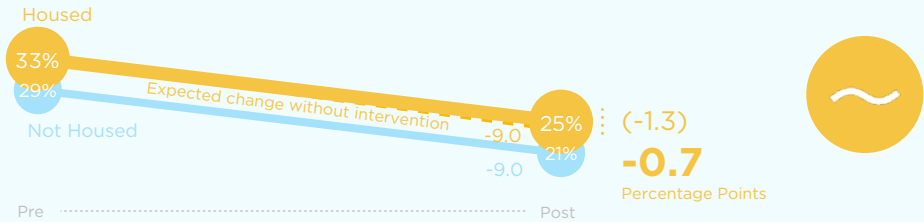
Percent of participants using inpatient services the year prior to baseline. The majority of study participants were not hospitalized in an Atrium Health or Novant Health facility in the year prior to housing or in the year prior to baseline for those who were not housed. Housed and unhoused participants were hospitalized at similar rates. More housed participants were admitted for inpatient services in the year prior to housing (32.7%, n=54) than unhoused participants in the year prior to their baseline interview (29.5%, n=38), however the difference was not statistically significant (p=0.5485). Among demographic groups, there were no statistically significant differences between housed and unhoused groups. Figure 106 describes subgroup differences at baseline. The data table is available in Appendix C Table 70.

Figure 106: Baseline percent of participants using inpatient services, Housed (n=165) v. Not Housed (n=129)



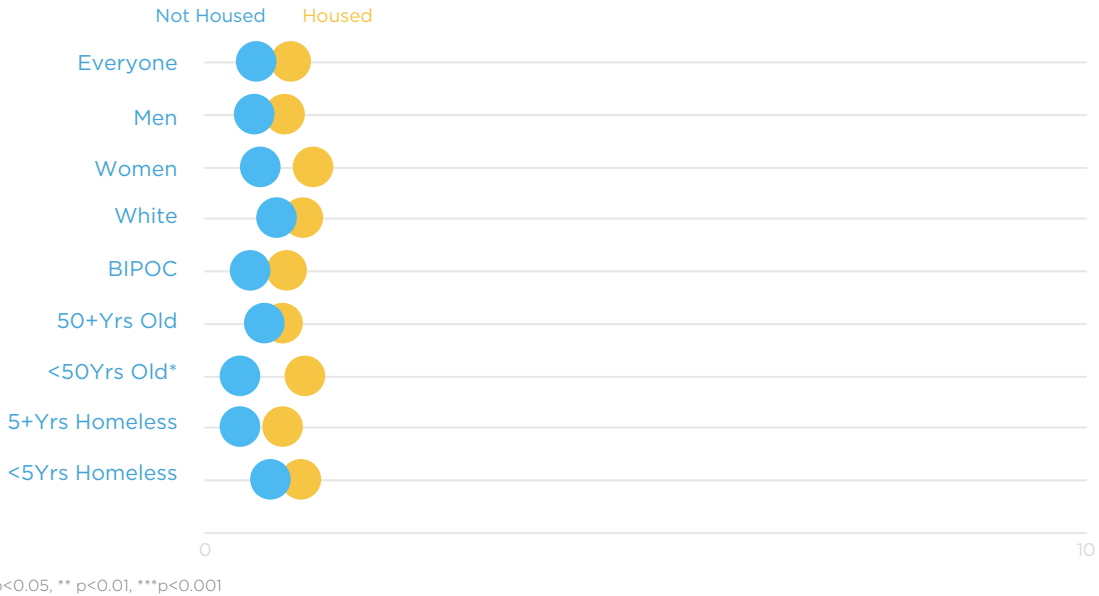
Percent using inpatient services after housing. The year after housing, the percent of participants who used inpatient services from Atrium Health and Novant Health changed little for housed or unhoused groups. Inpatient admissions fell an average of 1.3 percentage points more than they did for those who were not housed, for whom they fell an average of 9 percentage points. When we further controlled for any improvement or change that may have happened since participants were housed at different times, inpatient admissions were slightly less - 0.7 percentage points - and the difference was not statistically significant (p=0.9018). There were also no significant reductions among demographic subgroups. Figure 107 describes the change among the overall housed group compared to those who were not housed (See Table 71 in Appendix C for the related data table).

Figure 107: Adjusted change in percent of participants using inpatient services after housing, Housed (n=165) v. Not Housed (n=129)



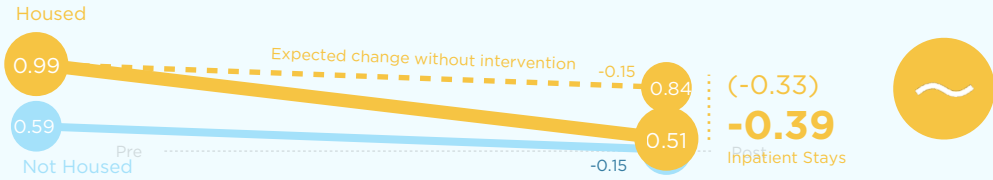
Inpatient stays prior to baseline. In the year before housing, 32.7% (n=54) of housed participants and 29.5% (n=38) of unhoused participants had local inpatient hospital stays. Housed participants had between 0 and 17 inpatient stays and unhoused participants had between 0 and 7 stays. At baseline, housed study participants were hospitalized an average of 0.99 nights (SD=2.2) compared to unhoused participants who were hospitalized an average of 0.59 nights (SD=1.3); the groups were not statistically different, p=0.0527. Among demographic groups, there were no statistically significant differences between housed and unhoused subgroups, except among participants under 50 years old. Younger housed participants had more inpatient stays than their unhoused counterparts (p<.05). Figure 108 describes subgroup differences at baseline. The data table is available in Appendix C- Table 72.

Figure 108: Average inpatient stays before baseline, Housed (n=165) v. Not Housed (n=129)



Inpatient stays after housing. Housed study participants were hospitalized a total of 163 times in the year prior to housing. In the year following housing, they were hospitalized a total of 84 nights, a 48% decrease. Unhoused participants' hospitalizations also decreased 25%. After housing, the average number of stays fell 0.33 more for those housed than it did for those who weren't housed, whose use decreased an average of 0.15 after baseline. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly greater at 0.39 stays. The reduction was not statistically significant ($p=0.0563$), nor were there significant differences among any of the housed and unhoused demographic subgroups. Figure 109 describes the change among the overall housed group compared to those who were not housed (See Table 73 in Appendix C for the related data table).

Figure 109: Adjusted change in average number of inpatient stays after housing, Housed (n=165) v. Not Housed (n=129)



Inpatient length of stay after housing. Housed study participants who were hospitalized (n=54, 32.7%), were hospitalized 730 nights in the year prior to housing. In the year following housing, housed participants were hospitalized a total of 477 nights, a 35% decrease. Unhoused participants hospitalizations also decreased 34%. Before housing, the length of hospitalizations ranged from 0-74 nights for housed participants and 0-100 nights for unhoused participants. After housing, the length of hospitalizations ranged from 0-62 nights for housed participants and 0-96 nights for unhoused participants. After housing, the mean length of stay fell an average of 0.28 more for those housed than they did for those who weren't housed, whose use decreased an average of 1.3 nights after baseline. After controlling for any change that may have occurred since participants were housed at different times, the reduction was slightly greater at 0.53 nights; the difference was not statistically significant ($p=0.7421$). There were also no statistical differences between housed and unhoused demographic subgroups. Figure 110 describes the change among the overall housed group compared to those who were not housed (See Table 75 in Appendix C for the related data table).

Figure 110: Adjusted change in average length of hospital stays after housing, Housed (n=165) v. Not Housed (n=129)

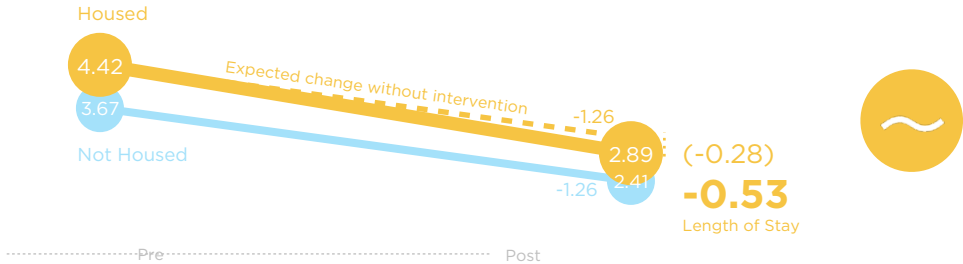
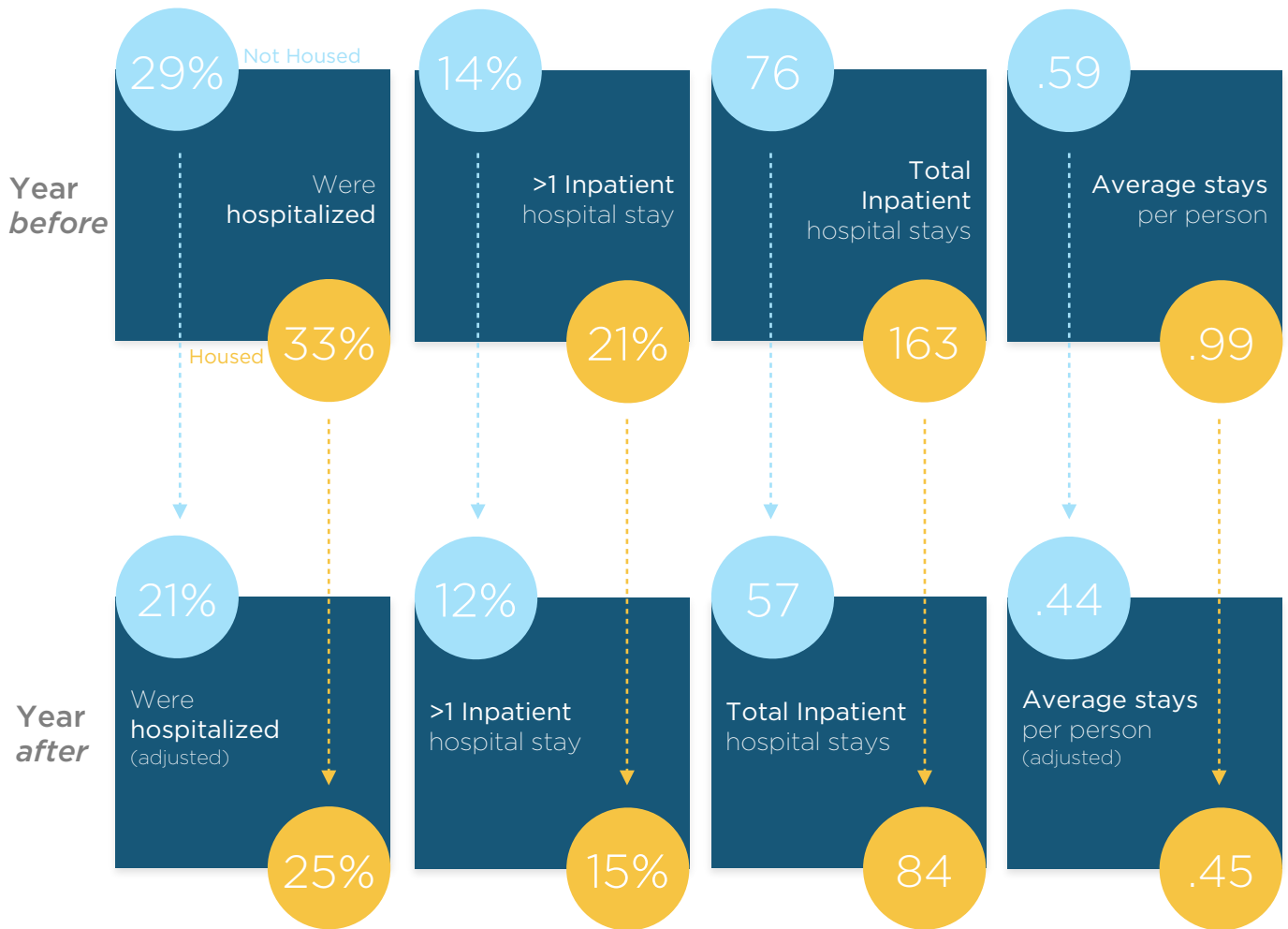


Figure 111: Summary of Changes in Inpatient Hospital use, Housed (n=165) v. Not Housed (n=129)

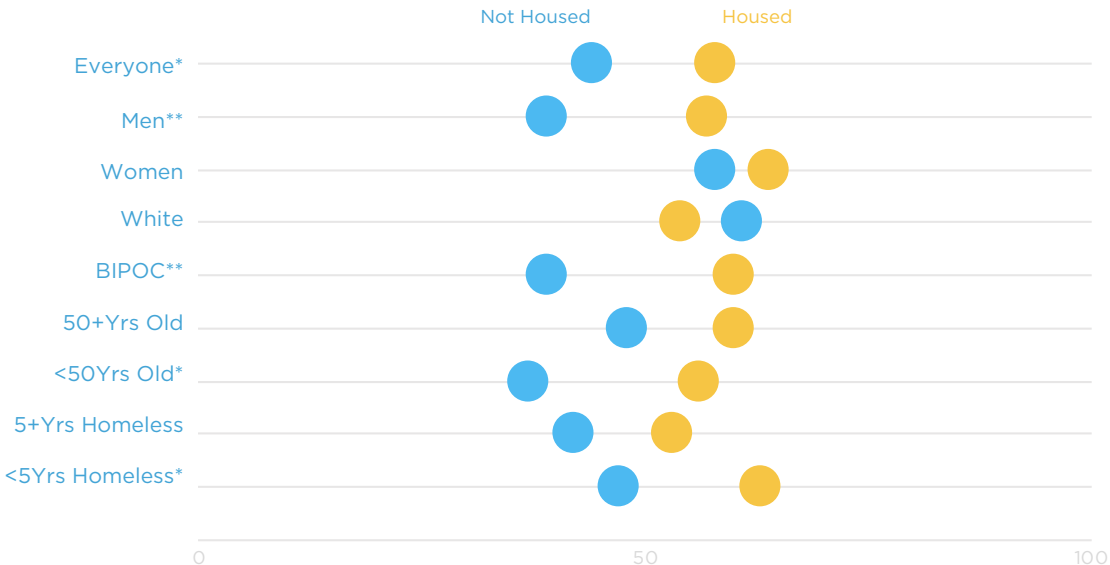


Outpatient Visits

Study participants use of outpatient services was provided by Atrium Health, Novant Health, as well as the two Federally Qualified Health Clinics in the community, CW Williams Health Clinic and Charlotte Community Health Clinic. Almost 70% (69.7%, n=230) of study participants visited one of the previously mentioned health providers for outpatient services during the study period. Because of a number of factors - transience, transportation, lack of health insurance - individuals experiencing homelessness often primarily rely on health services designed for emergencies, which are often located in urban centers and are easy to access (e.g., Lin et al., 2015; Zuccaro, Champion, Bennett, & Ying, 2018) For individuals experiencing chronic homelessness, the duration of homelessness reduces the chance of having a family physician and thus engaging in primary and preventative care (Khandor et al., 2011). And primary and preventative care reduce the use of emergency services (Enard & Ganelin, 2013). Access to housing significantly increases primary care use among formerly chronically homeless individuals, in one study increasing by 70% 6 months after housing (Parker, 2010). In HF PSH, high fidelity program (those that follow the evidence-base model closely) show the greatest increase in outpatient clinic services compared to low fidelity programs (those that don't follow evidence-based criteria as closely) (Gilmer, Stefancic, Henwood, & Ettner, 2015).

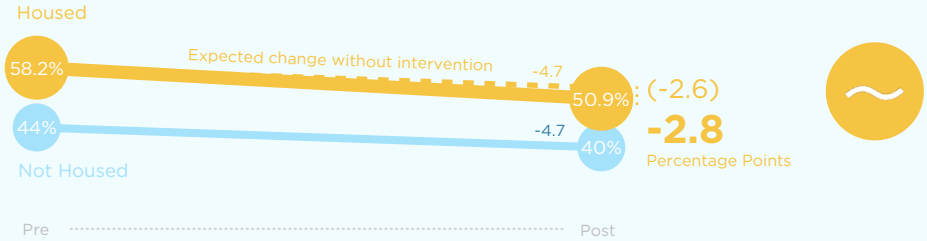
Percent of participants using outpatient services prior to baseline. Close to half of study participants used outpatient services in the year prior to housing, or if they weren't housed, in the year prior to baseline. More housed participants used outpatient services in the year prior to housing (58%, n=96) than unhoused participants in the year prior to their baseline interview (44%, n=57). The difference was statistically significant ($p < 0.05$). A greater percentage of housed male and housed BIPOC participants utilized outpatient health care services, than their unhoused counterparts and the differences were statistically significant ($p < 0.01$). In addition, the percentage of housed participants under the age of 50, and those homeless for less than 5 years exceeded that of their unhoused counterparts, also statistically significant differences ($p < 0.05$). Figure 112 describes subgroup differences at baseline. The data table is available in Appendix C- Table 76.

Figure 112: Baseline percent of participants using outpatient services, Housed (n=165) v. Not Housed (n=129)



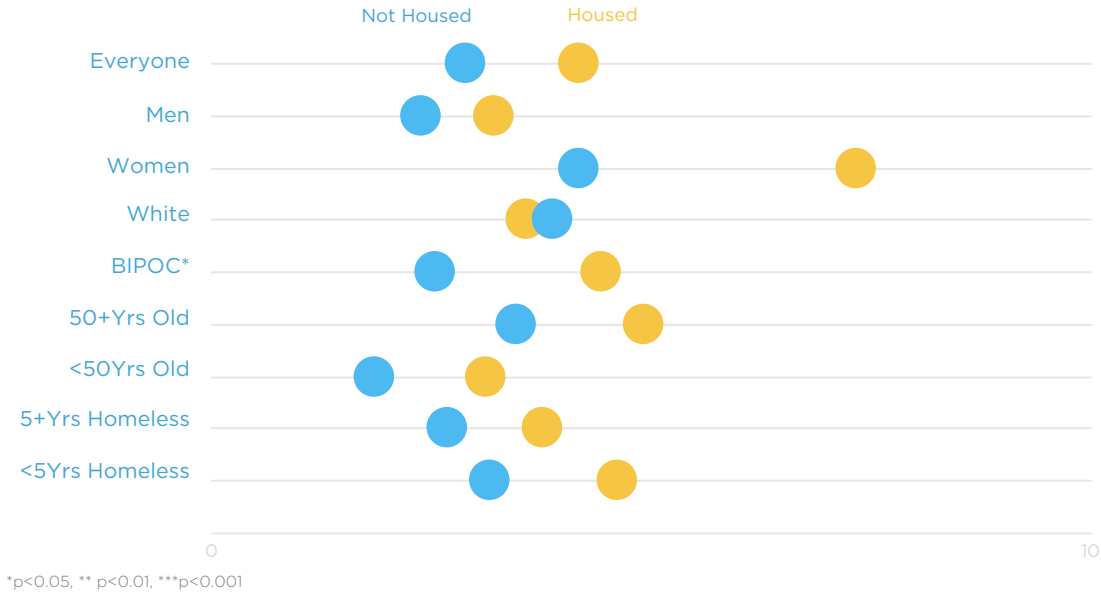
Percent using outpatient services after housing. The year after housing, use of outpatient services fell an average of 2.6 percentage points more for housed participants than it did for those who were not housed, for whom it fell an average of 4.7 percentage points. When we further adjusted for any improvement or change that may have happened because participants were housed at different times, use of outpatient services fell 2.8 percentage points more for housed participants. The difference was not statistically significant (p=0.6811). There were no significant reductions among demographic subgroups. Figure 113 describes the change among the overall housed group compared to those who were not housed (See Table 77 in Appendix C for the related data table).

Figure 113: Adjusted change in percent of participants using outpatient services after housing, Housed (n=165) v. Not Housed (n=129)
Scale 0-100%



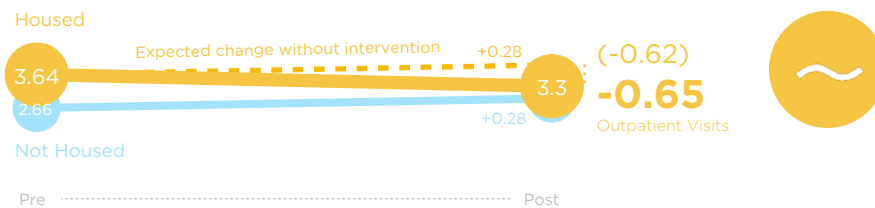
Outpatient visits before baseline. In the year before housing, housed participants used outpatient services between 0 and 40 times and unhoused participants used outpatient services between 0 and 49 times. At baseline, housed study participants used outpatient services an average of 3.6 times (SD=6.56) compared to unhoused participants who used services an average of 2.7 times (SD=5.72), and the difference was not statistically different, p=0.1784. Among demographic groups, only the difference between BIPOC housed and unhoused participants were statistically significant (p<.05). Figure 114 describes subgroup differences at baseline. The data table is available in Appendix C- Table 78.

Figure 114: Average outpatient visits before baseline, Housed (n=165) v. Not Housed (n=129)



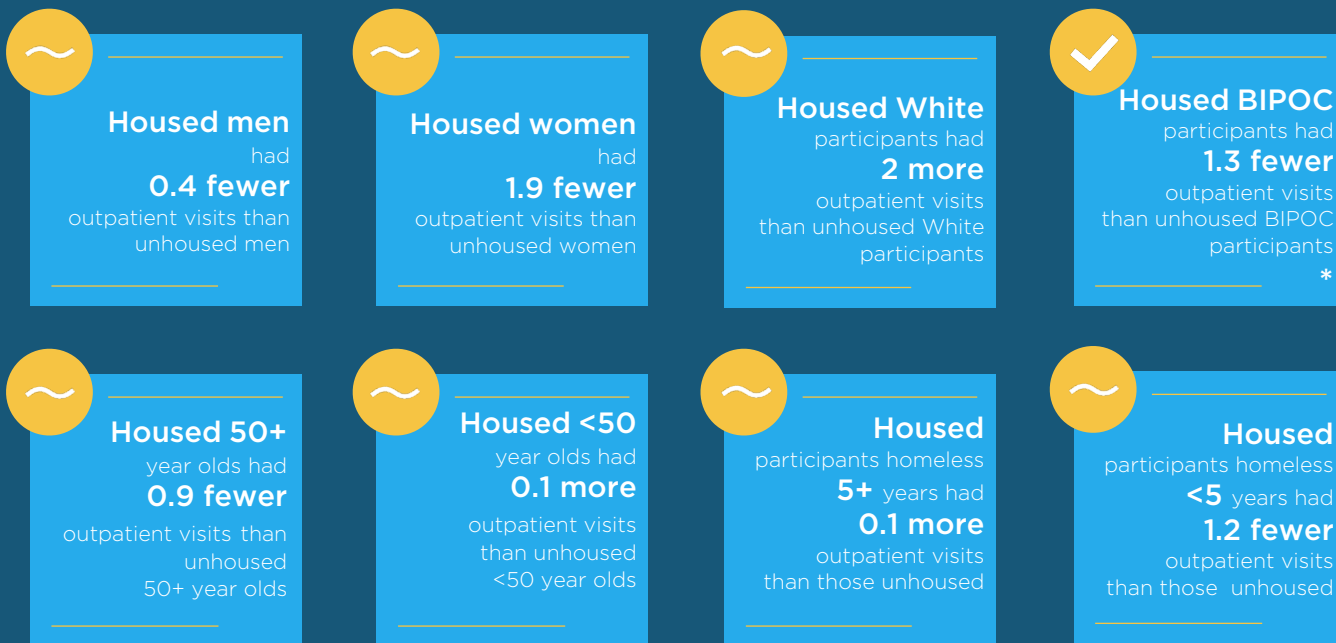
Outpatient visits after housing. Housed study participants used outpatient services 601 times in the year prior to housing. In the year following housing, housed study participants used outpatient services total of 554 times, a 7.8% decrease. Total visits by unhoused participants increased 10.5%. After housing, the number of visits fell an average of 0.62 visits more among those housed than among those who weren't housed, whose use increased 0.28 times after baseline. After controlling for any change that may have occurred since participants were housed at different times, the change was slightly greater at 0.65 visits. The change was not statistically significant (p=0.2015). Figure 115 describes the change among the overall housed group compared to those who were not housed (See Table 79 in Appendix C for the related data table).

Figure 115: Adjusted change in average number of outpatient visits after housing, Housed (n=165) v. Not Housed (n=129)



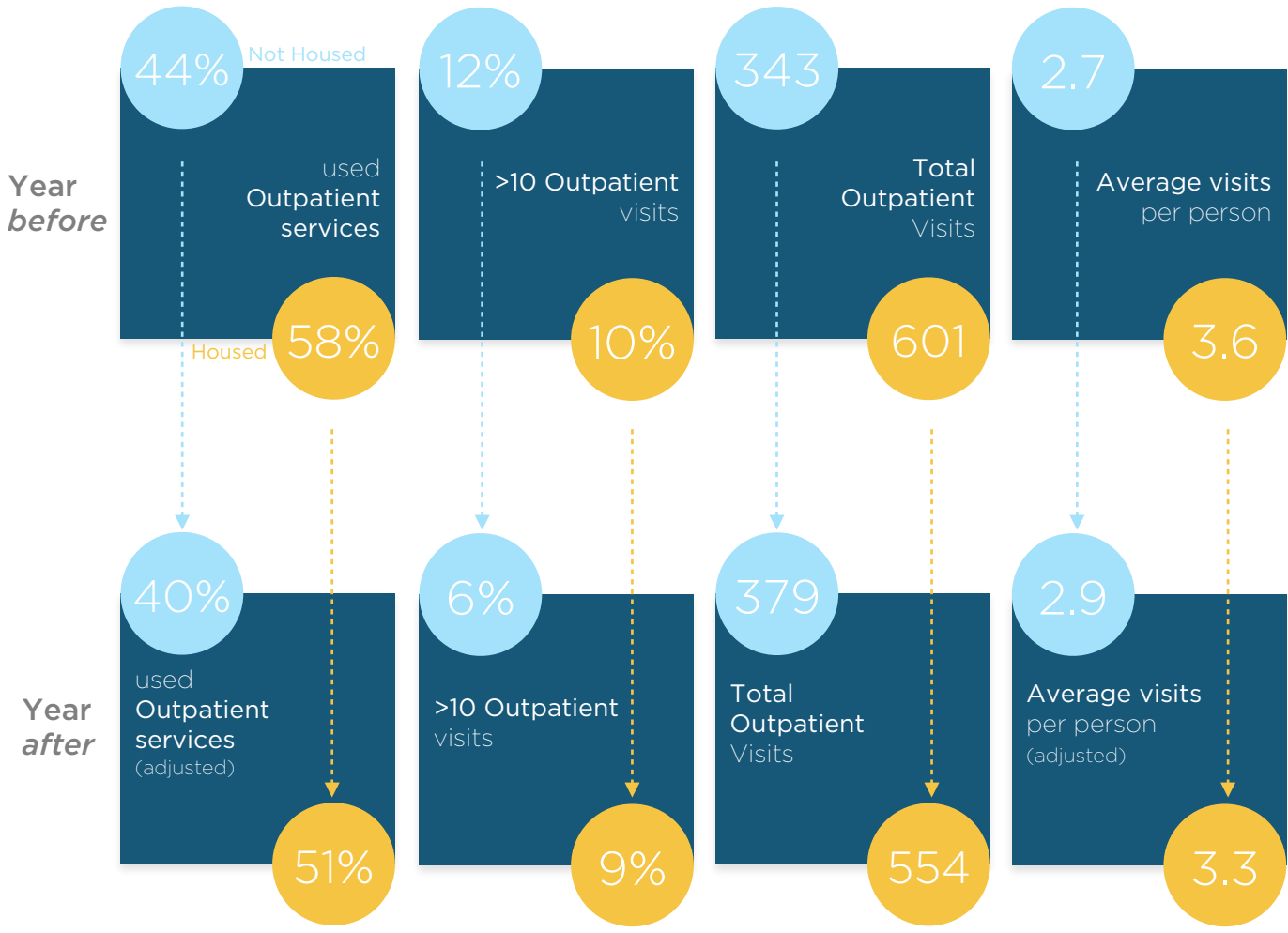
Among demographic subgroups, once housed, the average number of outpatient visits decreased slightly for all subgroups except White housed participants, those who had been homeless for over 5 years, and those under 50 years old. The increases in these three demographic subgroups did not statistically significantly differ from the changes observed among their unhoused counterparts. See Figure 116 below and Table 79 in Appendix C for the related data table.

Figure 116: Average adjusted change in housed participants outpatient visits by demographic groups (n=165)



*p<0.05, ** p<0.01, ***p<0.001

Figure 117: Summary of Changes in Outpatient Service use, Housed (n=165) v. Not Housed (n=129)

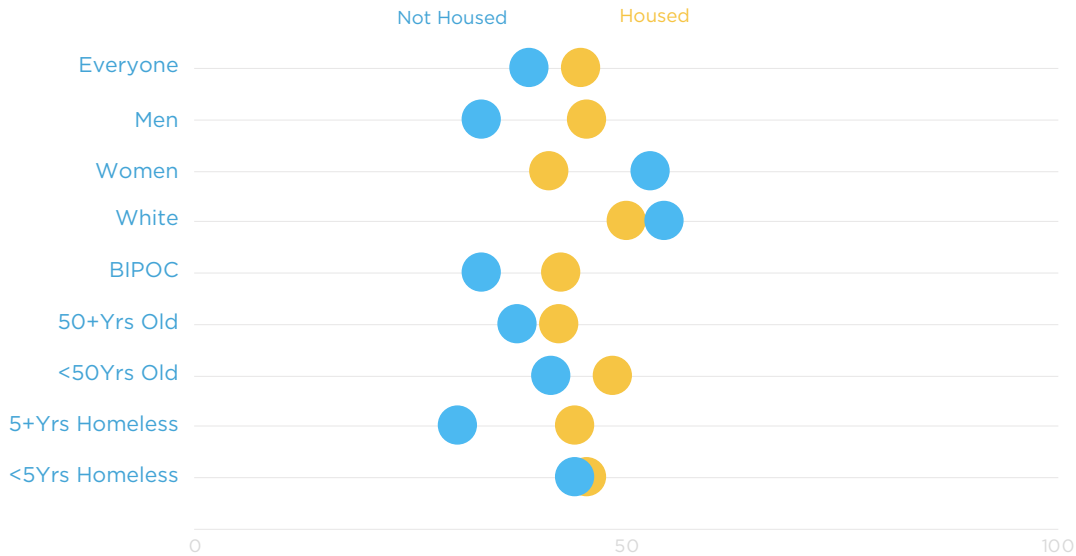


Mecklenburg County Medic

Data on study participants use of ambulance transportation was provided by Mecklenburg County Medic. Slightly over half (51.7%, n = 152) of the participants used Medic at least once during the study period and approximately one-third (35%, n=810) of all participant’s ED visits began with the use of emergency transport. Individuals experiencing homelessness are more likely to experience health-related emergencies that require the use of ambulance transportation than do individuals in the general U.S. population (Durant & Fahimi, 2012; Ku et al., 2010; Oates, Tadros, & Davis, 2009). In a nationally representative dataset, Ku and colleagues (2010) found that the estimated odds of being transported to the emergency department by ambulance is 76% greater among homeless individuals than among the general U.S. population. Receipt of permanent supportive housing decreases ambulance services use from 60% to 77% among formerly homeless individuals (Reaser & Mauerman, 2015; Mondello, Gass, McLaughlin, & Shore, 2007).

Percent of participants using Medic services prior to baseline. Nearly a quarter (24.8%, n=73) of study participants used Medic services in the year prior to housing, or if they weren’t housed, in the year prior to baseline. More housed participants used Medic services in the year prior to housing 45%, n=74) than unhoused participants in the year prior to their baseline interview (39%, n=27). The difference was not statistically significant (p=0.2941). There were no statistically significant changes in use within demographic groups. Figure 118 describes subgroup differences at baseline. The data table is available in Appendix C- Table 80.

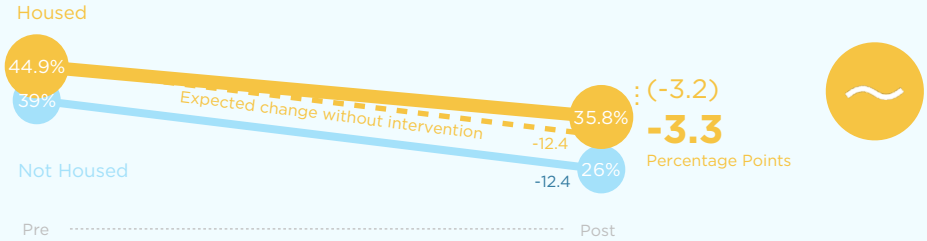
Figure 118: Baseline percent of participants using Medic, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

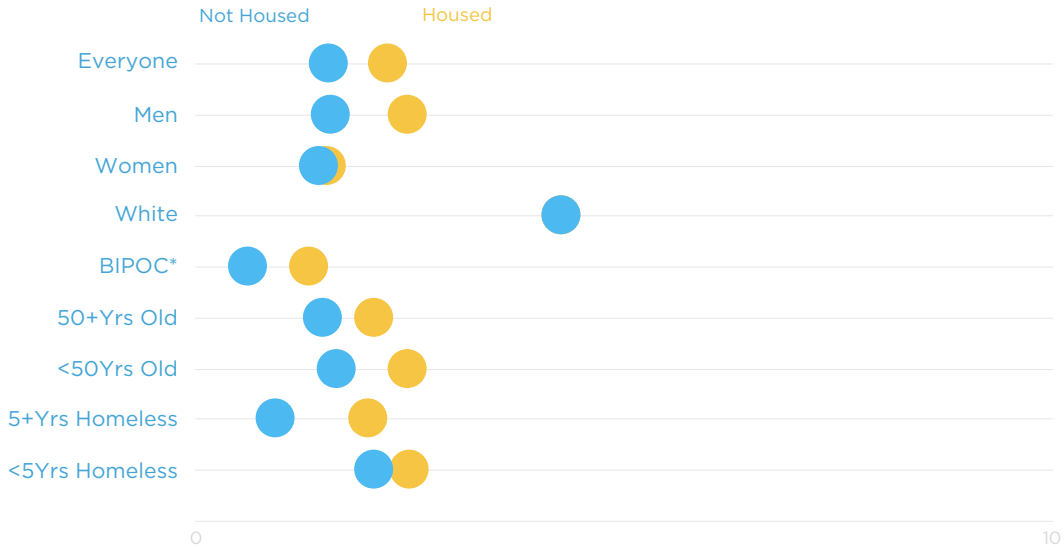
Percent using Medic after housing. The year after housing, use of Medic services fell an average of 12.4 percentage points for participants who were not housed, 3.3 percentage points more than those who were housed, for whom it fell an average of 12.4 percentage points. When we further adjusted for any improvement or change that may have happened because participants were housed at different times, use of Medic services fell 3.2 percentage points more for unhoused participants. The difference was not statistically significant (p=0.6134). There were no significant reductions among demographic subgroups. Figure 119 describes the change among the overall housed group compared to those who were not housed (See Table 81 in Appendix C for the related data table).

Figure 119: Adjusted change in percent of participants using Medic after housing, Housed (n=165) v. Not Housed (n=129) Scale 0-100%



Medic Transports before baseline. In the year before housing, housed participants used Medic emergency transport services between 0 and 37 times and unhoused participants used outpatient services between 0 and 35 times. At baseline, housed study participants used Medic services an average of 2.3 times (SD=5.35) compared to unhoused participants who used services an average of 1.5 times (SD=4.34), and the difference was not statistically different, p=0.2129. Among demographic groups, only the difference between BIPOC housed and unhoused participants were statistically significant (p<.05). Figure 120 describes subgroup differences at baseline. The data table is available in Appendix C- Table 82.

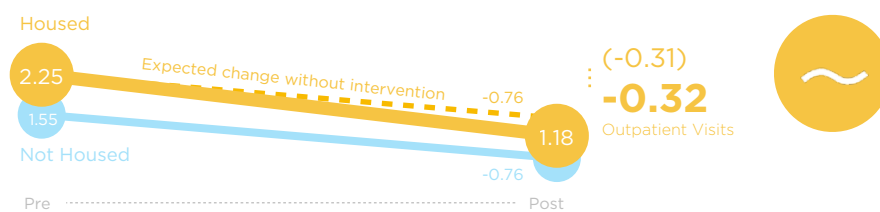
Figure 120: Average Medic transports before baseline, Housed (n=165) v. Not Housed (n=129)



*p<0.05, ** p<0.01, ***p<0.001

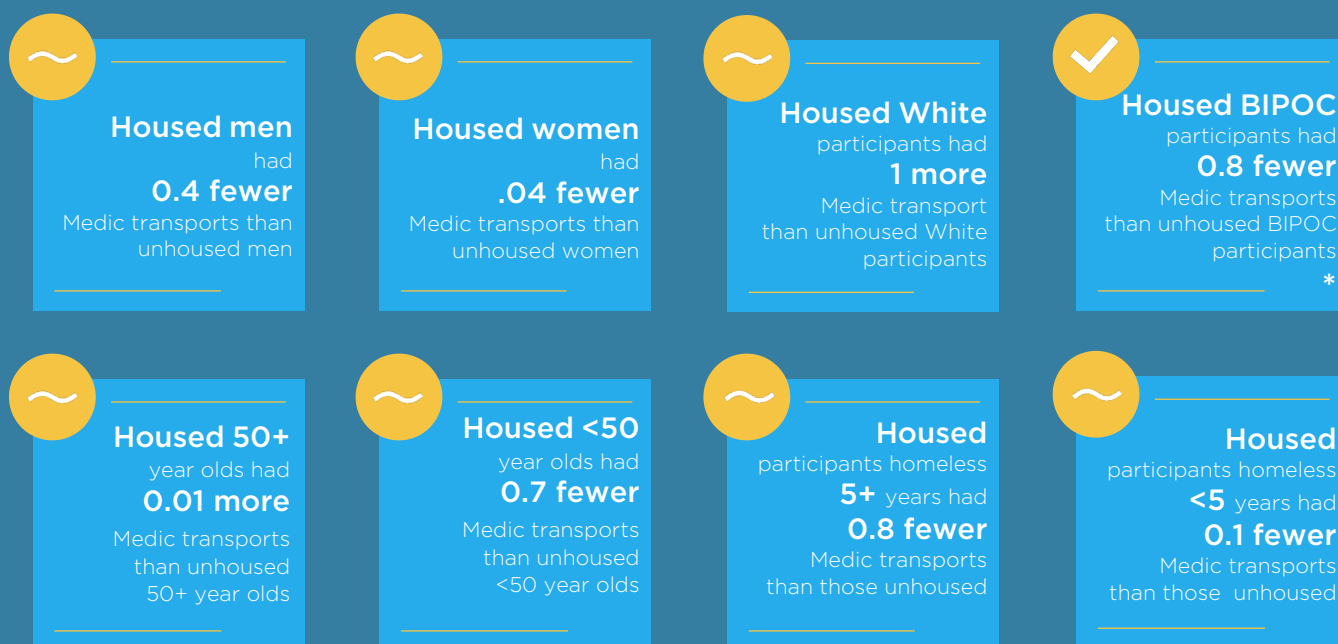
Medic Transports after housing. Housed study participants used outpatient services 601 times in the year prior to housing. In the year following housing, housed study participants used outpatient services total of 554 times, a 7.8% decrease. Total visits by unhoused participants increased 10.5%. After housing, the number of visits fell an average of 0.62 visits more among those housed than among those who weren't housed, whose use increased 0.28 times after baseline. After controlling for any change that may have occurred since participants were housed at different times, the change was slightly greater at 0.65 visits. The change was not statistically significant (p=0.2015). Figure 121 describes the change among the overall housed group compared to those who were not housed (See Table 84 in Appendix C for the related data table).

Figure 121: Adjusted change in average number of Medic transports after housing, Housed (n=165) v. Not Housed (n=129)



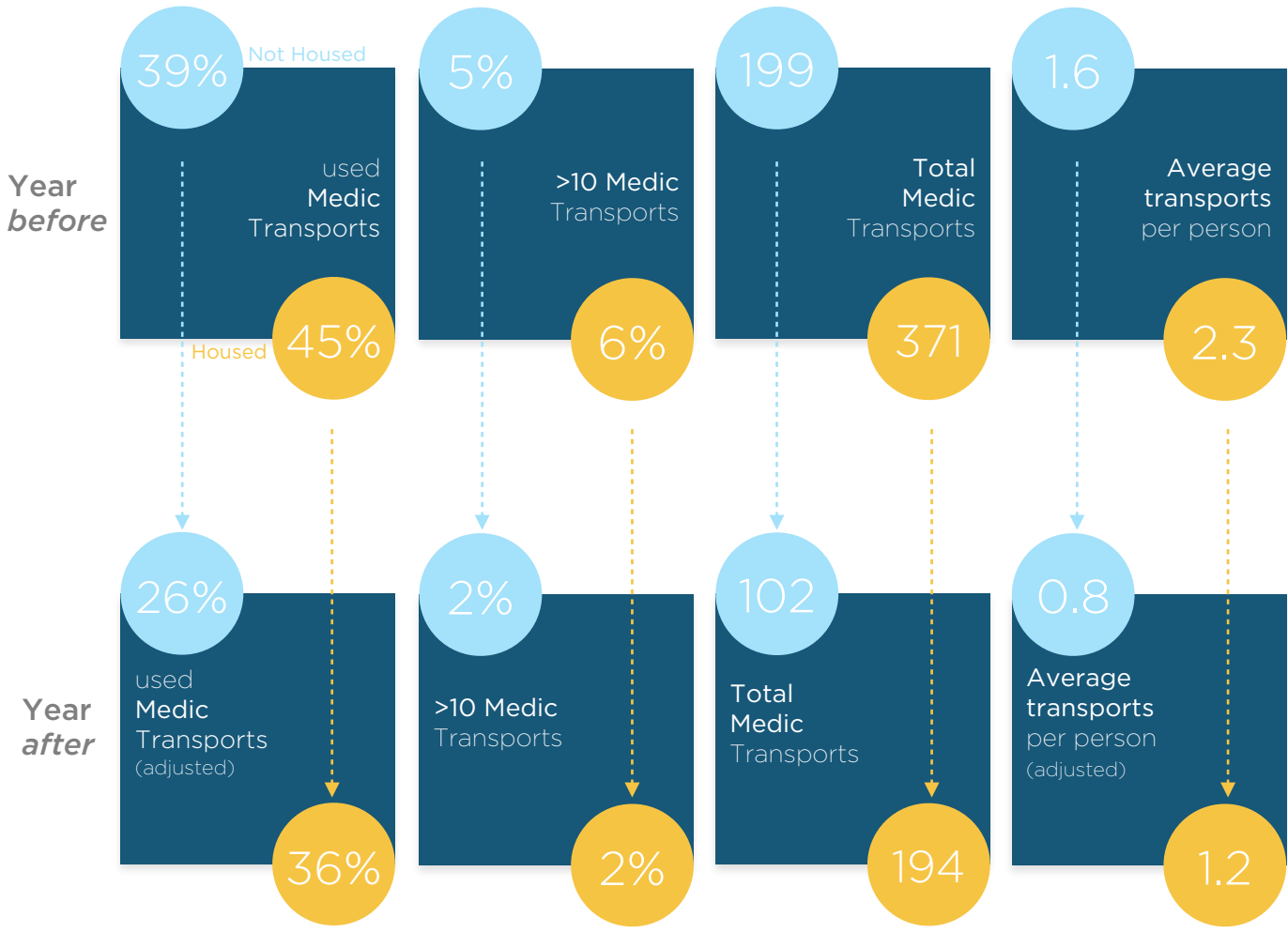
Among demographic subgroups, once housed, the average number of Medic transports decreased slightly for all subgroups except White housed participants and those over 50 years old. The increases in these two demographic subgroups did not statistically significantly differ from the changes observed among their unhoused counterparts. The decrease among housed BIPOC participants compared to unhoused BIPOC participants was statistically significant. See Figure 122 below and Table 84 in Appendix C for the related data table.

Figure 122: Average adjusted change in housed participants Medic transports by demographic groups (n=165)



*p<0.05, ** p<0.01, ***p<0.001

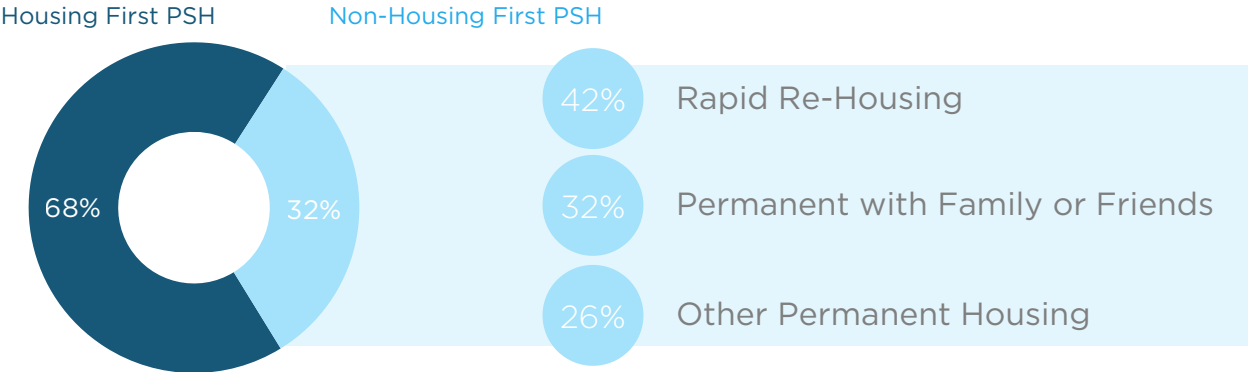
Figure 123: Summary of Changes in Medic transport use, Housed (n=165) v. Not Housed (n=129)



Housing First PSH

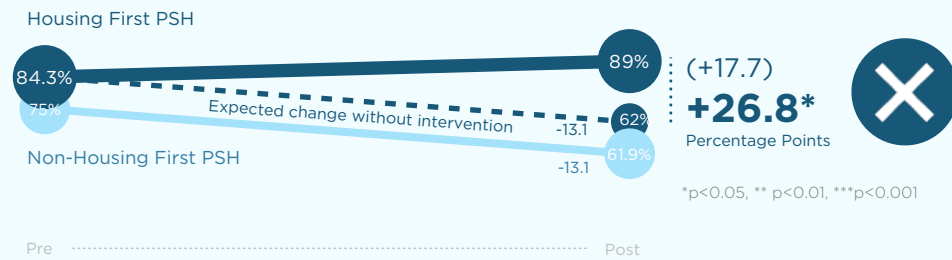
The Housing First Charlotte-Mecklenburg outcomes evaluation examined the impact of permanent housing interventions on individuals experiencing chronic homelessness. As noted previously, the HFCM effort, in practice, broadly defined housing first as a low-barrier permanent housing approach with some degree of supportive services that might range from housing services only (such as securing a permanent housing placement with families or friends) to extensive wrap-around supportive services. This is a much broader definition of a housing first solution than is typically used by researchers and advocates who focus on housing first permanent supportive housing (PSH), particularly for individuals experiencing chronic homeless. This section of the report focuses on how improvements differed between those in HF PSH and those in non-HF PSH settings. For a more in-depth discussion of housing first permanent supportive housing, see the HFCM Final Process Evaluation Report.

Figure 124: Percentage of HF PSH and non-HF PSH participants, HF PSH (n=112) v. Non-HF PSH (n=53)



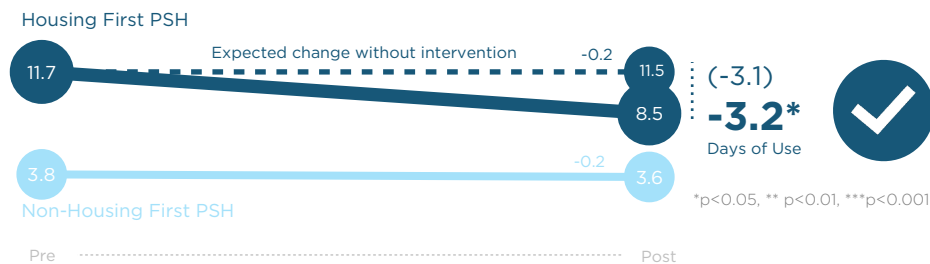
Percent with low and very low food security, HF PSH vs. Non-HF PSH. When we compared participants in Housing First Permanent Supportive Housing (HF PSH) to those in other housing settings, more HF PSH participants experienced either low or very low food insecurity than did participants in non-HF PSH settings. Once housed, the percentage of participants with low and very low food security increased 17.7 percentage points more for those housed in HF-PSH than it did for those housed in non-HF PSH settings, while the percentage of participants experiencing food insecurity in non-HF PSH settings actually decreased 13.1 percentage points. When we further controlled for any time effects associated with different housing dates, rates of food insecurity increased 26.8 percentage points, or a 32% increase for individuals in HF PSH compared to those in non-HF PSH; the change was statistically significant ($p < .05$). When we looked only at those experiencing very low food security, rates for participants in HF PSH increased at the same rate (27.1 percentage points; not shown). Figure 125 below describes the change among the overall HF-PSH group compared to those who were not housed through HF-PSH (See Table 84 in Appendix C for the related data table).

Figure 125: Adjusted change in percent with low and very low food security, HF PSH (n=112) v. Non-HF PSH (n=53)



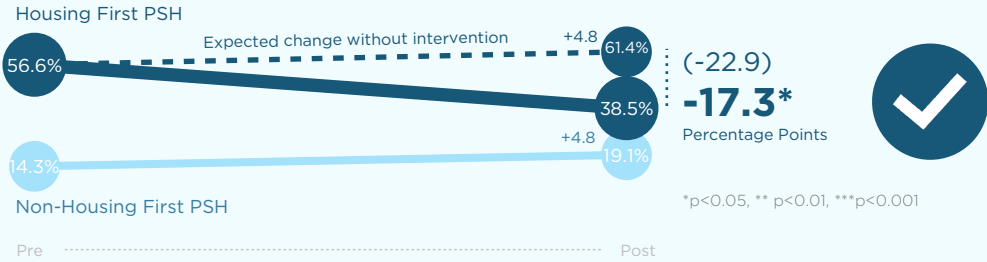
Days of alcohol use after housing, HF PSH vs. Non-HF PSH. When we compared participants in HF PSH to those in non-HF PSH settings, HF PSH participants used alcohol an average of 3.1 fewer days in the last 30 days than did participants in non-HF PSH. After further controlling for any improvement or change that may have happened since participants were housed at different times, the improvement was similar (3.2) and it was statistically significant ($p < .05$). Figure 126 below describes the change among the overall HF-PSH group compared to those who were not housed through HF-PSH (See Table 85 in Appendix C for the related data table).

Figure 126: Adjusted change in days participants used alcohol after housing, HF PSH (n=112) v. Non-HF PSH (n=53)



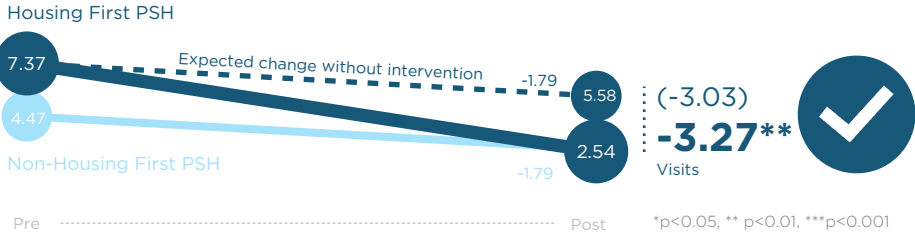
Percent of any drug use after housing, HF PSH vs. Non-HF PSH. When we compared participants in HF PSH to those in non-HF PSH settings, the percent of HF PSH participants who used any drugs in the last 30 days fell 22.9 percentage points more than than did participants in other housing settings, where the percentage of participants using drugs increased 4.8 percentage points. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly smaller, 17.3 percentage points, or a 31% reduction in the number of housed participants using any drug in the last 30 days beyond that of the non-HF PSH group. The reduction was statistically significant ($p<.05$). Figure 127 below describes the change among the overall HF-PSH group compared to those who were not housed through HF-PSH (See Table 86 in Appendix C for the related data table).

Figure 127: Adjusted change in percent of participants using drugs after housing, HF PSH (n=112) v. Non-HF PSH (n=53)



Emergency department visits after housing, HF PSH vs. Non-HF PSH. Receiving housing reduced emergency department visits for both participants placed in HF PSH and non-HF PSH settings. When we compared participants in HF PSH to those in non-HF PSH settings after housing, HF PSH participants visited the ED 3 fewer times than those who lived in non-HF PSH housing. When we further controlled for any improvement or change that may have happened because participants were housed at different times, individuals in HF PSH visited the emergency department 3.3 fewer times than those in non-HF PSH settings and the change was statistically significant ($p<0.01$). Figure 128 describes the change among the participants housed in HF PSH and those housed in other housing settings (See Table 88 in Appendix C for the related data table).

Figure 128: Adjusted change in days emergency department visits after housing, HF PSH (n=112) v. Non-HF PSH (n=53)



PSH Cost Analysis

The Housing First Charlotte-Mecklenburg outcomes evaluation and utilization study included an examination of the costs associated with Housing first permanent supportive housing (HF PSH), and any potential cost offsets in service utilization after housing. The cost analysis examines those housed in HF PSH compared to those who were not housed during the study period but continued using usual services. Specifically, this section examines the average cost of the use of HF PSH in five local programs; emergency shelter; arrests and jail stays; financial assistance; health department services; ambulance transports; and emergency, inpatient, and outpatient health services for participants who were not housed and received services as usual (n=129) and those who were housed in HF PSH for at least 12 months (n=112). A detailed description of the sample is available in Table 89 in Appendix C.

In addition, the research team examined the economic value of the improvements experienced in perceived health and mental health. For study participants who completed the SF-12 in the 12 months after they were housed in HF PSH (n=70) or in the 12 months after their baseline study if they were not housed (n=47), we examined the average value of HF PSH improvements in terms of quality adjusted life years. This analysis goes beyond typical HF PSH cost analyses based solely on service utilization and monetizes improvements in perceived health and mental health. Future research will combine the utilization and QALY analyses more formally.

Evidence on Cost Savings and Permanent Supportive Housing. Potential cost savings have provided an important rationale for service providers, funders, and system design stakeholders to shift from traditional homeless services to housing-based services. Most early research in localities across the U.S. suggested substantial cost savings across emergency shelter, emergency health, and criminal justice services when individuals experiencing chronic homelessness were housed in permanent supportive housing (see Culhane et al., 2008). Before evidence of the effectiveness of HF PSH had accumulated, these studies helped to shift thinking from managing the resource-intensive problem of chronic homelessness to ending it in order to free resources to better address homelessness among other groups (Culhane, 2008).

Later and more extensive research has found, however, more modest cost savings or costs that are slightly less than or similar to savings (Culhane et al., 2002; Ly & Latimer, 2015). This difference in findings is likely due to differences in research methodology. Research that finds more modest or negligible cost savings include a comparison or control group, which take into account improvements that would have occurred over time among individuals who were not housed. These more rigorous studies are expensive and time-intensive, but yield more comprehensive and better contextualized results (Culhane, 2008; Ly & Latimer, 2015). Accumulated evidence from these later studies continue to show reductions in the use and costs associated with emergency shelter (Culhane et al., 2002; Rosenheck et al., 2003; Stergiopoulos et al, 2015) and emergency health services (Basu et al, 2012; Larimer et al., 2009), but mixed results concerning arrests and incarceration (Basu et al, 2012; Culhane et al., 2002; Gilmer et al., 2009; Rosenheck et al., 2003) and inpatient and outpatient health services (Basu et al., 2012; Culhane et al., 2002; Larimer et al., 2009; Rosenheck et al., 2003).

Cost Analysis Methods

The primary research question addressed in this section of the report is **how much did a year of permanent supportive housing cost through the HFCM initiative, after accounting for changes in costs related to other service utilization?** The HFCM Cost analysis examines the cost of local HF PSH and builds from the utilization study discussed above, focusing on those who were housed in HF PSH and those who were not housed, but received usual services like shelter, food, and clothing. This section briefly discusses the cost analysis methods used. A more extensive discussion of the methods is available in Appendix B and analysis methods are also discussed throughout the findings section.

Data Collection. The cost analysis used data from the utilization study and focused on individuals who had been housed in HF PSH (n=112) compared to those who were not housed (n=129). Housing and housing-related costs are based on an analysis of data collected from each of the five participating HF PSH programs - Shelter Plus care (SPC), Roof Above-Scattered Site, Roof Above-Moore Place, Carolina Cares Partnership, and Supportive Housing Communities. The team collected cost data from a survey of housing providers based on the cost survey used in the HUD Family Options Study and likewise sought to capture all costs including capital costs and costs of donated or in-kind goods which are integral to the operations of the program. Where possible, the team used utilization data to impute the cost of other services. Where local costs were not available, costs were derived from the literature.

Data Analysis. For analysis of service utilization costs, the research team examined differences between the intervention and comparison groups over time, using the Difference-in-Difference estimation technique used also in the utilization study. As discussed in the methods section, Difference-in-Difference estimates the difference in the change among those who were housed in PSH adjusted for the change observed in the comparison group. Where possible, Difference-in-Difference estimation was used to determine differences in actual costs incurred by the participants for the specific service during the study period. If actual costs were not available, the study used Difference-in-Difference utilization changes for specific services and then multiplied that change by the per unit estimate for the service.

Limitations. The limitations discussed at the beginning of the report also apply for the cost analysis, particularly since the cost analysis is built from the utilization study sample. Particularly, the accuracy of any cost analysis requires a comprehensive understanding of where and how extensively services were used. Cardinal Innovations Healthcare is the local management entity that reimburses mental health and substance use services for the population and is a data partner in HFCM research, however analysis of their data could not be included in this report. This suggests caution in assuming the cost offsets identified are broadly representative of community services or complete. In addition, a more comprehensive cost-benefit analyses would require the construction of a sample for whom we have both outcomes survey data and utilization data. As noted in the methods section, the samples for the outcomes and utilization differ slightly based on who completed follow up surveys and whether follow up periods fell within the larger study period (i.e., some people were housed within a few months of the study ending and we do not have a full 6 or 12 month follow up period to track service utilization). The research team provides initial analysis of the monetary benefit of quality of life improvements based only on those who had sufficient survey data, but ideally, the analysis to more definitively identify benefits relative to costs would require a new combined sample. Subsequent research will address these additional analytical opportunities and include Cardinal Innovations Healthcare data.

Housing Costs

The average weighted annual cost of permanent supportive housing across the five HF PSH programs, including annual and one-time move-in costs is \$17,256. Total annual costs range between \$11,189 and \$18,224 and include rental subsidies, supportive services, and indirect costs associated with supportive services. The annual cost of HF PSH is based on an analysis of data collected from surveys and interviews with each of the five participating HF PSH programs - Mecklenburg County Shelter Plus Care, Roof Above-Scattered Site, Roof Above-Moore Place, Carolina CARES Partnership, and Supportive Housing Communities. The average cost is weighted by the number of study participants from each of the programs. HUD VASH didn't participate in the cost study so the average cost of all programs was used for the HUD VASH participants. Carolina CARES Partnership and HUD VASH were combined in Figure 131 below to protect the identity of study participants. Community Link participated early in the HFCM effort, but because its HF PSH program ended, none of the final study participants were housed by the program. One-time costs include the cost of furniture, financial assistance, & Welcome Home kits, totalling on average \$960 and then adjusted for the average length of time across national project-based rental housing (2.6 years; US HUD, 2017).

Figure 129: Average Weighted Annual Cost of Permanent Supportive Housing

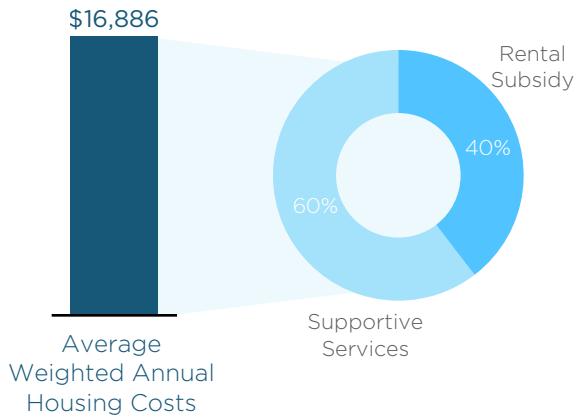
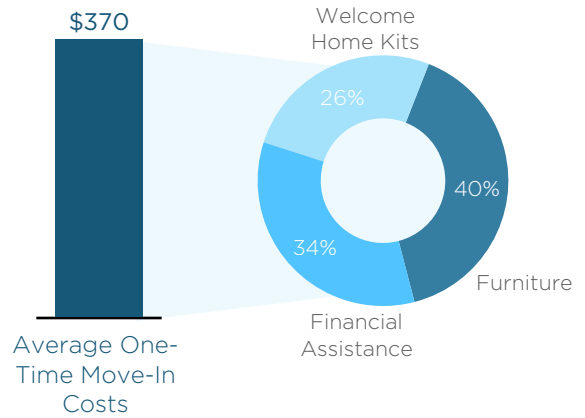


Figure 130: Average Adjusted One-Time Costs for Permanent Supportive Housing



\$17,256

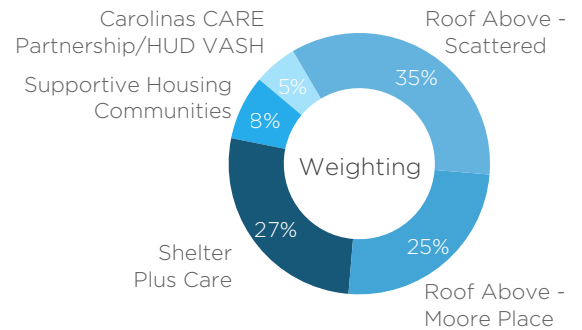
Average Annual Weighted Cost

**Cost of Housing First
Permanent Supportive Housing**

\$47.28

Average Daily Weighted Cost

Figure 131: Study Participant Weighting by program, n=112



Costs of Community Services

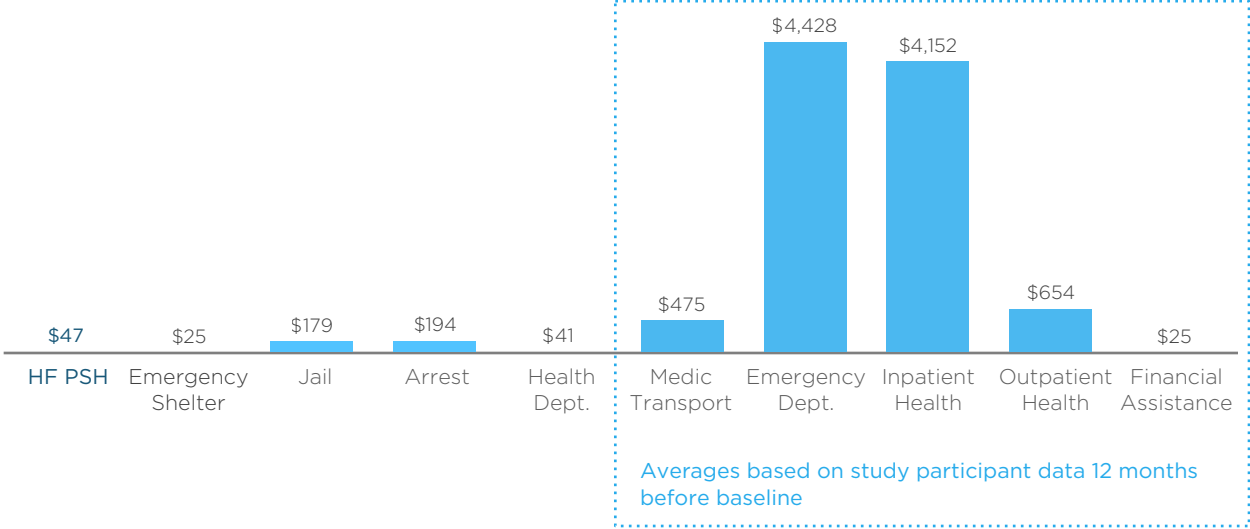
The costs of community services were determined in three ways. First, if the per person charges were available for study participants, these data were used in the analysis. Actual charges were available for Medic, emergency departments, inpatient health visits, outpatient health visits, and ongoing financial assistance from Crisis Assistance Ministry. Similarly, based on the study participant visit information for the Mecklenburg County Health Department, an average was determined using utilization data and a published fee schedule. For health services by local hospitals, charges were adjusted by a cost to charge ratio of 23.7% for Atrium and 27.5% for Novant (Centers for Medicare & Medicaid Services, 2015), weighted by the number of participants visiting Atrium (85.2%) and Novant (14.8%), for a weighted average cost to charge ratio of 24.3%. Second, emergency shelter costs were based on reported program costs by the Salvation Army Center of Hope and Roof Above's mens shelters and then weighted by the number of women and men among study participants. Finally, the cost of jail nights and arrests were determined by the literature (Henrichson, Rinaldi, & Delany, 2015). Table 4 below summarizes how unit costs were derived.

Table 4: Methods for Determining Unit Costs

Data Collection Method	Data source	Calculation
Shelter Night	Estimates from Salvation Army Center of Hope and Roof Above (Men's Shelter)	Weighted by female (23%) and male (77%) participants; Cost of Roof Above (\$26.88) and SACOH (\$20.00).
Incarceration (Jail) Night	Literature (Henrichson et al., 2015).	\$166.04 (2014) inflated to 2018 value.
Arrests	Literature (Pierce County, WA calculation cited in Henrichson & Galgano, 2013)	\$165 (2009) inflated to 2018 value; Value of \$55 per an officer hour, including benefits & equipment, multiplied by 3 hours for minor arrests.
Health Department Visit	Administrative Data & Fee Schedule	Average cost of a visit by participants housed in PSH using the department 2016 fee schedule.
Medic Encounter	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost.
Emergency Room Visit	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Inpatient Visit	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Outpatient Visit	Administrative Data (Hospitals only)	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Financial Assistance (not including one-time costs)	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost.

Unit Costs. The average unit costs determined by the above methods range from \$25.30 for a night of shelter to \$4,428 for an average emergency department visit. Figure 132 describes the average cost of community services per unit (for example, shelter night, ED visit, or Medic encounter). Note that the actual per person costs were used in the analysis, rather than the average costs in the figure below and the amount for hospital services has been adjusted by the cost to charge ratio.

Figure 132: Average Cost of HF PSH and Community Services Per Unit (Night, Visit, or Encounter)

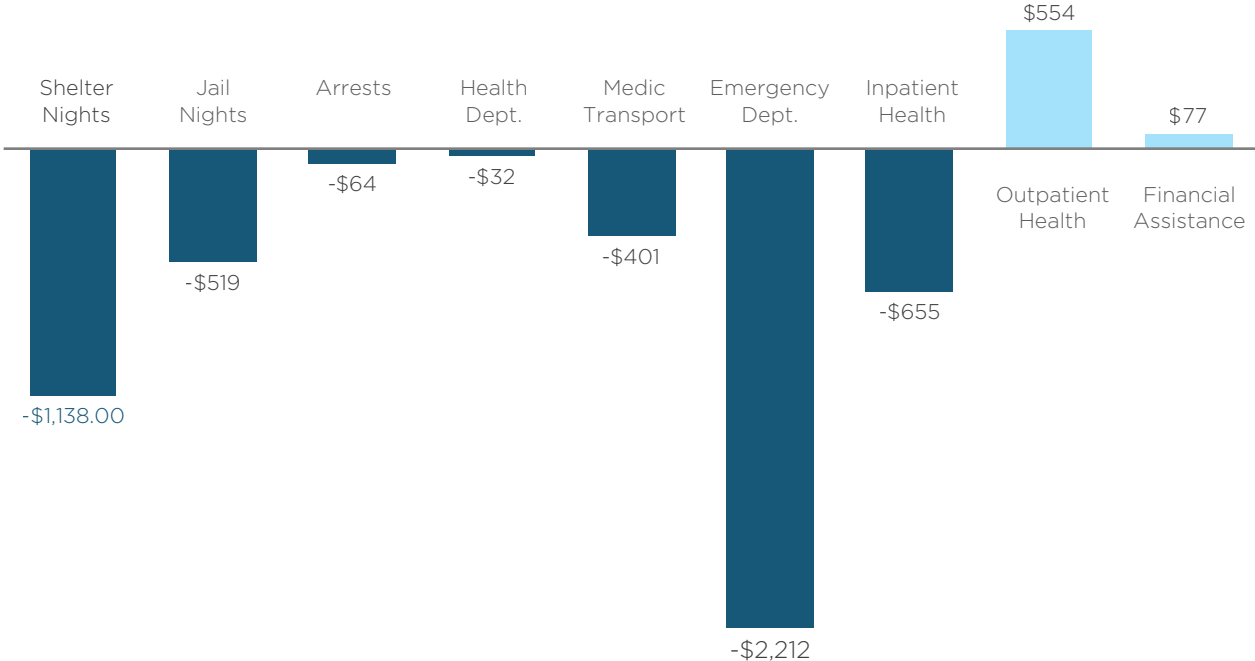


Change in Costs after PSH

The research team used Difference-in-Difference analyses in two ways to understand the annual cost of community services after HF PSH. First, for those costs that were consistent across units due to nature of the service (night in shelter, jail) or nature of estimation (arrests), the research team used the adjusted change reported in the utilization section and multiplied it by the unit cost. For those costs where we had specific charge data that varied by unit according to the specific services provided (health encounters), we conducted Difference-in-Difference estimations using the charge per person data. Hospital data was further adjusted by a hospital system specific cost to charge ratio to account for the approximate differences between hospital charges and actual costs (Bai & Anderson, 2015).

In the year after housing in HF PSH, there were cost reductions in all services beyond any reductions among those who were not housed but received usual services, except outpatient health services and ongoing financial assistance from Crisis Assistance Ministry. An increase in outpatient health services costs after housing as has been indicated in other studies of HF PSH (e.g., Basu et al., 2012). Figure 133 summarizes the adjusted difference in changes in costs between those who were housed in HF PSH for 12 months and those who were not housed, but received services as usual.

Figure 133: Annualized Adjusted Average Change in Cost of Community Services Per Person after HF PSH



For every **\$10** invested in **Housing First Permanent Supportive Housing**, there is a **\$2.54 reduction** in the costs of other community services.

Cost Analysis. When totaled, the costs for community services for study participants who were housed in HF PSH was, on average, \$4,390 less than for those who were not housed (including the costs of outpatient services and financial assistance that together increased an average of \$631 in the 12 months following housing). Once the reduction in the cost of community services is accounted for, the annual average cost of HF PSH was \$12,866. Meaning, for every \$10 invested in HF PSH, there is a \$2.54 reduction in the costs of other community services, or a 25% cost offset.



Analyses suggest that costs for many community services including emergency shelter, criminal justice services, health department services, ambulance services, and emergency and inpatient health services are reduced more for individuals housed in HF PSH than for those who are not housed. While these cost reductions are meaningful, they are not as extensive as local and national studies may suggest, but they do hold important insights into understanding the scaling and implementation of an effective program like HF PSH.

The Moore Place study (Thomas et al., 2015) found extensive reductions in emergency and inpatient hospital billing for a sample of some of the first individuals housed in one of Charlotte's first HF PSH programs. On average, ED billing alone fell an average of \$29,070 in the year after individuals were housed and there were additional reductions in inpatient hospitalizations and jail stays. The HFCM cost analysis differs from the earlier study of costs associated with Moore Place in several important ways. First, the HFCM study design included a comparison group, while the Moore Place Study did not. Adding comparison and control groups to a study

design increases the expense of a study, but it also allows for a more precise understanding of how an intervention works over and above other existing and available services. Nationally, when comparison groups are included in cost analyses of HF PSH, savings have been more modest or costs have increased (e.g., Ly & Latimer, 2015). Individuals who participated in the HFCM study were recruited to the study at the same time they sought services or were added to the By-Name list. Most individuals who were not housed also accessed shelter and other supportive services at the time, which may have led to a reduction in some costs. For example, individuals who had multiple hospital visits may have accessed services regardless of their housing status as a part of Atrium Health's Community Care Bridge program to address and reduce frequent hospital utilization. As noted in the utilization discussion, this program may be responsible for reductions in emergency utilization for all frequent users, regardless of HFCM housing status. The difference-in-difference technique allows us to measure the reduction in utilization for the housed group that is above and beyond any reduction from other programs, including Atrium Health's Community Care Bridge program.

Second, the HFCM study looked across multiple sectors including an analysis of HF PSH costs, a more extensive examination of health services and criminal justice services, and financial assistance, providing a more comprehensive examination of how HF PSH impacts use of and costs associated with community services. Some community services, in this case outpatient health services and financial assistance, increase once individuals are housed. As suggested in the Moore Place study and national research (e.g., Basu et al., 2012), outpatient health services often increase in the first year of housing and sometime beyond the first year as formerly homeless individuals begin to address the health issues they were not able to manage or did not know about while homeless. Financial assistance, which include rent and/or utility assistance, suggest that these formerly homeless individuals are still in poverty and like other housed but poor individuals who locally use Crisis Assistance Ministry services, they need financial assistance to make ends meet. A more extensive examination of community services suggests a more nuanced picture of the costs associated with HF PSH.

And finally, the HFCM study examined a larger cross-section of individuals experiencing chronic homelessness with varying histories of service use, versus the individuals recruited for Moore Place, who almost universally and frequently used emergency shelter and emergency health services. This occurred in part because the HFCM research began after the first year of the effort when many of those who used services extensively were housed. In addition, however, it occurred because HFCM sought to house all chronically homeless individuals who have varying profiles of service utilization and particularly because the HFCM outreach efforts engaged with individuals who rarely interacted with any service or system and thus had limited costs associated with utilization prior to housing. When comparing the HFCM sample population to those in other national studies, other sample populations appear to use services, particularly emergency and inpatient health services, at a greater rate (e.g., Larimer et al., 2009). The Canadian Chez Soi/At Home Study, however, suggested more modest cost offsets for individuals identified with moderate versus high needs (Goering et al., 2014). Among study participants who had more moderate needs, costs reduced \$4,849 compared to a reduction of \$21,375 for participants identified with high needs. Participants for HFCM were not restricted to individuals with high needs or service use histories, which most likely resulted in HFCM study population including some with high and some with moderate service use histories. If sample size allows, further research can examine the extent to which cost reductions varied between the two groups.

The Value of Quality of Life Improvements

Economic analyses of HF PSH models have most frequently focused on valuing the change in the use of housing and community services. As noted earlier, these cost analyses have been important factors influencing policy decisions to invest in HF PSH as the key intervention to address chronic homelessness. But as this report and accumulating evidence notes, HF PSH may lead to improvements in quality of life, perceptions of mental health, trauma symptoms, mental illness symptoms, and substance use. These improvements, too, have an economic value. In a separate analysis of participants who were housed in HF PSH (n=70) and unhoused (n=47) and who completed the outcomes survey and specifically the SF-12 measure, the HFCM research team examined the value of improvements in the participants' health-related quality of life.

The economic value of health and quality of life is often measured using Quality Adjusted Life Years (QALYs), an outcome measure that combines the quantity (longevity) and quality of a life. A QALY ranges from 0 (death) to 1 (perfect health) and a year in perfect health is worth 1 QALY. In general, the longer an individual lives and the longer an individual lives with a particular disease, the lower their quality of life becomes. For example, a QALY for someone in end-stage renal failure from diabetes will have a score closer to zero than someone who has been just diagnosed with pre-diabetes. Scores from standardized measures like the SF-12 used in the HFCM study have been mapped to various health states between 0 QALYs and 1 QALY (e.g., Franks et al., 2003).

QALYs are assigned monetary value. In health economics literature, a flat \$50,000 or \$100,000 value for 1 QALY has been routinely used for clarity and ease of interpretation but many economists and other experts advocate for higher valuation ranging from \$109,000 to \$297,000 (\$149,000 to \$405,000 using 2018 dollars) based on the benefits of modern health care to improved quality of life (e.g., Braithwaite et al., 2010; Troyer et al., 2010). Valuation varies depending on assumptions of the impact of health interventions on the quality and quantity of life. QALYs are typically measured in terms of multiple years of life expectancy, but in the HFCM study, the research team used QALYs to measure the change in quality of life in the year following housing.

Based on study participant scores on the SF-12 mapped to health states on the Health Utilities Index Mark 3 (HUI3; Franks et al., 2003), the research team used Difference-in-Difference analyses to determine the change in QALYs from baseline through the first year of housing, compared to those who were not housed (Figure 134). Once housed, participants' health state in one quality adjusted life year improved an average of 0.0446 points more than those who were not housed, whose quality of life improved only an average of 0.0213 points, on a 0 to 1 scale. After further controlling for any change that may have occurred since participants were housed at different times, the improvement was slightly greater, 0.0824, and statistically significant (p=0.0160; See table 90 in Appendix C). That change (0.0824) was then multiplied by the value of the QALY suggesting the value of the improvement (Figure 135).

Figure 134: Adjusted Change in Quality Adjusted Life Year, HF PSH (n=70) v. Unhoused (n=47) Scale, 0 to 1

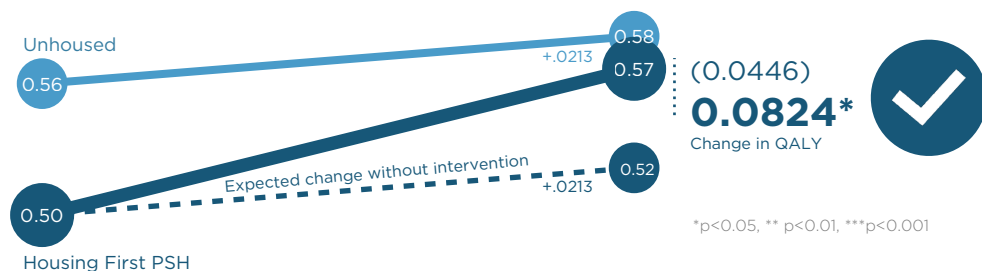


Figure 135: Monetary Benefit in Quality of Life Improvements

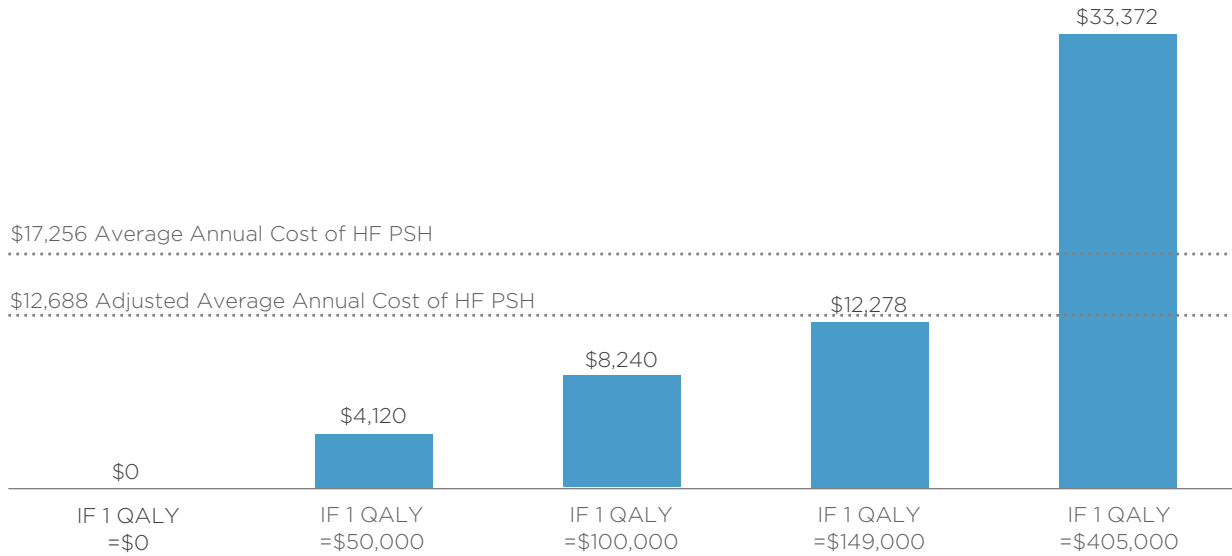


Figure 135 suggests that depending on the assigned value of the QALY, HF PSH leads to improvements in the year after housing that can be valued from \$4,120 to \$33,372. These values provide another way to understand the economic impact of HF PSH, beyond measuring cost offsets from reduced service utilization.

Estimating the monetary value of quality of life improvements has not been used in evaluations of HF PSH and does not as easily translate into the cost savings justification used to encourage initial investments in housing first. However, a more nuanced economic argument is possible and particularly important as Charlotte works to house individuals whose path through chronic homelessness has not involved regular and frequent use of costly emergency services. Even if housing these individuals does not result in large cost offsets, HF PSH is still effective in ending homelessness and improving lives and as such has economic value. Further, as noted by Kertesz and colleagues (2016), we do not expect most health interventions to be cost neutral but instead look at their ability to effectively treat a disease at a reasonable cost. The argument for HF PSH for individuals experiencing chronic homelessness should be reframed - away from a primarily cost savings argument toward a more comprehensive rationale that includes the ability of the intervention to ethically and effectively meet human need at a reasonable cost.

Qualitative Insights

Open-ended questions were asked at each interview with study participants. Findings from analysis of housed participant responses in follow up interviews are discussed below. Baseline responses were discussed in a previous interim report. Housed participants were asked two questions after they were housed that provide insight into the impact of housing and the strengths and resources that they used to transition to housing: What has changed the most for you since you were housed? What strengths and resources helped you find housing? Other qualitative questions answered by participants are discussed in the process evaluation report. Of the 201 housed participants, participants completed 154 surveys that included qualitative responses.

During six and twelve months follow up interviews, study participants were asked the following open-ended question: “What has changed the most for you since you were housed?” Responses fell into 15 categories detailed below. Study participants completing follow up interviews indicated that housing had helped improve their mental state specifically in terms of their attitude, stress and happiness. Participants also discussed how they were better able to address their basic health needs, such as eating better, sleeping and hygiene, as well as accessing healthcare providers. Changes in environment/living conditions were also mentioned by the participants. In addition, participants noted a change in activities and the structure of their day. Table 5 summarizes the major categories and subcategories from the analysis along with exemplar quotations from the participant responses.

Table 5: Qualitative responses to “What has changed the most since housing?”

Category	Examples of Participant Responses
Everything	<p>“Just about everything.” (E-856:01)</p> <p>“Everything. the food, the health, the recovery, more respect for myself and others.” (E-607:03)</p>
Nothing	<p>“Nothing.” (E-887:01)</p> <p>“Nothing has changed in my daily life..” (E-642:04)</p> <p>“I don't know, but I am alive.” (E-934:01)</p>
Activities	<p>General</p> <p>“I have things to do, before the only thin I did was panhandle and fly signs.” (E-775:03)</p> <p>“Stove to cook on, shower and bathroom, watch TV all the time, play the guitar.” (E-636:02)</p> <p>Structure</p> <p>“My structure, my day to day. Before everyday I had something to do like job hunting or seeking information and assistance. Now I have more regimented with my job and support group.” (E-630:02)</p> <p>“Being able to have a routine is so nice and helps me stay on track.” (E-789:02)</p> <p>“I have slowed down more than anything. I'm not in survival mode 24 hours a day anymore.” (E-848:03)</p> <p>School</p> <p>“Going to school.” (E-663:03)</p>
Autonomy	<p>General</p> <p>“I can take care of myself.” (E-773:02)</p>

	<p>Shopping “Doing my own shopping.” (E-643:05)</p> <p>Cooking/Eating “We can cook when we want.” (E-900:03)</p>
Difficult/Negative	<p>Time “Becoming lazy, I don’t want to go nowhere.” (E-797:03) “Leisure, I have more of it. I have too much of it. When I was homeless I didn’t have any of it.” (E-774:11)</p> <p>Transition “It’s been a little bit strange. I ‘m just trying to get used to the differences.” (E-893:02)</p> <p>Food Access “It’s not as easy to get to food and everything.” (E-907:05)</p> <p>Health “Stress levels have increased because of health problems.” (E-937:01)</p> <p>Fear of losing housing “For the first time in my life I have fear because i’m afraid of losing housing.” (E-843:02)</p>
	<p>Environment</p> <p>A Place to Stay “I was able to get off the streets, I would have been dead out there, there’s too much going on.” (E-787:02) “I don’t have to worry about being out there.” (E-840:03)</p> <p>Living Conditions “Don’t have to worry about sitting outside all day long.” (E-643:04) “I’m more at ease. I finally have a couch and a bed.” (E-902:01) “I’m not sleeping in my care anymore. I am more comfortable.” (E-939:01)</p> <p>Privacy/Own space “Just housing, just getting my own place.” (E-772:03) “Not going home to a tent, feels better to go home.” (E-657:02) “I have more privacy.” (E-833:01)</p>
	<p>Financial</p> <p>Job/work “I couldn’t get a job before.” (E-653:04)</p>
	<p>Health</p> <p>General “ Access to a doctor.” (E-940:01) “My physical being . I had a colostomy and eliostomy. My medical situation is more difficult, but having my own place to live makes it better.” (E-933:01)</p> <p>Appearance/Hygiene “I’m able to take a shower.” (E-907:05) “Being able to complete hygiene whenever I want.” (E-780:01)</p>

	<p>Nutrition</p> <p>“I am able to eat better.” (E-646:03)</p> <p>“Eating better, more constantly than before.” (E-662:04)</p>
	<p>Sleep/Rest</p> <p>“I don’t have to get up and find a new place to sleep each night.” (E-796:02)</p> <p>“I am able to sleep better.” (E-646:04)</p> <p>“Comfort of not being on guard all the time or anxious from sleeping outside or in storage.” (E-766:03)</p>
Mental Health/ Substance Use	<p>“I don’t do drugs or alcohol anymore since I got into housing.” (E-642:05)</p> <p>“I smoke and drink less.” (E-762:02)</p> <p>“My mental health is getting better.” (E-746:03)</p>
Mental State	<p>Attitude/Outlook</p> <p>“Mentally, I am in a better place.” (E-633:05)</p> <p>“The way I look at things. My judgement has changed because I have a base so now I don’t have to worry about what’s going to happen to me. It’s like having a new outlook on things.” (E-788:01)</p> <p>“My attitude. I’m calmer than I used to be. Not angry.” (E-840:01)</p>
	<p>Happier</p> <p>“I am actually happier.” (E-638:03)</p>
	<p>Less Stress/Peace</p> <p>“Quietness, relaxation, time to myself, without people walking over you or police stopping you.” (E-628:02)</p> <p>“My worries have subsided.” (E-652:04)</p> <p>“A sense of peace.” (E-777:01)</p> <p>“My ability to stay calm.” (E-904:03)</p>
No Panhandling	<p>“I haven’t had to panhandle.” (E-652:05)</p>
Relationships	<p>General</p> <p>“I don’t have to talk to people.” (E-790:01)</p> <p>“I feel like I belong here and around a lot of the people here.” (E-649:04)</p> <p>“i’m no longer around people getting high.” (E-766:05)</p>
	<p>Family</p> <p>“Seeing my kids more often.” (E-663:04)</p> <p>“I am able to take care of my baby.” (E-908:01)</p>
Security/Safety	<p>“I actually had keys.” (E-648:02)</p> <p>“I like Moore Place and how safe I feel here.” (E-752:02)</p>
Stability	<p>“Stability, I am able to be stable.” (E-645:05)</p>

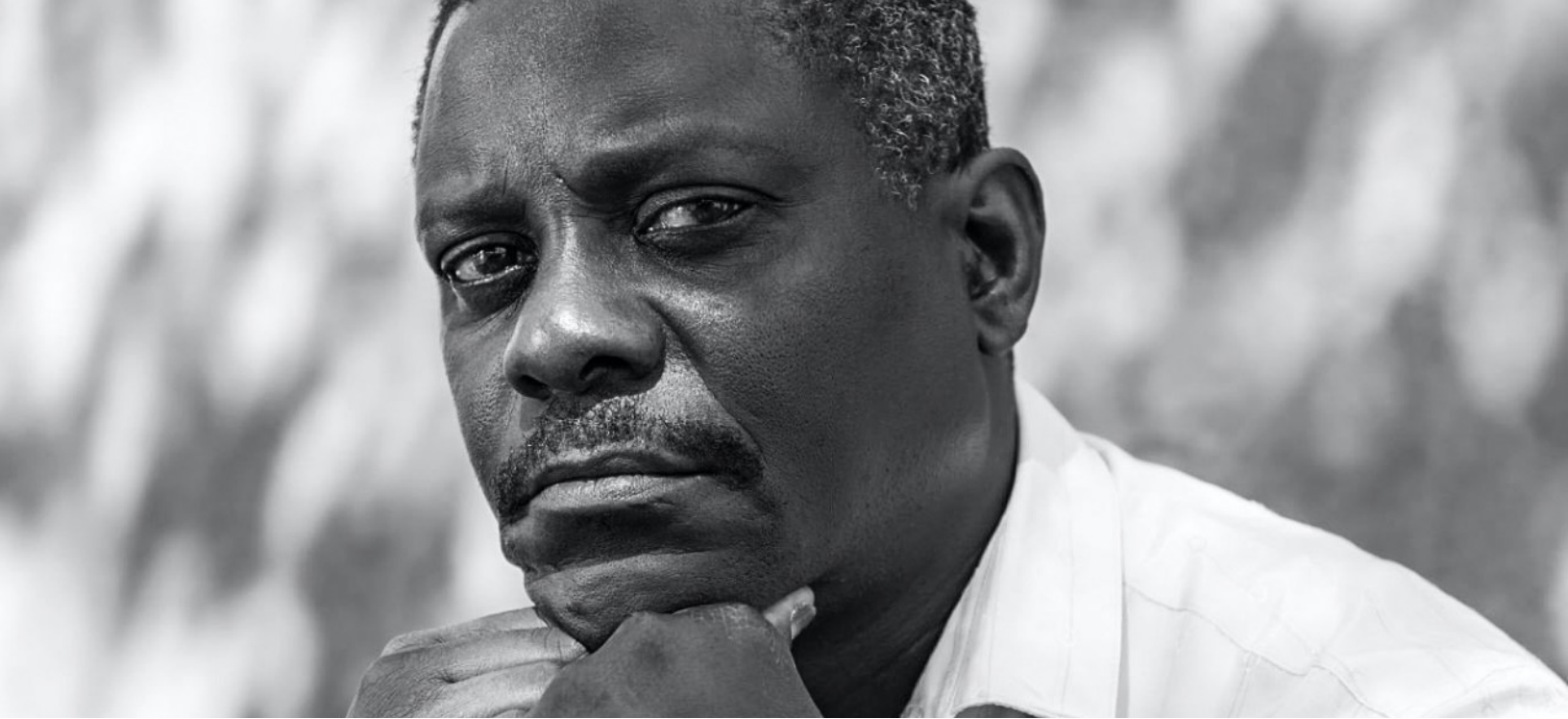
Participant Strengths & Resources

After being housed for six to twelve months participants reflected on what strengths and resources helped them find housing. Of the 14 categories mentioned, two were very prominent - personal qualities and service providers. Participants who completed housed follow up interviews mentioned their own personal qualities as a factor in finding housing. Qualities specified included attitude, determination, perseverance, and a willingness to do the work. Participants also indicated they had help from service providers dedicated to working with homeless individuals. They also mentioned other organizations that had helped them such as a treatment program or a church. Support from family and friends also played a role for the participants, with participants specifying a family member or a friend. Table 6 lists the primary categories and exemplar quotes.

Table 6: Qualitative responses to “What strengths helped you find housing?”

Category	Examples of Participant Responses
Myself	<p>“Myself, can’t pinpoint it, but it is myself.” (E-632:01)</p> <p>“Just being me. I don’t rely on anyone but me.” (E-797:04)</p>
None	<p>“None.” (E-820:04)</p>
Other Programs	<p>Churches</p> <p>“I have a strong support group through my church.” (E-928:05)</p> <p>Substance Use Treatment</p> <p>“AA was a big help to me.” (E-821:04)</p>
Substance Use	<p>“I am alcohol and drug free and still in my house.” (E-642:03)</p> <p>“Getting clean.” (E-935:04)</p>
Personal Qualities	<p>Attitude/Outlook</p> <p>“I had to keep my head up.” (E-777:05)</p> <p>“Believing that things can happen.” (E-641:01)</p> <p>Determination</p> <p>“I was very determined to fulfill everything I needed to do to get housed.” (E-639:02)</p> <p>“I don’t give up. I’m motivated. I just kept going.” (E-907:01)</p> <p>“I was very motivated. I was in the streets, but didn’t let my mind be in the streets.” (E-753:02)</p> <p>Willingness to work</p> <p>“I just got tired of it. I did the footwork. I wanted to do it.” (E-933:04)</p> <p>“I didn’t just sit around, I tried to find programs to help get me out of the men’s shelter.” (E-835:04)</p>

Relationships	<p>Family/Friends</p> <p>“When I was outside I had two people the were watching over me, my brother and my friend.” (E-646:02)</p> <p>“My family are all behind me, they worry about me and help when they can.” (E-821:05)</p> <p>“Good social network.” (E-932:04)</p> <p>Sharing Information</p> <p>“Had a couple of friends that got housing and told me about it, that helped.” (E-754:01)</p>
Religion	<p>“I owe it all to God. I still don’t know why they picked me to get off the streets.” (E-843:07)</p> <p>“God, faith and perseverance. It was a miracle.” (E-937:04)</p>
Service Providers	<p>General</p> <p>“A lot of nice social workers.” (E-789:04)</p> <p>“Cooperating and following instructions from my case manager.” (E-743:02)</p> <p>Specific Organizations</p> <p>“Urban Ministries was amazing.” (E-638:01)</p> <p>“I got lots of help from many service organizations, like Urban Ministries.” (E-837:04)</p> <p>“I went to Urban Ministries and stuck with it.” (E-849:04)</p> <p>“I found the strength to find Shelter Plus Care and Urban Ministry and then they helped me.” (E-775:07)</p> <p>“The Men’s Shelter helped me a lot.” (E-760:01)</p>
Skills	<p>“Good budgeting skills, good planning skills.” (E-662:02)</p> <p>“I have lived in an apartment before and know how to pay bills.” (E-790:05)</p>
Tired of Homelessness	<p>“I got sick and tired of waking up in the street. The hardest person to help is yourself and I realized I had to finally help myself.” (E-829:02)</p>



Discussion

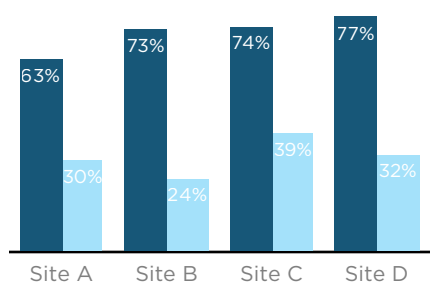
The Housing First Charlotte-Mecklenburg Research and Evaluation Project provides ample insight to guide ongoing and future efforts to address chronic homelessness in the greater Charlotte area. Study findings demonstrate that 1) housing first improves lives, 2) housing first reduces service use in key service sectors, and to build on such positive findings, 3) the community's housing first response can also improve. Key findings are discussed below.

Housing First Improves Lives.

Study participants who were housed through HFCM showed substantial improvements across multiple dimensions of their lives including housing retention, quality of life, perceived general mental health, mental health disorder symptoms, trauma symptoms, use of drugs, and use of alcohol to intoxication.

Housing Retention. Housing Retention was high overall (73%), but highest for those in housing first permanent supportive housing (80%). HF PSH secures housing through a permanent subsidy and builds stability through the ongoing availability of wrap-around services. "Other housing" also had high retention rates (79%), but the category is a compilation of various types of housing that don't have enough participants to warrant their own category but also don't necessarily fit neatly together in a category and thus create an analytically challenging category. The primary subcategories in "other housing" include individuals who could find housing on their own without subsidy or with a small, shallow subsidy, but without location or supportive services. It also included anyone in the study placed at McCreesh Place. Combined, only 9% of participants were in the category "other housing," so while the high housing retention rates are positive, there are not enough people in each subcategory to draw conclusions about the nature of their housing retention. Tentatively, however, it does seem like the high retention rate could be associated with the permanent housing subsidy of McCreesh Place and for others the ability and resources to

Figure 136. Percent of days stably housed. Canada At Home/Chez Soi RCT.



access housing on their own with little to no financial assistance.

The high retention rate of HF PSH parallels a growing body of research (e.g., Baxter, Tweed, Katikireddi, & Thomson, 2019; Tsemberis, Kent, & Respress, 2012) and is one of the first well-established outcomes of the model. The first randomized control trial (RCT) found that HF PSH had a 80% housing retention rate over two years compared to a 37% housing retention rate for individuals who were housed through the typical continuum of care services (Tsemberis et al., 2004). The Canadian At Home/Chez Soi study, the largest RCT of HF PSH to date, found housing stability rates from 63% to 77% across four different sites and in each case the precedent of days in stable housing nearly doubled that of

individuals who were receiving typical services (Stergiopoulos et al., 2015; See Figure 136). Numerous other studies find housing stability rates that range from 70% to 93% (e.g., Montgomery, Hill, Kane, & Culhane, 2013; Pearson, Montgomery, & Locke, 2009; Stefancic & Tsemberis, 2007).

Importantly, the At Home/Chez Soi study found that higher fidelity programs - that is, programs that closely implement the program elements associated with positive outcomes - have higher housing stability rates (Goering et al., 2016). And high housing stability rates are linked to other positive outcomes like improvements in quality of life, mental health, and reduced service utilization across various community service sectors (e.g., Kerman, Sylvestre, Aubry, & Distasio, 2018). Stable housing is the platform from which individuals can build and rebuild their lives. As one study participant noted, once housed, **"I could focus on my problems better. When you don't have a place to stay it's like being surrounded, it's like a multi-front war"** (E-187:3). The findings discussed below describe the outcomes that a stable housing foundation can facilitate.

Quality of Life. Study participants quality of life scores improved 30% after housing. Housed participants scored 19 points higher on a standardized quality of life assessment than did unhoused participants who only scored 2 points higher after baseline. These are large and substantial improvements and they align with existing research demonstrating the positive impact of HF PSH on quality of life among formerly chronically homeless individuals (Aubry et al., 2015; Henwood, Matejkowski, Stefancic, & Lukens, 2014; Henwood et al., 2019; Stergiopoulos et al., 2015). One study found no effect of housing on quality of life, however the intervention was not specified as a housing first intervention (e.g., Tsai, Mares, & Rosenheck, 2012). As noted previously, higher quality of life is associated with better social support, less substance use, and better mental health (Lam, Rosenheck, & Lam, 2000). Mental illness symptoms are also a predictor of quality of life (Lehman, Kernan, DeForge, & Dixon, 1995) and as discussed below, mental health symptoms and specifically trauma symptoms statistically decreased in study participants. Several housed study participants mentioned that their "quality of life has gotten better" (E-897:1). As one study participant noted, **"Everything has changed. I just feel like a big boulder has fallen off my shoulders. I have a sense of belonging, I actually have keys, it is just awesome"** (E-648:2). When asked what had changed the most, another housed participant noted his quality of life, **"I've slowed down more than anything, I'm not in survival mode 24 hours a day anymore. I can sort of focus on reading books and pondering philosophy. When you aren't sure where you're sleeping at night you can't focus on those things"** (E-848:3).

Trauma Symptoms. Trauma is defined as events that cause intense feelings of fear, anxiety, helplessness, or horror such as combat, adult or childhood physical abuse, sexual abuse or assault, or domestic violence (e.g., Finkelhor, Ormrod, & Turner, 2007). Traumatic stress and the symptoms that arise from it are common among those experiencing homelessness. After our study participants were housed, trauma-related symptoms decreased 26%. Housed participants, who had high lifetime rates of traumatic stress, scored 11 points lower on a standardized measure of trauma-related symptoms than did unhoused participants who only scored 1 point lower after baseline. As noted earlier, the Veterans Administration National Center for PTSD considers a 5-10 point reduction a reliable

indicator that a person is responding to an intervention and 10-20 improvements suggest a clinically meaningful change has occurred (Monson et al., 2008).

The majority of study participants reported experiencing multiple types of traumatic events in their lifetime, which aligns with existing research regarding the rate of traumatic exposure among homeless adults. Approximately 98% of individuals in this population have experienced at least one highly stressful event during their lifetime with many experiencing or witnessing more than one type of highly stressful event (e.g., Taylor & Sharpe, 2008). Empirical evidence demonstrates that victimization, whether experienced as a child or as an adult, significantly predicts prolonged homelessness, setting the scene for chronic homelessness (Lam & Rosenheck, 1998; Kim & Ford, 2006). More specifically, violence, among the varying forms of victimization, is the strongest direct contributor to homelessness in its chronic form (Kim & Ford, 2006). Once homeless, rates of violent and nonviolent victimization are higher for homeless adults than for the general population (e.g., Burt, 2001; Fitzpatrick, La Gory, & Richey, 1993; Kushel, Evans, Perry, Robertson, & Moss, 2003). As one of our unhoused participants stated, **“I wake up screaming from my dreams cause of what I've seen”** (E-214:8).

The negative mental health effects of trauma are well documented and include increased risk of depression, suicide, PTSD, and substance abuse (e.g., Afifi, Boman, Fleisher, & Sareen, 2009; Chapman et al., 2004; Kubiak, 2005; Pimlott-Kubiak & Cortina, 2003). In addition, when compared to the general population, survivors of trauma are more likely to engage in high-risk health behaviors such as substance abuse and risky sexual behavior and they are more likely to experience chronic health conditions including diabetes, heart disease, stroke, and chronic pain (e.g., Davis, Luecken, & Zautra, 2005; Felitti et al., 1998; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000; Sachs-Ericsson et al., 2009; Simpson & Miller, 2002; Springer et al., 2007).

One aspect of the pronounced improvement in housed study participants is the change in exposure to traumatic stress. As one study participant noted, **“I think people have to understand when you are chronically homeless you are in a fight/flight mode. People ask when are you getting a job, when you have to worry about where to pee, where to shower. We have to acclimate out of hyper-vigilance, as you start to get help”** (E-200:4).

Homelessness itself is recognized as a psychological trauma (e.g., Goodman, Saxe, & Harvey, 1991) and housing removes ongoing exposure to that form of traumatic stress. In addition, high fidelity HF PSH programs are able to offer services that are sensitive to tenants who may have experienced trauma by providing a safe, stable environment that is not contingent on service success and compliance. Such stability and choice allows trauma survivors the opportunity to build back a sense of control, important in the trauma recovery process (e.g., Kulkarni, 2019).

Mental Health. Improvements in trauma-related symptoms are likely related to the other mental health improvements study participants experienced. Mental illness symptom scores decreased 35% after housing. Housed participants scored 9 points lower on a standardized measure of mental illness-related symptoms than did unhoused participants who only scored 1 point lower after baseline. In addition, perceptions about general mental health improved, although they remained lower than the general population. A number of study participants described how housing had positively impacted their mental health. One housed participant noted, **“Mentally, I think I'm a lot better”** (E-649:4).

Evidence supports the positive effect of housing on mental health outcomes among formerly homeless individuals (e.g., Tsai et al., 2012). In one study of HF PSH, higher levels of perceived choice were associated with decreased psychiatric symptoms (Greenwood et al., 2005), as well as greater residential stability (Tsemberis et al., 2004) and HF PSH demonstrates higher levels of perceived choice than treatment first models (Greenwood et al., 2005; Tsemberis et al., 2004). However, a number of housing first studies have found no statistical difference in psychiatric outcomes post-intervention between HF PSH and treatment as usual groups (e.g., Tsemberis et al., 2004; Thomas et al., 2015). And some studies suggest that treatment first models better reduce symptoms in homeless and unstably housed populations (e.g. Fitzpatrick et al., 2011). The HFCM study suggests that housing is

effective in addressing the poor perceived mental health of participants as well as mental health symptoms. Additional research is warranted to understand how and why the HFCM housing intervention was so effective at improving participants' mental health.

Substance use. Housing first does not require sobriety or abstinence. Nevertheless, after housing the percent of participants that used any drug fell 37% and the average number of days in the last 30 days that housed participants used alcohol to intoxication fell an average of 3 days more than it did for unhoused participants. Other substance use measures including the percent who used alcohol, days of alcohol use, and the percent who used alcohol to intoxication didn't change after housing, a reminder that harm reduction doesn't necessarily result in increased use of alcohol or drugs. Despite no change in alcohol use in the larger housed group, individuals in HF PSH used alcohol 3.2 fewer days than did the individuals in non-PSH housing, suggesting that the harm reduction practices of HF PSH and meeting people where they are may be effective in reducing the use of alcohol. As one housed participant stated in the language of harm-reduction, **"I'm practicing how to deal with life without the use of drugs and alcohol"** (E-870:1). Studies of other permanent supportive housing programs suggest that the majority of tenants will moderate or reduce utilization as they remain housed (Padgett, Gulcur, & Tsemberis, 2006; Tsemberis et al., 2004; Tsai, Kaspro, & Rosenheck, 2014).

Substance use disorders are associated with numerous negative outcomes that impact individuals including physical and mental health, employment opportunities, and social relationships. Substance use disorders also impact broader communities including the health and criminal justice systems. These outcomes are exacerbated when individuals are not housed (e.g., McNeil, Binder, & Robinson, 2005). As one study participant noted, **"I have the willpower to get off drugs. But as long as you're on the street you have that temptation"** (E-09:08). While harm reduction instead of abstinence is a guiding philosophy of HF PSH, addressing substance use disorders is still part of the work of direct service providers. Providers in effective programs use specific strategies like motivational interviewing to actively and assertively engage clients in their own recovery, recognizing and encouraging incremental improvements.

Prior to the advent of the housing first model, strict eligibility criteria on sobriety (or a commitment to sobriety) in most transitional and permanent housing programs prevented housing many individuals and families experiencing chronic homelessness. If individuals experiencing chronic homelessness managed sobriety long enough to enter a transitional or permanent housing program, relapses – a well-documented part of the recovery process – would often result in removal from the program sending vulnerable individuals back to the streets and emergency shelter where resources to address their addiction were limited, where their health further deteriorated, and where the community costs to serve them in hospitals and jails increased. Evidence suggests that substance abuse has a relapse rate of between 40-60%, similar to that of other chronic diseases such as hypertension (50-70%), diabetes (30-50%), and asthma (50-70%) (McLellan, Lewis, O'Brien, & Kleber, 2000). Effective housing first programs address substance use disorders and relapse as they do any other chronic disease, as an opportunity to work with a client to intervene in the disease process and recover.

The Value of Quality of Life Improvements. The value of these improvements has not been monetized in studies of HF PSH, the focus of which tend to be cost reductions associated with HF PSH, particularly in health, criminal justice, and shelter services (National Academies of Sciences, Engineering, and Medicine, 2018). When examined through the lens of a quality adjusted life year (QALY), however, the research team found that improvements in health related quality of life due to HF PSH can be valued annually from \$4,120 to \$33,372, depending on the value assigned to a year of full or perfect health. This initial QALY analysis suggests an important and more nuanced reframing of the rationale for housing first that includes not only cost savings from reduced service use, but also the value of improvements. Future analyses with HFCM data will include a more formal analysis of costs and benefits, including data from Cardinal Innovations Healthcare.

Housing First Reduces Service Use

In addition to participant improvements across multiple measures, study participants who were housed through HFCM used fewer community services across shelter, criminal justice, and health services. Housing first reduces a number of services frequently associated with homelessness. However, use of furniture and financial assistance at Crisis Assistance Ministry increased a small but significant amount.

Emergency shelter. The average number of nights in emergency shelter dropped by 93% for housed participants. Unhoused participants' use of shelter increased an average of 8 nights, while relative to that increase, housed participants' use fell an additional 61 nights, on average. Housing nearly ended the use of emergency shelter. The findings echo other studies documenting the effectiveness of HF PSH in ending shelter use specifically and homelessness in general (e.g., Tsemberis et al., 2004). While the reduction of emergency shelter use is an important indicator of success in addressing chronic homelessness, it is also an important community indicator of system effectiveness and efficiency. It suggests that the freed shelter space can be otherwise used to address the needs of non-chronic homeless populations, most of which will not return to homelessness after receiving brief emergency services (e.g., Kuhn & Culhane, 1998). Successfully addressing chronic homelessness frees up resources to address short-term crises and allow for a more effective and efficient coordinated response system (e.g., Padgett et al., 2016).

Notably, for housed study participants, being housed meant they didn't have to return to shelter, which for many brought up disturbing memories. One participant stated, **"I don't want to be reminded of my time in the shelter"** (E-639:6). Another voiced while housed focus group participants nodded, **"...at the time I was going at the shelter it was in chaos. I mean there was a lot of bad things going—I mean it wasn't a good place at all"** (C-03:72). Others mentioned their gratitude for the staff members in shelter that helped them, but in individual interviews and focus groups, housed participants noted how difficult and at times traumatic it had been for them to stay in shelter and how grateful they were to no longer be exposed to that environment.

Criminal Justice. The percent of housed individuals arrested fell 59% and the average number of arrests fell 48%. The decline in the percentage of participants arrested is approximately 5 times what would have been expected without housing. Study participants suggested that this was one of the most difficult parts of being homeless. As one man said, **"It's tough...it's hard to use the restroom on the street or you'll be charged, I have a lot of public urination charges"** (E-168:10). Another participant described another woman's experience, **"She was arrested just because she had no drugs. She's old enough to be my mother. She was sleeping on the benches and the police officer, he said that 'ma'am, it's not legal to sleep on the benches.' Oh really? Where should I sleep? Because the females' shelter is overfilled"** (C-04:92).

As Clifasefi and colleagues (2012) state, "most criminal activity in this population is precipitated by conditions of homelessness" (p. 294). For example, an examination of ordinances in 187 cities across the United States between 2006 and 2016 showed that 33% of them prohibit camping in public anywhere in the city, while 50% of them prohibit it in specific designated public areas (National Low Income Housing Coalition, 2016). Sleeping in public was also found to be prohibited in 18% of these cities, while this limitation only applied to particular designated public areas in 27% of them (National Low Income Housing Coalition, 2016). Finally, 39% of these cities prohibited individuals from living in their vehicles (National Low Income Housing Coalition, 2016). The majority of crimes among those experiencing chronic homelessness can be categorized as misdemeanors (91.3%); oftentimes property crimes (around 50%) and breaches of judicial orders (Somers, et. al., 2013; Clifasefi et al., 2012; Greenberg & Rosenheck, 2008; Malone, 2009). To be clear, there are serious crimes, including drug offenses and assaults, but those crimes are more often the exception. In this study, drug-related offenses were only 6% of all offenses and assault offenses were only 8% of all offenses.

Health Department. The percent of housed individuals using the Mecklenburg County Health Department fell 56% and the average number of visits in this group fell 71%. The decline in average number of visits is nearly 4 times what would have been expected without housing. As noted earlier, the primary reason participants in our sample visited the Health Department was for HIV counseling, screening for STDs, and evaluation and treatment of tuberculosis. The reduction in utilization merits further exploration. Certainly some reduction may be from a change in exposure. As one study participant noted, there are **"lots of STDs on the street, people don't use condoms here"** (E-168:10). As people are housed, particular risks like tuberculosis or sexually-transmitted diseases and the fear or likelihood of becoming infected may decrease. In addition, some reduction may be due to service availability in housing programs or more regular access to outpatient care, both of which could assume HIV counseling, which was the primary reason most study participants visited the Health Department. However, since use of outpatient clinic use did not increase, the reduction could raise questions about ongoing access to appropriate care for conditions often addressed by Health Department services.

Homeless service utilization studies do not typically include the examination of public health departments and their clinic services, instead focusing on emergency department and inpatient utilization. Most studies that examine free or low cost clinics focus instead on Federally Qualified Health Clinics, like Boston's Healthcare for the Homeless that focuses holistically on homeless patron needs (e.g., O'Connell et al., 2010). The findings and further research provide an opportunity to better understand how and why housing impacts the utilization of public, free, and low-cost clinics.

Emergency Department. The percentage of housed participants using the ED didn't change after housing, but the average number of ED visits fell 58%. On average, housed participants had 2 fewer visits to the ED than unhoused participants in the year after housing. Similar to existing estimates (Ku et al., 2010), the majority of study participants (83.3%) visited one of the major hospital systems during the study. The primary and secondary diagnoses indicate that participants used the emergency department for conditions related to mental health and co-morbid alcohol or drug use disorders, chronic physical pain, or injury. This is consistent with existing findings that approximately 60% of emergency department visits by homeless people with no inpatient stay involve a substance use or mental health disorder (Sun, Karaca, Wong, 2014). An analysis of Medicaid recipients in the Boston Health Care for the Homeless Program found that the homeless population averaged 4 ED visits per year (Bharel et al., 2013). Significant predictors of frequent utilization of the ED (i.e. ≥ 3 visits per year) among homeless populations include hepatitis C, drug use, and mental health disorders (Thakarar, 2015). Among homeless populations with co-morbid conditions such as mental illness or chronic hepatitis C virus (HCV), utilization is indeed shown to be significantly higher ($p < .001$) (Bharel et al., 2013).

The reduction in ED utilization for HFCM study participants - an average reduction of 2.1 visits beyond the comparison group in the year after housing - is more modest than in the previous local study of Moore Place which found an average reduction of 7.3 visits in the year following housing (Thomas, Shears, Pate, & Priester, 2014; Thomas et al., 2015). As noted earlier the study outcomes vary for several reasons. First, the Moore Place study included only 61 individuals, all of whom were prioritized for Moore Place because of their extensive service utilization histories. While HFCM prioritized housing for those who scored higher on the VI-SPDAT, the study sampled from the By-Name List of individuals whose service utilization histories varied from no involvement to extensive involvement. Second, there are efforts underway outside of housing to engage with individuals who frequently use the emergency department and work directly with them to reduce utilization and improve their health. Atrium Healthcare, for example, began CommunityCareBridge in 2015 as HFCM was accelerating. The program's efforts may have helped those who were on the by-name list resulting in reduced ED utilization among those who participated in the study.

Finally, the study designs differed considerably. The Moore Place study used a pre-experimental design that examined longitudinal change without a comparison group (a simple pre-post design). The design choice was due

in part to available funding and in part to the lack of accessible data resources to develop a comparison group. With more extensive resources and available data, the HFCM study was able to sample more individuals and use a quasi-experimental design with a comparison group. The HFCM research team was able to use analytic techniques to add additional rigor to the design since randomization into treatment and control groups was not possible. The results suggest what accumulated evidence in the last five years has demonstrated - simple pre-post designs tend to find large differences in utilization after housing, but when a more rigorous design is used, those differences either moderate, or in the case of inpatient hospitalizations, disappear altogether (i.e., Ly & Latimer, 2015). Despite more moderate findings compared to the Moore Place study, the study does suggest a positive impact on both individual's health and the utilization of emergency resources. As one direct service provider stated when describing HFCM success, **“Some had severe medical issues at the time, you know, when they were homeless. They have done exceedingly well attending medical appointments and hospital visits are almost zero”** (B-5:162).

Crisis Assistance Ministry. Service utilization patterns at Crisis Assistance Ministry varied. First, no differences were found in the use of the Free Store or average number of Free Store visits after housing. About 40% of study participants used Free Store services an average of 1-2 times the year before and after baseline, where they were able to get clothes, shoes, and household items once a month. The pattern was different for the Furniture Bank and for Financial Assistance. About 37% of participants visited the Furniture Bank at least once in the month prior to and 37% following their housing date. About 38% received financial assistance in the one month prior to and 22% following their housing. These seemed to be one time costs associated with moving into housing including the money for security deposit and furniture for apartments. To assess the ongoing use of Crisis Assistance Ministry Services, the research team excluded these two months (referred to as the housing period) from longitudinal analyses. More housed participants used Crisis Assistance Ministry even after the housing period was over. Relative to unhoused participants, only 5% of housed participants used financial assistance before housing, but 24% used it after the immediate housing period and only 2% used furniture services before housing, but 12% used the services after the housing period. While Crisis Assistance Ministry primarily serves households that are in financial crisis and are housing insecure in order to prevent homelessness, these findings suggest that they are also a part of the continuum of housing services that help households exit chronic homelessness and remain housed. The increase in the use of furniture and financial assistance suggests that some added service utilization may be expected to help formerly homeless individuals remain housed.

Partial Cost Offsets. As expected from the service use changes discussed above, housing in HF PSH resulted in savings in other community services, even if more modest than earlier local and national studies of HF PSH suggest (e.g., Thomas et al., 2015). For every \$10 invested in HF PSH, there is a \$2.54 cost reduction in other community services. These savings reduce the average annual cost of HF PSH from \$17,256 to \$12,866. As noted above, study participants were not exclusively individuals who regularly and frequently used emergency services before housing but rather, represented a cross section of individuals with a range of service use histories, including little or no use of emergency services. In the largest randomized control trial of HF PSH to date, only those with the most extensive utilization histories showed cost savings that approached the break even point. For high need and moderate need individuals, every \$10 invested in HF PSH yielded a \$9.60 and a \$3.42 reduction, respectively, in the cost of other community services (Goering et al., 2014). HF PSH does not necessarily “pay for itself” but it remains the most effective intervention to end chronic homelessness to date, with housing retention rates that often double that of non-housing first services (National Academies of Sciences, Engineering, & Medicine, 2018). As an effective intervention, it is relatively low cost and given partial cost offsets and the potential economic, social, and personal value of benefits, it has become the best evidence-based practice to address and end chronic homelessness (Kertesz et al., 2016).

The Housing First Response can Improve

While the findings discussed above reflect a number of successes, the study suggests several key areas where Charlotte-Mecklenburg's response to chronic homelessness could improve. As noted earlier, the HFCM research reports should be approached as living, learning documents that can support ongoing personnel, program, and system development. In many ways, findings that suggest improvements are most valuable to stakeholders.

Food insecurity. Access to nutritious food is important to effectively manage prominent diseases associated with homelessness like diabetes and heart disease, however, housing did not statistically improve the food security of study participants. Rates of low and very low food security began high and remained high for housed participants after housing (83%). Further, for individuals housed in HF PSH, food insecurity actually got worse after they were housed. Low and very low food security increased 26.8 percentage points *more* for PSH participants than it did for non-PSH participants, a 32% increase. As one study participant noted, **"It's not as easy to get to food and everything"** (E-907:5).

The percentage of households that experience food insecurity is higher in Mecklenburg County (14.9%) than it is in North Carolina (13.9%) and the U.S. (11.1%) suggesting elevated risk for low-income individuals, particularly those with multiple disabilities and limited access to transportation. Individuals experiencing chronic homelessness were housed in areas where their housing subsidies could cover the cost of housing and these areas are typically food deserts, as discussed in a recent presentation by Gibbie Harris & Michael Boger (2020), the Director of the Mecklenburg County Health Department. Food deserts are low-income areas where residents have limited or no access to a grocery store (USDA, 2019). Once housed, the lack of access to transportation and the lack of access to a grocery store could easily compound to make it much more difficult to access nutritious food.

For some, traveling to soup kitchens and other food programs was no longer possible once they were housed either because of transportation access or they were not physically able to travel the distance. One direct service provider noted that once housed, clients need **"help getting to all the food banks that would easily help them throughout the month...but they're stuck with walking on potentially bad legs"** (B-6:130). As one housed participant responded when asked what programs could do better, they could provide **"better food outlets for people who don't qualify for food stamps. They just kind of throw you in housing and don't provide other resources that were easily accessed when I was homeless and close to the downtown area"** (E-907:3). Several study participants and direct service providers also noted that once housed, individuals were no longer able to or were discouraged from returning to the places they accessed food while they were homeless. In some cases, front line workers noted that it was organizational policy that formerly individuals couldn't return to key lunch programs intended for individuals experiencing homelessness.

Direct service providers also noted other challenges to getting people access to food once they're housed. As one provider noted, **"I get the law. I get it. But certain drug charges you can't get food stamps at all. And if you're chronically homeless and you're living, you know, we're getting you back on track, you can't get food. So then you're having to be creative and you have no income and you are not acknowledged the fact that you have mental illness or any of that. And that's okay. But now the job is for me to help try to get you fed. And we have to be really creative"** (B-10:84). Another challenge, once a person begins to receive disability benefits, they may lose or have their food benefits reduced. Many individuals on disability only receive \$16 monthly from the Supplemental Nutrition Assistance Program (SNAP) (Erin Nixon, Mecklenburg County, personal communication). Finally, addressing food and nutrition may not be a typical program or job expectation for many clinical case workers and amidst the other needs that are being addressed when someone transitions to housing, there may not be a significant programmatic emphasis on access to nutritious food. Given these findings, ensuring access to nutritious food should become an explicit part of the recognized service array of effective housing first practices in Charlotte-Mecklenburg. As one direct service provider stated, **"...they've got rideshare to doctors, but they're**

starving in their housing” (B-6:130).

Poor physical health. Participants’ perceptions of their own physical health improved only slightly after housing. Scores on a standardized health assessment started and remained below those of the general U.S. population. Other studies have also noted the lack of change in perceived health (e.g., Hunter et al., 2017). The high disease and mortality rates of homeless individuals are well-documented (e.g., Baggett, O’Connell, Singer, & Rigotti, 2010) and most study participants had more than two disabilities. Participants’ perceptions of their own health appear congruent with the presence of multiple health disorders. The lack of statistical change in the rates and length of hospitalizations after housing also underscore poor health among study participants. In addition, interviews with individuals after they were housed and with direct service providers suggest that the physical health of individuals once they are housed is a difficult challenge. As one direct service provider noted, **“I was totally surprised by the level of deterioration of people’s physical health”** (B-9:68).

Effective HF PSH programs include regular access to a nurse and medical services (e.g., Stefancic et al., 2013). Programs should have established formal and informal links with multiple health providers; should actively assess program participants to effectively match specific health needs and participant preferences to providers; should assist participants in locating, meeting, and regularly accessing providers; and programs should follow-up after medical services, communicating with medical personnel as needed (Stefancic et al., 2013). However, in individual and focus group interviews, housed participants and direct service providers noted room for improvement. When asked what they needed to do their jobs well, a number of service providers noted that they needed a nurse. And during a focus group with housed study participants, the interview paused so that participants could get a piece of paper and write down the name and address of a clinic mentioned by another participant in order to access healthcare. When asked if they had any help accessing health services, one participant stated, **“Some do and some don’t”** (C-3:154).

Several direct service providers in scattered and single site HF PSH programs further noted that a number of housed individuals needed a “higher level of care” than their program or HF PSH in general was designed to provide. One direct service provider stated, with nods around the room, **“We get a lot of people who should not be in our program. They’re ideal on paper, but once you put them in that place you notice they do need a higher level—they need support housing, or this is what they need, more care, assisted living. Whatever is happening, they need extra care”** (B-10:119). Some providers indicated that the community needed **“two or three other Moore Places”** (B-09:125) since those programs provide **“more wrap-around services”** (B-04:145). Moore Place providers, however, challenged this assumption noting that other programs look at them like a residential treatment facility, when they should be viewed like scattered site programs providing a similar supportive services to a similar group of individuals experiencing chronic homelessness - a perspective supported by the evidence-based practice literature (i.e., the most extensive evidence on HF PSH is in scattered site models).

The complex health needs and disease burden noted by direct service providers and study participants themselves is not unique to Charlotte-Mecklenburg (e.g., Weinstein, Henwood, Matejkowski, & Santana, 2010). Individuals experiencing chronic homelessness tend to enter HF PSH with higher rates of chronic physical disease, as well as high rates of co-morbid mental health and substance use disorders. And like Charlotte-Mecklenburg, other communities have noted that multiple competing needs and limited program resources often mean that meaningful and comprehensive attention to health care often takes lower priority (e.g., Baggett et al., 2010).

This study did not assess the degree to which individuals entering housing programs needed higher levels of care, and in general, as those experiencing chronic homelessness age and enter housing after extended periods of homelessness and declining health, the demand for skilled nursing facilities will grow, particularly if chronic homelessness is left unchecked (e.g., Culhane et al., 2019). However, given the concerns voiced by direct service providers and housed study participants, at least some need for higher levels of care may be addressed by program improvements and greater attention to program fidelity. Lower staff-client ratios, more extensive

incorporation of peer support specialists into health promotion roles, the introduction of evidence-based disease management programs within HF PSH programs, the use of integrated healthcare models specifically, and generally stronger and more explicit ties to the health care systems are all evidence-supported pathways to address and improve the health of individuals in HF PSH programs (e.g., Henwood et al., 2013; Weinstein et al., 2010; Weinstein, Henwood, Cody, Jordan & Lelar, 2011; Weinstein et al., 2013). One direct service provider mentioned the need for greater connection to health care providers, **“I think having more of a continuum of care as far as our medical professionals go or being connected to CMC or Novant and - I mean we’re already connected to CMC...but getting more connected where we’re collaborating with social workers and have a whole team”** (B-09:87). The provider’s insight echoes insights from the literature. And as one study participant noted, **“My medical situation is more difficult but having my own place to live makes it better. It helps me deal with my problems. It allows me to care for myself and not have to go to a nursing home”** (E-933:1).

Recent literature on the questionable efficiency of “hotspotting” and “super-utilizer” interventions is also instructive and provides an important evaluation commentary and systems perspective on addressing the poor physical health of study participants, particularly those who frequently use expensive emergency and inpatient health services. Hotspotting is the practice of using data to identify individuals who frequently use expensive health services and then addressing their needs with multidisciplinary treatment teams. Early pre-post only studies (i.e., no comparison group) on the effectiveness and efficiency of the interventions were promising, particularly in an era of escalating health care costs. A recent more rigorous randomized control trial (RCT), however, found that the intervention had no statistical impact on hospitalizations in the 6 month follow-up period when compared to the control group (Finkelstein, Zhou, Taubman, & Doyle, 2020), which came as a disappointment to many (e.g., Abelson, 2020).

Similarly, in the early excitement around the effectiveness of HF PSH to end homelessness and secure housing for people who were thought to be “unhouseable”, a key argument for the spread of the model was its ability to reduce the high utilization of services, and thus related costs, potentially paying for the intervention and perhaps even saving money beyond it. This excitement was supported by a number of pre-post only studies, which showed significant reductions in health service utilization. RCTs and studies with a comparison group, however, tend to find more modest improvements and sometimes no improvements beyond that of the comparison group, particularly around number and length of hospitalizations (e.g., Ly & Latimer, 2015). These more modest utilization changes often mean that HF PSH either costs about the same or may even cost more than not providing housing. Nevertheless, given the positive impact on the individual and the cost offsets (albeit more modest), researchers conclude that housing first is a better, more efficient allocation of resources (e.g., Ly & Latimer, 2015).

As Lantz (2020) notes, “super-utilizer” interventions are important for individuals in need but cannot remedy all the structural problems that create this sort of utilization pattern - exposure to “decades of constrained opportunities, social/environmental risks, and chronic psychosocial stress, much of which stems from institutionalized discrimination and structural deprivation” (p. 3). In such a context, it is less surprising that poor health continues and that hospital utilization remains the same after housing and simply connecting a person to a primary care physician. Addressing the needs of individuals who frequent health services will require a more integrated, ongoing programmatic response within HF PSH and preventing it will require systemic interventions in the actual social determinants of health, like the cost of housing and the structures of economic opportunity.

Housing retention. Housing first permanent supportive housing and “other housing” had the highest rates of housing retention, which included those continually housed in one program and those with positive exits (As noted in the study limitations and in the discussion above, the other housing category includes a number of housing types that don’t fit neatly into their own category and thus is an analytically problematic category). Rapid Re-Housing (RRH) and permanent housing with family and friends (PHFF), however, have much lower rates of individuals continuously housed in the same program and much higher rates of negative exits.

In many ways, it is problematic that these interventions were named housing first interventions for the HFCM effort. While they share several features with housing first permanent supportive housing such as low-barrier access to housing, quick access to housing, and in some cases, a dimension of choice, they lack some of the key fidelity features that help stabilize housing for those in HF PSH. Neither provide a permanent housing subsidy and thus neither directly addresses the cost of housing for the long term, the key economic factor that leads to prolonged homelessness. RRH provides a shallow subsidy that lasts from 6 to 24 months and depending on the program, may or may not be renewed. PHFF offers no subsidy to offset the cost of housing and relies on social networks that are likely financially strapped to provide the economic support of housing. RRH provides limited supportive services, mainly focused on immediate housing services. PHFF does not offer supportive services. The lack of a permanent housing subsidy and wrap-around services - key features in the evidence supporting HF PSH - suggests that stakeholders should not expect the same outcomes from RRH and PHFF as evidence suggests for HF PSH. These features are discussed in detail in the program fidelity section of the process evaluation.

There is a risk in calling every housing intervention “housing first” without being more explicit about what that means in non-PSH models or as a philosophy guiding a service sector. The lack of clarity about the nature of housing first and the implementation of models that did not meet fidelity criteria undercut some service providers’ belief in housing first. One provider noted, **“I’m not a fan of housing first, I’ll say that. I don’t feel like it works. Being honest. I can see we take clients where they are. But then when you bring them in, there needs to be some parameters in place so they maintain their housing. We’re seeing them lose their housing. And that’s not the goal of this program. And we don’t have the funding to keep moving them from place to place. So I’m not a fan of it”** (B-04:141). Elsewhere in the interview, the provider noted that some of the clients in the program did not have a regular case manager or if they did, the client/staff ratio was so high that once housed, individuals could not expect regular contact with a case manager. A couple of direct service providers also expressed concerns that their programs were not appropriately addressing client’s substance use disorders and that housing first was **“setting them up for failure”** (B-7:72). However, in the same focus group, the providers noted their large caseload and the lack of available substance use supportive services that follow a harm reduction approach. In these cases, the lack of clarity about the definition and service features of a housing first model undercut providers’ confidence in the model and perpetuated the myths that housing first is housing only and that a harm reduction approach leads to more substance use, when more likely the programs were not implementing program elements that have been linked to program success.

Nevertheless, given the increased cost of housing in Charlotte-Mecklenburg, the lack of permanent housing subsidies to meet current housing needs, the rapid disappearance of existing affordable units, and the severe toll chronic homelessness takes on individuals, testing and understanding other housing models that help end chronic homelessness is important. In addition, information gained from Coordinated Entry assessments and examination of inflow and outflow patterns suggests that perhaps not all individuals experiencing chronic homelessness need the level of care that HF PSH provides. Further study of the RRH and PHFF that was used during HFCM is warranted as is testing innovations that may increase the effectiveness of these interventions. For example, would PHFF work better if the households were provided economic (i.e., a shallow rent subsidy) and case management support?

In addition to testing innovations, the homeless services sector should better understand and articulate how a housing first philosophy undergirds both system efforts and specific interventions like RRH, PHFF, and other adaptations of housing first that don’t share the evidence-base of HF PSH. During one of the HFCM train-the-trainer sessions, Dr. Sam Tsemberis, the founder of HF PSH, distilled the principles of the housing first philosophy down as bending a fragmented system in way that it will support a person, versus bending the person around a fragmented system. As he noted, **“We’re not going to change SSI but is there a SOAR person so we can make it all functional for this person. The usual presentation is that there is something about this person and they’re not**

getting it, because things are set up in a particular way and they're not following through. When you say, who's problem is it really, it's really for the most part, in many cases, a system problem, because we designed a system that's rigid, that's completely ridiculous for the people we're working with to navigate, for anyone to navigate." How can and do these HF PSH alternatives fit within this philosophy and the other hallmarks that distinguish housing first from traditional helping models? The service sector work of articulating how Charlotte-Mecklenburg's overall response to homelessness is housing first and why specific interventions that don't follow fidelity criteria should be considered housing first will provide important clarity for direct service providers and individuals experiencing chronic homelessness.

Conclusion

Before they were housed, study participants experiencing chronic homelessness noted their qualities of persistence and grit that would help them survive homelessness and eventually leave it. As one study participant stated, "I don't give up. I'm motivated. I just keep going" (E-907:01). The HFCM effort to end chronic homelessness housed over 1000 individuals from January 2015 through January 2020, a substantial accomplishment, particularly in a tightening housing market with limited new resources. As many individuals with lived experience in chronic homelessness have learned in their own quest to find housing, in order to meet the goal of ending chronic homelessness in Charlotte-Mecklenburg, stakeholders need to "just keep going."

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APPENDICES

139 Logic Model/Theory of Change

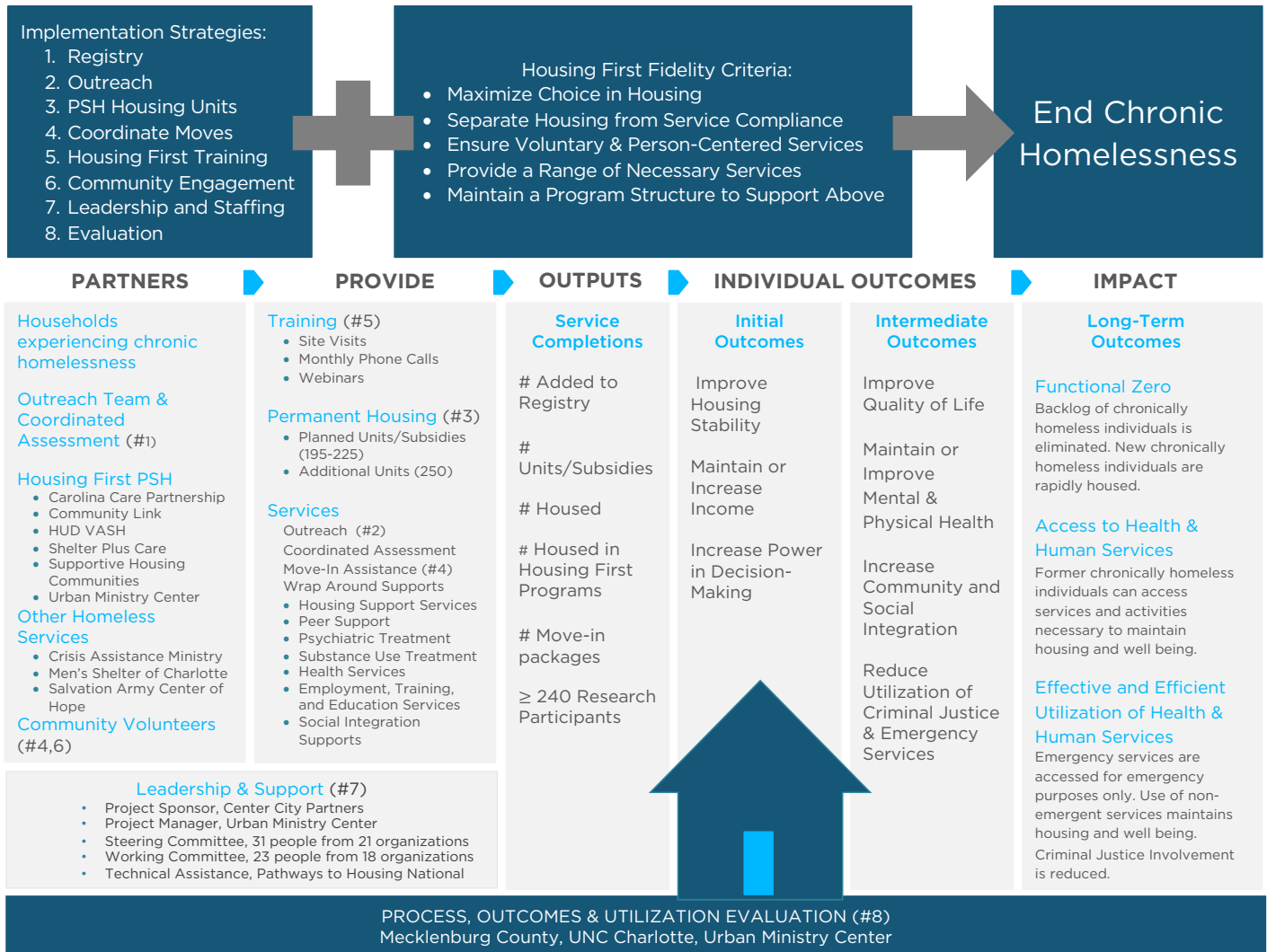
140 Study Methods

149 Data Tables

Appendix A: Logic Model Theory of Change

Housing First Charlotte-Mecklenburg Theory of Change & Logic Model

The Housing First Charlotte-Mecklenburg theory of change includes the implementation strategies developed by community stakeholders and the fidelity criteria for effective housing first programs established by research.



Appendix B: Research Methodology

Research Questions

The research project includes two outcomes study components – an individual outcomes evaluation and a service utilization study. The research questions addressed by the project and discussed in this report are listed below.

Outcomes Evaluation

- Q Does the housing first model as implemented by HFCM lead to improved housing stability, quality of life, and mental and physical health?
- Q How do outcomes compare to homeless adults who were not housed but received other usual homeless services?
- Q How do research participants describe their own housing, clinical, and social stability before and after being housed?

Utilization Study

- Q How does the housing first model as implemented by HFCM impact how individuals experiencing chronic homelessness utilize area health and human services?
- Q How does the housing first permanent supportive housing model impact the cost of area health and human services?
- Q How do utilization and cost outcomes compare to homeless adults who were not housed but received other services as usual?

Research Design

We used a quasi-experimental, non-equivalent comparison group design to answer the research questions and further examine effort outcomes, including quality of life, mental health, and physical health outcomes, as well as service utilization outcomes. The most rigorous method to examine the impact of an intervention on desired outcomes is a randomized control experiment, which requires individuals eligible for an intervention to be assigned randomly to a treatment group where they receive the intervention or a control group where they do not receive the intervention. Randomized control experiments are expensive, require extensive buy-in and planning before an intervention begins, and since the Housing First Charlotte-Mecklenburg was well underway when we were asked to evaluate it, it was not feasible design for this project. Instead, we used the structure of HFCM to create a natural experiment that allowed us to compare individuals who were housed (i.e., the intervention) with the individuals who were on the By-Name List to be housed (i.e., a waitlist). Examining longitudinal changes in a comparison group, even if not randomly assigned, is a more rigorous method to assess the impact of the intervention on outcomes than only examining the change in the group that received the intervention.

Sample

The sample, or those who participated in the research, was drawn from the larger study population that consisted of individuals experiencing chronic homelessness who were on the chronic homelessness registry created by Housing First Charlotte-Mecklenburg, now called the By-Name List. Specifically, the study population consisted of all individuals who were on the By-Name List and not housed as of March 14, 2016, the date data collection began, and all individuals added to the registry from that date through December 2017. Research participants were recruited from the By-Name List using several strategies. In order to be included in the sample, individuals had to be at least 18 years old and meet the HUD definition of chronic homelessness, meaning they must have a disabling condition and have been homeless for 12 or more months, or have had three or more episodes of homelessness totaling 12 or more months over the past four years (24 CFR 91.5, 578.3). In addition, participants were asked to complete a Release of Information (ROI) form to allow the research team to access health and human service utilization records. Individuals who didn't complete an ROI were not included in the study. Both the intervention and comparison groups were recruited from the By-Name List.

The intervention group consisted of those recruited from the By-Name List who eventually exited homelessness for permanent housing, including permanent supportive housing (PSH), rapid-rehousing (RRH), rental with subsidy support, rental without subsidy support or permanent tenure with family/friends. Housing date and placement type for the Project's participants was collected on a monthly basis from a HMIS research staff member. This information reflects the initial housing placement a participant received. Once a participant was identified as housed they were added to the intervention group. The study followed an intention-to-treat analysis format, therefore, any participant that was housed is included in the housed group, whether or not they maintain the specific housing or any housing. As long as they were housed at some point following their baseline interview, they received the intervention. In addition, we classify participants housing placement by where they were initially placed (i.e. PSH, RRH, other or family). In comparing outcomes for HF PSH v Non-HF PSH participants, there is the potential that participants in either group changed housing type or returned to homelessness, however, that is considered a possible outcome for the given intervention. The comparison group consisted of participants who were recruited from the By-Name List, but were not housed.

Recruitment

Baseline interviews: Research participants were referred to the research team by Outreach and Coordinated Entry staff. In order to be referred and included in the sample, individuals had to meet several conditions: 1) they had to consent to participate; 2) they had to be on the chronic homeless registry, now called the By-Name List; 3) they had to be at least 18 years old; and 4) they had to meet the HUD definition of chronic homelessness, meaning they must have a disabling condition and have been homeless for 12 or more months, or have had three or more episodes of homelessness totaling 12 or more months over the past four years (24 CFR 91.5, 578.3).

Beginning March 14, 2016, the Project began interviewing individuals that met the inclusion requirements. Although the evaluation team did not have access to the By-Name List, there were several ways we received contact information for individuals on the Registry in order to recruit them for the study:

- If an individual agreed to share their information with the research team, Coordinated Entry case managers would either call the Evaluation team project Manager (PM) when an individual completed an assessment, or give the individual the PM's contact information so they could call directly.
- On a monthly basis a County staff member who was also a research team member, would provide a list of individuals who had completed a coordinated entry and agreed to share their contact information with the

research team.

- When possible Outreach staff at a local non-profit homeless agency would direct potential participants to available interviewers.
- A peer research specialist helped recruit potential participants at locations homeless individuals were known to congregate - local homeless agency, men's and women's shelter, and local homeless resource center.

Once we had the contact information the PM contacted potential participants by phone or email, explained the study to the potential participants, and, if they were interested, arranged a time for a trained interviewer to meet them at either a local library branch, shelter or a local homeless service agency. Interviews typically took approximately an 1 to 1.5 hours to complete. While no new participants entered the study after 12/31/17, follow-up interviews continued through December, 2018. Individuals were provided a \$20 gift card for participating in each interview.

Follow up interviews: Once in the study, the research team attempted to follow up with all participants at 6, 12 and 24 months following their baseline interview, or if housed, the same intervals following their housed date. Given the unique difficulties for individuals living without homes, locating participants was a challenge. Although participants were asked for contact information during the interview, some participants did not have email or phone numbers. In addition, contact information frequently changed, or was temporarily or permanently unavailable, during the study period. Furthermore, some participants may have left the county after completing a baseline interview. This was consistent with the experiences of the overall By-Name List. The By-Name List was regularly cleaned for individuals that were considered inactive, or no longer accessible by local providers.

If original contact information was no longer active, we used several methods to reach the participants:

- distributed flyers to participants mailboxes at a local non-profit organization;
- reviewed monthly By-Name List lists, provided by the HMIS research staff, of individuals who agreed to share contact info with the study for participants that may have completed a second Coordinated Entry interview;
- contacted outreach staff and housing program case managers for assistance;
- hired a Peer Research Specialist who reached out to the homeless community in locations frequented by local homeless individuals.

The research team was able to complete approximately the same percentage of follow up surveys with participants in both the intervention (66%) and the comparison group (68%). At the conclusion of data collection the research team reviewed all the surveys to ensure they fit the specified intervals. Surveys were considered valid if the interview occurred one standard deviation from the mean for the survey period (i.e. for 6 months - between 5 and 7.5 months after baseline or housed date). A participant was considered to be in the intervention group for both the outcomes and utilization portion of the study if they received the intervention. However, for the outcomes portion of the study, participants were counted as unhoused if they only completed unhoused surveys.

Housing Status: At the conclusion of the data collection period (12/31/18) the research team reviewed the housing status for each participant. The primary source of housing status and placement was HMIS. A research team member with access to HMIS confirmed and added the following information: Program entry date, Program exit date, Housed date, Housing program, and Subsequent housing.

The HMIS database was also the primary resource for determining if an individual returned to homelessness, however, we supplemented that information with other resources. We began by reviewing emergency shelter entries, and reviewing in detail notes added to HMIS by Outreach and case managers for each participant. In addition, we reviewed notes collected by the PM during the data collection period as well as questions pertaining to housing in the Outcomes survey (residential follow-back calendar, and "How many times have you moved in the

last 6 months?”). If it continued to be unclear whether the participant was still housed (i.e. entry into a housing program without a housing date, or exited housing with no information on subsequent housing), we reached out to the Outreach staff at a local non-profit homeless agency. Finally, we used the United States Department of Housing and Urban Development (HUD) exit codes to classify exits as positive or negative, with one exception - an exit to a long-term care facility was considered a positive exit. See table 1 below for listing of HUD exit codes.

Table 1: List of HUD exit codes

HUD Exit - Positive	HUD Exit - Negative
Moved from HOPWA funded project to HOPWA PH	Shelter
Permanent housing (other than RRH) for formerly homeless persons	Hotel/Motel
Rental by client, with GPD TIP housing subsidy	Place not meant for human habitation
Rental by client with other ongoing housing subsidy	Jail
Rental by client with RRH or equivalent subsidy	Moved from HOPWA to HOPWA Transitional Housing
Rental by client, with VASH housing subsidy	Transition Housing
Owned by client, no ongoing subsidy	Psychiatric hospital
Rental by client, no ongoing subsidy	Halfway house w/ no homeless criteria
Family/friends permanent tenure	Safe Haven
Long-term care or nursing home (classified by HUD as a negative exit)	Substance use facility
	Family/friends temporary tenure
	Data not collected

Data Collection

Individual Outcomes. Data for the individual outcomes evaluation and service utilization study were obtained from or with the permission of consenting individuals from the By-Name List who participated in individual interviews. Individual interviews took approximately 1-1.5 hours to complete and consisted of demographic questions, standardized measures, and qualitative questions. The interview questionnaire included standardized measures to assess many facets of the participant’s life such as psychological symptoms, substance use, community integration, exposure to traumatic events, food security, and recent housing situations (See Table 2 below). Psychometric information on measures is described below.

Table 2. Description of individual outcome measures

Measure	Administration	Description
Making Decisions Empowerment Scale	Baseline, 6, 12, 24 months	Score indicates perceived empowerment in decision-making. The total scale demonstrated reliability and validity, although subscales of the scale appear less robust of a measure (Rogers et al., 2010). This scale has been demonstrated to have good consistency and internal reliability, as well as good factorial validity and known groups validity (Rogers et al., 1997).
Modified Colorado Symptom Index	Baseline, 6, 12, 24 months	The MCSI was examined in terms of reliability and construct validity in a national sample of the homeless population. The MCSI was found to be a reliable and valid measure of psychological symptoms within this population. High internal consistency (.90) and test-retest coefficients (average .79) revealed the reliability of the instrument, while the instrument’s relationship to other measures showed good construct validity and responsiveness to change (Conrad et al., 2001).
PTSD Checklist - Civilian Version (PCL-C)	Baseline, 6, 12, 24 months	The score indicates if the participant meets clinical criteria for Post Traumatic Stress Disorder (PTSD) and the severity of PTSD. PCL-C was found to have strong internal consistency and good test-retest reliability. There was also support for convergent validity ($r > .75$). The test-retest coefficient for the total scores in this instrument were .92 (Ruggiero et al., 2003).
Life Events Checklist for DSM-5 (LEC-5)	Baseline only	The checklist screens for potentially traumatic events the respondent has experienced or witnessed during the participant’s lifetime. Total score equals the number of events either experienced or witnessed during the participant’s lifetime. While there is limited testing of the LEC, in a study of veterans it was found to have strong correlations with other measures known to be associated with exposure to trauma (Gray et al., 2004).
SF-12 Version 2 (SF12)	Baseline, 6, 12, 24 months	Score indicates study participant’s perceived physical and mental health. The SF12 is reported to have good discriminant function and convergent validity. It also correlates strongly with the longer SF36, yet takes only 2-3 minutes to complete (Ware, Kosinski, & Dewey, 2000).

QOLI-20	Baseline, 6, 12, 24 months	Score indicates study participant’s perceived quality of life. They range from 20-140. Greater scores indicate greater levels of overall life satisfaction. Tests of subjective QoLI’ s internal reliability show Cronbach’s alpa ranging from 0.79 to 0.88 (median = 0.85) (Lehman, 1996). Test-retest reliability testing show Cronbach’s alpa ranging from 0.41 to 0.95 (median = 0.72) (Lehman, 1996).
Addiction Severity Index	Baseline, 6, 12, 24 months; Lifetime use, Baseline only	The ASI has been tested in many different populations for reliability and validity and has far exceeded minimum standards (McLellan et al., 1985). It has also been tested in homeless individuals who use substances and found to be acceptable in terms of reliability and validity (Zanis, McLellan, Cnaan, & Randall, 1994).
U.S. Adult Food Security Survey	Baseline, 6, 12, 24 months	Score indicates food security status - either high, marginal, low, or very low food security.
Qualitative - Before Housing	Baseline and 6, 12, 24 months if not housed	<ul style="list-style-type: none"> • In the last 6 months, where do you take care of your health needs? [3-5 service locations; specific names of programs/ organizations if possible] • In the last six months, where do you receive the most services? [Like food, employment, substance abuse, counseling, etc.; 3-5 service locations; specific names of programs/ organizations if possible] • What barriers do you face in trying to find a regular place to live? • What do you think would change the most for you in your daily life if you were housed? • What strengths and resources do you have that may help you leave homelessness and find a regular place to live? (Resources can be inside or outside the individual; What are your personal strengths? You have survived a lot, how have you done it?) • Is there anything else you would like to add about your experience of homelessness?
Qualitative - Lost Housing	6, 12, 24 months	<ul style="list-style-type: none"> • If you have lost your housing in the last 6 months [in past 12 months at 24 month follow up interview], why do you think that housing didn’t work?
Qualitative - After Housing	6, 12, 24 months	<ul style="list-style-type: none"> • Besides housing, what has changed most in your daily life since you moved into housing? • What does your housing program do well? • What could your housing program improve? • What strengths and resources do you have that helped you leave homelessness and find a regular place to live? (Resources can be inside or outside the individual; What are your personal strengths?) • Is there anything else you would like to add about your experience of being housed or your housing program?

Service Utilization. With permission of each individual who participated in baseline interviews and provided a signed release of information form, we obtained administrative data from health and human services partners. Utilization data was made available to the research team either through the Institute for Social Capital (social service, criminal justice and mental health data) or individually negotiated data sharing agreements between the research effort and the data partner (Medic, and inpatient and outpatient health data). The data allowed us to examine participants utilization of services. For those in the comparison group, administrative data on service utilization was collected during the 12 month period prior to their baseline interview date and the 12 month period after their baseline interview date. For the intervention group, administrative data on service utilization was collected during the 12 month period prior to the participant’s housed date and the 12 months period following the housed date. The sources of service utilization measures are provided in Table 3 below.

Table 3. Description of service utilization sources.

Administrative Data	Data Source
Health Care	Atrium Health, Novant Health, Mecklenburg County Medic, Mecklenburg Public Health Department, Charlotte Community Health Clinic, CW Williams Community Clinic
Mental Health	Institute for Social Capital [Cardinal Innovations Healthcare Solutions]
Human Services	Institute for Social Capital [Homeless Management Information System; Department of Social Services, Adult Services Division; Charlotte Housing Authority; Crisis Assistance Ministry]
Criminal Justice	Institute for Social Capital & Publicly Available Data [Mecklenburg County Sheriff’s Office] Publicly Available Data [Charlotte-Mecklenburg Police Department]

Cost Analysis. The cost analysis used data from the utilization records described above. The cost study focused on individuals who had been housed in Housing First Permanent Supportive Housing (HF PSH; n=112) compared to those who were not housed (n=129). Participants housed in HF PSH represent the largest percentage of the housed individuals in the study (68% of participants housed for 12 months or more), as well as the largest portion of those housed from the By Name List (n= 301, or 50% of those housed from the BNL during the study time period).

In addition to data from the outcomes survey and administrative data on utilization, the team collected cost data from a survey of housing providers based on the cost survey used in the HUD Family Options Study and likewise sought to capture all costs including capital costs and costs of donated or in-kind goods which are integral to the operations of the program. Where possible, the team used utilization data to impute the cost of other services. Where local costs were not available, costs were derived from the literature. The portion of the cost analysis that focuses on the economic benefit of improvements in perceived health and mental health uses data from

individuals who completed the SF-12 instrument in the outcomes evaluation and had at least 12 months of utilization data post housing (n=70) or baseline (n=47).

Table 4: Methods for Determining Unit Costs

Data Collection Method	Data source	Calculation
Shelter Night	Estimates from Salvation Army Center of Hope and Roof Above (Men's Shelter)	Weighted by female (23%) and male (77%) participants; Cost of Roof Above (\$26.88) and SACOH (\$20.00).
Incarceration (Jail) Night	Literature (Henrichson et al., 2015).	\$166.04 (2014) inflated to 2018 value.
Arrests	Literature (Pierce County, WA calculation cited in Henrichson & Galgano, 2013)	\$165 (2009) inflated to 2018 value; Value of \$55 per an officer hour, including benefits & equipment, multiplied by 3 hours for minor arrests.
Health Department Visit	Administrative Data & Fee Schedule	Average cost of a visit by participants housed in PSH using the department 2016 fee schedule.
Medic Encounter	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost.
Emergency Room Visit	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Inpatient Visit	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Outpatient Visit	Administrative Data (Hospitals only)	Estimate from Difference-in-Difference analysis multiplied by cost:charge ratio, weighted by hospital system.
Financial Assistance (not including one-time costs)	Administrative Data	Estimate from Difference-in-Difference analysis multiplied by cost.

Data Analysis

The research team used several techniques to analyze data for the outcomes portion of the study. Univariate and bivariate statistics were used to describe the characteristics of people who participated in the study. Differences among demographic subpopulations were determined using T-Tests or Chi-Square analyses. To examine differences between the intervention and comparison groups over time, we used a Difference-in-Difference (DiD) estimation technique. DiD is an analytic technique that can be used when randomized groups are not possible. DiD analysis compares the change over time between the intervention group and a similar comparison group. DiD uses any change in the outcome experienced by the comparison group as an indicator of the change that may have occurred in the intervention group without the intervention. When it is statistically significant, the difference in

change over time between the two groups can then be attributed to the intervention. We use an additional analytic technique to adjust for time effects that may have occurred since our participants were housed at different times. This additional technique sometimes results in change scores that are slightly different than a simple difference in the outcome of the intervention and comparison group.

For the Difference-in-Difference analysis examining survey outcomes we compare responses from the comparison and intervention groups at two points in time, baseline and a subsequent follow up which includes 6, 12 and 24 month follow up surveys (see table 4 for the numbers of follow up surveys by time period). This is referred to as a pooled sample analytical technique, which allows us to summarize the effect of receiving housing on each outcome, while carefully controlling for potential time trends in the data that are unrelated to HFCM. The estimated effect is a weighted average of the surveys, and reflects a shorter term given we have the largest number of 6 month responses, followed by 12 and 24 months. As a result of pooling all the valid follow up surveys some participants may have completed more than one survey that is included in the analysis. The mean number of surveys completed for Housed participants is 1.6 (SD=0.69), for Unhoused the mean number is 1.5 (SD=0.66).

Table 5: Number of valid surveys for Housed and Unhoused by time period

	# of Participants	6 Mos Follow Up	12 Mos Follow Up	24 Mos Follow Up
Housed	111	75	81	22
Unhoused	64	49	35	13

The DiD analysis for the utilization portion of the report compares 12 months prior to baseline and 12 months post baseline for the comparison group, and 12 months prior to the participants housed date and 12 months following their housed date for the intervention group. The research team used the statistical software SAS and STATA to complete these analyses.

Qualitative data were analyzed using a modified grounded theory analysis to create primary categories and subcategories. This open and focused coding process (Glaser & Strauss, 1967), also known as constant comparison, was conducted using Atlas.ti, a software specifically developed to facilitate grounded theory analysis with multiple forms of original data including Word and PDF documents. The interviews were digitally recorded and transcribed verbatim. Atlas.ti was used for unitizing, coding, and analyzing the data. In the first phase of analysis, the research team segmented the data into units. Units or segments of data were then compared to other segments of data to identify similarities and differences and determine categories and subcategories that describe the data. Coding was an iterative and collaborative process. The research team members used a combination of pre-determined codes (codes that emerge from the literature and program theory) and inductive codes (codes that emerge from the data). Observations about the patterns and findings in the data were captured through memos.

Appendix C: Data tables

Table 1: Participant characteristics, Study Sample (n=330) vs. By-Name-List (N= 1405)

	HFCMPE (n=330)		By-Name List (n=1405)	
	Number	Percent	Number	Percent
<i>Gender</i>				
Female	84	25.5	341	75.2
Male	244	73.9	1057	24.3
other/no response	< 5	< 2.0	7	0.5
<i>Race</i>				
Black	201	60.9		
White	87	26.4		
Multiple Races	23	7.0		
Other/no response/missing	19	5.8		
<i>Race (HMIS)</i>				
BIPOC	232	70.3	1017	72.6
White only	98	29.7	383	27.4
Missing			5	
<i>Ethnicity</i>				
Non-Hispanic/ Non-Latino	302	91.5	1365	97.20%
Hispanic/Latino	9	2.7	32	2.30%
missing	19	5.8	9	0.6%
<i>Veteran</i>	20	6.1	142	10.1%
<i>Age (median= years)</i>	53.3		51	
18-35	33	10.0	201	14.3%
36-50	99	30.0	477	34.0%
51-64	184	55.8	678	48.3%
65 and above	14	4.2	48	3.4%
<i>Housing</i>				
Not Housed	129	39.1%	800	56.9%
PSH	136	41.2%	301	21.4%
RRH	28	8.5%	21	1.5%
Family/Friends	18	5.5%	116	8.3%

Other	19	5.8%	167	11.9%
<i>VISPDAT Score (mean)</i>	9.7	SD = 3.01	9.2	SD = 3.02
1 to 4	16	0.1	86	6.5%
5 to 9	133	0.4	598	45.0%
10 to 11	71	0.2	304	22.9%
12 and above	94	0.3	340	25.6%
Missing	16		77	

Table 2: Demographic characteristics of Housed and Comparison groups

	Unhoused (n=129)		Housed (n=201)	
	Number	Percent	Number	Percent
<i>Gender</i>				
Female	36	27.9	48	23.9
Male	93	72.1	151	75.1
Transgender	0	0	< 5	< 2.5
<i>Race</i>				
Black	85	65.9	116	57.7
White	28	21.7	59	29.4
Multiple Races	7	5.4	16	8.0
Other/no response	9	7.0	10	5.0
<i>Ethnicity</i>				
Non-Hispanic/Non-Latino	114	88.4	188	93.5
Hispanic/Latino	5	3.9	< 5	< 2.5
Don't Know/Refused	10	7.8	8	4.0
Frequency Missing	0	0	< 5	< 2.5
<i>Age (Median= years)</i>	53.4		53.3	
18-35	13	10.1	20	10
36-50	35	27.1	64	31.8
51-64	74	57.4	110	54.7
65 and above	7	5.4	7	3.5
<50	46	35.66	78	38.8

≥50	83	64.34	123	61.2
<i>Veteran</i>	8	6.2	12	6.0
<i>Education</i>				
High School Diploma/GED	89	69.0%	134	66.7%
Less than High School	37	28.7%	66	32.8%
Missing	< 5	< 3.9	< 5	< 2.5
<i>Yrs Homeless (Mean)</i>	7.9		7.7	
< 5 years homeless	68	53.5	97	48.26
5+ years homeless	59	46.5	104	51.74
<i>VISP DAT Score (mean)</i>	8.8		10.2	
1 to 4	5	4.2	11	5.6
5 to 9	70	58.8	63	32.3
10 to 11	25	21.0	46	23.6
12 or more	19	16.0	75	38.5
Missing	10		6	
<i>Type of Disabling Condition</i>				
Physical Disability	45	34.88	101	50.25
Chronic Health Condition	32	24.81	67	33.33
Mental Health Disability	62	48.06	134	66.67
Substance Use	49	37.98	119	59.2
HIV AIDS	4	3.1	21	10.45
Developmental	7	5.43	8	3.98
<i># of Disabling Conditions (mean)</i>	1.75		2.60	
No Disabling Conditions	23	17.83	7	3.48
1 Disabling Conditions	40	31.01	30	14.93
2 disabling Conditions	32	24.81	55	27.36
3 disabling Conditions	20	15.50	62	30.85
4 or more	14	10.85	47	23.38

Table 3: PSH Demographic characteristics

	PSH (n=136)	
	#	%
Everyone	136	100.0%
Males	103	76.3
Females	32	23.7
Median Age (years)	52.6	
<50 yrs old	54	39.7
≥50 yrs old	82	60.3
White	48	35.3
BIPOC	88	64.7
Mean Yrs homeless	6	
< 5 yrs homeless	57	41.9
5+ yrs homeless	79	58.1

Table 4: Housing Retention by Placement Type (includes participants housed for at least 12 months)

	Total (n=165)		PSH (n=112)		RRH (n=22)		Family (n=17)		Other (n=14)	
	#	%	#	%	#	%	#	%	#	%
Continuously housed	108	65.5	83	74.1	8	36.4	6	35.3	11	78.6
Positive Exits	12	7.3	7	6.3	< 5	< 23.0	< 5	< 29.0	0	0
Negative Exits	45	27.3	22	19.6	10	45.5	10	58.8	< 5	<35.7

Table 5: Mean participant QOL score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	72.73	69.71	0.3513
Male	73.00	71.33	0.6445
Female	72.15	66.21	0.3925
White	69.47	71.20	0.7717
BIPOC	73.73	69.03	0.2281
Over 50	70.69	71.94	0.7417

Under 50	78.88	66.05	0.0427
> 5 yrs homeless	72.78	71.14	0.7135
< 5 yrs homeless	73.41	68.02	0.2843

Table 6: Mean participant QOL score: Difference in Differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*-Coef** (SE)	Adjusted DID*-Coef** (SE)	P-values Adj.*** DID*
Overall	72.73	74.77	2.04	69.71	91.49	21.78	19.75	19.09	0.0000
(US n=64; HOU n=111)	(19.05)	(24.99)	(2.27)	(21.45)	(20.02)	(2.33)	(3.24)	(3.03)	
Male	73.00	77.71	4.71	71.33	90.37	19.04	14.34	14.37	0.0002
(US n=44; HOU n=82)	(19.30)	(23.95)	(2.65)	(19.34)	(19.69)	(2.56)	(3.67)	(3.68)	
Female	72.15	68.61	-3.54	66.21	94.81	28.60	32.14	31.00	0.0000
(US n=20; HOU=28)	(18.96)	(26.37)	(3.90)	(26.21)	(20.83)	(5.20)	(6.46)	(6.37)	
White	69.47	75.40	5.93	71.20	87.19	15.99	10.06	16.31	0.0144
(US n=15; HOU n=35)	(14.80)	(21.53)	(4.35)	(20.80)	(20.48)	(3.75)	(5.67)	(6.43)	
BIPOC	73.73	74.55	0.81	69.03	93.58	24.55	23.73	22.61	0.0000
(US n=49; HOU n=76)	(20.20)	(26.23)	(2.65)	(21.84)	(19.54)	(2.91)	(3.93)	(3.34)	
Over 50	70.69	73.47	2.78	71.94	91.42	19.48	16.70	16.01	0.0000
(US n=48; HOU n=69)	(18.95)	(23.99)	(2.63)	(21.02)	(21.30)	(2.94)	(3.94)	(3.37)	
Under 50	78.88	78.91	0.04	66.05	91.61	25.56	25.52	24.59	0.0030
(US n=16; HOU n=42)	(18.57)	(28.10)	(4.61)	(21.90)	(18.06)	(3.83)	(5.90)	(7.93)	

> 5 yrs homeless	72.78	68.88	-3.90	71.14	91.55	20.41	24.31	20.72	0.0000
(US n=27; HOU n=54)	(20.43)	(26.36)	(2.72)	(21.16)	(19.83)	(3.54)	(4.45)	(4.03)	
< 5 yrs homeless	73.41	85.35	11.94	68.20	91.44	23.23	11.29	17.61	0.0004
(US n=36; HOU n=57)	(17.37)	(17.55)	(2.98)	(21.84)	(20.34)	(3.01)	(4.21)	(4.78)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 7: Mean participant Empowered Decision Making score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	2.83	2.80	0.5374
Male	2.84	2.77	0.1805
Female	2.79	2.87	0.3572
White	2.79	2.76	0.7358
BIPOC	2.84	2.82	0.6896
Over 50	2.80	2.78	0.7837
Under 50	2.92	2.83	0.2864
> 5 yrs homeless	2.84	2.79	0.4111
< 5 yrs homeless	2.80	2.81	0.8358

Table 8: Mean participant Empowered Decision Making score: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- values Adj.*** DID*
Overall	2.83	2.81	-0.02	2.80	2.88	0.08	0.10	0.06	0.1313
(US n=64; HOU n=111)	(0.27)	(0.19)	(0.03)	(0.28)	(0.27)	(0.03)	(0.04)	(0.04)	
Male	2.84	2.82	-0.02	2.77	2.86	0.08	0.10	0.06	0.1527
(US n=44; HOU n=82)	(0.28)	(0.20)	(0.04)	(0.26)	(0.26)	(0.03)	(0.05)	(0.04)	

Female	2.79	2.78	-0.01	2.87	2.93	0.06	0.07	0.04	0.6468
(US n=20; HOU=28)	(0.27)	(0.16)	(0.05)	(0.32)	(0.29)	(0.05)	(0.07)	(0.09)	
White	2.79	2.76	-0.03	2.76	2.85	0.09	0.12	0.14	0.1206
(US n=15; HOU n=35)	(0.28)	(0.18)	(0.08)	(0.27)	(0.27)	(0.04)	(0.09)	(0.09)	
BIPOC	2.84	2.82	-0.01	2.82	2.89	0.07	0.09	0.04	0.4297
(US n=49; HOU n=76)	(0.27)	(0.19)	(0.03)	(0.28)	(0.27)	(0.03)	(0.05)	(0.04)	
Over 50	2.80	2.80	0.00	2.78	2.84	0.06	0.06	0.02	0.7141
(US n=48; HOU n=69)	(0.27)	(0.19)	(0.04)	(0.27)	(0.23)	(0.03)	(0.05)	(0.05)	
Under 50	2.92	2.85	-0.06	2.83	2.94	0.11	0.17	0.11	0.1250
(US n=16; HOU n=42)	(0.26)	(0.18)	(0.06)	(0.29)	(0.32)	(0.04)	(0.07)	(0.07)	
> 5 yrs homele ss	2.84	2.80	-0.04	2.79	2.87	0.08	0.11	0.09	0.1192
(US n=27; HOU n=54)	(0.30)	(0.19)	(0.04)	(0.27)	(0.27)	(0.04)	(0.06)	(0.06)	
< 5 yrs homele ss	2.80	2.81	0.02	2.81	2.89	0.08	0.06	0.12	0.0185
(US n=36; HOU n=57)	(0.24)	(0.18)	(0.05)	(0.29)	(0.27)	(0.04)	(0.06)	(0.05)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 9: Mean participant SF 12 Physical Component score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	41.15	40.50	0.7199
Male	40.44	40.59	0.9430
Female	42.70	39.17	0.3051

White	38.39	39.07	0.8398
BIPOC	41.99	41.16	0.6990
Over 50	40.30	38.21	0.3028
Under 50	43.70	44.28	0.8691
> 5 yrs homeless	41.15	41.59	0.8597
< 5 yrs homeless	42.02	39.35	0.2993

Table 10: Mean Participant SF12 Physical Component score: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-values Adj.*** DID*
Overall	41.15	38.76	-2.39	40.50	42.21	1.71	4.10	2.47	0.0768
(US n=64; HOU n=111)	(11.45)	(11.37)	(1.27)	(11.39)	(11.68)	(0.95)	(1.58)	(1.39)	
Male	40.44	40.08	-0.36	40.59	43.14	2.55	2.91	1.63	0.3210
(US n=44; HOU n=82)	(10.16)	(10.79)	(1.36)	(11.56)	(11.36)	(1.06)	(1.71)	(1.63)	
Female	42.70	36.07	-6.63	39.17	39.28	0.11	6.74	5.08	0.1063
(US n=20; HOU=28)	(14.05)	(12.21)	(2.55)	(9.57)	(11.84)	(2.00)	(3.21)	(3.08)	
White	38.39	35.18	-3.21	39.07	40.31	1.24	4.45	2.43	0.4262
(US n=15; HOU n=35)	(10.29)	(10.62)	(2.01)	(11.03)	(12.45)	(1.59)	(2.53)	(3.03)	
BIPOC	41.99	39.92	-2.07	41.16	43.12	1.96	4.03	2.80	0.1057
(US n=49; HOU n=76)	(11.75)	(11.43)	(1.55)	(11.57)	(11.23)	(1.20)	(1.95)	(1.72)	
Over 50	40.30	38.04	-2.26	38.21	40.26	2.06	4.32	2.38	0.1231
(US n=48; HOU n=69)	(11.27)	(10.41)	(1.51)	(10.39)	(11.07)	(1.16)	(1.89)	(1.53)	

Under 50	43.70	40.99	-2.70	44.28	45.13	0.85	3.55	2.83	0.3885
(US n=16; HOU n=42)	(11.99)	(13.95)	(2.43)	(12.06)	(12.02)	(1.68)	(2.90)	(3.26)	
> 5 yrs homeless	41.15	38.21	-2.94	41.59	43.43	1.84	4.78	2.70	0.1493
(US n=27; HOU n=54)	(11.10)	(11.45)	(1.69)	(12.13)	(11.61)	(1.30)	(2.12)	(1.86)	
< 5 yrs homeless	42.02	40.07	-1.95	39.35	40.87	1.51	3.46	2.95	0.1889
(US n=36; HOU n=57)	(11.39)	(11.08)	(1.92)	(10.54)	(11.67)	(1.42)	(2.37)	(2.23)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 11: % of participants with Food Insecurity (Low and Very low Food Insecurity): Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.859	0.820	0.4979
Male	0.860	0.800	0.4075
Female	0.850	0.860	0.9449
White	0.870	0.800	0.5739
BIPOC	0.860	0.830	0.6746
Over 50	0.850	0.810	0.5474
Under 50	0.880	0.830	0.6953
> 5 yrs homeless	0.860	0.840	0.8029
< 5 yrs homeless	0.850	0.800	0.5440

Table 12: % of participants with Food Insecurity (low and very low food security): Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-values Adj.*** DID*
Overall	0.8594	0.8125	-0.0469	0.8198	0.8258	0.0060	0.0529	-0.0251	0.6502
(US n=64; HOU n=111)	(0.35)	(0.39)	(0.04)	(0.39)	(0.38)	(0.04)	(0.06)	(0.06)	

Male	0.8636	0.8154	-0.0483	0.8049	0.8372	0.0323	0.0806	-0.0055	0.9366
(US n=44; HOU n=82)	(0.35)	(0.39)	(0.05)	(0.40)	(0.37)	(0.05)	(0.07)	(0.07)	
Female	0.8500	0.8065	-0.0435	0.8571	0.8125	-0.0446	-0.0011	-0.0104	0.9246
(US n=20; HOU= 28)	(0.37)	(0.40)	(0.08)	(0.36)	(0.39)	(0.09)	(0.11)	(0.11)	
White	0.8667	0.8400	-0.0267	0.8000	0.8103	0.0103	0.0370	-0.1686	0.1949
(US n=15; HOU n=35)	(0.35)	(0.37)	(0.02)	(0.41)	(0.40)	(0.09)	(0.09)	(0.13)	
BIPOC	0.8571	0.8028	-0.0543	0.8289	0.8333	0.0044	0.0587	0.0075	0.9114
(US n=49; HOU n=76)	(0.35)	(0.40)	(0.06)	(0.38)	(0.37)	(0.04)	(0.07)	(0.07)	
Over 50	0.8542	0.8219	-0.0322	0.8116	0.7944	-0.0172	0.0150	-0.0908	0.1521
(US n=48; HOU n=69)	(0.36)	(0.39)	(0.06)	(0.39)	(0.41)	(0.06)	(0.08)	(0.06)	
Under 50	0.8750	0.7826	-0.0924	0.8333	0.8732	0.0399	0.1323	0.1840	0.1613
(US n=16; HOU n=42)	(0.34)	(0.42)	(0.05)	(0.38)	(0.34)	(0.06)	(0.08)	(0.13)	
> 5 yrs homeless	0.8611	0.7759	-0.0852	0.8421	0.8172	-0.0249	0.0603	-0.0692	0.3789
(US n=27; HOU n=54)	(0.35)	(0.42)	(0.06)	(0.37)	(0.39)	(0.06)	(0.08)	(0.08)	
< 5 yrs homeless	0.8519	0.8649	0.0130	0.7963	0.8353	0.0390	0.0260	0.0027	0.9816
(US n=36; HOU n=57)	(0.36)	(0.35)	(0.06)	(0.41)	(0.37)	(0.06)	(0.09)	(0.12)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 13: % of participants with Very Low Food Security: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.656	0.622	0.6469
Male	0.590	0.590	0.9520
Female	0.800	0.710	0.4990
White	0.800	0.570	0.1228
BIPOC	0.610	0.640	0.7131
Over 50	0.670	0.590	0.4261
Under 50	0.630	0.670	0.7654
> 5 yrs homeless	0.690	0.610	0.4299
< 5 yrs homeless	0.419	0.630	1.0000

Table 14: % of participants with Very Low Food Security: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-values Adj.*** DID*
Overall	0.6562	0.6146	-0.0417	0.6216	0.5618	-0.0598	-0.0182	-0.0192	0.8087
(US n=64; HOU n=111)	(0.48)	(0.49)	(0.06)	(0.49)	(0.50)	(0.06)	(0.08)	(0.08)	
Male	0.5909	0.6154	0.0245	0.5854	0.5271	-0.0582	-0.0827	0.0064	0.9477
(US n=44; HOU n=82)	(0.50)	(0.49)	(0.08)	(0.50)	(0.50)	(0.06)	(0.10)	(0.10)	
Female	0.8000	0.6129	-0.1871	0.7143	0.6667	-0.0476	0.1395	-0.0560	0.7281
(US n=20; HOU=28)	(0.41)	(0.50)	(0.08)	(0.46)	(0.48)	(0.11)	(0.13)	(0.16)	
White	0.8000	0.7200	-0.0800	0.5714	0.6034	0.0320	0.1120	0.0157	0.9281
(US n=15; HOU n=35)	(0.41)	(0.46)	(0.07)	(0.50)	(0.49)	(0.11)	(0.13)	(0.17)	
BIPOC	0.6122	0.5775	-0.0348	0.6447	0.5417	-0.1031	-0.0683	-0.0088	0.9256

(US n=49; HOU n=76)	(0.49)	(0.50)	(0.07)	(0.48)	(0.50)	(0.06)	(0.10)	(0.09)	
Over 50	0.6667	0.6027	-0.0639	0.5942	0.4953	-0.0989	-0.0349	-0.0581	0.4889
(US n=48; HOU n=69)	(0.48)	(0.49)	(0.06)	(0.49)	(0.50)	(0.07)	(0.09)	(0.08)	
Under 50	0.6250	0.6522	0.0272	0.6667	0.6620	-0.0047	-0.0319	0.0520	0.7946
(US n=16; HOU n=42)	(0.50)	(0.49)	(0.14)	(0.48)	(0.48)	(0.10)	(0.17)	(0.20)	
> 5 yrs homel ess	0.6944	0.6034	-0.0910	0.6140	0.5161	-0.0979	-0.0069	-0.0616	0.6184
(US n=27; HOU n=54)	(0.47)	(0.49)	(0.06)	(0.49)	(0.50)	(0.08)	(0.10)	(0.12)	
< 5 yrs homel ess	0.6296	0.6486	0.0190	0.6296	0.6118	-0.0179	-0.0369	-0.0733	0.5955
(US n=36; HOU n=57)	(0.49)	(0.48)	(0.11)	(0.49)	(0.49)	(0.08)	(0.14)	(0.14)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 15: Life Events Checklist - Percentage of Participants experiencing each type by housed vs. not housed

	Unhoused		HOU	
	#	%	#	%
Natural Disaster (LEC1)	54	41.9	89	44.3
Fire/Explosion (LEC2)	29	22.5	50	24.9
Transportation Accident (lec3)	68	52.7	124	61.7
Serious Accident (LEC4)	32	24.8	66	32.8
Exposure to toxic substance (LEC5)	15	11.6	31	15.4
Physical Assault (LEC6)	83	64.3	139	69.2
Assault w/ weapon (LEC7)	62	48.1	112	55.7
Sexual Assault (LEC8)	36	27.9	50	24.9

Other unwanted sexual experience (LEC9)	32	24.8	49	24.4
Combat/war zone (LEC10)	13	10.1	20	10.0
Captivity (kidnapped, held hostage) (LEC11)	16	12.4	36	17.9
Life threatening illness/injury (LEC12)	57	44.2	92	45.8
Severe human suffering (LEC13)	29	22.5	55	27.4
Serious injury/harm/death you caused someone (LEC16)	14	10.9	31	15.4
Other stressful event (LEC17)	29	22.5	54	26.9

Table 16: LEC - # of types of trauma witnessed, housed vs. not housed

LEC Experienced	Unhoused		Housed	
	#	%	#	%
None	10	7.8	13	6.5
1 to 3	42	32.6	53	26.5
4 to 6	47	36.4	75	37.5
7	30	23.3	60	30.0
LEC Witnessed				
None	32	24.8	45	22.5
1 to 3	53	41.1	77	38.5
4 to 6	29	22.5	50	25.0
7	15	11.6	29	14.5

Table 17: Mean participant PTSD Checklist - Civilian Version score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	43.47	47.59	0.0980
Male	43.66	46.66	0.3120
Female	43.05	51.14	0.0838
White	43.60	44.29	0.8876
BIPOC	43.43	49.12	0.0398
Over 50	42.96	43.96	0.7173

Under 50	45.00	53.57	0.0909
> 5 yrs homeless	43.81	47.11	0.3201
< 5 yrs homeless	43.41	48.11	0.1718

Table 18: Mean participant PTSD Checklist - Civilian Version score: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-values Adj.*** DID*
Overall	43.47	42.10	-1.36	47.59	38.44	-9.15	-7.79	-10.92	0.0000
(US n=64; HOU n=111)	(13.55)	(14.98)	(1.55)	(16.96)	(16.41)	(1.49)	(2.15)	(2.04)	
Male	43.66	43.00	-0.66	46.66	37.29	-9.36	-8.70	-11.94	0.0000
(US n=44; HOU n=82)	(13.95)	(15.07)	(1.94)	(16.71)	(16.02)	(1.59)	(2.50)	(2.52)	
Female	43.05	40.23	-2.82	51.14	41.33	-9.81	-6.99	-10.01	0.0073
(US n=20; HOU=28)	(12.96)	(14.87)	(2.56)	(17.28)	(17.35)	(3.53)	(4.33)	(3.57)	
White	43.60	40.52	-3.08	44.29	38.10	-6.18	-3.10	-11.42	0.0135
(US n=15; HOU n=35)	(15.26)	(13.02)	(2.67)	(15.78)	(17.55)	(2.55)	(3.64)	(4.46)	
BIPOC	43.43	42.66	-0.77	49.12	38.61	-10.51	-9.74	-10.71	0.0000
(US n=49; HOU n=76)	(13.15)	(15.66)	(1.91)	(17.36)	(15.90)	(1.82)	(2.63)	(2.18)	
Over 50	42.96	42.78	-0.18	43.96	34.07	-9.88	-9.70	-11.96	0.0000
(US n=48; HOU n=69)	(13.13)	(15.67)	(1.91)	(15.59)	(15.27)	(1.85)	(2.65)	(2.29)	
Under 50	45.00	39.96	-5.04	53.57	45.03	-8.54	-3.50	-1.36	0.7484
(US n=16; HOU n=42)	(15.10)	(12.64)	(2.03)	(17.59)	(15.94)	(2.53)	(3.21)	(4.21)	

> 5 yrs homeless	43.81	43.60	-0.20	47.11	38.38	-8.73	-8.53	-13.37	0.0000
(US n=27; HOU n=54)	(14.67)	(17.34)	(2.36)	(16.00)	(16.38)	(2.13)	(3.17)	(2.83)	
< 5 yrs homeless	43.41	39.86	-3.54	48.11	38.52	-9.59	-6.05	-7.97	0.0313
(US n=36; HOU n=57)	(12.27)	(10.36)	(1.51)	(18.05)	(16.53)	(2.09)	(2.56)	(3.64)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 19: Mean participant MCSI score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	21.16	24.87	0.0682
Male	21.93	24.24	0.3480
Female	19.45	26.21	0.0685
White	19.60	23.37	0.3373
BIPOC	21.63	25.57	0.1031
Over 50	22.25	21.88	0.8807
Under 50	17.88	29.79	0.0010
> 5 yrs homeless	21.28	24.68	0.2455
< 5 yrs homeless	21.59	25.07	0.2243

Table 20: Mean participant MCSI score: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- values Adj.** DID*
Overall	21.16	21.08	-0.07	24.87	18.83	-6.04	-5.97	-8.67	0.0000
(US n=64; HOU n=111)	(12.17)	(12.34)	(1.23)	(13.31)	(12.89)	(1.07)	(1.63)	(1.53)	
Male	21.93	22.26	0.33	24.24	18.88	-5.36	-5.69	-8.43	0.0000
(US n=44; HOU n=82)	(12.68)	(12.57)	(1.52)	(13.37)	(13.81)	(1.18)	(1.91)	(1.87)	

Female	19.45	18.61	-0.84	26.21	18.58	-7.63	-6.79	-7.70	0.0046
(US n=20; HOU=28)	(11.07)	(11.66)	(2.12)	(13.23)	(10.29)	(2.46)	(3.22)	(2.59)	
White	19.60	17.36	-2.24	23.37	18.76	-4.61	-2.37	-2.99	0.2644
(US n=15; HOU n=35)	(11.54)	(11.58)	(1.85)	(13.02)	(12.97)	(1.61)	(2.42)	(2.65)	
BIPOC	21.63	22.39	0.76	25.57	18.87	-6.70	-7.46	-10.50	0.0000
(US n=49; HOU n=76)	(12.43)	(12.41)	(1.53)	(13.47)	(12.91)	(1.38)	(2.05)	(1.83)	
Over 50	22.25	22.23	-0.02	21.88	16.22	-5.66	-5.64	-8.43	0.0000
(US n=48; HOU n=69)	(12.87)	(12.02)	(1.41)	(13.00)	(12.95)	(1.34)	(1.94)	(1.95)	
Under 50	17.88	17.43	-0.44	29.79	22.76	-7.03	-6.58	-6.48	0.0801
(US n=16; HOU n=42)	(9.39)	(12.89)	(2.50)	(12.45)	(11.84)	(1.79)	(3.02)	(3.64)	
> 5 yrs homele ss	21.28	22.19	0.91	24.68	18.48	-6.20	-7.11	-10.70	0.0000
(US n=27; HOU n=54)	(13.28)	(13.33)	(1.78)	(13.94)	(12.93)	(1.61)	(2.38)	(2.20)	
< 5 yrs homele ss	21.59	19.32	-2.27	25.07	19.21	-5.86	-3.59	-7.46	0.0026
(US n=36; HOU n=57)	(10.55)	(10.74)	(1.51)	(12.74)	(12.91)	(1.42)	(2.06)	(2.40)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 21: Mean participant SF12 Mental Health Component score: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	42.09	39.64	0.20800
Male	42.69	40.23	0.26830
Female	40.77	38.89	0.63210

White	42.94	40.19	0.49170
BIPOC	41.83	39.38	0.27810
Over 50	42.71	43.45	0.73240
Under 50	40.22	33.37	0.06560
> 5 yrs homeless	42.44	41.41	0.68070
< 5 yrs homeless	41.32	37.76	0.18880

Table 22: Mean participant SF12 Mental Health Component score: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*-Coef** (SE)	Adjusted DID*-Coef** (SE)	P-values Adj.*** DID*
Overall	42.09	44.59	2.50	39.64	44.02	4.39	1.89	4.18	0.0192
(US n=64; HOU n=111)	(10.69)	(11.87)	(1.16)	(13.24)	(12.32)	(1.17)	(1.65)	(1.77)	
Male	42.69	44.91	2.22	40.23	44.48	4.25	2.03	2.49	0.1834
(US n=44; HOU n=82)	(11.07)	(12.68)	(1.52)	(12.24)	(11.89)	(1.20)	(1.93)	(1.86)	
Female	40.77	43.93	3.16	38.89	42.83	3.94	0.79	10.70	0.0092
(US n=20; HOU=28)	(9.95)	(10.21)	(1.73)	(15.32)	(13.60)	(2.87)	(3.33)	(3.94)	
White	42.94	48.33	5.39	40.19	44.14	3.95	(1.44)	4.96	0.1469
(US n=15; HOU n=35)	(10.56)	(11.80)	(1.87)	(13.70)	(12.66)	(1.91)	(2.65)	(3.36)	
BIPOC	41.83	43.37	1.54	39.38	43.97	4.59	3.04	2.85	0.1949
(US n=49; HOU n=76)	(10.83)	(11.72)	(1.41)	(13.10)	(12.22)	(1.48)	(2.04)	(2.18)	
Over 50	42.71	44.12	1.41	43.45	45.88	2.43	1.02	2.47	0.2443
(US n=48; HOU n=69)	(10.38)	(12.12)	(1.21)	(12.15)	(12.40)	(1.41)	(1.85)	(2.11)	

Under 50	40.22	46.03	5.80	33.37	41.25	7.88	2.08	3.84	0.3021
(US n=16; HOU n=42)	(11.72)	(11.21)	(2.84)	(12.67)	(11.75)	(2.00)	(3.42)	(3.68)	
> 5 yrs homeless	42.44	45.09	2.65	41.41	43.93	2.52	(0.14)	5.19	0.0529
(US n=27; HOU n=54)	(11.79)	(12.86)	(1.45)	(11.58)	(12.46)	(1.57)	(2.13)	(2.65)	
< 5 yrs homeless	41.32	43.82	2.51	37.76	44.13	6.36	3.86	5.36	0.0512
(US n=36; HOU n=57)	(9.29)	(10.51)	(2.00)	(14.66)	(12.24)	(1.72)	(2.62)	(2.71)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 23: % of participants using Alcohol: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.484	0.649	0.0334
Male	0.500	0.680	0.0438
Female	0.450	0.540	0.5582
White	0.400	0.600	0.1935
BIPOC	0.510	0.670	0.0721
Over 50	0.520	0.650	0.1540
Under 50	0.380	0.640	0.0656
> 5 yrs homeless	0.470	0.740	0.0099
< 5 yrs homeless	0.520	0.560	0.7524

Table 24: % of participants using Alcohol: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-values Adj.*** DID*
Overall	0.4844	0.5474	0.0630	0.6486	0.6158	-0.0328	-0.0958	-0.0751	0.2667
(US n=64; HOU n=111)	(0.50)	(0.50)	(0.06)	(0.48)	(0.49)	(0.04)	(0.08)	(0.07)	

Male	0.5000	0.5469	0.0469	0.6829	0.6875	0.0046	-0.0423	-0.0356	0.6775
(US n=44; HOU n=82)	(0.51)	(0.50)	(0.09)	(0.47)	(0.47)	(0.05)	(0.10)	(0.09)	
Female	0.4500	0.5484	0.0984	0.5357	0.4167	-0.1190	-0.2174	-0.1470	0.1956
(US n=20; HOU= 28)	(0.51)	(0.51)	(0.07)	(0.51)	(0.50)	(0.09)	(0.11)	(0.11)	
White	0.4000	0.4583	0.0583	0.6000	0.5862	-0.0138	-0.0721	-0.0784	0.5966
(US n=15; HOU n=35)	(0.51)	(0.51)	(0.07)	(0.50)	(0.50)	(0.07)	(0.10)	(0.15)	
BIPOC	0.5102	0.5775	0.0673	0.6711	0.6303	-0.0408	-0.1081	-0.1058	0.1748
(US n=49; HOU n=76)	(0.51)	(0.50)	(0.08)	(0.47)	(0.48)	(0.06)	(0.10)	(0.08)	
Over 50	0.5208	0.5694	0.0486	0.6522	0.6038	-0.0484	-0.0970	-0.0978	0.2739
(US n=48; HOU n=69)	(0.50)	(0.50)	(0.07)	(0.48)	(0.49)	(0.06)	(0.09)	(0.09)	
Under 50	0.3750	0.4783	0.1033	0.6429	0.6338	-0.0091	-0.1123	-0.1456	0.2829
(US n=16; HOU n=42)	(0.50)	(0.51)	(0.13)	(0.49)	(0.49)	(0.07)	(0.15)	(0.13)	
> 5 yrs homeless	0.4722	0.5789	0.1067	0.7368	0.7065	-0.0303	-0.1370	-0.0496	0.5382
(US n=27; HOU n=54)	(0.51)	(0.50)	(0.08)	(0.44)	(0.46)	(0.07)	(0.10)	(0.08)	
< 5 yrs homeless	0.5185	0.5135	-0.0050	0.5556	0.5176	-0.0379	-0.0329	-0.0719	0.5753
(US n=36; HOU n=57)	(0.51)	(0.51)	(0.10)	(0.50)	(0.50)	(0.06)	(0.11)	(0.13)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 25: # of Days in the last 30 Days Participants consumed Alcohol: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	6.30	9.71	0.0537
Male	5.93	10.63	0.0250
Female	7.10	7.32	0.9481
White	6.60	11.34	0.2053
BIPOC	6.20	8.96	0.1712
Over 50	7.40	10.12	0.2068
Under 50	3.00	9.05	0.0612
> 5 yrs homeless	6.81	13.11	0.0152
< 5 yrs homeless	5.85	6.13	0.9028

Table 26: # of Days in the last 30 Days Participants consumed Alcohol: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*-Coef** (SE)	Adjusted DID*-Coef** (SE)	P-values Adj.*** DID*
Overall	6.30	6.40	0.10	9.71	7.36	-2.35	-2.45	-2.43	0.0657
(US n=64; HOU n=111)	(10.36)	(10.03)	(1.14)	(11.66)	(10.02)	(0.91)	(1.45)	(1.31)	
Male	5.93	5.89	-0.04	10.63	9.12	-1.52	-1.48	-1.96	0.2145
(US n=44; HOU n=82)	(10.03)	(9.90)	(1.34)	(11.61)	(10.61)	(1.04)	(1.69)	(1.57)	
Female	7.10	7.45	0.35	7.32	2.81	-4.51	-4.86	-2.84	0.2153
(US n=20; HOU=28)	(11.27)	(10.37)	(2.27)	(11.74)	(6.46)	(1.88)	(2.93)	(2.26)	
White	6.60	8.96	2.36	11.34	8.05	-3.29	-5.65	-9.56	0.0011
(US n=15; HOU n=35)	(10.82)	(12.16)	(2.18)	(12.41)	(10.73)	(1.48)	(2.59)	(2.77)	
BIPOC	6.20	5.54	-0.67	8.96	7.03	-1.94	-1.27	-1.15	0.4758

(US n=49; HOU n=76)	(10.33)	(9.14)	(1.32)	(11.30)	(9.69)	(1.15)	(1.74)	(1.61)	
Over 50	7.40	7.04	-0.35	10.12	7.60	-2.51	-2.16	-2.34	0.1416
(US n=48; HOU n=69)	(10.96)	(10.32)	(1.46)	(11.69)	(10.12)	(1.20)	(1.88)	(1.58)	
Under 50	3.00	4.39	1.39	9.05	7.00	-2.05	-3.44	-4.46	0.2004
(US n=16; HOU n=42)	(7.65)	(8.95)	(1.38)	(11.71)	(9.93)	(1.42)	(1.95)	(3.44)	
> 5 yrs homeless	6.81	7.12	0.32	13.11	9.98	-3.13	-3.44	-2.29	0.3340
(US n=27; HOU n=54)	(10.96)	(10.28)	(1.48)	(12.54)	(11.14)	(1.45)	(2.06)	(2.35)	
< 5 yrs homeless	5.85	5.46	-0.39	6.13	4.53	-1.60	-1.21	-0.60	0.7222
(US n=36; HOU n=57)	(9.81)	(9.76)	(1.94)	(9.52)	(7.77)	(1.00)	(2.16)	(1.68)	

Table 27: % of Participants consuming Alcohol to Intoxication: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.2969	0.4595	0.0345
Male	0.2500	0.4900	0.0095
Female	0.4000	0.3900	0.9602
White	0.3300	0.4300	0.5287
BIPOC	0.2900	0.4700	0.0362
Over 50	0.3500	0.4200	0.4714
Under 50	0.1300	0.5200	0.0058
> 5 yrs homeless	0.3100	0.5800	0.0101
< 5 yrs homeless	0.3000	0.3300	0.7364

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 28: % of participants consuming Alcohol to Intoxication: Difference in differences Analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*-Coef** (SE)	Adjusted DID*-Coef** (SE)	P-Values Adj.** ^{***} DID*
Overall	0.2969	0.3789	0.0821	0.4595	0.4181	-0.0414	-0.1235	-0.1158	0.0770
(US n=64; HOU n=111)	(0.46)	(0.49)	(0.06)	(0.50)	(0.49)	(0.05)	(0.08)	(0.07)	
Male	0.2500	0.3281	0.0781	0.4878	0.4688	-0.0191	-0.0972	-0.1705	0.0337
(US n=44; HOU n=82)	(0.44)	(0.47)	(0.08)	(0.50)	(0.50)	(0.05)	(0.09)	(0.08)	
Female	0.4000	0.4839	0.0839	0.3929	0.2917	-0.1012	-0.1851	0.0302	0.8005
(US n=20; HOU=28)	(0.50)	(0.51)	(0.09)	(0.50)	(0.46)	(0.09)	(0.13)	(0.12)	
White	0.3333	0.3750	0.0417	0.4286	0.4483	0.0197	-0.0220	-0.1278	0.3396
(US n=15; HOU n=35)	(0.49)	(0.49)	(0.05)	(0.50)	(0.50)	(0.07)	(0.09)	(0.13)	
BIPOC	0.2857	0.3803	0.0946	0.4737	0.4034	-0.0703	-0.1649	-0.1364	0.1152
(US n=49; HOU n=76)	(0.46)	(0.49)	(0.08)	(0.50)	(0.49)	(0.06)	(0.10)	(0.09)	
Over 50	0.3542	0.4028	0.0486	0.4203	0.3868	-0.0335	-0.0821	-0.1294	0.1137
(US n=48; HOU n=69)	(0.48)	(0.49)	(0.07)	(0.50)	(0.49)	(0.06)	(0.10)	(0.08)	
Under 50	0.1250	0.3043	0.1793	0.5238	0.4648	-0.0590	-0.2384	-0.1464	0.3024
(US n=16; HOU n=42)	(0.34)	(0.47)	(0.08)	(0.51)	(0.50)	(0.07)	(0.10)	(0.14)	
> 5 yrs homeless	0.3056	0.4737	0.1681	0.5789	0.5217	-0.0572	-0.2253	-0.1253	0.1695
(US n=27; HOU n=54)	(0.47)	(0.50)	(0.08)	(0.50)	(0.50)	(0.07)	(0.10)	(0.09)	

< 5 yrs homeless	0.2963	0.2432	-0.0531	0.3333	0.3059	-0.0275	0.0256	-0.0910	0.395
(US n=36; HOU n=57)	(0.47)	(0.44)	(0.09)	(0.48)	(0.46)	(0.06)	(0.11)	(0.11)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 29: # of Days in the last 30 Days Consumed Alcohol to Intoxication: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	4.98	7.40	0.1467
Male	4.66	7.83	0.1128
Female	5.70	6.39	0.8235
White	5.53	8.66	0.3728
BIPOC	4.82	6.82	0.2917
Over 50	5.81	6.96	0.5658
Under 50	2.50	8.12	0.0747
> 5 yrs homeless	6.03	11.07	0.0480
< 5 yrs homeless	3.78	3.52	0.8885

Table 30: # of Days in the last 30 Days Consumed Alcohol to Intoxication: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- values Adj.*** DID*
Overall	4.98	4.03	-0.95	7.40	4.79	-2.61	-1.66	-2.67	0.0356
(US n=64; HOU n=111)	(9.61)	(8.03)	(1.03)	(11.04)	(8.39)	(0.96)	(1.40)	(1.26)	
Male	4.66	4.27	-0.39	7.83	5.79	-2.04	-1.65	-3.84	0.0083
(US n=44; HOU n=82)	(9.55)	(8.92)	(1.20)	(11.15)	(8.93)	(1.05)	(1.59)	(1.43)	
Female	5.70	3.55	-2.15	6.39	2.21	-4.18	-2.03	1.27	0.4461
(US n=20; HOU=2 8)	(9.95)	(5.87)	(1.98)	(10.96)	(6.18)	(2.29)	(3.01)	(1.65)	
White	5.53	5.58	0.05	8.66	5.41	-3.24	-3.29	-9.86	0.0014

(US n=15; HOU n=35)	(9.09)	(9.70)	(1.82)	(12.03)	(8.96)	(1.65)	(2.43)	(2.91)	
BIPOC	4.82	3.51	-1.31	6.82	4.48	-2.34	-1.03	-1.55	0.2923
(US n=49; HOU n=76)	(9.85)	(7.39)	(1.22)	(10.59)	(8.13)	(1.20)	(1.70)	(1.46)	
Over 50	5.81	4.11	-1.70	6.96	4.43	-2.52	-0.82	-2.41	0.0981
(US n=48; HOU n=69)	(10.09)	(7.91)	(1.29)	(10.89)	(8.06)	(1.19)	(1.75)	(1.44)	
Under 50	2.50	3.78	1.28	8.12	5.31	-2.81	-4.09	-4.84	0.1178
(US n=16; HOU n=42)	(7.75)	(8.58)	(1.29)	(11.38)	(8.90)	(1.65)	(2.08)	(3.05)	
> 5 yrs homeless	6.03	5.39	-0.64	11.07	6.85	-4.22	-3.58	-3.51	0.1558
(US n=27; HOU n=54)	(10.48)	(9.00)	(1.47)	(12.58)	(9.82)	(1.63)	(2.19)	(2.45)	
< 5 yrs homeless	3.78	2.05	-1.72	3.52	2.55	-0.97	0.76	-0.48	0.7057
(US n=36; HOU n=57)	(8.48)	(5.92)	(1.46)	(7.48)	(5.77)	(0.90)	(1.70)	(1.26)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 31: % of Participants who used any Drug: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.391	0.460	0.3763
Male	0.430	0.430	0.9570
Female	0.300	0.570	0.0628
White	0.270	0.460	0.2077
BIPOC	0.430	0.460	0.7258
Over 50	0.350	0.390	0.6833
Under 50	0.500	0.570	0.6249
> 5 yrs homeless	0.360	0.490	0.2183

< 5 yrs homeless	0.440	0.430	0.8740
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Table 32: % of Participants who used any Drug: Difference in differences Analysis

	Unhoused			Housed			Housed minus Unhoused		
	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Baseline - Mean (SD)	Follow Up - Mean (SD)	Change (SE)	Unadjusted DID*-Coef** (SE)	Adjusted DID*-Coef** (SE)	P-Values Adj.*** DID*
Overall	0.3906	0.3684	-0.0222	0.4595	0.3390	-0.1205	-0.0983	-0.1469	0.0364
(US n=64; HOU n=111)	(0.49)	(0.48)	(0.06)	(0.50)	(0.47)	(0.05)	(0.08)	(0.07)	
Male	0.4318	0.3594	-0.0724	0.4268	0.3047	-0.1221	-0.0497	-0.1523	0.0856
(US n=44; HOU n=82)	(0.50)	(0.48)	(0.08)	(0.50)	(0.46)	(0.05)	(0.09)	(0.09)	
Female	0.3000	0.3871	0.0871	0.5714	0.4375	-0.1339	-0.2210	-0.1682	0.1777
(US n=20; HOU=28)	(0.47)	(0.50)	(0.09)	(0.50)	(0.50)	(0.10)	(0.14)	(0.12)	
White	0.2667	0.3333	0.0667	0.4571	0.3793	-0.0778	-0.1445	-0.0700	0.7192
(US n=15; HOU n=35)	(0.46)	(0.48)	(0.12)	(0.51)	(0.49)	(0.08)	(0.14)	(0.19)	
BIPOC	0.4286	0.3803	-0.0483	0.4605	0.3193	-0.1412	-0.0929	-0.1608	0.0645
(US n=49; HOU n=76)	(0.50)	(0.49)	(0.07)	(0.50)	(0.47)	(0.06)	(0.09)	(0.09)	
Over 50	0.3542	0.2917	-0.0625	0.3913	0.2453	-0.1460	-0.0835	-0.1279	0.1259
(US n=48; HOU n=69)	(0.48)	(0.46)	(0.07)	(0.49)	(0.43)	(0.06)	(0.09)	(0.08)	
Under 50	0.5000	0.6087	0.1087	0.5714	0.4789	-0.0926	-0.2013	-0.2617	0.1339
(US n=16; HOU n=42)	(0.52)	(0.50)	(0.11)	(0.50)	(0.50)	(0.08)	(0.13)	(0.17)	
> 5 yrs homeless	0.3611	0.3860	0.0249	0.4912	0.3804	-0.1108	-0.1356	-0.1472	0.1090

(US n=27; HOU n=54)	(0.49)	(0.49)	(0.08)	(0.50)	(0.49)	(0.07)	(0.10)	(0.09)	
< 5 yrs homeless	0.4444	0.3514	-0.0931	0.4259	0.2941	-0.1318	-0.0387	-0.1851	0.1113
(US n=36; HOU n=57)	(0.51)	(0.48)	(0.09)	(0.50)	(0.46)	(0.07)	(0.12)	(0.12)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 33: % of participants Arrested: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.248	0.382	0.0150
Male	0.290	0.416	0.0566
Female	0.139	0.282	0.1341
White	0.303	0.423	0.2710
BIPOC	0.229	0.363	0.0360
Over 50	0.193	0.351	0.0184
Under 50	0.348	0.427	0.4038
> 5 yrs homeless	0.203	0.419	0.0066
< 5 yrs homeless	0.279	0.342	0.4197

Table 34: % of participants Arrested: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- Values Adj.*** DID*
Overall	0.2481	0.2016	-0.0465	0.3818	0.1636	-0.2182	-0.1717	-0.1776	0.0023
(US n=64; HOU n=111)	(0.43)	(0.40)	(0.04)	(0.49)	(0.37)	(0.04)	(0.06)	(0.06)	
Male	0.2903	0.2366	-0.0538	0.4160	0.1840	-0.2320	-0.1782	-0.1798	0.0105
(US n=44; HOU n=82)	(0.46)	(0.43)	(0.05)	(0.49)	(0.39)	(0.04)	(0.07)	(0.07)	
Female	0.1389	0.1111	-0.0278	0.2821	0.1026	-0.1795	-0.1517	-0.1693	0.1229

(US n=20; HOU=28)	(0.35)	(0.32)	(0.06)	(0.46)	(0.31)	(0.09)	(0.11)	(0.11)	
White	0.3030	0.2424	-0.0606	0.4231	0.2115	-0.2115	-0.1509	-0.1794	0.1444
(US n=15; HOU n=35)	(0.47)	(0.44)	(0.08)	(0.50)	(0.41)	(0.07)	(0.11)	(0.12)	
BIPOC	0.2292	0.1875	-0.0417	0.3628	0.1416	-0.2212	-0.1796	-0.1881	0.0067
(US n=49; HOU n=76)	(0.42)	(0.39)	(0.05)	(0.48)	(0.35)	(0.05)	(0.07)	(0.07)	
Over 50	0.1928	0.1325	-0.0602	0.3505	0.1856	-0.1649	-0.1047	-0.1280	0.0863
(US n=48; HOU n=69)	(0.40)	(0.34)	(0.05)	(0.48)	(0.39)	(0.05)	(0.07)	(0.07)	
Under 50	0.3478	0.3261	-0.0217	0.4265	0.1324	-0.2941	-0.2724	-0.2641	0.0056
(US n=16; HOU n=42)	(0.48)	(0.47)	(0.07)	(0.50)	(0.34)	(0.06)	(0.09)	(0.09)	
> 5 yrs homeless	0.2034	0.2373	0.0339	0.4186	0.2209	-0.1977	-0.2316	-0.2571	0.0064
(US n=27; HOU n=54)	(0.41)	(0.43)	(0.07)	(0.50)	(0.42)	(0.06)	(0.09)	(0.09)	
< 5 yrs homeless	0.2794	0.1765	-0.1029	0.3418	0.1013	-0.2405	-0.1376	-0.1314	0.0897
(US n=36; HOU n=57)	(0.45)	(0.38)	(0.05)	(0.48)	(0.30)	(0.05)	(0.07)	(0.08)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 35: Mean # of Arrests: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.600	0.920	0.1199
Male	0.720	1.060	0.1916
Female	0.310	0.490	0.4018
White	1.150	1.270	0.8262

BIPOC	0.420	0.760	0.0594
Over 50	0.360	0.880	0.0175
Under 50	1.040	0.990	0.8811
> 5 yrs homeless	0.470	1.100	0.0241
< 5 yrs homeless	0.720	0.720	0.9974

Table 36: Mean # of Arrests per participant: Difference in differences analysis

	Unhoused			House d	Housed minus Unhoused			P- Values Adj.*** DID*	
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)		12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)		Unadjusted DID*- Coef** (SE)
Overall	0.60	0.41	-0.19	0.92	0.46	-0.46	-0.27	-0.25	0.1855
(US n=129; HOU n=165)	(1.59)	(1.04)	(0.13)	(1.82)	(1.75)	(0.14)	(0.19)	(0.19)	
Male	0.72	0.46	-0.26	1.06	0.56	-0.50	-0.25	-0.19	0.4477
(US n=93; HOU n=125)	(1.80)	(1.04)	(0.17)	(2.00)	(1.99)	(0.18)	(0.24)	(0.25)	
Female	0.31	0.28	-0.03	0.49	0.15	-0.33	-0.31	-0.33	0.1869
(US n=36; HOU n=39)	(0.82)	(1.06)	(0.15)	(1.02)	(0.49)	(0.19)	(0.24)	(0.25)	
White	1.15	0.64	-0.52	1.27	0.67	-0.60	-0.08	-0.07	0.9005
(US n=33; HOU n=52)	(2.43)	(1.34)	(0.35)	(2.39)	(2.12)	(0.36)	(0.50)	(0.55)	
BIPOC	0.42	0.33	-0.08	0.76	0.36	-0.40	-0.31	-0.33	0.0613
(US n=96; HOU n=113)	(1.14)	(0.91)	(0.12)	(1.48)	(1.56)	(0.13)	(0.18)	(0.18)	
Over 50	0.36	0.25	-0.11	0.88	0.63	-0.25	-0.14	-0.11	0.6320
(US n=83; HOU n=97)	(1.07)	(0.75)	(0.12)	(1.77)	(2.21)	(0.17)	(0.21)	(0.23)	

Under 50	1.04	0.70	-0.35	0.99	0.22	-0.76	-0.42	-0.42	0.2577
(US n=46; HOU n=68)	(2.20)	(1.40)	(0.29)	(1.91)	(0.67)	(0.24)	(0.37)	(0.37)	
> 5 yrs homeless	0.47	0.36	-0.12	1.10	0.71	-0.40	-0.28	-0.30	0.2920
(US n=59; HOU n=86)	(1.38)	(0.78)	(0.18)	(1.95)	(2.33)	(0.21)	(0.27)	(0.28)	
< 5 yrs homeless	0.72	0.47	-0.25	0.72	0.19	-0.53	-0.28	-0.31	0.2870
(US n=68; HOU n=79)	(1.78)	(1.24)	(0.19)	(1.67)	(0.66)	(0.20)	(0.27)	(0.29)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 37: Types of charges at baseline

Drug Offenses	Possess Drug Paraphernalia
	Possess Marijuana Paraphernalia
	Attempt to Obtain Controlled Substance
	Possess Controlled Substance at Jail
	Felony Possession of Cocaine
	Possess Marijuana 1/2 - 1 1/2 Oz
	Possess Marijuana Up to 1/2 Oz
	Felony Possession Schedule I Controlled Substance
	Obtain Controlled Substance Prescription Misrepresented/ Withheld
	Possession with Intent to Distribute Cocaine
	Controlled Substance Schedule VI- Conspire Sell/Deliver Marijuana
Local Ordinances	Alcoholic Beverage Consume Wine/Beer on Public Property
	Consume Malt Beverage or Unfortified Wine Off Premises
	Consume Alcohol City/County Property
	Intoxicated and Disruptive
	Open Container Malt Beverage or Unfortified Wine on City/ County Property
	Open Container after Consume Alcohol
	Open Container Alcohol Violation

Possess/Consume Fortified Wine/Liquor/Mixed Beverage Unauthorized Premises
Possess/Consume Beer/Wine Public Street
Possess/Consume Beer/Wine Unauthorized Preauthorized Premises
Possess/Consume after Prohibited
Possess Alcoholic Beverage
Consume/Offer at ABC Store
Open Container of Alcohol
Public Consumption
Consumption of Malt Beverage/Unfortified Wine on City/ County Property
Disorderly Conduct
Disorderly Conduct at Terminal Bus Train Air
Common Law Forgery - Misdemeanor
Simple Worthless Check
Attempt to Obtain Controlled Substance Forgery/Fraud - Felony
IV-D Nonsupport Child
Nonsupport Child
Attempt to Obtain Property False Pretense
Financial Card Fraud (Misdemeanor)
Financial Transaction Card Fraud (Misdemeanor)
Financial Transaction Card Theft
Fail Provide Proof Fare Pay
Fail Provide Proof Proper Fare
Failed Proof of Fare Pay
Failure to Provide Proof Fare Pay
Burning of Churches, Uninhabited Houses
City/Town Violation (Misdemeanor)
Impede Traffic
Littering 15 - 500 Pounds
Littering less than 15 Pounds
Misuse of 911 System
Public Order
Sleep in Public Place

	Reckless Driving - Willful/Wanton Disregard
	Burning Certain Public Buildings
	Burning Personal Property
	Carelessness with Fire
	Indecent Exposure
	Local Ordinance - Free Text
	Obtain Property False Pretense
	Contempt of Court
	Criminal Evidence - Alter/Steal/Destroy
	Show Cause
	Habitual Felon
	Solicit Alms/Beg For Money
	Soliciting From Highway
	Parole Violation
	Probation Violation
	Probation Violation - Out of County
	H/I Felony Probation Violation
	Urinate in Public/Defecate in Public
	Urinating in Public
	Driving While License Revoked
	Driving While License Revoked not Impaired
	No Operator's License
	Operate Vehicle No Insurance
Personal	Aid and Abet (Misdemeanor)
	Assault on a Female
	Assault Physical Injury Emergency Personnel
	Felony Assault On Handicapped
	Habitual Misdemeanor Assault
	Simple Affray
	Simple Assault
	Assault Company/Campus Police Officer
	Assault Government Official/Employ
	Assault with a Deadly Weapon

	Assault with a Deadly Weapon Intent to Kill
	Assault with a Deadly Weapon Serious Injury
	Assault with a Deadly Weapon with Intent to Kill or Inflict Serious Injury
	Attempt 2nd Degree Rape-By Force
	Communicating Threats
	Carrying Concealed Weapon
	Driving While Impaired
	Driving While Impaired - Level 3
	Domestic Violence Protective Order Violation
	Domestic Violence Protective Order Violation (Misdemeanor)
	Domestic Violence Protection Order Violation Deadly Weapon
	Extradition/Fugitive Other State
	Fugitive/Extradition Other State
	Injury to Personal Property
	First Degree Kidnapping
	Possession of Firearm by Felon
	Resisting Public Officer
	Flee/Elude Arrest with Motor Vehicle(Misdemeanor)
	Resisting a Public Officer
Property	Break or Enter a Motor Vehicle
	Breaking and/or Entering (Felony)
	Breaking or Entering (Misdemeanor)
	Injury to Real Property
	Common Law Robbery
	Misdemeanor Larceny
	Robbery with Dangerous Weapon
	Aid and Abet Larceny (Misdemeanor)
	Habitual Larceny
	Larceny after Break/Enter
	Larceny of Motor Vehicle (Felony)
	Aid and Abet Larceny (Felony)
	Possess Stolen Goods/Prop (Felony)
	Possess Stolen Motor Vehicle

Stolen Goods - Possession of (Misdemeanor)
Possess Stolen Goods/Property (Misdemeanor)
Shoplifting Concealment Goods
Second Degree Trespass
Trespass - First Degree
Trespass on Posted Property
Trespass on Railroad Right off Way
Trespassing
Trespass - 2nd Degree - Notice Posted
Forgery of Instrument
Uttering a Forged Instrument
Forgery of Endorsement
Common Law Uttering (Misdemeanor)
Attempted Uttering
Forgery - Free Text

Table 38: % of Participants Incarcerated: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.1628	0.3030	0.0053
Male	0.1935	0.3600	0.0072
Female	0.0833	0.1282	0.5358
White	0.2424	0.3462	0.3175
BIPOC	0.1354	0.2832	0.0080
Over 50	0.0843	0.3196	<0.0001
Under 50	0.3043	0.2794	0.7757
> 5 yrs homeless	0.1186	0.3721	0.0002
< 5 yrs homeless	0.1912	0.2278	0.5959

Table 39: % of participants Incarcerated: Difference in differences analysis

	Unhoused	Housed	Housed minus Unhoused

	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- Values Adj.** DID*
Overall	0.1628	0.1473	-0.0155	0.3030	0.1333	-0.1697	-0.1542	-0.1618	0.0015
(US n=129; HOU n=165)	(0.37)	(0.36)	(0.03)	(0.46)	(0.34)	(0.04)	(0.05)	(0.05)	
Male	0.1935	0.1720	-0.0215	0.3600	0.1520	-0.2080	-0.1865	-0.1936	0.0018
(US n=93; HOU n=125)	(0.40)	(0.38)	(0.04)	(0.48)	(0.36)	(0.04)	(0.06)	(0.06)	
Female	0.0833	0.0833	0.0000	0.1282	0.0769	-0.0513	-0.0513	-0.0561	0.5324
(US n=36; HOU n=39)	(0.28)	(0.28)	(0.06)	(0.34)	(0.27)	(0.06)	(0.08)	(0.09)	
White	0.2424	0.2121	-0.0303	0.3462	0.2115	-0.1346	-0.1043	-0.1038	0.3316
(US n=33; HOU n=52)	(0.44)	(0.42)	(0.07)	(0.48)	(0.41)	(0.07)	(0.10)	(0.11)	
BIPOC	0.1354	0.1250	-0.0104	0.2832	0.0973	-0.1858	-0.1754	-0.1895	0.0013
(US n=96; HOU n=113)	(0.34)	(0.33)	(0.04)	(0.45)	(0.30)	(0.04)	(0.06)	(0.06)	
Over 50	0.0843	0.0843	0.0000	0.3196	0.1649	-0.1546	-0.1546	-0.1815	0.0061
(US n=83; HOU n=97)	(0.28)	(0.28)	(0.04)	(0.47)	(0.37)	(0.05)	(0.06)	(0.07)	
Under 50	0.3043	0.2609	-0.0435	0.2794	0.0882	-0.1912	-0.1477	-0.1415	0.0985
(US n=46; HOU n=68)	(0.47)	(0.44)	(0.06)	(0.45)	(0.29)	(0.05)	(0.08)	(0.08)	
> 5 yrs homele ss	0.1186	0.1356	0.0169	0.3721	0.1977	-0.1744	-0.1914	-0.2149	0.0095
(US n=59; HOU n=86)	(0.33)	(0.35)	(0.06)	(0.49)	(0.40)	(0.06)	(0.08)	(0.08)	

< 5 yrs homeless	0.1912	0.1618	-0.0294	0.2278	0.0633	-0.1646	-0.1351	-0.1273	0.0527
(US n=68; HOU n=79)	(0.40)	(0.37)	(0.04)	(0.42)	(0.25)	(0.05)	(0.06)	(0.07)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 40: Mean length of Jail stays by participants: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	3.93	4.41	0.7621
Male	4.62	5.66	0.6035
Female	2.17	0.49	0.2912
White	6.39	5.65	0.8202
BIPOC	3.09	3.83	0.6714
Over 50	1.04	5.82	0.0059
Under 50	9.17	2.38	0.0340
> 5 yrs homeless	3.17	6.05	0.2185
< 5 yrs homeless	4.51	2.62	0.3710

Table 41: Mean length of Jail stays by participants: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	3.94	5.26	1.32	4.41	1.93	-2.47	-3.79	-3.27	0.2526
(US n=129; HOU n=165)	(13.38)	(30.09)	(2.81)	(12.96)	(9.50)	(1.16)	(3.04)	(2.85)	
Male	4.62	6.90	2.28	5.66	2.50	-3.16	-5.44	-4.26	0.2647
(US n=93; HOU n=125)	(14.54)	(35.27)	(3.87)	(14.65)	(10.86)	(1.53)	(4.16)	(3.81)	
Female	2.17	1.00	-1.17	0.49	0.15	-0.33	0.83	0.85	0.5541
(US n=36; HOU n=39)	(9.71)	(4.06)	(1.30)	(1.70)	(0.54)	(0.29)	(1.33)	(1.42)	

White	6.39	2.33	-4.06	5.65	3.33	-2.33	1.73	2.28	0.5734
(US n=33; HOU n=52)	(16.99)	(5.38)	(2.43)	(12.84)	(13.18)	(2.44)	(3.43)	(4.03)	
BIPOC	3.09	6.26	3.17	3.83	1.29	-2.54	-5.71	-5.02	0.1414
(US n=96; HOU n=113)	(11.88)	(34.73)	(3.68)	(13.03)	(7.20)	(1.29)	(3.89)	(3.40)	
Over 50	1.04	5.99	4.95	5.82	2.88	-2.95	-7.90	-6.72	0.1034
(US n=83; HOU n=97)	(5.07)	(36.88)	(4.11)	(15.90)	(12.13)	(1.90)	(4.52)	(4.11)	
Under 50	9.17	3.93	-5.24	2.38	0.59	-1.79	3.45	3.53	0.1919
(US n=46; HOU n=68)	(20.47)	(9.73)	(2.50)	(6.45)	(2.66)	(0.82)	(2.61)	(2.69)	
> 5 yrs homele ss	3.17	6.02	2.85	6.05	2.95	-3.09	-5.94	-5.51	0.3172
(US n=59; HOU n=86)	(12.64)	(39.96)	(5.47)	(14.49)	(12.26)	(1.87)	(5.76)	(5.49)	
< 5 yrs homele ss	4.51	4.75	0.24	2.62	0.82	-1.80	-2.03	-2.12	0.4594
(US n=68; HOU n=79)	(14.18)	(18.60)	(2.49)	(10.86)	(4.87)	(1.35)	(2.83)	(2.85)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 42: % of participants using SNAP: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.690	0.776	0.0967
Male	0.677	0.776	0.1033
Female	0.722	0.769	0.6400
White	0.606	0.712	0.3133
BIPOC	0.719	0.805	0.1410
Age 50 +	0.639	0.784	0.0315
Age < 50	0.783	0.765	0.8231

Years homeless >5	0.746	0.791	0.5261
Years Homeless < 5	0.647	0.760	0.1352

Table 43: % of participants using SNAP: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.6899	0.7132	0.0233	0.7758	0.8000	0.0242	0.0010	0.0021	0.9469
(US n=129; HOU n=165)	(0.46)	(0.45)	(0.02)	(0.42)	(0.40)	(0.02)	(0.03)	(0.03)	
Male	0.6774	0.7097	0.0323	0.7760	0.8000	0.0240	-0.0083	-0.0026	0.9490
(US n=93; HOU n=125)	(0.47)	(0.46)	(0.03)	(0.42)	(0.40)	(0.03)	(0.04)	(0.04)	
Female	0.7222	0.7222	0.0000	0.7692	0.7949	0.0256	0.0256	0.0193	0.5427
(US n=36; HOU n=39)	(0.45)	(0.45)	0.00	(0.43)	(0.41)	(0.03)	(0.03)	(0.03)	
White	0.6061	0.6364	0.0303	0.7115	0.6923	-0.0192	-0.0495	-0.0754	0.3263
(US n=33; HOU n=52)	(0.50)	(0.49)	(0.03)	(0.46)	(0.47)	(0.04)	(0.05)	(0.08)	
BIPOC	0.7188	0.7396	0.0208	0.8053	0.8496	0.0442	0.0234	0.0349	0.3490
(US n=96; HOU n=113)	(0.45)	(0.44)	(0.03)	(0.40)	(0.36)	(0.02)	(0.04)	(0.04)	
Over 50	0.6386	0.6627	0.0241	0.7835	0.8041	0.0206	-0.0035	-0.0014	0.9750
(US n=83; HOU n=97)	(0.48)	(0.48)	(0.03)	(0.41)	(0.40)	(0.03)	(0.04)	(0.04)	
Under 50	0.7826	0.8043	0.0217	0.7647	0.7941	0.0294	0.0077	0.0036	0.9430
(US n=46; HOU n=68)	(0.42)	(0.40)	(0.04)	(0.43)	(0.41)	(0.02)	(0.04)	(0.05)	

> 5 yrs homeless	0.7458	0.7288	-0.0169	0.7907	0.8488	0.0581	0.0751	0.0797	0.1794
(US n=59; HOU n=86)	(0.44)	(0.45)	(0.04)	(0.41)	(0.36)	(0.03)	(0.05)	(0.06)	
< 5 yrs homeless	0.6471	0.7059	0.0588	0.7595	0.7468	-0.0127	-0.0715	-0.0769	0.0521
(US n=68; HOU n=79)	(0.48)	(0.46)	(0.03)	(0.43)	(0.44)	(0.02)	(0.04)	(0.04)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 44: % of participants using Crisis Free Store: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.403	0.430	0.6389
Male	0.355	0.384	0.6612
Female	0.528	0.590	0.5950
White	0.273	0.308	0.7340
BIPOC	0.448	0.487	0.5774
Age 50 +	0.386	0.402	0.8224
Age < 50	0.435	0.471	0.7095
Years homeless >5	0.458	0.384	0.3782
Years Homeless < 5	0.338	0.481	0.0808

Table 45: % of participants using Crisis Assistance - Free Store: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- Values Adj.*** DID*
Overall	0.4031	0.4109	0.0078	0.4303	0.4000	-0.0303	-0.0381	-0.0448	0.4356
(US n=129; HOU n=165)	(0.49)	(0.49)	(0.04)	(0.50)	(0.49)	(0.04)	(0.06)	(0.06)	
Male	0.3548	0.3871	0.0323	0.3840	0.3680	-0.0160	-0.0483	-0.0557	0.4171

(US n=93; HOU n=125)	(0.48)	(0.49)	(0.05)	(0.49)	(0.48)	(0.05)	(0.07)	(0.07)	
Female	0.5278	0.4722	-0.0556	0.5897	0.5128	-0.0769	-0.0214	-0.0368	0.7505
(US n=36; HOU n=39)	(0.51)	(0.51)	(0.08)	(0.50)	(0.51)	(0.08)	(0.11)	(0.12)	
White	0.2727	0.3030	0.0303	0.3077	0.3077	0.0000	-0.0303	-0.1141	0.3847
(US n=33; HOU n=52)	(0.45)	(0.47)	(0.09)	(0.47)	(0.47)	(0.07)	(0.12)	(0.13)	
BIPOC	0.4479	0.4479	0.0000	0.4867	0.4425	-0.0442	-0.0442	-0.0490	0.4598
(US n=96; HOU n=113)	(0.50)	(0.50)	(0.04)	(0.50)	(0.50)	(0.05)	(0.07)	(0.07)	
Over 50	0.3855	0.3735	-0.0120	0.4021	0.4536	0.0515	0.0636	0.0563	0.4242
(US n=83; HOU n=97)	(0.49)	(0.49)	(0.04)	(0.49)	(0.50)	(0.05)	(0.07)	(0.07)	
Under 50	0.4348	0.4783	0.0435	0.4706	0.3235	-0.1471	-0.1905	-0.1931	0.0728
(US n=46; HOU n=68)	(0.50)	(0.51)	(0.08)	(0.50)	(0.47)	(0.06)	(0.10)	(0.11)	
> 5 yrs homel ess	0.4576	0.3898	-0.0678	0.3837	0.4419	0.0581	0.1259	0.0967	0.2938
(US n=59; HOU n=86)	(0.50)	(0.49)	(0.06)	(0.49)	(0.50)	(0.06)	(0.09)	(0.09)	
< 5 yrs homel ess	0.3382	0.4265	0.0882	0.4810	0.3544	-0.1266	-0.2148	-0.2178	0.0034
(US n=68; HOU n=79)	(0.48)	(0.50)	(0.05)	(0.50)	(0.48)	(0.05)	(0.07)	(0.07)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 46: Mean # of visits to Crisis Free Store by participants: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	1.33	1.59	0.3781
Male	1.16	1.27	0.7301
Female	1.75	2.64	0.1885
White	0.79	0.83	0.9296
BIPOC	1.51	1.94	0.2509
Age 50 +	1.52	1.43	0.8315
Age < 50	0.98	1.81	0.0352
Years homeless >5	1.39	1.34	0.8957
Years Homeless < 5	1.13	1.86	0.0884

Table 47: Mean # of visits to Crisis Free Store by participants: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	1.33	1.29	-0.04	1.59	1.28	-0.31	-0.27	-0.26	0.2394
(US n=129; HOU n=165)	(2.36)	(2.26)	(0.14)	(2.65)	(2.47)	(0.16)	(0.21)	(0.22)	
Male	1.16	1.17	0.01	1.27	1.12	-0.15	-0.16	-0.07	0.7694
(US n=93; HOU n=125)	(2.21)	(2.19)	(0.15)	(2.43)	(2.41)	(0.19)	(0.24)	(0.25)	
Female	1.75	1.58	-0.17	2.64	1.82	-0.82	-0.65	-0.68	0.1240
(US n=36; HOU n=39)	(2.70)	(2.45)	(0.29)	(3.08)	(2.64)	(0.36)	(0.46)	(0.44)	
White	0.79	0.91	0.12	0.83	0.54	-0.29	-0.41	-0.73	0.0239
(US n=33; HOU n=52)	(2.22)	(2.14)	(0.21)	(1.52)	(0.96)	(0.17)	(0.27)	(0.32)	
BIPOC	1.51	1.42	-0.09	1.94	1.62	-0.32	-0.22	-0.17	0.5777

(US n=96; HOU n=113)	(2.39)	(2.30)	(0.17)	(2.97)	(2.85)	(0.23)	(0.28)	(0.30)	
Over 50	1.52	1.48	-0.04	1.43	1.55	0.11	0.15	0.21	0.4885
(US n=83; HOU n=97)	(2.74)	(2.64)	(0.18)	(2.61)	(2.81)	(0.23)	(0.29)	(0.31)	
Under 50	0.98	0.93	-0.04	1.81	0.90	-0.91	-0.87	-0.86	0.0051
(US n=46; HOU n=68)	(1.41)	(1.31)	(0.21)	(2.72)	(1.83)	(0.22)	(0.30)	(0.30)	
> 5 yrs homele ss	1.39	1.29	-0.10	1.34	1.40	0.06	0.16	0.12	0.7205
(US n=59; HOU n=86)	(2.17)	(2.24)	(0.20)	(2.50)	(2.65)	(0.25)	(0.31)	(0.33)	
< 5 yrs homele ss	1.13	1.18	0.04	1.86	1.15	-0.71	-0.75	-0.80	0.0071
(US n=68; HOU n=79)	(2.27)	(2.07)	(0.19)	(2.80)	(2.27)	(0.21)	(0.28)	(0.29)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 48: % of housed participants visiting Crisis Furniture Bank 12 months pre and post housing date, by month

	PSH (n=76)	Non-PSH (n=24)	Total (n=100)
12 mos Pre	0.0%	0.0%	0.0%
11 mos Pre	0.0%	0.0%	0.0%
10 mos Pre	0.0%	0.0%	0.0%
9 mos Pre	0.0%	0.0%	0.0%
8 mos Pre	1.3%	0.0%	1.0%
7 mos Pre	0.0%	4.2%	1.0%
6 mos Pre	0.0%	0.0%	0.0%
5 mos Pre	0.0%	0.0%	0.0%
4 mos Pre	0.0%	0.0%	0.0%
3 mos Pre	0.0%	4.2%	1.0%
2 mos Pre	0.0%	8.3%	2.0%

1 mos Pre	36.8%	37.5%	37.0%
1 mos Post	43.4%	16.7%	37.0%
2 mos Post	2.6%	4.2%	3.0%
3 mos Post	1.3%	4.2%	2.0%
4 mos Post	5.3%	4.2%	5.0%
5 mos Post	0.0%	0.0%	0.0%
6 mos Post	1.3%	0.0%	1.0%
7 mos Post	2.6%	4.2%	3.0%
8 mos Post	1.3%	4.2%	2.0%
9 mos Post	2.6%	4.2%	3.0%
10 mos Post	0.0%	0.0%	0.0%
11 mos Post	1.3%	4.2%	2.0%
12 mos Post	0.0%	0.0%	0.0%

Table 49: % of participants visiting the Crisis Furniture Bank: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P-Values Adj.*** DID*
Overall	0.0155	0.0388	0.0233	0.0242	0.1152	0.0909	0.0677	0.0744	0.0322
(US n=129; HOU n=165)	(0.12)	(0.19)	(0.02)	(0.15)	(0.32)	(0.03)	(0.03)	(0.03)	
Male	0.0108	0.0215	0.0108	0.0240	0.0880	0.0640	0.0532	0.0630	0.1042
(US n=93; HOU n=125)	(0.10)	(0.15)	(0.02)	(0.15)	(0.28)	(0.03)	(0.04)	(0.04)	
Female	0.0278	0.0833	0.0556	0.0256	0.2051	0.1795	0.1239	0.1260	0.1312
(US n=36; HOU n=39)	(0.17)	(0.28)	(0.04)	(0.16)	(0.41)	(0.07)	(0.08)	(0.08)	
White	0.0000	0.0303	0.0303	0.0000	0.1154	0.1154	0.0851	0.0635	0.2843

(US n=33; HOU n=52)	0.00	(0.17)	(0.03)	0.00	(0.32)	(0.05)	(0.05)	(0.06)	
BIPOC	0.0208	0.0417	0.0208	0.0354	0.1150	0.0796	0.0588	0.0619	0.1383
(US n=96; HOU n=113)	(0.14)	(0.20)	(0.02)	(0.19)	(0.32)	(0.04)	(0.04)	(0.04)	
Over 50	0.0000	0.0241	0.0241	0.0309	0.1237	0.0928	0.0687	0.0816	0.0917
(US n=83; HOU n=97)	0.00	(0.15)	(0.02)	(0.17)	(0.33)	(0.04)	(0.04)	(0.05)	
Under 50	0.0435	0.0652	0.0217	0.0147	0.1029	0.0882	0.0665	0.0602	0.2874
(US n=46; HOU n=68)	(0.21)	(0.25)	(0.04)	(0.12)	(0.31)	(0.04)	(0.06)	(0.06)	
> 5 yrs homele ss	0.0000	0.0508	0.0508	0.0116	0.1395	0.1279	0.0771	0.0690	0.1961
(US n=59; HOU n=86)	0.00	(0.22)	(0.03)	(0.11)	(0.35)	(0.04)	(0.05)	(0.05)	
< 5 yrs homele ss	0.0294	0.0294	0.0000	0.0380	0.0886	0.0506	0.0506	0.0583	0.2244
(US n=68; HOU n=79)	(0.17)	(0.17)	(0.02)	(0.19)	(0.29)	(0.04)	(0.05)	(0.05)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 50: Mean # of visits to Crisis Furniture Bank by participants: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- Values Adj.*** DID*
Overall	0.02	0.04	0.02	0.03	0.13	0.10	0.07	0.08	0.0380
(US n=129; HOU n=165)	(0.12)	(0.19)	(0.02)	(0.20)	(0.37)	(0.03)	(0.04)	(0.04)	
Male	0.01	0.02	0.01	0.03	0.09	0.06	0.05	0.06	0.1727

(US n=93; HOU n=125)	(0.10)	(0.15)	(0.02)	(0.22)	(0.28)	(0.03)	(0.04)	(0.04)	
Female	0.03	0.08	0.06	0.03	0.26	0.23	0.18	0.18	0.0877
(US n=36; HOU n=39)	(0.17)	(0.28)	(0.04)	(0.16)	(0.55)	(0.09)	(0.10)	(0.10)	
White	0.00	0.03	0.03	0.00	0.12	0.12	0.09	0.06	0.2843
(US n=33; HOU n=52)	0.00	(0.17)	(0.03)	0.00	(0.32)	(0.04)	(0.05)	(0.06)	
BIPOC	0.02	0.04	0.02	0.04	0.13	0.09	0.07	0.07	0.1373
(US n=96; HOU n=113)	(0.14)	(0.20)	(0.02)	(0.25)	(0.39)	(0.04)	(0.05)	(0.05)	
Over 50	0.00	0.02	0.02	0.04	0.13	0.09	0.07	0.08	0.1330
(US n=83; HOU n=97)	0.00	(0.15)	(0.02)	(0.25)	(0.37)	(0.05)	(0.05)	(0.06)	
Under 50	0.04	0.07	0.02	0.01	0.12	0.10	0.08	0.07	0.2259
(US n=46; HOU n=68)	(0.21)	(0.25)	(0.04)	(0.12)	(0.37)	(0.05)	(0.06)	(0.06)	
> 5 yrs homele ss	0.00	0.05	0.05	0.01	0.14	0.13	0.08	0.07	0.1961
(US n=59; HOU n=86)	0.00	(0.22)	(0.03)	(0.11)	(0.35)	(0.04)	(0.05)	(0.05)	
< 5 yrs homele ss	0.03	0.03	0.00	0.05	0.11	0.06	0.06	0.07	0.2672
(US n=68; HOU n=79)	(0.17)	(0.17)	(0.02)	(0.27)	(0.39)	(0.06)	(0.06)	(0.06)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 51: % of housed participants using Crisis Financial Assistance 12 months pre and post housed date, by month

	PSH (n=139)	Non-PSH (n=42)	Total (n=181)
12 mos Pre	0.0%	0.0%	0.0%
11 mos Pre	0.7%	0.0%	0.6%
10 mos Pre	0.7%	0.0%	0.6%
9 mos Pre	0.7%	2.4%	1.1%
8 mos Pre	0.7%	0.0%	0.6%
7 mos Pre	0.0%	0.0%	0.0%
6 mos Pre	0.0%	0.0%	0.0%
5 mos Pre	0.0%	2.4%	0.6%
4 mos Pre	0.0%	2.4%	0.6%
3 mos Pre	0.7%	0.0%	0.6%
2 mos Pre	0.0%	4.8%	1.1%
1 mos Pre	37.4%	40.5%	38.1%
1 mos Post	27.3%	4.8%	22.1%
2 mos Post	0.0%	2.4%	0.6%
3 mos Post	2.9%	2.4%	2.8%
4 mos Post	2.9%	9.5%	4.4%
5 mos Post	3.6%	4.8%	3.9%
6 mos Post	2.2%	2.4%	2.2%
7 mos Post	2.9%	2.4%	2.8%
8 mos Post	3.6%	0.0%	2.8%
9 mos Post	5.8%	7.1%	6.1%
10 mos Post	2.2%	4.8%	2.8%
11 mos Post	2.9%	4.8%	3.3%
12 mos Post	2.9%	2.4%	2.8%

Table 52: % of participants visiting Crisis for Financial Assistance: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.0620	0.0698	0.0078	0.0545	0.2424	0.1879	0.1801	0.1769	0.0001

(US n=129; HOU n=165)	(0.24)	(0.26)	(0.02)	(0.23)	(0.43)	(0.04)	(0.04)	(0.04)	
Male	0.0538	0.0753	0.0215	0.0640	0.2160	0.1520	0.1305	0.1312	0.0138
(US n=93; HOU n=125)	(0.23)	(0.27)	(0.03)	(0.25)	(0.41)	(0.04)	(0.05)	(0.05)	
Female	0.0833	0.0556	-0.0278	0.0256	0.3333	0.3077	0.3355	0.3331	0.0005
(US n=36; HOU n=39)	(0.28)	(0.23)	(0.05)	(0.16)	(0.48)	(0.08)	(0.09)	(0.09)	
White	0.0303	0.0606	0.0303	0.0385	0.2115	0.1731	0.1428	0.1157	0.1660
(US n=33; HOU n=52)	(0.17)	(0.24)	(0.03)	(0.19)	(0.41)	(0.06)	(0.07)	(0.08)	
BIPOC	0.0729	0.0729	0.0000	0.0619	0.2566	0.1947	0.1947	0.1873	0.0009
(US n=96; HOU n=113)	(0.26)	(0.26)	(0.03)	(0.24)	(0.44)	(0.05)	(0.06)	(0.06)	
Over 50	0.0723	0.0482	-0.0241	0.0825	0.2474	0.1649	0.1890	0.1762	0.0033
(US n=83; HOU n=97)	(0.26)	(0.22)	(0.02)	(0.28)	(0.43)	(0.05)	(0.06)	(0.06)	
Under 50	0.0435	0.1087	0.0652	0.0147	0.2353	0.2206	0.1554	0.1449	0.0521
(US n=46; HOU n=68)	(0.21)	(0.31)	(0.05)	(0.12)	(0.43)	(0.06)	(0.07)	(0.07)	
> 5 yrs homele ss	0.0508	0.0678	0.0169	0.0581	0.2209	0.1628	0.1458	0.1237	0.0593
(US n=59; HOU n=86)	(0.22)	(0.25)	(0.04)	(0.24)	(0.42)	(0.05)	(0.06)	(0.07)	
< 5 yrs homele ss	0.0735	0.0735	0.0000	0.0506	0.2658	0.2152	0.2152	0.2292	0.001
(US n=68; HOU n=79)	(0.26)	(0.26)	(0.03)	(0.22)	(0.44)	(0.06)	(0.06)	(0.07)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 53: Mean # of visits to Crisis for Financial Assistance by participants: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.11	0.14	0.03	0.06	0.38	0.32	0.29	0.28	0.0008
(US n=129; HOU n=165)	(0.55)	(0.58)	(0.06)	(0.26)	(0.85)	(0.06)	(0.09)	(0.08)	
Male	0.08	0.15	0.08	0.06	0.31	0.25	0.17	0.17	0.0453
(US n=93; HOU n=125)	(0.37)	(0.61)	(0.05)	(0.25)	(0.71)	(0.07)	(0.08)	(0.08)	
Female	0.19	0.11	-0.08	0.05	0.62	0.56	0.65	0.64	0.0047
(US n=36; HOU n=39)	(0.86)	(0.52)	(0.16)	(0.32)	(1.18)	(0.16)	(0.23)	(0.22)	
White	0.03	0.18	0.15	0.04	0.23	0.19	0.04	-0.01	0.9675
(US n=33; HOU n=52)	(0.17)	(0.77)	(0.11)	(0.19)	(0.47)	(0.07)	(0.13)	(0.15)	
BIPOC	0.14	0.12	-0.01	0.07	0.45	0.38	0.39	0.37	0.0004
(US n=96; HOU n=113)	(0.63)	(0.51)	(0.06)	(0.29)	(0.97)	(0.09)	(0.11)	(0.10)	
Over 50	0.10	0.13	0.04	0.09	0.35	0.26	0.22	0.22	0.0247
(US n=83; HOU n=97)	(0.40)	(0.62)	(0.05)	(0.33)	(0.76)	(0.07)	(0.09)	(0.10)	
Under 50	0.13	0.15	0.02	0.01	0.43	0.41	0.39	0.38	0.0329
(US n=46; HOU n=68)	(0.75)	(0.51)	(0.13)	(0.12)	(0.97)	(0.12)	(0.17)	(0.17)	
> 5 yrs homeless	0.08	0.12	0.03	0.07	0.33	0.26	0.22	0.19	0.0598

(US n=59; HOU n=86)	(0.43)	(0.49)	(0.05)	(0.30)	(0.80)	(0.08)	(0.09)	(0.10)	
< 5 yrs homeless	0.13	0.16	0.03	0.05	0.44	0.39	0.36	0.39	0.0111
(US n=68; HOU n=79)	(0.64)	(0.66)	(0.10)	(0.22)	(0.90)	(0.11)	(0.14)	(0.15)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 54: % of participants using Emergency Shelter: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.527	0.649	0.0354
Male	0.530	0.610	0.2330
Female	0.528	0.770	0.0282
White	0.420	0.440	0.8719
BIPOC	0.560	0.740	0.0058
Age 50 +	0.530	0.620	0.2335
Age < 50	0.520	0.690	0.0681
Years homeless >5	0.540	0.620	0.3782
Years Homeless < 5	0.510	0.680	0.0370

Table 55: % of participants using Emergency Shelter: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- Values Adj.*** DID*
Overall	0.5271	0.4186	-0.1085	0.6485	0.0667	-0.5818	-0.4733	-0.4742	0.0000
(US n=129; HOU n=165)	(0.50)	(0.50)	(0.04)	(0.48)	(0.25)	(0.04)	(0.06)	(0.06)	
Male	0.5269	0.4516	-0.0753	0.6080	0.0640	-0.5440	-0.4687	-0.4866	0.0000
(US n=93; HOU n=125)	(0.50)	(0.50)	(0.05)	(0.49)	(0.25)	(0.05)	(0.07)	(0.07)	

Female	0.5278	0.3333	-0.1944	0.7692	0.0769	-0.6923	-0.4979	-0.4908	0.0001
(US n=36; HOU n=39)	(0.51)	(0.48)	(0.09)	(0.43)	(0.27)	(0.08)	(0.12)	(0.12)	
White	0.4242	0.2424	-0.1818	0.4423	0.0385	-0.4038	-0.2220	-0.2254	0.0749
(US n=33; HOU n=52)	(0.50)	(0.44)	(0.09)	(0.50)	(0.19)	(0.07)	(0.12)	(0.13)	
BIPOC	0.5625	0.4792	-0.0833	0.7434	0.0796	-0.6637	-0.5804	-0.5843	0.0000
(US n=96; HOU n=113)	(0.50)	(0.50)	(0.05)	(0.44)	(0.27)	(0.05)	(0.07)	(0.07)	
Over 50	0.5301	0.4699	-0.0602	0.6186	0.0619	-0.5567	-0.4965	-0.5123	0.0000
(US n=83; HOU n=97)	(0.50)	(0.50)	(0.05)	(0.49)	(0.24)	(0.05)	(0.07)	(0.08)	
Under 50	0.5217	0.3261	-0.1957	0.6912	0.0735	-0.6176	-0.4220	-0.4303	0.0000
(US n=46; HOU n=68)	(0.51)	(0.47)	(0.07)	(0.47)	(0.26)	(0.07)	(0.10)	(0.10)	
> 5 yrs homele ss	0.5424	0.4746	-0.0678	0.6163	0.0930	-0.5233	-0.4555	-0.4453	0.0000
(US n=59; HOU n=86)	(0.50)	(0.50)	(0.06)	(0.49)	(0.29)	(0.06)	(0.09)	(0.09)	
< 5 yrs homele ss	0.5147	0.3824	-0.1324	0.6835	0.0380	-0.6456	-0.5132	-0.5252	0.0000
(US n=68; HOU n=79)	(0.50)	(0.49)	(0.06)	(0.47)	(0.19)	(0.06)	(0.08)	(0.09)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Tables 56: Mean # of nights participants stayed at Emergency Shelter: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	32.22	56.80	0.0133
Male	26.91	58.73	0.0059
Female	45.94	52.03	0.7525

White	21.79	46.46	0.1748
BIPOC	35.81	61.56	0.0343
Age 50 +	30.69	67.62	0.0067
Age < 50	35.00	41.37	0.6598
Years homeless >5	20.05	42.99	0.0386
Years Homeless < 5	42.40	71.84	0.0745

Table 57: Mean # of nights participants stayed at Emergency Shelter: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	32.22	40.13	7.91	56.80	1.16	-55.64	-63.54	-61.00	0.0000
(US n=129; HOU n=165)	(72.14)	(82.61)	(9.28)	(96.92)	(6.66)	(7.59)	(11.97)	(12.07)	
Male	26.91	44.10	17.18	58.73	0.76	-57.97	-75.15	-71.58	0.0000
(US n=93; HOU n=125)	(67.19)	(90.68)	(11.24)	(101.33)	(4.25)	(9.12)	(14.45)	(14.64)	
Female	45.94	29.89	-16.06	52.03	2.49	-49.54	-33.48	-34.60	0.0987
(US n=36; HOU n=39)	(83.04)	(56.51)	(15.83)	(83.19)	(11.41)	(13.48)	(20.72)	(20.69)	
White	21.79	38.18	16.39	46.46	0.38	-46.08	-62.47	-54.70	0.0206
(US n=33; HOU n=52)	(68.31)	(93.70)	(19.18)	(88.03)	(2.64)	(12.27)	(22.63)	(23.18)	
BIPOC	35.81	40.80	4.99	61.56	1.52	-60.04	-65.02	-61.82	0.0000
(US n=96; HOU n=113)	(73.41)	(78.97)	(10.66)	(100.76)	(7.83)	(9.56)	(14.30)	(14.50)	
Over 50	30.69	47.35	16.66	67.62	0.78	-66.84	-83.50	-79.86	0.0000

(US n=83; HOU n=97)	(68.96)	(93.02)	(12.32)	(109.40)	(4.40)	(11.18)	(16.61)	(17.18)	
Under 50	35.00	27.11	-7.89	41.37	1.71	-39.66	-31.77	-32.85	0.0409
(US n=46; HOU n=68)	(78.25)	(58.09)	(13.46)	(73.72)	(8.96)	(9.00)	(16.13)	(15.88)	
> 5 yrs homele ss	20.05	39.61	19.56	42.99	1.90	-41.09	-60.65	-58.72	0.0002
(US n=59; HOU n=86)	(48.25)	(83.94)	(12.06)	(83.58)	(8.92)	(9.14)	(15.09)	(15.20)	
< 5 yrs homele ss	42.40	41.76	-0.63	71.84	0.37	-71.47	-70.84	-68.10	0.0004
(US n=68; HOU n=79)	(87.31)	(82.99)	(14.10)	(108.16)	(2.30)	(12.19)	(18.60)	(18.82)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 58: % of participants using services at Mecklenburg County Health Department: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.209	0.279	0.1712
Male	0.204	0.232	0.6273
Female	0.222	0.410	0.0832
White	0.091	0.192	0.2102
BIPOC	0.250	0.319	0.2769
Age 50 +	0.205	0.289	0.1974
Age < 50	0.217	0.265	0.5688
Years homeless >5	0.237	0.314	0.3173
Years Homeless < 5	0.177	0.241	0.3460

Table 59: % of participants using services at Mecklenburg County Health Department: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.2093	0.1860	-0.0233	0.2788	0.1212	-0.1576	-0.1343	-0.1339	0.0105
(US n=129; HOU n=165)	(0.41)	(0.39)	(0.04)	(0.45)	(0.33)	(0.03)	(0.05)	(0.05)	
Male	0.2043	0.1935	-0.0108	0.2320	0.0960	-0.1360	-0.1252	-0.1428	0.0185
(US n=93; HOU n=125)	(0.41)	(0.40)	(0.04)	(0.42)	(0.30)	(0.04)	(0.06)	(0.06)	
Female	0.2222	0.1667	-0.0556	0.4103	0.1795	-0.2308	-0.1752	-0.1613	0.1142
(US n=36; HOU n=39)	(0.42)	(0.38)	(0.08)	(0.50)	(0.39)	(0.07)	(0.10)	(0.10)	
White	0.0909	0.0606	-0.0303	0.1923	0.0577	-0.1346	-0.1043	-0.1474	0.1420
(US n=33; HOU n=52)	(0.29)	(0.24)	(0.05)	(0.40)	(0.24)	(0.06)	(0.08)	(0.10)	
BIPOC	0.2500	0.2292	-0.0208	0.3186	0.1504	-0.1681	-0.1473	-0.1601	0.0108
(US n=96; HOU n=113)	(0.44)	(0.42)	(0.05)	(0.47)	(0.36)	(0.04)	(0.06)	(0.06)	
Over 50	0.2048	0.1928	-0.0120	0.2887	0.1340	-0.1546	-0.1426	-0.1523	0.0231
(US n=83; HOU n=97)	(0.41)	(0.40)	(0.05)	(0.46)	(0.34)	(0.04)	(0.07)	(0.07)	
Under 50	0.2174	0.1739	-0.0435	0.2647	0.1029	-0.1618	-0.1183	-0.1036	0.2150
(US n=46; HOU n=68)	(0.42)	(0.38)	(0.06)	(0.44)	(0.31)	(0.05)	(0.08)	(0.08)	
> 5 yrs homeless	0.2373	0.2203	-0.0169	0.3140	0.1163	-0.1977	-0.1807	-0.2080	0.0070

(US n=59; HOU n=86)	(0.43)	(0.42)	(0.06)	(0.47)	(0.32)	(0.05)	(0.08)	(0.08)	
< 5 yrs homeless	0.1765	0.1618	-0.0147	0.2405	0.1266	-0.1139	-0.0992	-0.0952	0.1855
(US n=68; HOU n=79)	(0.38)	(0.37)	(0.05)	(0.43)	(0.33)	(0.04)	(0.07)	(0.07)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 60: Mean # of visits by participant to Mecklenburg County Health Department: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.52	0.94	0.2340
Male	0.55	0.50	0.8193
Female	0.44	2.21	0.1800
White	0.21	0.31	0.5596
BIPOC	0.63	1.23	0.2281
Age 50 +	0.59	0.70	0.6807
Age < 50	0.39	1.28	0.2424
Years homeless >5	0.69	1.27	0.3938
Years Homeless < 5	0.37	0.58	0.2463

Table 61: Mean # of visits by participant to the Mecklenburg Health Department: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- Values Adj.*** DID*
Overall	0.52	0.58	0.06	0.94	0.32	-0.62	-0.68	-0.73	0.0174
(US n=129; HOU n=165)	(1.78)	(1.40)	(0.14)	(4.05)	(1.30)	(0.23)	(0.27)	(0.31)	
Male	0.55	0.56	0.01	0.50	0.17	-0.33	-0.34	-0.39	0.0614
(US n=93; HOU n=125)	(2.00)	(1.36)	(0.17)	(1.07)	(0.56)	(0.09)	(0.19)	(0.21)	

Female	0.44	0.64	0.19	2.21	0.72	-1.49	-1.68	-1.73	0.0871
(US n=36; HOU n=39)	(1.00)	(1.51)	(0.26)	(7.99)	(2.37)	(0.93)	(0.97)	(1.00)	
White	0.21	0.24	0.03	0.31	0.13	-0.17	-0.20	-0.34	0.1462
(US n=33; HOU n=52)	(0.74)	(0.97)	(0.16)	(0.73)	(0.56)	(0.11)	(0.19)	(0.23)	
BIPOC	0.62	0.70	0.07	1.23	0.41	-0.82	-0.90	-1.03	0.0226
(US n=96; HOU n=113)	(2.01)	(1.50)	(0.18)	(4.85)	(1.52)	(0.33)	(0.38)	(0.45)	
Over 50	0.59	0.61	0.02	0.70	0.27	-0.43	-0.46	-0.50	0.0421
(US n=83; HOU n=97)	(2.12)	(1.43)	(0.19)	(1.31)	(0.76)	(0.12)	(0.22)	(0.24)	
Under 50	0.39	0.52	0.13	1.28	0.40	-0.88	-1.01	-1.01	0.0937
(US n=46; HOU n=68)	(0.86)	(1.35)	(0.21)	(6.13)	(1.81)	(0.54)	(0.57)	(0.60)	
> 5 yrs homele ss	0.69	0.78	0.08	1.27	0.37	-0.90	-0.98	-1.13	0.0680
(US n=59; HOU n=86)	(2.43)	(1.67)	(0.25)	(5.47)	(1.63)	(0.43)	(0.50)	(0.61)	
< 5 yrs homele ss	0.37	0.43	0.06	0.58	0.27	-0.32	-0.38	-0.41	0.0365
(US n=68; HOU n=79)	(0.93)	(1.11)	(0.16)	(1.30)	(0.80)	(0.10)	(0.19)	(0.19)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 62: % of participants using the Emergency Department: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.721	0.739	0.7230
Male	0.688	0.736	0.4411
Female	0.806	0.744	0.5284

White	0.818	0.750	0.4681
BIPOC	0.688	0.735	0.4565
Age 50 +	0.699	0.680	0.7920
Age < 50	0.761	0.824	0.4179
Years homeless >5	0.712	0.698	0.8554
Years Homeless < 5	0.721	0.785	0.4475

Table 63: % of participants using Emergency Department: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.7209	0.5969	-0.1240	0.7394	0.5939	-0.1455	-0.0214	-0.0221	0.7098
(US n=129; HOU n=165)	(0.45)	(0.49)	(0.05)	(0.44)	(0.49)	(0.04)	(0.06)	(0.06)	
Male	0.6882	0.5376	-0.1505	0.7360	0.5600	-0.1760	-0.0255	-0.0282	0.7006
(US n=93; HOU n=125)	(0.47)	(0.50)	(0.06)	(0.44)	(0.50)	(0.05)	(0.07)	(0.07)	
Female	0.8056	0.7500	-0.0556	0.7436	0.6923	-0.0513	0.0043	-0.0124	0.8953
(US n=36; HOU n=39)	(0.40)	(0.44)	(0.08)	(0.44)	(0.47)	(0.05)	(0.09)	(0.09)	
White	0.8182	0.6364	-0.1818	0.7500	0.6154	-0.1346	0.0472	0.0948	0.4202
(US n=33; HOU n=52)	(0.39)	(0.49)	(0.08)	(0.44)	(0.49)	(0.07)	(0.11)	(0.12)	
BIPOC	0.6875	0.5833	-0.1042	0.7345	0.5841	-0.1504	-0.0463	-0.0387	0.5824
(US n=96; HOU n=113)	(0.47)	(0.50)	(0.05)	(0.44)	(0.50)	(0.04)	(0.07)	(0.07)	
Over 50	0.6988	0.5783	-0.1205	0.6804	0.5361	-0.1443	-0.0238	-0.0202	0.8142

(US n=83; HOU n=97)	(0.46)	(0.50)	(0.06)	(0.47)	(0.50)	(0.05)	(0.08)	(0.09)	
Under 50	0.7609	0.6304	-0.1304	0.8235	0.6765	-0.1471	-0.0166	0.0055	0.9488
(US n=46; HOU n=68)	(0.43)	(0.49)	(0.07)	(0.38)	(0.47)	(0.05)	(0.08)	(0.09)	
> 5 yrs homele ss	0.7119	0.5593	-0.1525	0.6977	0.5233	-0.1744	-0.0219	-0.0238	0.7777
(US n=59; HOU n=86)	(0.46)	(0.50)	(0.06)	(0.46)	(0.50)	(0.06)	(0.08)	(0.08)	
< 5 yrs homele ss	0.7206	0.6176	-0.1029	0.7848	0.6709	-0.1139	-0.0110	-0.0155	0.8601
(US n=68; HOU n=79)	(0.45)	(0.49)	(0.07)	(0.41)	(0.47)	(0.04)	(0.08)	(0.09)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 64: Mean # of visits per a participant to the Emergency Department: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	4.20	6.44	0.0361
Male	3.84	6.32	0.0517
Female	5.14	6.85	0.3813
White	7.58	8.83	0.6705
BIPOC	3.04	5.34	0.0077
Age 50 +	3.53	5.34	0.0823
Age < 50	5.41	8.00	0.2356
Years homeless >5	3.66	5.17	0.1767
Years Homeless < 5	4.62	7.81	0.0836

Table 65: Mean # of visits per a participant to the Emergency Department: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	4.20	2.53	-1.67	6.44	2.59	-3.85	-2.18	-2.12	0.0394
(US n=129; HOU n=165)	(6.83)	(4.48)	(0.57)	(11.23)	(4.35)	(0.79)	(0.98)	(1.02)	
Male	3.84	2.23	-1.61	6.32	2.52	-3.80	-2.19	-2.12	0.0964
(US n=93; HOU n=125)	(6.98)	(4.57)	(0.73)	(11.64)	(4.32)	(0.97)	(1.21)	(1.27)	
Female	5.14	3.33	-1.81	6.85	2.72	-4.13	-2.32	-2.36	0.1362
(US n=36; HOU n=39)	(6.45)	(4.18)	(0.85)	(10.06)	(4.54)	(1.27)	(1.53)	(1.56)	
White	7.58	2.36	-5.21	8.83	3.33	-5.50	-0.29	0.28	0.9229
(US n=33; HOU n=52)	(10.72)	(3.04)	(1.77)	(16.29)	(6.05)	(2.10)	(2.74)	(2.94)	
BIPOC	3.04	2.59	-0.45	5.34	2.25	-3.09	-2.64	-2.58	0.0026
(US n=96; HOU n=113)	(4.35)	(4.89)	(0.42)	(7.73)	(3.27)	(0.65)	(0.77)	(0.85)	
Over 50	3.53	2.46	-1.07	5.34	2.14	-3.20	-2.12	-2.03	0.0445
(US n=83; HOU n=97)	(5.26)	(4.48)	(0.51)	(8.47)	(4.16)	(0.72)	(0.88)	(1.00)	
Under 50	5.41	2.67	-2.74	8.00	3.22	-4.78	-2.04	-2.10	0.3139
(US n=46; HOU n=68)	(8.95)	(4.52)	(1.31)	(14.20)	(4.57)	(1.64)	(2.10)	(2.07)	
> 5 yrs homeless	3.66	2.44	-1.22	5.17	2.59	-2.58	-1.36	-1.61	0.1518

(US n=59; HOU n=86)	(5.43)	(5.36)	(0.66)	(7.99)	(4.78)	(0.70)	(0.96)	(1.12)	
< 5 yrs homele ss	4.62	2.54	-2.07	7.81	2.58	-5.23	-3.15	-3.36	0.0780
(US n=68; HOU n=79)	(7.93)	(3.64)	(0.92)	(13.84)	(3.86)	(1.47)	(1.73)	(1.89)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 66: Percent of Diagnoses by ICD-10* Category: Housed- 12 months before housing

<i>Diagnosis</i>	<i>freq</i>	<i>%</i>
Mental, Behavioral and Neurodevelopmental disorders	695	32.30%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	265	12.30%
Diseases of the musculoskeletal system and connective tissue	252	11.70%
Injury, poisoning and certain other consequences of external causes	159	7.40%
Factors influencing health status and contact with health services	148	6.90%
Diseases of the digestive system	116	5.40%
Diseases of the circulatory system	94	4.40%
Endocrine, nutritional and metabolic diseases	89	4.10%
Diseases of the respiratory system	86	4.00%
Certain infectious and parasitic diseases	82	3.80%
Diseases of the skin and subcutaneous tissue	59	2.70%
Diseases of the nervous system	51	2.40%
Diseases of the genitourinary system	24	1.10%
Diseases of the eye and adnexa	15	0.70%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	13	0.60%

*International Statistical Classification of Diseases and Related Health Problems (10th revision); "diagnostic classification standard for all clinical and research purposes. [...] ICD allows the counting of deaths as well as diseases, injuries, symptoms, reasons for encounter, factors that influence health status, and external causes of disease" (WHO, 2018).

Table 67: Percent of Diagnoses by ICD-10* Category: Housed- 12 months after housing

<i>Diagnosis</i>	Frequency	%
Mental, Behavioral and Neurodevelopmental disorders	350	38.80%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	87	9.60%
Diseases of the musculoskeletal system and connective tissue	85	9.40%
Factors influencing health status and contact with health services	76	8.40%
Injury, poisoning and certain other consequences of external causes	74	8.20%
Diseases of the circulatory system	48	5.30%
Diseases of the respiratory system	34	3.80%
Diseases of the digestive system	31	3.40%
Endocrine, nutritional and metabolic diseases	29	3.20%
Certain infectious and parasitic diseases	27	3.00%
Diseases of the skin and subcutaneous tissue	26	2.90%
Diseases of the nervous system	14	1.60%
Diseases of the genitourinary system	9	1.00%
Diseases of the eye and adnexa	9	1.00%
Pregnancy, childbirth and the puerperium	*	<0.05%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	350	38.80%
Neoplasms	87	9.60%

*International Statistical Classification of Diseases and Related Health Problems (10th revision); "diagnostic classification standard for all clinical and research purposes. [...] ICD allows the counting of deaths as well as diseases, injuries, symptoms, reasons for encounter, factors that influence health status, and external causes of disease" (WHO, 2018).

Table 68: Percent of Diagnoses by ICD-10* Category: Unhoused- 12 months before baseline interview

<i>Diagnosis</i>	Frequency	%
Mental, Behavioral and Neurodevelopmental disorders	224	27.50%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	110	13.50%
Diseases of the musculoskeletal system and connective tissue	91	11.20%
Factors influencing health status and contact with health services	86	10.60%

Injury, poisoning and certain other consequences of external causes	74	9.10%
Diseases of the circulatory system	50	6.10%
Diseases of the respiratory system	33	4.10%
Diseases of the digestive system	27	3.30%
Endocrine, nutritional and metabolic diseases	22	2.70%
Certain infectious and parasitic diseases	21	2.60%
Diseases of the skin and subcutaneous tissue	21	2.60%
Diseases of the nervous system	20	2.50%
Diseases of the genitourinary system	14	1.70%
Diseases of the eye and adnexa	13	1.60%
Pregnancy, childbirth and the puerperium	*	<0.05%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	*	<0.05%
Neoplasms	*	<0.05%

*International Statistical Classification of Diseases and Related Health Problems (10th revision); "diagnostic classification standard for all clinical and research purposes. [...] ICD allows the counting of deaths as well as diseases, injuries, symptoms, reasons for encounter, factors that influence health status, and external causes of disease" (WHO, 2018).

Table 69: Percent of Diagnoses by ICD-10* Category: Unhoused- 12 months after baseline interview

<i>Diagnosis</i>	Frequency	%
Mental, Behavioral and Neurodevelopmental disorders	119	24.30%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	66	13.50%
Diseases of the musculoskeletal system and connective tissue	60	12.30%
Factors influencing health status and contact with health services	49	10.00%
Diseases of the circulatory system	37	7.60%
Injury, poisoning and certain other consequences of external causes	33	6.70%
Diseases of the respiratory system	26	5.30%
Diseases of the digestive system	25	5.10%
Endocrine, nutritional and metabolic diseases	19	3.90%

Diseases of the skin and subcutaneous tissue	14	2.90%
Diseases of the nervous system	13	2.70%
Diseases of the eye and adnexa	12	2.50%
Certain infectious and parasitic diseases	10	2.00%
Diseases of the genitourinary system	*	<0.05%
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	*	<0.05%

*International Statistical Classification of Diseases and Related Health Problems (10th revision); "diagnostic classification standard for all clinical and research purposes. [...] ICD allows the counting of deaths as well as diseases, injuries, symptoms, reasons for encounter, factors that influence health status, and external causes of disease" (WHO, 2018).

Table 70: Examples of diagnoses within ICD-10 Categories

<i>ICD-10 Category</i>	<i>Examples of specific diagnoses</i>
Certain infectious and parasitic diseases	<ul style="list-style-type: none"> • Sepsis, unspecified organism • Human immunodeficiency virus [HIV] disease
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	<ul style="list-style-type: none"> • Anemia, unspecified • Thrombocytopathy
Diseases of the circulatory system	<ul style="list-style-type: none"> • Heart failure, unspecified • Essential (primary) hypertension
Diseases of the digestive system	<ul style="list-style-type: none"> • Gastro-esophageal reflux disease without esophagitis • Acute pancreatitis, unspecified
Diseases of the eye and adnexa	<ul style="list-style-type: none"> • Hordeolum externum left eye, unspecified eyelid • Ocular pain, bilateral
Diseases of the genitourinary system	<ul style="list-style-type: none"> • Chronic kidney disease, unspecified • Urinary tract infection, site not specified
Diseases of the musculoskeletal system and connective tissue	<ul style="list-style-type: none"> • Gout, unspecified • Plantar fascial fibromatosis
Diseases of the nervous system	<ul style="list-style-type: none"> • Epilepsy, unspecified, not intractable, without status epilepticus • Polyneuropathy, unspecified
Diseases of the respiratory system	<ul style="list-style-type: none"> • Acute upper respiratory infection, unspecified • Pneumonia, unspecified organism
Diseases of the skin and subcutaneous tissue	<ul style="list-style-type: none"> • Cellulitis and abscess of unspecified site • Psoriasis, unspecified
Endocrine, nutritional and metabolic diseases	<ul style="list-style-type: none"> • Hypothyroidism, unspecified • Type 2 diabetes mellitus with hyperglycemia
Factors influencing health status and	<ul style="list-style-type: none"> • Encounter for examination for admission to residential institution

contact with health services	<ul style="list-style-type: none"> Encounter for examination and observation following other accident
Injury, poisoning and certain other consequences of external causes	<ul style="list-style-type: none"> Abrasion of scalp, initial encounter
	<ul style="list-style-type: none"> Contusion, of nose, initial encounter
Mental, Behavioral and Neurodevelopmental disorders	<ul style="list-style-type: none"> Major depressive disorder, single episode
	<ul style="list-style-type: none"> Alcohol abuse with intoxication, unspecified
Neoplasms	<ul style="list-style-type: none"> Secondary malignant neoplasm of bone
Pregnancy, childbirth and the puerperium	<ul style="list-style-type: none"> Other specified pregnancy related conditions, unspecified trimester
	<ul style="list-style-type: none"> Abdominal pregnancy with intrauterine pregnancy
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	<ul style="list-style-type: none"> Palpitations
	<ul style="list-style-type: none"> Hyperglycemia, unspecified

Table 70: % of participants admitted for Hospital Inpatient services: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.295	0.327	0.5485
Male	0.280	0.320	0.5227
Female	0.333	0.359	0.8187
White	0.424	0.385	0.7202
BIPOC	0.250	0.301	0.4154
Age 50 +	0.313	0.278	0.6109
Age < 50	0.261	0.397	0.1350
Years homeless >5	0.220	0.279	0.4299
Years Homeless < 5	0.368	0.380	0.8809

Table 71: % of participants admitted for Hospital Inpatient services: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- Values Adj.*** DID*
Overall	0.2946	0.2093	-0.0853	0.3273	0.2545	-0.0727	0.0125	0.0067	0.9018
(US n=129; HOU n=165)	(0.46)	(0.41)	(0.03)	(0.47)	(0.44)	(0.04)	(0.05)	(0.05)	

Male	0.2796	0.1935	-0.0860	0.3200	0.2400	-0.0800	0.0060	-0.0052	0.9330
(US n=93; HOU n=125)	(0.45)	(0.40)	(0.03)	(0.47)	(0.43)	(0.05)	(0.06)	(0.06)	
Female	0.3333	0.2500	-0.0833	0.3590	0.2821	-0.0769	0.0064	0.0009	0.9941
(US n=36; HOU n=39)	(0.48)	(0.44)	(0.09)	(0.49)	(0.46)	(0.07)	(0.11)	(0.12)	
White	0.4242	0.2424	-0.1818	0.3846	0.2115	-0.1731	0.0087	0.0353	0.7307
(US n=33; HOU n=52)	(0.50)	(0.44)	(0.07)	(0.49)	(0.41)	(0.08)	(0.10)	(0.10)	
BIPOC	0.2500	0.1979	-0.0521	0.3009	0.2743	-0.0265	0.0255	0.0175	0.7795
(US n=96; HOU n=113)	(0.44)	(0.40)	(0.04)	(0.46)	(0.45)	(0.05)	(0.06)	(0.06)	
Over 50	0.3133	0.2289	-0.0843	0.2784	0.2165	-0.0619	0.0225	0.0276	0.6995
(US n=83; HOU n=97)	(0.47)	(0.42)	(0.04)	(0.45)	(0.41)	(0.05)	(0.07)	(0.07)	
Under 50	0.2609	0.1739	-0.0870	0.3971	0.3088	-0.0882	-0.0013	0.0017	0.9852
(US n=46; HOU n=68)	(0.44)	(0.38)	(0.06)	(0.49)	(0.47)	(0.07)	(0.09)	(0.09)	
> 5 yrs homele ss	0.2203	0.1864	-0.0339	0.2791	0.2093	-0.0698	-0.0359	-0.0788	0.2714
(US n=59; HOU n=86)	(0.42)	(0.39)	(0.04)	(0.45)	(0.41)	(0.05)	(0.07)	(0.07)	
< 5 yrs homele ss	0.3676	0.2353	-0.1324	0.3797	0.3038	-0.0759	0.0564	0.0636	0.4523
(US n=68; HOU n=79)	(0.49)	(0.43)	(0.06)	(0.49)	(0.46)	(0.06)	(0.08)	(0.08)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 72: Mean # of Inpatient stays by participant: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.59	0.99	0.0527
Male	0.57	0.92	0.1089
Female	0.64	1.23	0.2562
White	0.82	1.12	0.4569
BIPOC	0.51	0.93	0.0817
Age 50 +	0.69	0.88	0.4681
Age < 50	0.41	1.15	0.0249
Years homeless >5	0.41	0.88	0.1271
Years Homeless < 5	0.76	1.10	0.1994

Table 73: Mean # of Inpatient stays: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.59	0.44	-0.15	0.99	0.51	-0.48	-0.33	-0.39	0.0563
(US n=129; HOU n=165)	(1.25)	(1.10)	(0.08)	(2.22)	(1.09)	(0.17)	(0.19)	(0.21)	
Male	0.57	0.42	-0.15	0.92	0.47	-0.45	-0.30	-0.39	0.0923
(US n=93; HOU n=125)	(1.22)	(1.07)	(0.10)	(1.98)	(1.07)	(0.19)	(0.21)	(0.23)	
Female	0.64	0.50	-0.14	1.23	0.59	-0.64	-0.50	-0.55	0.2333
(US n=36; HOU n=39)	(1.33)	(1.18)	(0.15)	(2.91)	(1.14)	(0.41)	(0.44)	(0.46)	
White	0.82	0.45	-0.36	1.12	0.56	-0.56	-0.19	-0.12	0.7996
(US n=33; HOU n=52)	(1.31)	(1.03)	(0.14)	(2.35)	(1.39)	(0.36)	(0.39)	(0.46)	
BIPOC	0.51	0.44	-0.07	0.93	0.49	-0.44	-0.37	-0.41	0.0916

(US n=96; HOU n=113)	(1.22)	(1.12)	(0.10)	(2.17)	(0.93)	(0.20)	(0.22)	(0.24)	
Over 50	0.69	0.52	-0.17	0.88	0.44	-0.43	-0.26	-0.34	0.2323
(US n=83; HOU n=97)	(1.41)	(1.23)	(0.10)	(2.06)	(1.12)	(0.23)	(0.25)	(0.29)	
Under 50	0.41	0.30	-0.11	1.15	0.60	-0.54	-0.44	-0.46	0.1459
(US n=46; HOU n=68)	(0.86)	(0.79)	(0.13)	(2.44)	(1.05)	(0.27)	(0.30)	(0.31)	
> 5 yrs homele ss	0.41	0.31	-0.10	0.88	0.47	-0.42	-0.32	-0.51	0.1628
(US n=59; HOU n=86)	(1.08)	(0.77)	(0.13)	(2.56)	(1.17)	(0.29)	(0.31)	(0.36)	
< 5 yrs homele ss	0.76	0.57	-0.19	1.10	0.56	-0.54	-0.35	-0.36	0.1079
(US n=68; HOU n=79)	(1.37)	(1.32)	(0.11)	(1.79)	(1.01)	(0.19)	(0.22)	(0.22)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 74: Mean Length of stay for Inpatient services by participants: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	3.67	4.42	0.5808
Male	3.66	3.84	0.9058
Female	3.69	6.41	0.3895
White	4.79	4.96	0.9439
BIPOC	3.28	4.18	0.5893
Age 50 +	4.54	3.52	0.5681
Age < 50	2.09	5.72	0.0686
Years homeless >5	1.53	3.67	0.1291
Years Homeless < 5	5.63	5.24	0.8632

Table 75: Mean Length of stay for Inpatient services by participants: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	3.67	2.41	-1.26	4.42	2.89	-1.53	-0.28	-0.53	0.7421
(US n=129; HOU n=165)	(11.78)	(10.36)	(1.16)	(11.56)	(8.34)	(1.01)	(1.53)	(1.62)	
Male	3.66	2.42	-1.24	3.84	2.58	-1.26	-0.02	-0.26	0.9002
(US n=93; HOU n=125)	(12.62)	(10.90)	(1.58)	(9.34)	(8.39)	(1.10)	(1.92)	(2.05)	
Female	3.69	2.39	-1.31	6.41	3.90	-2.51	-1.21	-1.63	0.5374
(US n=36; HOU n=39)	(9.43)	(8.97)	(0.74)	(16.93)	(8.32)	(2.46)	(2.56)	(2.63)	
White	4.79	1.42	-3.36	4.96	2.63	-2.33	1.04	1.41	0.5835
(US n=33; HOU n=52)	(10.04)	(3.28)	(1.45)	(11.64)	(7.10)	(1.75)	(2.26)	(2.57)	
BIPOC	3.28	2.75	-0.53	4.18	3.01	-1.17	-0.64	-0.63	0.7654
(US n=96; HOU n=113)	(12.35)	(11.86)	(1.47)	(11.57)	(8.88)	(1.25)	(1.92)	(2.10)	
Over 50	4.54	2.88	-1.66	3.52	2.27	-1.25	0.42	0.31	0.8943
(US n=83; HOU n=97)	(13.63)	(12.18)	(1.65)	(9.76)	(8.10)	(1.27)	(2.08)	(2.31)	
Under 50	2.09	1.57	-0.52	5.72	3.78	-1.94	-1.42	-1.47	0.5110
(US n=46; HOU n=68)	(7.24)	(5.81)	(1.30)	(13.70)	(8.65)	(1.68)	(2.12)	(2.23)	
> 5 yrs homeless	1.53	0.98	-0.54	3.67	3.03	-0.64	-0.10	-0.81	0.6778

(US n=59; HOU n=86)	(4.94)	(3.17)	(0.68)	(11.60)	(9.35)	(1.59)	(1.73)	(1.96)	
< 5 yrs homeless	5.63	3.72	-1.91	5.24	2.73	-2.51	-0.59	-0.85	0.7314
(US n=68; HOU n=79)	(15.36)	(13.88)	(2.12)	(11.54)	(7.13)	(1.22)	(2.44)	(2.47)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 76: % of participants using Outpatient Health services: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.442	0.582	0.0171
Male	0.387	0.568	0.0081
Female	0.583	0.641	0.6140
White	0.606	0.539	0.5457
BIPOC	0.385	0.602	0.0017
Age 50 +	0.482	0.598	0.1206
Age < 50	0.370	0.559	0.0478
Years homeless >5	0.424	0.535	0.1909
Years Homeless < 5	0.471	0.633	0.0486

Table 77: % of participants using Outpatient Health services: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID* - Coef** (SE)	Adjusted DID* - Coef** (SE)	P- Values Adj.*** DID*
Overall	0.4419	0.3953	-0.0465	0.5818	0.5091	-0.0727	-0.0262	-0.0279	0.6811
(US n=129; HOU n=165)	(0.50)	(0.49)	(0.05)	(0.49)	(0.50)	(0.04)	(0.07)	(0.07)	
Male	0.3871	0.3333	-0.0538	0.5680	0.5040	-0.0640	-0.0102	-0.0178	0.8088

(US n=93; HOU n=125)	(0.49)	(0.47)	(0.05)	(0.50)	(0.50)	(0.05)	(0.07)	(0.07)	
Female	0.5833	0.5556	-0.0278	0.6410	0.5385	-0.1026	-0.0748	-0.0870	0.5545
(US n=36; HOU n=39)	(0.50)	(0.50)	(0.12)	(0.49)	(0.51)	(0.10)	(0.15)	(0.15)	
White	0.6061	0.3939	-0.2121	0.5385	0.4808	-0.0577	0.1544	0.1777	0.2455
(US n=33; HOU n=52)	(0.50)	(0.50)	(0.11)	(0.50)	(0.50)	(0.08)	(0.13)	(0.15)	
BIPOC	0.3854	0.3958	0.0104	0.6018	0.5221	-0.0796	-0.0901	-0.0914	0.2333
(US n=96; HOU n=113)	(0.49)	(0.49)	(0.06)	(0.49)	(0.50)	(0.05)	(0.08)	(0.08)	
Over 50	0.4819	0.4217	-0.0602	0.5979	0.5670	-0.0309	0.0293	0.0223	0.7883
(US n=83; HOU n=97)	(0.50)	(0.50)	(0.06)	(0.49)	(0.50)	(0.05)	(0.08)	(0.08)	
Under 50	0.3696	0.3478	-0.0217	0.5588	0.4265	-0.1324	-0.1106	-0.0992	0.3786
(US n=46; HOU n=68)	(0.49)	(0.48)	(0.09)	(0.50)	(0.50)	(0.07)	(0.11)	(0.11)	
> 5 yrs homele ss	0.4237	0.3729	-0.0508	0.5349	0.5698	0.0349	0.0857	0.0720	0.4855
(US n=59; HOU n=86)	(0.50)	(0.49)	(0.08)	(0.50)	(0.50)	(0.06)	(0.10)	(0.10)	
< 5 yrs homele ss	0.4706	0.4265	-0.0441	0.6329	0.4430	-0.1899	-0.1458	-0.1588	0.1039
(US n=68; HOU n=79)	(0.50)	(0.50)	(0.07)	(0.49)	(0.50)	(0.07)	(0.09)	(0.10)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 78: Mean # of Outpatient Healthcare visits per a participant: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	2.66	3.64	0.1784
Male	2.32	2.90	0.4506
Female	3.53	6.10	0.1498
White	3.79	3.37	0.8142
BIPOC	2.27	3.77	0.0474
Age 50 +	3.14	4.33	0.2679
Age < 50	1.78	2.66	0.2531
Years homeless >5	2.17	3.24	0.1903
Years Homeless < 5	3.16	4.08	0.4367

Table 79: Mean # of Outpatient Healthcare visits per participant: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- Values Adj.*** DID*
Overall	2.66	2.94	0.28	3.64	3.3	(0.35)	(0.62)	(0.65)	0.2015
(US n=129; HOU n=165)	(5.72)	(7.85)	(0.38)	(6.56)	(5.47)	(0.37)	(0.53)	(0.51)	
Male	2.32	2.65	0.32	2.9	2.94	0.04	(0.28)	(0.36)	0.5124
(US n=93; HOU n=125)	(6.07)	(8.73)	(0.42)	(4.93)	(4.29)	(0.39)	(0.57)	(0.55)	
Female	3.53	3.69	0.17	6.1	4.51	(1.59)	(1.76)	(1.94)	0.1204
(US n=36; HOU n=39)	(4.63)	(4.91)	(0.82)	(9.9)	(8.18)	(0.97)	(1.27)	(1.24)	
White	3.79	3.18	(0.61)	3.37	3.77	0.4	1.01	1.95	0.0616
(US n=33; HOU n=52)	(8.9)	(11.96)	(0.84)	(6.45)	(6.87)	(0.63)	(1.04)	(1.03)	
BIPOC	2.27	2.85	0.58	3.77	3.08	(0.69)	(1.27)	(1.26)	0.0301

(US n=96; HOU n=113)	(4.09)	(5.9)	(0.42)	(6.63)	(4.71)	(0.46)	(0.62)	(0.58)	
Over 50	3.14	3.69	0.54	4.33	3.94	(0.39)	(0.93)	(0.92)	0.2197
(US n=83; HOU n=97)	(6.61)	(9.5)	(0.55)	(7.55)	(6.07)	(0.56)	(0.78)	(0.75)	
Under 50	1.78	1.59	(0.2)	2.66	2.38	(0.28)	(0.08)	0.08	0.8969
(US n=46; HOU n=68)	(3.48)	(2.85)	(0.35)	(4.69)	(4.36)	(0.45)	(0.57)	(0.59)	
> 5 yrs homele ss	2.17	2.27	0.1	3.24	3.51	0.27	0.17	0.07	0.9231
(US n=59; HOU n=86)	(3.88)	(5.66)	(0.54)	(5.95)	(5.02)	(0.44)	(0.69)	(0.7)	
< 5 yrs homele ss	3.16	3.6	0.44	4.08	3.06	(1.01)	(1.45)	(1.2)	0.1037
(US n=68; HOU n=79)	(6.98)	(9.43)	(0.55)	(7.18)	(5.94)	(0.61)	(0.82)	(0.74)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 80: % of participants using Mecklenburg County Medic transport services: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	0.39	0.45	0.2941
Male	0.33	0.46	0.0684
Female	0.53	0.41	0.3146
White	0.55	0.5	0.9729
BIPOC	0.33	0.42	0.1769
Age 50 +	0.37	0.42	0.5046
Age < 50	0.41	0.49	0.4518
Years homeless >5	0.31	0.44	0.0979
Years Homeless < 5	0.44	0.46	0.8611

Table 81. % of participants using Mecklenburg County Medic transport services: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.3876	0.2636	-0.124	0.4485	0.3576	-0.0909	0.0331	0.0323	0.6134
(US n=129; HOU n=165)	-0.4891	-0.4423	-0.0455	-0.4989	-0.4807	-0.0429	-0.0625	-0.0638	
Male	0.3333	0.2258	-0.1075	0.456	0.368	-0.088	0.0195	0.0196	0.792
(US n=93; HOU n=125)	-0.474	-0.4204	-0.0519	-0.5001	-0.4842	-0.047	-0.0699	-0.0741	
Female	0.5278	0.3611	-0.1667	0.4103	0.3077	-0.1026	0.0641	0.0616	0.6693
(US n=36; HOU n=39)	-0.5063	-0.4871	-0.0941	-0.4983	-0.4676	-0.1032	-0.1392	-0.1436	
White	0.5455	0.3939	-0.1515	0.5	0.3846	-0.1154	0.0361	0.0954	0.4533
(US n=33; HOU n=52)	-0.5056	-0.4962	-0.089	-0.5049	-0.4913	-0.0712	-0.1134	-0.1267	
BIPOC	0.3333	0.2188	-0.1146	0.4248	0.3451	-0.0796	0.0349	0.0237	0.7597
(US n=96; HOU n=113)	-0.4739	-0.4156	-0.0533	-0.4965	-0.4775	-0.0537	-0.0755	-0.0773	
Over 50	0.3735	0.241	-0.1325	0.4227	0.3402	-0.0825	0.0501	0.0379	0.6609
(US n=83; HOU n=97)	-0.4867	-0.4303	-0.059	-0.4966	-0.4762	-0.0563	-0.0814	-0.0863	
Under 50	0.413	0.3043	-0.1087	0.4853	0.3824	-0.1029	0.0058	0.0153	0.8793
(US n=46; HOU n=68)	-0.4978	-0.4652	-0.0715	-0.5035	-0.4896	-0.067	-0.0977	-0.1008	
> 5 yrs homeless	0.3051	0.1864	-0.1186	0.4419	0.3488	-0.093	0.0256	0.0354	0.6909

(US n=59; HOU n=86)	-0.4644	-0.3928	-0.0599	-0.4995	-0.4794	-0.0656	-0.0886	-0.0889	
< 5 yrs homeless	0.4412	0.3382	-0.1029	0.4557	0.3671	-0.0886	0.0143	0.0013	0.9886
(US n=68; HOU n=79)	-0.5002	-0.4766	-0.067	-0.5012	-0.4851	-0.0548	-0.0864	-0.0891	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 82: Mean # of Mecklenburg County Medic transports per a participant: Baseline housed vs. not housed

	Unhoused Baseline	Housed Baseline	P Value
Overall	1.54	2.25	0.2129
Male	1.58	2.48	0.2266
Female	1.44	1.54	0.899
White	4.27	4.27	0.9985
BIPOC	0.6	1.32	0.0134
Age 50 +	1.48	2.09	0.357
Age < 50	1.65	2.47	0.4417
Years homeless >5	0.93	2.02	0.0934
Years Homeless < 5	2.09	2.49	0.6606

Table 83. Mean # of Mecklenburg County Medic transports per participant: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjus ted DID*- Coef** (SE)	Adjus ted DID*- Coef** (SE)	P- Values Adj.*** DID*
Overall	1.54	0.79	(0.75)	2.25	1.18	(1.07)	(0.32)	(0.32)	0.5672
(US n=129; HOU n=165)	(4.34)	(2.57)	(0.42)	(5.35)	(3.36)	(0.33)	(0.53)	(0.55)	
Male	1.58	0.75	(0.83)	2.48	1.23	(1.25)	(0.42)	(0.37)	0.5959
(US n=93; HOU n=125)	(4.72)	(2.73)	(0.53)	(5.88)	(3.42)	(0.42)	(0.68)	(0.69)	

Female	1.44	0.89	(0.56)	1.54	0.97	(0.56)	(0.01)	(0.04)	0.9625
(US n=36; HOU n=39)	(3.24)	(2.16)	(0.61)	(3.15)	(3.24)	(0.36)	(0.71)	(0.75)	
White	4.27	0.94	(3.33)	4.27	2.04	(2.23)	1.1	1.32	0.4951
(US n=33; HOU n=52)	(7.82)	(2.22)	(1.43)	(8.32)	(5.19)	(0.89)	(1.67)	(1.93)	
BIPOC	0.6	0.74	0.14	1.32	0.78	(0.54)	(0.68)	(0.79)	0.0327
(US n=96; HOU n=113)	(1.17)	(2.69)	(0.21)	(2.76)	(1.95)	(0.26)	(0.33)	(0.37)	
Over 50	1.48	0.61	(0.87)	2.09	1.08	(1.01)	(0.14)	0.01	0.9816
(US n=83; HOU n=97)	(3.75)	(1.82)	(0.45)	(5.1)	(3.38)	(0.33)	(0.56)	(0.58)	
Under 50	1.65	1.11	(0.54)	2.47	1.31	(1.16)	(0.62)	(0.67)	0.5338
(US n=46; HOU n=68)	(5.29)	(3.55)	(0.84)	(5.72)	(3.36)	(0.66)	(1.07)	(1.07)	
> 5 yrs homele ss	0.93	0.88	(0.05)	2.02	1.3	(0.72)	(0.67)	(0.81)	0.1833
(US n=59; HOU n=86)	(2.73)	(3.23)	(0.45)	(5)	(3.9)	(0.34)	(0.56)	(0.61)	
< 5 yrs homele ss	2.09	0.74	(1.35)	2.49	1.04	(1.46)	(0.1)	(0.12)	0.9021
(US n=68; HOU n=79)	(5.38)	(1.89)	(0.68)	(5.73)	(2.68)	(0.59)	(0.9)	(0.94)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 84: % of participants with Low and Very Low Food Security, HF PSH v Non-HF PSH: Difference in differences analysis

	Non-HF PSH (n=28)			HF PSH (n=83)			PSH minus Non-HF PSH		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed dated - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P- Values Adj.*** DID*

Overall	0.7500	0.6190	-0.1310	0.8434	0.8897	0.0463	0.1773	0.2676	0.0193
(Non-HF PSH n=28; HF PSH n=83)	(0.44)	(0.49)	(0.11)	(0.37)	(0.31)	(0.04)	(0.11)	(0.11)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 85: Mean # of days Alcohol Use, HF PSH v Non-HF PSH: Difference in differences analysis

	Non-HF PSH (n=28)			HF PSH (n=83)			PSH minus Non-HF PSH		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed dated - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	3.75	3.62	-0.13	11.72	8.53	-3.20	-3.07	-3.17	0.0461
(Non-HF PSH n=28; HF PSH n=83)	(5.34)	(5.88)	(1.36)	(12.52)	(10.75)	(1.12)	(1.75)	(1.57)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 86: % of participants using Drugs, HF PSH v Non-HF PSH: Difference in differences analysis

	Non-HF PSH (n=28)			HF PSH (n=83)			PSH minus Non-HF PSH		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.1429	0.1905	0.0476	0.5663	0.3852	-0.1811	-0.2287	-0.1729	0.0443
(Non-HF PSH n=28; HF PSH n=83)	(0.36)	(0.40)	(0.08)	(0.50)	(0.49)	(0.06)	(0.09)	(0.09)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 87: Mean # of nights at Emergency Shelter, HF PSH v Non-HF PSH: Difference in differences analysis

	Non-HF PSH (n=53)			HF PSH (n=112)			PSH minus Non-HF PSH		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	88.53	2.96	-85.57	41.79	0.31	-41.47	44.09	41.31	0.0414
(Non-HF PSH n=53; HF PSH n= 112)	(112.00)	(11.20)	(15.72)	(85.41)	(2.12)	(8.09)	(17.59)	(20.09)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 88: Mean # of visits to Emergency Room by participant, HF PSH v Non-HF PSH: Difference in differences analysis

	Non-HF PSH (n=53)			HF PSH (n=112)			PSH minus Non-HF PSH		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	4.47	2.68	-1.79	7.37	2.54	-4.82	-3.03	-3.27	0.0056
(Non-HF PSH n= 53; HF PSH n=112)	(6.18)	(4.38)	(0.51)	(12.87)	(4.36)	(1.14)	(1.25)	(1.16)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted

Table 89: Cost Analysis Sample Characteristics, HF PSH (n=112) v. Unhoused (n=129)

	Unhoused (n=129)		PSH at least 12 mos. (n=112)	
	Number	Percent	Number	Percent
Gender				
Female	36	27.9	26	23.21
Male	93	72.1	86	76.79
Transgender	0	0	0	0
Race				
Black	85	65.9	62	55.4
White	28	21.7	34	30.4
Multiple Races	7	5.4	<5	

Other/no response	9	7	13	11.6
White	33	25.6	38	33.9
BIPOC	96	74.4	74	66.1
Ethnicity				
Non-Hispanic/Non-Latino	114	88.4	108	96.4
Hispanic/Latino	5	3.9	<5	
Don't Know/Refused	10	7.8	2	1.8
Missing	0	0	1	0.9
Veteran	8	6.2	6	5.4
Education				
High School Diploma/GED	89	69	78	69.6
Less than High School	37	28.7	34	30.4
Missing	< 5			
Age (median= years)	53.4		52.3	
18-35	13	10.1	9	8.04
36-50	35	27.1	43	38.39
51-65	74	57.4	57	50.89
65	7	5.4	<5	
Yrs Homeless (mean years)	7.9		8.1	
< 5 years homeless	68	52.7	47	41.96
5+ years homeless	59	45.7	65	58.04
missing	<5	<3.9	0	0
VISPDAT Score (mean)	8.8		11.3	
1 to 4	5	3.9	<5	
5 to 9	70	54.3	23	20.5
10 to 11	25	19.4	22	19.6

12 or more	19	14.7	60	53.6
Missing	10	7.8	<5	
# of Disabling Conditions (mean)				
No Disabling Conditions	23	17.8	<5	2.7
1 Disabling Conditions	40	31	17	15.2
2 disabling Conditions	32	24.8	26	23.2
3 disabling Conditions	20	15.5	36	32.1
4 or more	14	10.9	30	26.8
Type of Disabling Condition				
Physical Disability	45	34.9	57	50.9
Chronic Health Condition	32	24.8	35	31.3
Mental Health Disability	62	48.1	79	70.5
Substance Use	49	38	73	65.2
HIV AIDS	<5		10	8.9
Developmental	7	5.4	7	6.3
Housing Placement				
PSH - UMC			39	34.8%
PSH - MP			28	25.0%
PSH - SHC			9	8.0%
PSH - SPC			30	26.8%
PSH - CCP/VASH			6	5.3%

Table 90: Average change in the Quality Adjusted Life Year after housing, HF PSH v Unhoused: Difference in differences analysis

	Unhoused			Housed			Housed minus Unhoused		
	12 mos pre baseline - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	12 mos pre housed date - Mean (SD)	12 mos Post - Mean (SD)	Change - (SE)	Unadjusted DID*- Coef** (SE)	Adjusted DID*- Coef** (SE)	P-Values Adj.*** DID*
Overall	0.5614	0.5828	0.0213	0.5021	0.5681	0.0660	0.0446	0.0824	0.016
(US n=129; HOU n=165)	(0.1974)	(0.1954)	(0.0251)	(0.2350)	(0.2229)	(0.0232)	(0.0340)	(0.0337)	

* DID= Difference in Differences; ** coef= coefficient; *** adj.= adjusted