

# **The Minnesota Supportive Housing and Managed Care Pilot**

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**Quantitative Outcome Study Final Report**

Prepared for Hearth Connection by:



THE NATIONAL CENTER ON  
**Family Homelessness**  
*for every child, a chance*

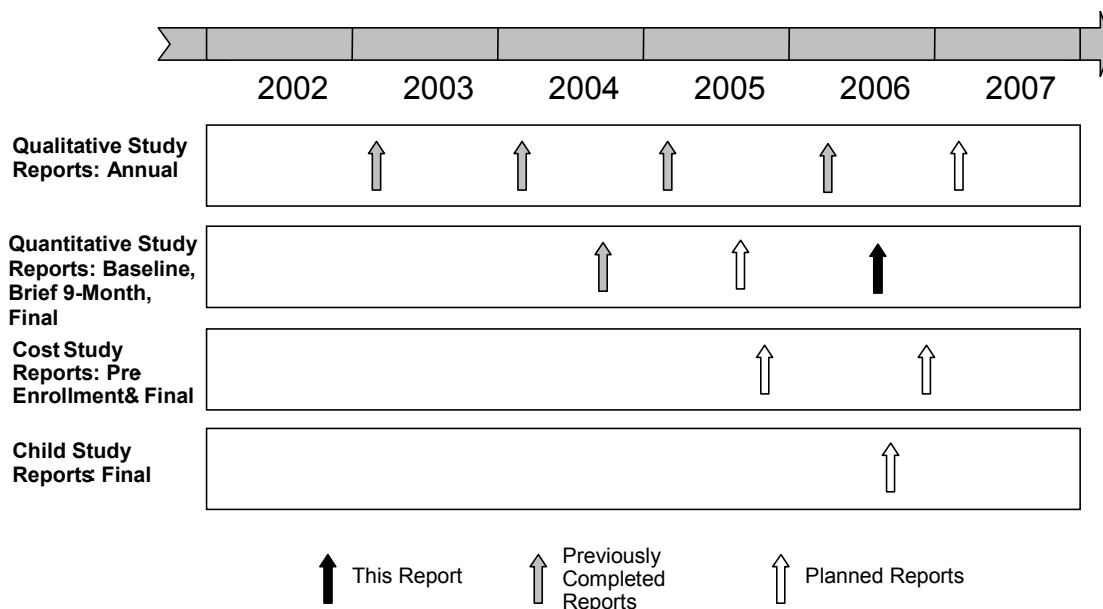
August 14, 2006

# 1. Introduction

The Supportive Housing and Managed Care pilot is a demonstration project funded by the State of Minnesota and administered by a non-profit agency, Hearth Connection, to test an intensive, flexible, and housing-based response to helping people whose homelessness is complicated by issues such as mental health, substance abuse, and chronic physical illness. The pilot provides affordable housing and other supports that enable homeless single adults and families to begin to lead healthier lives in the community.

Hearth Connection contracted with the National Center on Family Homelessness (NCFH) to conduct an independent evaluation of the Pilot. In collaboration with pilot stakeholders, NCFH designed an evaluation featuring four separate but interconnected studies: 1) a qualitative study examining the pilot’s implementation and outcomes annually from the perspectives of multiple stakeholders, 2) a cost study examining service utilization and associated costs for pilot participants and a matched comparison group, 3) an outcome study utilizing in-person interviews with participants to track a range of psycho-social indicators over time, and 4) a study focusing in-depth on the children in pilot families. This report is the final report from the adult outcome study and summarizes changes in participants’ lives from initial enrollment to eighteen months thereafter. The series of reports that the evaluation has and will produce is detailed in the figure below.

Figure 1-1: Evaluation Reports Timeline



## The Pilot's Approach

The pilot intends to serve a population of people with long histories of homelessness who suffer from physical and/or mental illness, chemical dependency, and/or HIV/AIDS. The pilot’s framers believe this population is not well served by existing systems, and that this group may

frequently utilize emergency and institutional services in a “revolving door” pattern that fails to adequately address their needs and is costly to society in general.

The pilot is designed to demonstrate the effectiveness of flexible, participant-driven, intensive support services, coordinated with existing systems of care and access to affordable housing, for people who have experienced long-term homelessness. Furthermore, the pilot aims to increase the availability of, and simplify access to, the financial resources needed for this intervention: in particular, funds for direct services; funds that may be used flexibly for participant-specific expenditures; and rent subsidies to ensure that participants’ housing remains affordable. As a demonstration project, its goals are to both document the effectiveness of this approach, and to use this experience to enhance existing systems of care.

At the system level, the pilot focuses on aligning financial resources and sharing information within and among a broad group of stakeholders.

At the clinical level, the pilot intervention focuses on three core elements. First, five *primary provider* organizations organize and deliver services for pilot participants. These organizations are located in two counties and each organization provides services for either single adults or families, as shown below.

Table 1-1: Primary Provider Agencies

	Family Programs	Single Adult Programs
Blue Earth County	Journey Home (Blue Earth County Human Services)	STEP (Blue Earth County Human Services)
Ramsey County	Project Quest (Amherst H. Wilder Foundation)	Delancey Street (Guild Incorporated)  Project Homeward (Mental Health Resources, Inc.)

The Primary provider staff work intensely with participants and provide a full range of resource coordination and advocacy services, marked by flexibility, individualized approaches, high intensity (each primary provider team member works with at most eight participants), and informal as well as formal services.

Second, primary provider staff work with each participant to develop a *support team*, a circle of friends, relatives, and professionals that can support them in working towards their goals.

Finally, *supportive housing*, the provision of subsidized permanent housing in apartments in the community, in combination with the above services, forms the third pillar of the intervention. Participants are generally housed in scattered-site market rate apartments with vouchers or other funding to make rents affordable.

A one-page summary of the intervention can be found in the pilot’s logic model, which is a graphical summary showing the pilot’s context, philosophy, intervention, and intended outcomes (see Appendix A). Extensive information concerning the intervention and its development over time, from multiple stakeholder perspectives, can be found in the qualitative study annual reports at <http://www.familyhomelessness.org/heartconnection>.

## Study Methodology

This section describes the methodology of the pilot’s quantitative outcome study. Further methodological detailed is provided in Appendix B, which describes the measures used, and Appendix C, which provides statistical details and analyses of study attrition (respondents who did not complete the study). The outcome study used a simple pre/post research design in which participants were interviewed when they first enroll in the pilot, and 9 and 18 months thereafter.

## Sample

The study design called for interviewing one adult from every household being served by the pilot. Over the course of the pilot, 132 individuals completed the baseline, nine month, and eighteen month follow-up interviews. In this report we analyze information from this sample of participants. Of the participants who completed all three waves of data collection, 55 were enrolled in the family programs and 77 in the single adults programs. Interviewers made every effort to locate and interview participants who disenrolled from the pilot during the 18-month study timeframe. Their information is *included* in these analyses and Section 5 of the report examines that group in more detail. The separate issue of respondents whom the interviewers were unable to locate (attrition from the study) is addressed in Appendix C.

It is important to note that because the outcome study started well after the pilot became operational, there is a large group of participants whose “baseline” interview occurred months or even years after their enrollment in the pilot. This lag affected family participants more than single adult participants. As illustrated in Table 1-2 below, only 31% of the family program participants had baseline interviews that accurately reflect their status upon enrollment into the pilot (within the first 60 days of their enrollment).

Table 1-2: On-Time and Late Baseline Interviews by Program Type

	Baseline Interview On-Time	Baseline Interview Late
Family members	17 (31%)	38 (69%)
Single adults	50 (65%)	27 (35%)

## Measures

The outcome study features three structured research interviews with participants at nine month intervals (baseline, 9 months, and 18 months). The interviews were designed to capture a range of potential outcomes from the pilot. Early in the evaluation design process, project stakeholders collaboratively developed a logic model (see Appendix A) that outlines five primary outcomes and three secondary outcomes that stakeholders expected the pilot to have for adult participants:

### Primary Outcomes

- Increased housing stability
- Improved physical and behavioral health
- Improved safety
- Better quality of life
- Increased satisfaction with services

### Secondary Outcomes

- Increased community involvement
- Increased self-reliance
- Attainment of self-determined goals

The interview contains assessments of the five primary outcomes as well as some information on self-reliance, a secondary outcome. Due to issues of respondent burden, we did not fully assess the secondary outcomes. In addition to the primary outcomes, the interview also captures demographics, lifetime homelessness and trauma history, service utilization, and quality of relationship with primary provider staff. Most of these domains are assessed with standardized research instruments. In some cases where suitable instruments were not available or the content warranted, NCFH researchers developed ad-hoc instruments. For details of the instruments used, see Appendix B.

Interviews were conducted by experienced research interviewers in program offices or at respondents' homes. Interviews generally lasted from 60 to 90 minutes. Participants were paid \$20 for the baseline interview session, \$25 for the nine month interview, and \$30 for the eighteen month interview.

## How to Interpret These Results

The following analyses compare respondents' baseline status with their status at the nine month and eighteen month follow-up interviews. In interpreting these results, three main factors should be kept in mind.

First and most importantly, we cannot determine from our data the extent to which the pilot *caused* changes in participants' lives. Because people tend to come into programs like the pilot when they are at particularly difficult periods in their lives, they tend to *naturally* show some recovery over time. Also, we cannot determine how pilot participants would have fared had they received a mixed package of the typical services in the area or been enrolled in another local programs. Unfortunately, the evaluation's resource constraints precluded our interviewing a comparison group that would have enabled us to understand changes in pilot participants lives relative to another approach.

Second, these analyses are based on participants whom we were able to interview at baseline *and* at both the nine month and eighteen month follow-ups. It is possible that the participants we were unable to contact for follow-up interviews differ non-randomly from those whom we interviewed. Appendix C of the report sheds some light on this issue by comparing the baseline profiles of those we could reach and those we could not. These analyses indicate that those we could not reach probably do not differ substantially from those we interviewed.

Third, as noted in Table 1-2 above, we were unable to complete timely baseline interviews with 69% of the family program participants and 35% of the single program participants. If the pilot is positively impacting participants, it is likely that much of this impact occurs in the months immediately following enrollment as participants are placed in housing and initially connected with supportive services. Therefore, any changes documented in this report are likely to *underestimate* changes that would have been seen had the baseline interviews been conducted earlier. As baseline interviews for some family participants were completed up to 1.5 years after they had enrolled, this difference could be substantial. This effect will be most prevalent among the family program participants.

## **Contents of this Report**

This report examines a series of questions concerning changes in participants' lives. In each section we pose a question and then address the question using data from the outcome study. The main questions we address are:

- **Section 2: Profile of Pilot Participants at Baseline**  
What are the characteristics of the population the pilot is serving?
- **Section 3: Overview of Changes in Outcome Measures From Baseline to Follow-Up**  
Did the group of pilot participants overall show changes in outcome measures between the baseline and follow-up interviews?
- **Section 4: Individual Level Changes**  
When examined at the individual level, did participants experience potentially important levels of change?
- **Section 5: Profile of Pilot Disenrollees**  
How successful was the pilot in retaining participants and how do those who disenrolled from the pilot differ from those who remained enrolled?
- **Section 6: Changes in Outcome Measures by Enrollment Status**  
Did participants who disenrolled from the pilot show different patterns of change from those who stayed enrolled in the pilot?
- **Section 7: Changes in Outcome Measures by Program Factors (Program Type and County)**  
Did patterns of change in outcome measures differ by the basic program characteristics of program type (family vs. single adult) and county?
- **Section 8: Changes in Outcome Measures by Individual Characteristics**  
What factors predict which participants will achieve stability/health in housing, mental health, and substance use?

The final section includes a brief conclusion. Appendix A of the report contains the program's logic model; Appendix B details the measures used; and Appendix C provides methodological and statistical detail.

## 2. Profile of Pilot Participants At Enrollment

**Guiding Question: What are the characteristics of the population the pilot is serving?**

The pilot is intended to serve people who are homeless, have been homeless for extensive periods in the past, and whose homelessness is complicated by other issues such as mental illness, substance abuse, or chronic physical illness. In this section we examine the characteristics of pilot participants at the time of their baseline assessment interview.

Table 2-1 Baseline Characteristics of Program Participants

<b>Baseline Characteristic</b>	<b>Overall (N=132)</b>	<b>Family (N=55)</b>	<b>Single (N=77)</b>
% male	46.9%	5.5	77.3
Race			
Native American	3.8%	3.6	4.0
Asian	2.3%	5.5	0.0
African American	29.8%	40.0	22.4
White	56.5%	47.3	63.2
Multiracial	7.6%	3.6	10.5
Avg. age	38.8	34.2	42.2
Avg. number of months homeless as an adult (before entering the pilot)	59	28	80
Avg. number of self-reported mental illnesses	2.2	1.8	2.5
Avg. number of years using illegal drugs and alcohol to intoxication	24.1	10.8	33.6
Avg. number of types of traumatic experience	4.3	3.9	4.6
Median monthly income from all sources (\$)†	564	880	317
Percent receiving income from employment in the last nine months	36.4	49.1	27.3

Table 2-1 describes the baseline characteristics of the 132 program participants in the follow-up sample (participants who completed all three interviews). The table additionally shows the sample broken into family members (N=55) and single adults (N=77). Overall, the program is

† One outlier was excluded from the analysis.

roughly evenly split between men and women (46.9% male), but with only a small minority of men in the family program sample (5.5%). Most participants are White (56.5%) or African American (29.8%). The racial profile of the participants differs by county: in urban Ramsey County the participant sample is 40% White and 39% African American, while in rural Blue Earth County the sample is 85% White and 13% African American (which parallels Blue Earth County as whole which is 95% White). The average age for the sample is 38.8.

Pilot participants report extensive histories of homelessness. The average duration of homelessness as an adult for the sample overall is 59 months. However, singles, on average, spent much more time homeless (80 months) than family members (28.1 months). In addition, singles had, on average, more cumulative years of illegal drug and alcohol use (33.6 years vs. 10.8 years), and reported a higher number of mental illnesses (2.5 illnesses vs. 1.8 illnesses). On the whole, the program participants averaged 2.2 self reported mental illnesses and 24.1 years using illegal drugs and/or alcohol to intoxication.

As has been found in other homeless samples, traumatic experiences are relatively common for pilot participants. The participants report having experienced an average of 4.3 different types of traumatic experiences, such as physical violence; sexual assault; a serious natural disaster; witnessing physical or sexual violence; being close to someone who was killed in an accident, homicide, suicide, or in a war; the death of a child; or a life-threatening accident or sickness.

Participants are extremely impoverished, with a median monthly income of \$564; a minority (36.4%) report receiving income from employment. On the average, families earned more income, and were more likely to be employed than the single program participants, though these differences could be because many family members were interviewed well after their initial enrollment in the program.

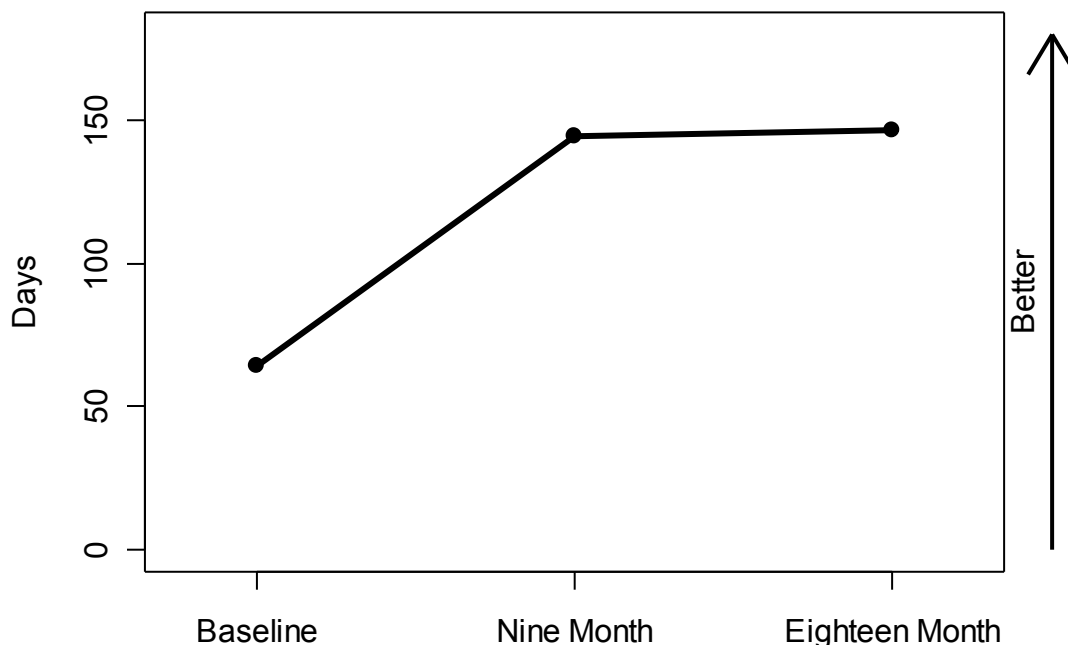
### 3. Overview of Changes in Outcome Measures From Baseline to Follow-Up

***Guiding Question: Did the group of pilot participants overall show changes in outcome measures between the baseline and follow-up interviews?***

In this section we examine whether participants' lives changed in the outcome domains that the pilot hoped to impact. This analysis provides an overview that is followed by more focused analyses in subsequent sections. For each of the five primary outcome domains (housing, physical and behavioral health, quality of life, safety, and satisfaction with services) the outcome study interviews had one or more measures. For the secondary domain of self-reliance we rely on data concerning participants' income and employment. In the figures that follow in this section we show the change in these indicators from baseline to follow-up. Below each figure we provide the corresponding quantitative results and a brief narrative interpretation of the findings.

Where possible each of the figures in this section is scaled to the natural scale for its measure. This means that the bottom of each figure represents the lowest point on the measure (the "floor" of the measure), and the top of the plot represents the highest score on the measure (the measure's "ceiling"). Thus, the plots are somewhat comparable, allowing us to see, given the range built into our measures, where the pilot population was starting in the various domains and where it ended up. Note that on some of our measures an *increase* in the measure from baseline to nine months represents an *improvement* in participants' status, while on others an *increase* represents a *decline* in participants' status. Each plot is marked with an arrow indicating the direction of improvement.

## Outcome: Average Number of Days in the Past 6 Months that Participants Spent in their Own Housing



<b>Possible Range</b>	0 to 180
<b>Baseline Avg.</b>	64.4
<b>Nine Month Avg.</b>	144.4
<b>Eighteen Month Avg.</b>	146.0
<b>Change Baseline to Nine Months</b>	+ 80.0 *
<b>Change Nine to Eighteen Months</b>	+ 1.6
<b>Change Baseline to Eighteen Months</b>	+ 81.6 *
<b>Instrument</b>	Residential Follow-Back Calendar

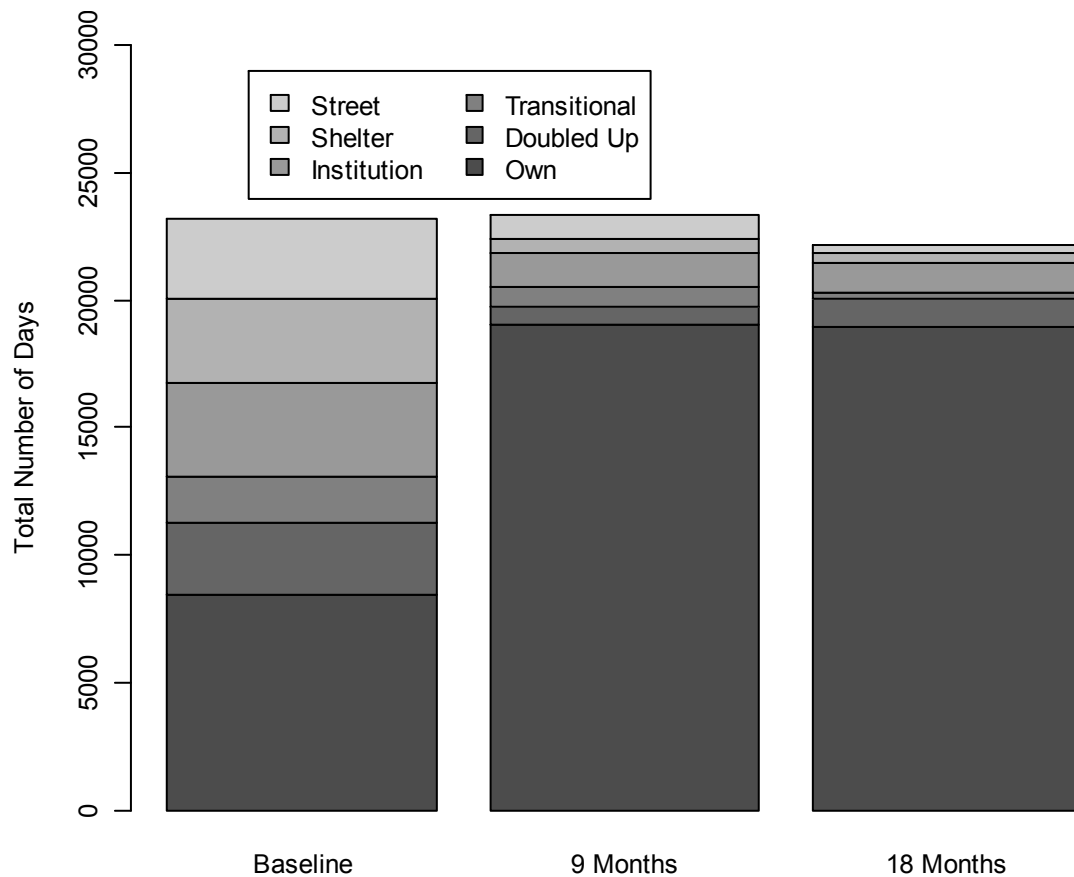
Note: Differences marked with a \* are statistically significant<sup>‡</sup> at the 1% level.

Participants experienced a marked increase in the number of days out of the previous six months spent in their own home from the baseline to the 9-month assessments. At the baseline assessments, the average number of days participants had spent in their own housing was 64.4. This figure shot up to 144.4 at the 9-month assessments. The data from the 18-month assessments show that participants continued to live predominantly in their own homes through the second follow-up period, with virtually no change in days housed between the 9-month and 18-month assessments.

<sup>‡</sup> A statistically significant change is one that would occur by chance less than 1% of the time. Thus when a change is found to be statistically significant, we can likely rule out chance as a reason for this change.

The detailed Residential Follow-Back Calendar which the study interviewers completed with participants collected information on all the places participants had lived during the previous six months. To further examine the important change in participants' residential status, we broke out the types of locations participants had resided in by assessment time point. Figure 3-1 shows the total number of days the participant sample of 132 persons had spent in six different types of settings.

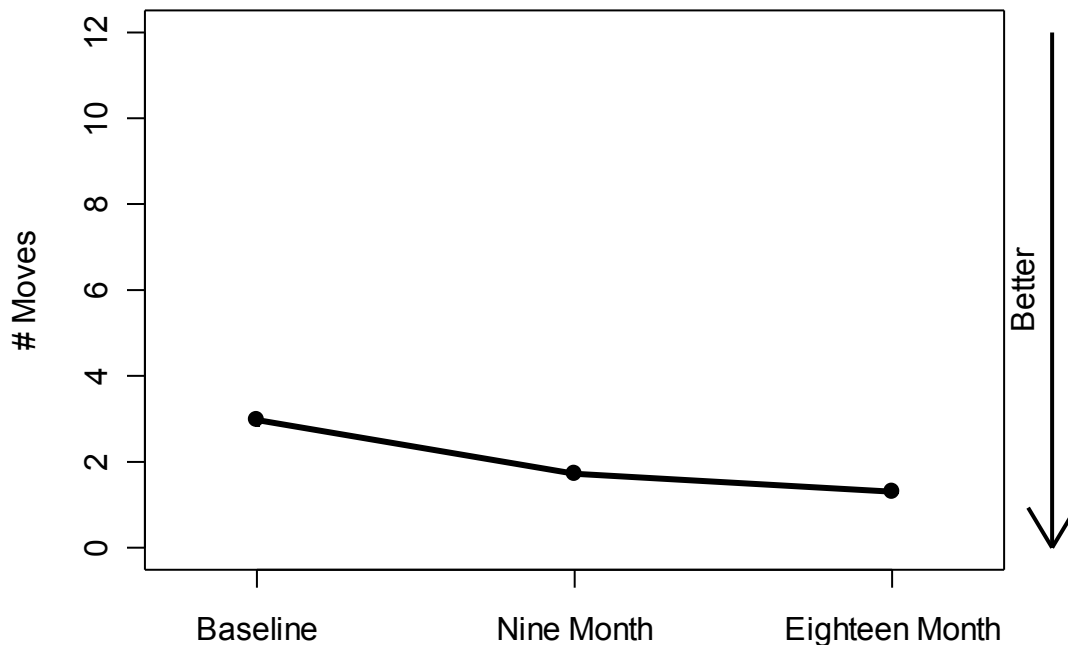
Figure 3-1: Total Number of Days Participants Spent in Different Settings, by Interview Wave



Note: For ease of interpretation, the order of the six settings in the plot's legend corresponds to the order of the segments of the bars ("street" on top through to "own" on the bottom).

This plot, like the one before, shows a striking change between the baseline and follow-up assessments. At the baseline assessment, the sample as a whole had spent 8,445 days in their own housing in the previous six months. At the 9-month follow-up, this number had jumped to 19,061, an increase of over 10,000 days. At baseline the sample had spent significant numbers of days, roughly 1,500 to 3,500 on the streets, in shelters, and other less desirable settings. By the 9-month assessments, these settings had all decreased substantially. The distribution of settings at 18 months is similar to that at 9 months.

## Outcome: Average Number of Residential Moves Participants Made in the Previous 6 Months



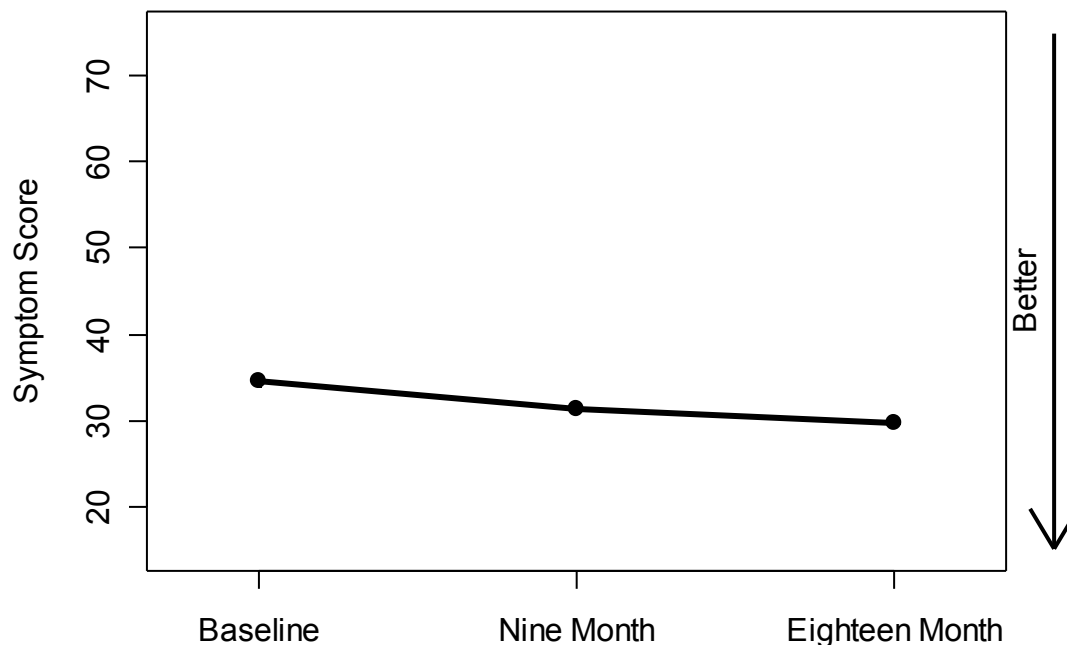
<b>Possible Range</b>	No theoretical range; range in data is 0 to 12
<b>Baseline Avg.</b>	3.0
<b>Nine Month Avg.</b>	1.7
<b>Eighteen Month Avg.</b>	1.3
<b>Change Baseline to Nine Months</b>	- 1.3 *
<b>Change Nine to Eighteen Months</b>	- 0.4 *
<b>Change Baseline to Eighteen Months</b>	- 1.7 *
<b>Instrument</b>	Residential Follow-Back Calendar

Note: Differences marked with a \* are statistically significant at the 1% level.

Another housing-related outcome, the number of residential moves participants made in the previous six months, more directly assesses stability in housing over time. This measure dropped from baseline to 9 months, and dropped further between 9 and 18 months. The drop from 9 to 18 months, while much smaller than the initial drop (0.4 vs 1.3), is still statistically significant, indicating that participants' stability continued to improve in the second follow-up period.

The above housing outcomes show positive change. However, housing those in need is not the pilot's only goal. The pilot seeks to assist people whose homelessness is exacerbated by other issues such as mental illness and substance abuse. Therefore, it is essential that the evaluation additionally assess indicators of physical and behavioral health, which we examine in the rest of this section.

## Outcome: Average Mental Health Symptom Score

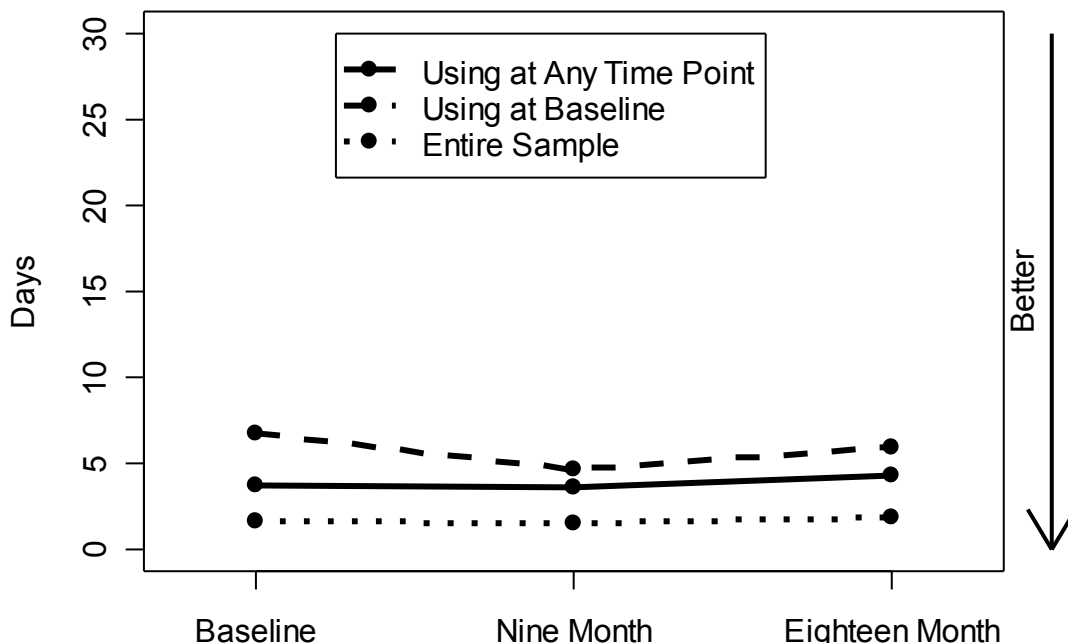


<b>Possible Range</b>	15 to 75
<b>Baseline Avg.</b>	34.6
<b>Nine Month Avg.</b>	31.3
<b>Eighteen Month Avg.</b>	29.6
<b>Change Baseline to Nine Months</b>	- 3.3 *
<b>Change Nine to Eighteen Months</b>	- 1.7
<b>Change Baseline to Eighteen Months</b>	- 5.0 *
<b>Instrument</b>	Colorado Symptom Index

Note: Differences marked with a \* are statistically significant at the 1% level.

Participants' mental health status was assessed with the Colorado Symptom Index, which assesses severity of mental illness symptoms. The average drop in mental health symptoms, of 5 points on a scale ranging from 15 to 75, is both statistically significant and clinically important. The Colorado Symptom Index asks respondents how often they experienced each of 15 common symptoms of mental illness. The items are scaled on a five point scale ranging from "Not at all" to "At least every day". Thus, the drop experienced by participants is roughly equivalent to the elimination of one daily symptom (i.e. changing from occurring "At least every day" to occurring "Not at all"). Of course, it is likely that participants did not experience a complete drop in the frequency of one symptom, but smaller reductions across multiple symptoms they were experiencing at baseline.

## Outcome: Days Using Alcohol to Intoxication (out of past 30)

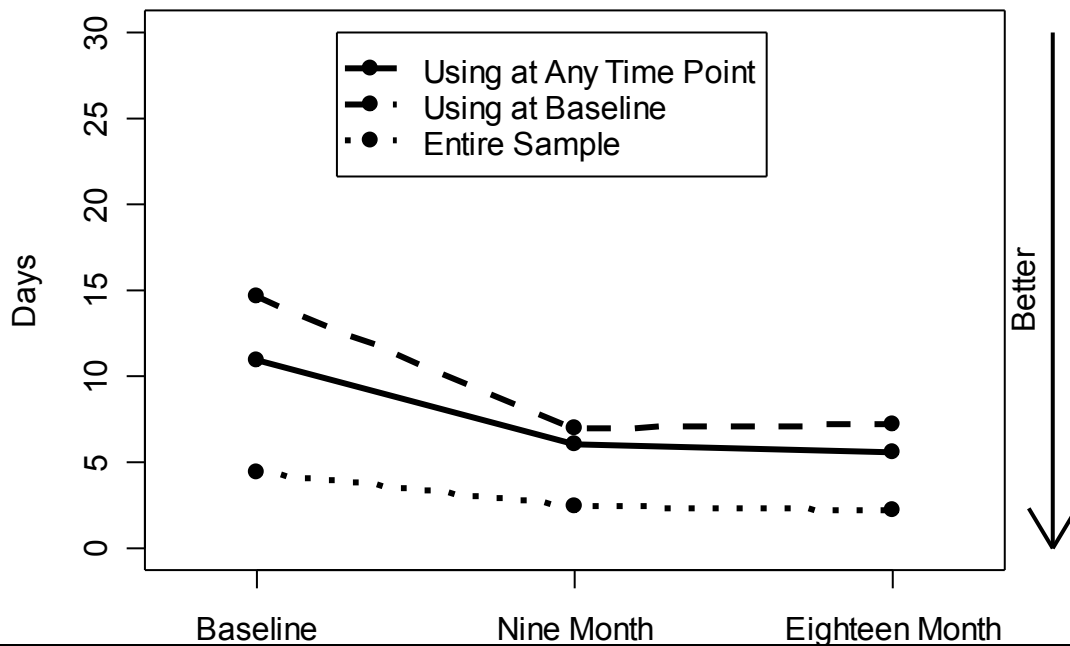


	Baseline	Nine Month	Eighteen Month
<b>Possible Range</b>	0 to 30		
<b>Baseline Avg.</b>	3.8		
<b>Nine Month Avg.</b>	3.7		
<b>Eighteen Month Avg.</b>	4.3		
<b>Change Baseline to Nine Months</b>	- 0.1		
<b>Change Nine to Eighteen Months</b>	+ 0.6		
<b>Change Baseline to Eighteen Months</b>	+ 0.5		
<b>Instrument</b>	Number of days participant used alcohol to intoxication over the past 30 days.		

Note: Differences marked with a \* are statistically significant at the 1% level.

This plot shows change in the average number of days, out of the past 30, that participants reported using alcohol to intoxication. The plot shows this outcome for three different groups: Those who reported any use of alcohol to intoxication across the three assessments (solid line), those who reported use at baseline, regardless of their later use (dashed line), and the entire sample (dotted line), which included many participants who reported zero use. The figures and statistical tests are those for the first group, participants who reported any use of alcohol to intoxication over the study timeframe. Among this group there was no significant change in the average number of days of alcohol use to intoxication. At the eighteen month interview the average number of days did rise slightly from baseline, from 3.8 to 4.3, but this difference is not statistically significant and most likely does not reflect any true change. If we look at the group who reported using at baseline, we see a statistically significant drop at 9 months followed by a statistically significant increase at 18 months. This pattern may represent a cyclical aspect of addiction in which many participants are able to abstain for a period of time, but relapse at later points. This pattern may be connected with disenrollment: See figure 6-1 below which shows that people who exited the pilot appeared to have an increase in alcohol use.

**Outcome: Number of Days Using Drugs (out of past 30), Summed across 10 Illegal Drugs**

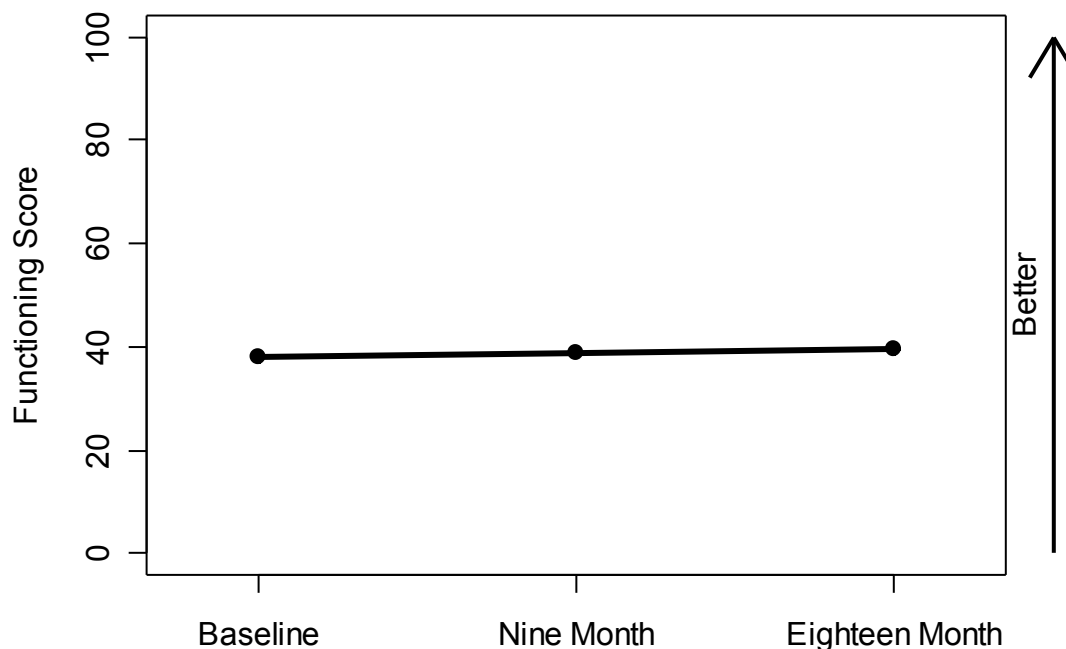


	Baseline	Nine Month	Eighteen Month
<b>Possible Range</b>	0 to 30 for each of 10 drugs		
<b>Baseline Avg.</b>	10.9		
<b>Nine Month Avg.</b>	6.1		
<b>Eighteen Month Avg.</b>	5.6		
<b>Change Baseline to Nine Months</b>	- 4.8		
<b>Change Nine to Eighteen Months</b>	- 0.5		
<b>Change Baseline to Eighteen Months</b>	- 5.3		
<b>Instrument</b>	Summed number of days participant used each of 10 illegal drugs over the past 30 days.		

Note: Differences marked with a \* are statistically significant at the 1% level.

This outcome measure indexes the total number of days using illegal drugs in the past 30 days. The measure is constructed by summing days of use across 10 illegal drugs. Therefore, if a participant used, for example, marijuana for 10 days and cocaine for 5 days, their score on this measure would be 15. As with the above plot for alcohol, we have broken out the sample into those with illegal drug use at any time point (solid line), those who reported use at baseline regardless of later use (dashed line), and the entire sample (dotted line). The statistics in the table reflect the group who reported use at any time point. As with the previous alcohol related measure, there is no clearly significant trend on this measure. The drop from 10.9 days at baseline to 5.6 days at 18 months is not statistically significant at the relatively conservative 1% level, but is significant at the 2% level ( $p=.019$ ), indicating it is unlikely to have occurred by chance. For the group that reports use at baseline, the drop from 14.7 days to 7.2 days is statistically significant.

## Outcome: Average Mental Health Functioning Score

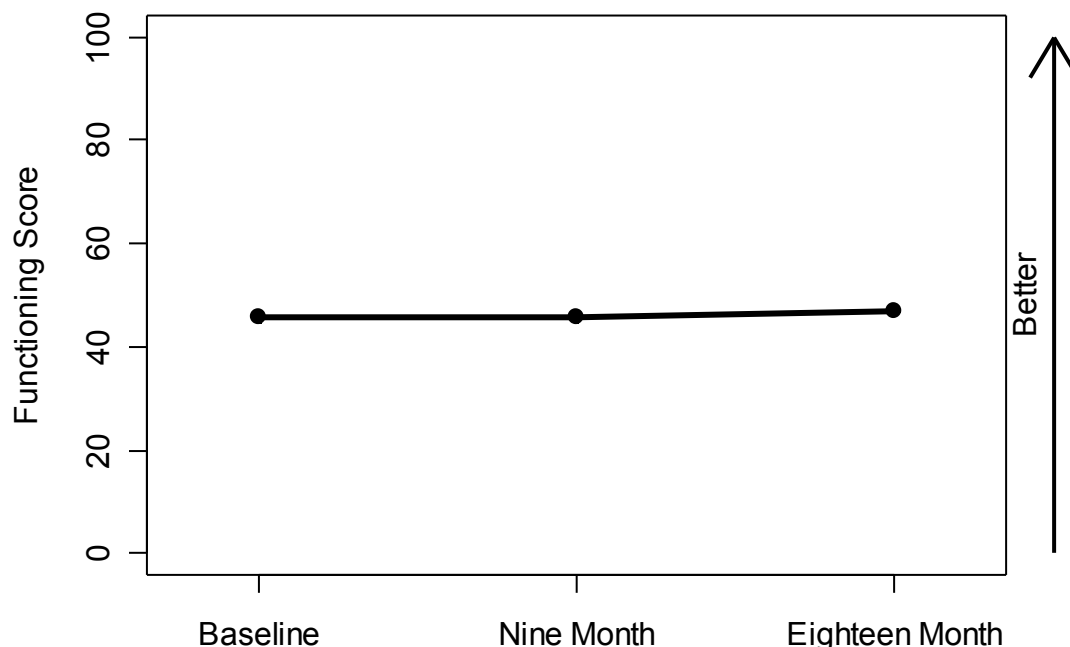


<b>Possible Range</b>	0 to 100
<b>Baseline Avg.</b>	38.1
<b>Nine Month Avg.</b>	38.8
<b>Eighteen Month Avg.</b>	39.6
<b>Change Baseline to Nine Months</b>	+ 0.7
<b>Change Nine to Eighteen Months</b>	+ 0.8
<b>Change Baseline to Eighteen Months</b>	+ 1.5
<b>Instrument</b>	MOS SF-8 Mental Health Component Score

Note: Differences marked with a \* are statistically significant at the 1% level.

This measure is a widely used instrument that assesses mental health related quality of life, the extent to which one's mental health issues impact one's daily life. There was no significant improvement in this measure from baseline to follow-up, despite the decrease in mental health symptoms reported by pilot participants (see above). The pilot population is severely impaired on this measure, scoring well below the norm of 50. It is possible that improvements in mental health symptoms have not been sufficient to impact daily functioning, or that improvements in functioning take longer to occur, especially given the often long and complex histories of mental illness, traumatic experience, and substance abuse that pilot participants report.

## Outcome: Average Physical Health Functioning Score

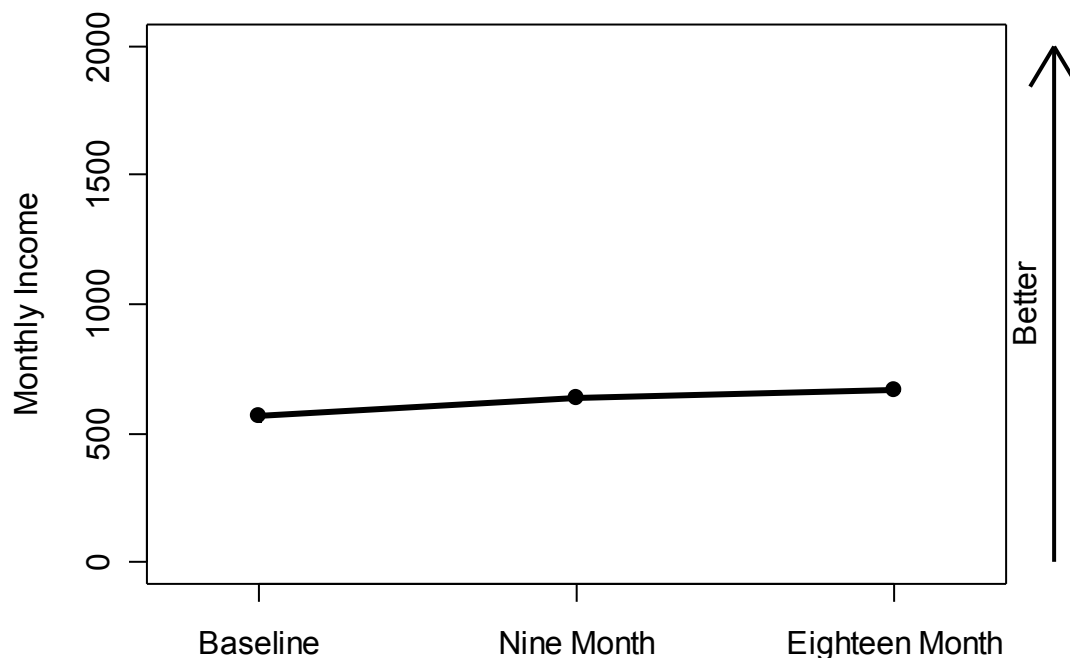


<b>Possible Range</b>	0 to 100
<b>Baseline Avg.</b>	45.6
<b>Nine Month Avg.</b>	45.8
<b>Eighteen Month Avg.</b>	47.0
<b>Change Baseline to Nine Months</b>	+ 0.2
<b>Change Nine to Eighteen Months</b>	+ 1.2
<b>Change Baseline to Eighteen Months</b>	+ 1.4
<b>Instrument</b>	MOS SF-8 Physical Health Component Score

Note: Differences marked with a \* are statistically significant at the 1% level.

This measure, the companion of the mental health functioning score, assesses the extent to which physical health problems impair daily functioning. The pilot population has significant physical health issues as indexed by this measure. The average score of around 45 is five points below the norm of 50. A ten point decrement on this measure is roughly that associated with having a chronic major illness, so the pilot population's scoring of five points below the norm represents a relatively severe degree of health impairment. Similar to the mental health measure, the overall trend was in a positive direction on this measure, but there is no statistically significant change. This finding is contradicted by data from the pilot's qualitative study which indicated that participants had increased their connection with health care providers. This suggests that the measure may be too insensitive to pick up small but important changes, or that improvements in physical health take a long time even when receiving proper care. As one pilot participant described, "I have asthma. I had asthma before coming into this program, and I still have asthma." The chronic nature of many participants' physical illnesses, together with the broad nature of the assessment, may decrease our ability to detect improvements. We turn now to indicators of self-reliance, income and employment.

## Outcome: Median Total Monthly Income



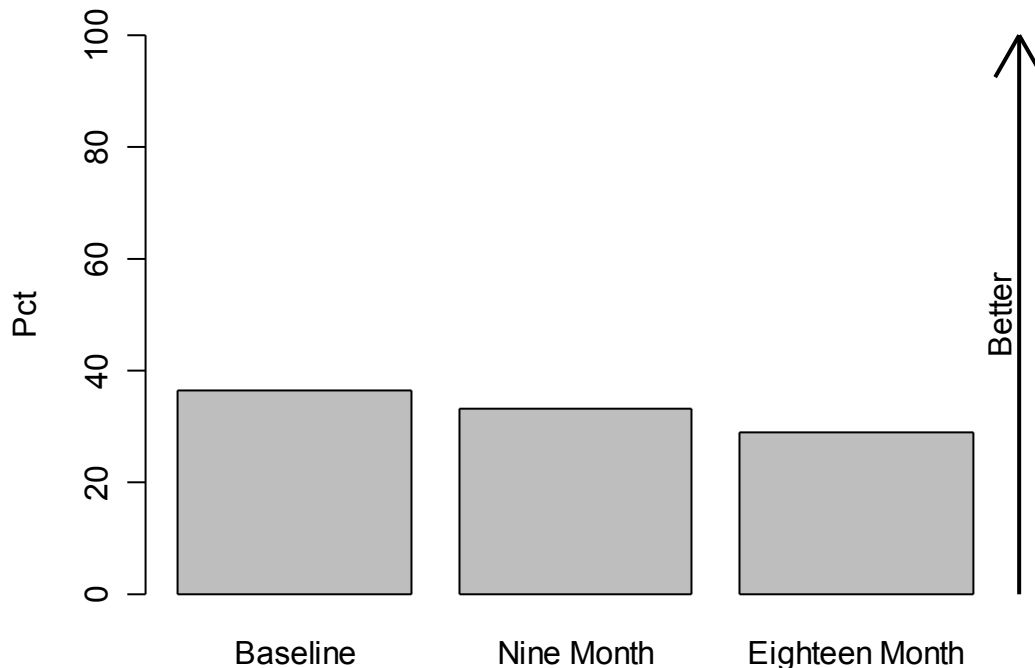
<b>Possible Range</b>	No theoretical range; range in data approximately 0 - \$2,000
<b>Baseline Median</b>	564
<b>Nine Month Median</b>	640
<b>Eighteen Month Median</b>	664
<b>Change Baseline to Nine Months</b>	+ 76
<b>Change Nine to Eighteen Months</b>	+ 24
<b>Change Baseline to Eighteen Months</b>	+ 100
<b>Instrument</b>	Single question developed for this study

Note: Differences marked with a \* are statistically significant at the 1% level.

Participants' total monthly income from all sources appears to have increased across the three time points. At baseline the median income of participants was \$564, while at the 18-month follow-up the median had increased by exactly \$100, to \$664. This change is marginally significant statistically ( $p=.039$ ).

The next indicator explores in-depth the individual sources of participants' income. Note that while the above plot shows the *amount* of income participants received, the following plots reveal the *percent of participants* receiving income from various sources .

## Outcome: Percentage Receiving Income from Employment in the Previous Nine Months



<b>Possible Range</b>	0 to 100
<b>Baseline Pct.</b>	36.4
<b>Nine Month Pct.</b>	33.3
<b>Eighteen Month Pct.</b>	28.8
<b>Change Baseline to Nine Months</b>	- 3.1
<b>Change Nine to Eighteen Months</b>	- 4.5
<b>Change Baseline to Eighteen Months</b>	- 7.6
<b>Instrument</b>	Single question developed for this study

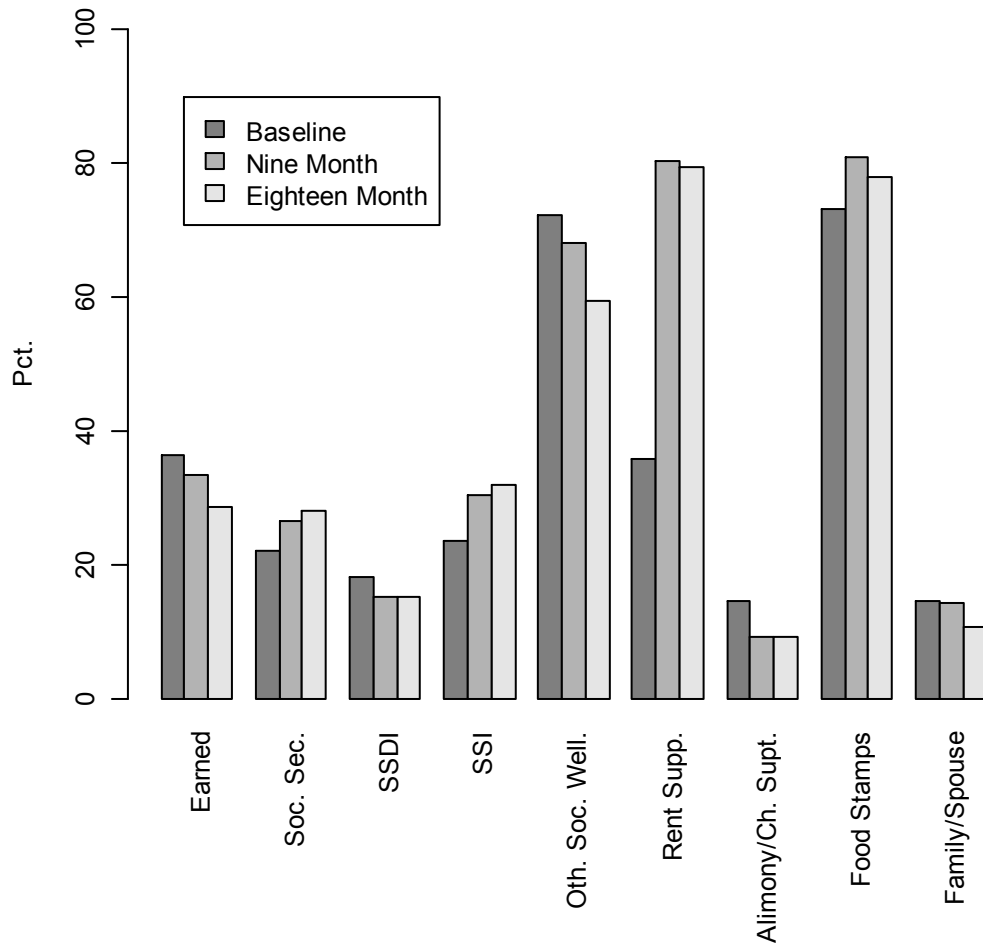
Note: Differences marked with a \* are statistically significant at the 1% level.

One of the pilot's secondary goals is to help participants increase their self-reliance. Although the evaluation does not include a direct assessment of self-reliance, the interview asks respondents about the sources from which they received income in the previous nine months. Employment is one potential indicator of increasing self-reliance, though in the context of participants' mental health, substance use, and trauma histories, employment may not be possible nor desirable for all participants within the relatively short time frame we are studying. The above plot shows the percentage of participants who reported receiving income from paid employment in the nine months before the baseline and follow-up interviews. The percentage of respondents reporting they received income from paid employment went down, and is marginally significant statistically ( $p=.05$ ) across the three time points. This drop in employment may be connected with disenrollment from the pilot. Those who disenrolled from the pilot by the time of their 18-month interview were more likely to have been employed across all the time

points, including baseline. This finding perhaps indicates that a subset of participants with more ability to be employed exited the pilot as time went on.

To further investigate participants’ economic status, we examine other income sources that are received by a significant portion of the participants. The figure below shows the percentages of respondents receiving income from nine sources across the three time points.

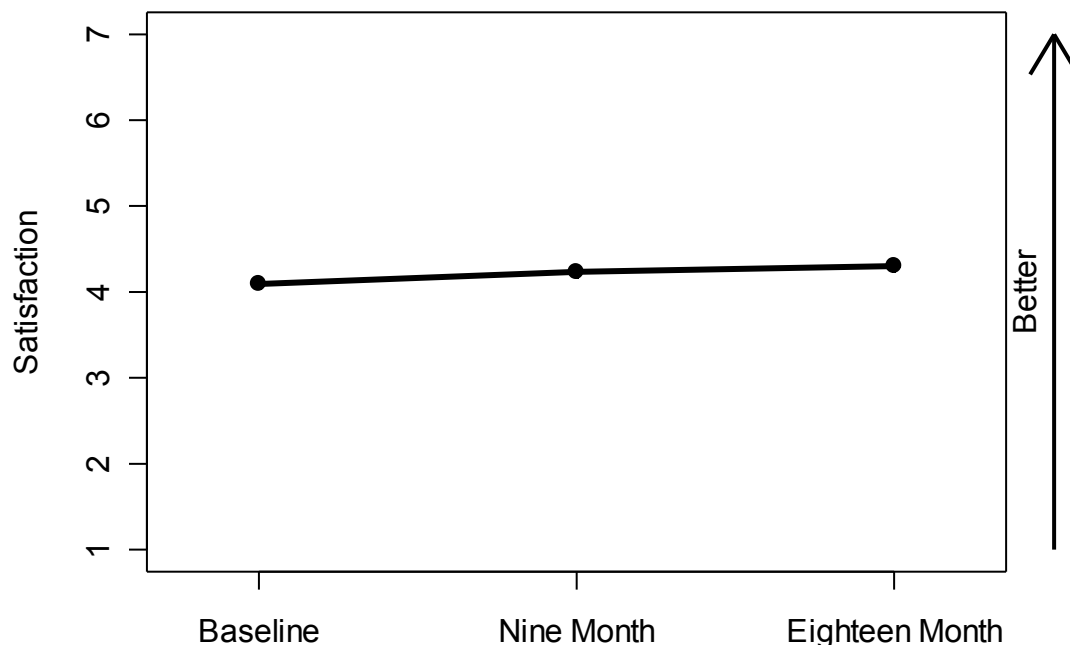
Figure 3-2: Sources of Income at Baseline and Follow-Up Assessments



The figure shows a large and statistically significant increase in the percentage of respondents receiving rental support (from 35.9% at baseline to 79.5% at eighteen months), a form of support which is provided directly by the pilot. In addition, there is an significant increase in those receiving SSI (23.7% at baseline to 32.1% at 18 months), and a significant decrease in those receiving other social welfare benefits, a category that most likely reflects state benefit programs such as MFIP (72.3% at baseline to 59.5% at eighteen months). The increase in those receiving SSI is notable given the difficulty in obtaining SSI benefits and the relatively short time frame. While participants may have lost income from employment or other social benefits, the overall improvement in the amount of income received may indicate that increases in rental support and SSI compensated for these losses.

We turn next to one of the pilot’s primary goals, improving participants’ quality of life.

## Outcome: Average Overall Quality of Life Score

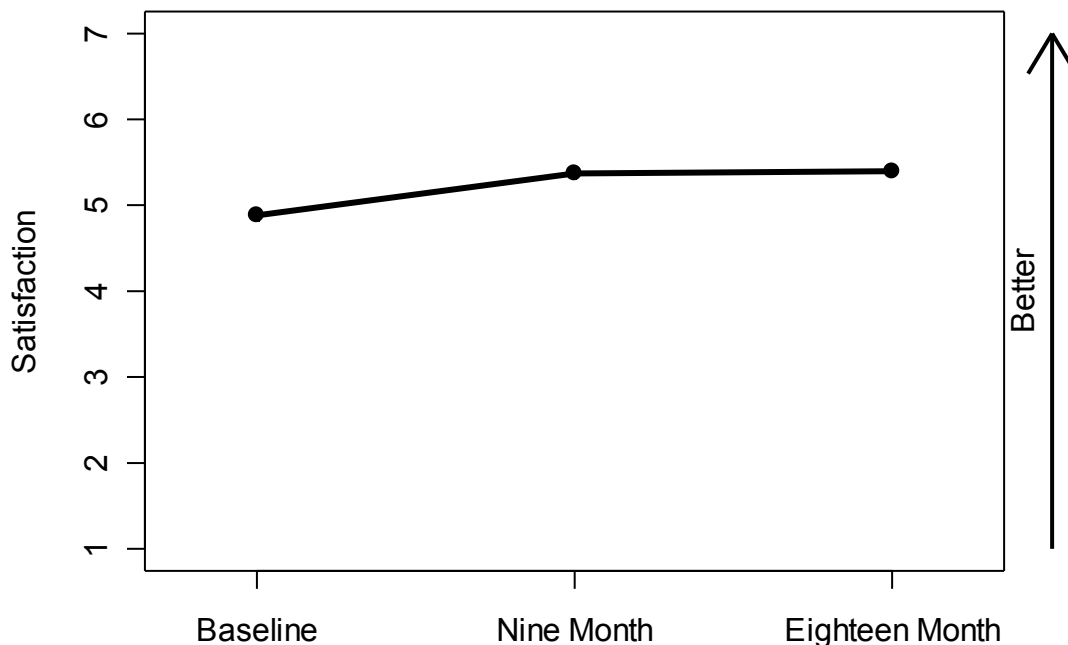


<b>Possible Range</b>	1 to 7
<b>Baseline Avg.</b>	4.1
<b>Nine Month Avg.</b>	4.2
<b>Eighteen Month Avg.</b>	4.3
<b>Change Baseline to Nine Months</b>	+ 0.1
<b>Change Nine to Eighteen Months</b>	+ 0.1
<b>Change Baseline to Eighteen Months</b>	+ 0.2
<b>Instrument</b>	Quality of Life Survey, Total Score

Note: Differences marked with a \* are statistically significant at the 1% level.

This measure, which asks participants about their quality of life in the domains of family, work, finances, and safety, uses a 7 point scale ranging from “terrible” to “delighted.” Pilot participants scored near the middle of that range and the overall improvement from baseline to eighteen month of 0.2 is significant statistically using slightly more relaxed criteria ( $p=.038$ ), and represents a modest improvement on the measure.

## Outcome: Average Perceived Community Safety Score

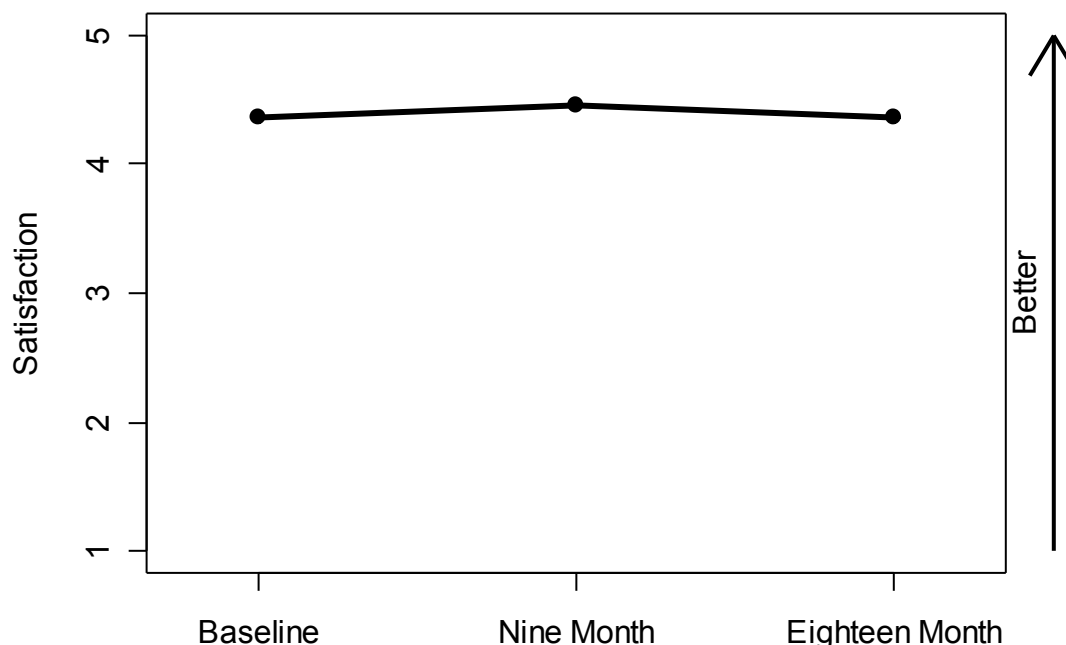


<b>Possible Range</b>	1 to 7
<b>Baseline Avg.</b>	4.9
<b>Nine Month Avg.</b>	5.4
<b>Eighteen Month Avg.</b>	5.4
<b>Change Baseline to Nine Months</b>	+ 0.5 *
<b>Change Nine to Eighteen Months</b>	0.0
<b>Change Baseline to Eighteen Months</b>	+ 0.5 *
<b>Instrument</b>	Quality of Life Interview, Community Safety Scale

Note: Differences marked with a \* are statistically significant at the 1% level.

This measure asks participants to report on how safe they feel on the streets and where they live and how protected they feel against robbery and assault. Participants started out relatively high on this measure (4.9 on a 7 point scale), improved significantly from the baseline to the 9-month assessment, and held steady between the 9 and 18-month interviews.

## Outcome: Average Satisfaction with Services Score

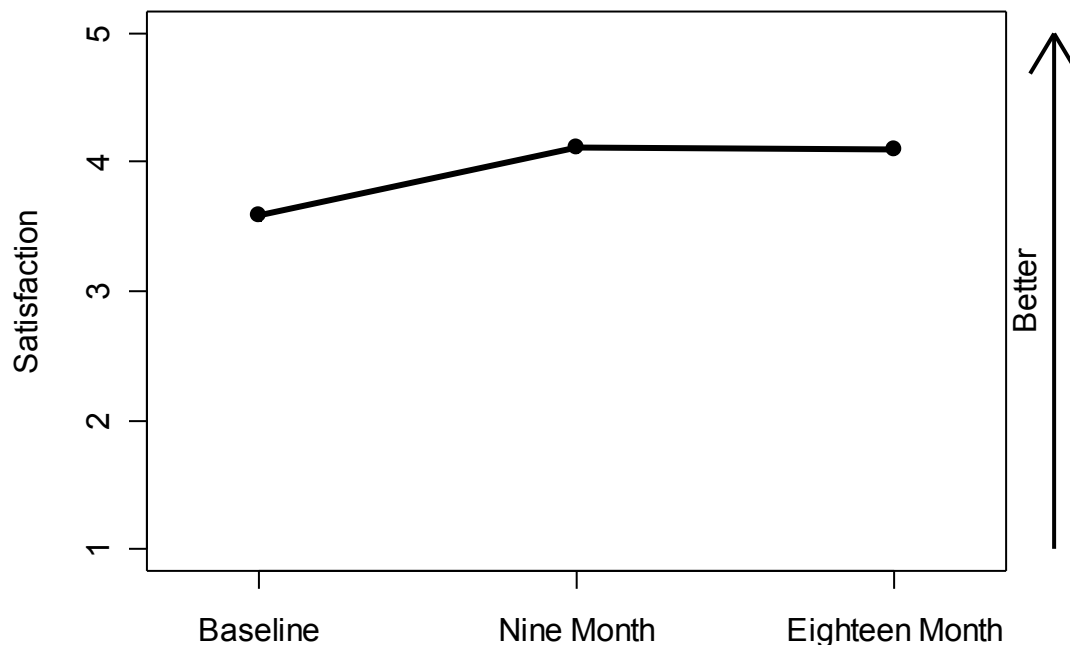


<b>Possible Range</b>	1 to 5
<b>Baseline Avg.</b>	4.4
<b>Nine Month Avg.</b>	4.5
<b>Eighteen Month Avg.</b>	4.4
<b>Change Baseline to Nine Months</b>	+ 0.1
<b>Change Nine to Eighteen Months</b>	- 0.1
<b>Change Baseline to Eighteen Months</b>	0.0
<b>Instrument</b>	Designed for this study

Note: Differences marked with a \* are statistically significant at the 1% level.

At the time of their baseline assessments, participants had relatively high levels of satisfaction with their services, between “satisfied” and “very satisfied” on the five-point scale of this measure. No changes in this measure across the time periods are statistically significant at the 1% level and satisfaction remains relatively flat. There is a trend that satisfaction increases at 9 months and decreases at 18 months ( $p=.025$  and  $p=.020$ ). Given the high baseline starting point, there was little room for the measure to improve. It is possible that, because we could not interview participants until after they had enrolled, they were already receiving pilot services and were answering these questions in relation to pilot services they had already received.

## Outcome: Average Satisfaction with Housing Score



<b>Possible Range</b>	1 to 5
<b>Baseline Avg.</b>	3.6
<b>Nine Month Avg.</b>	4.1
<b>Eighteen Month Avg.</b>	4.1
<b>Change Baseline to Nine Months</b>	+ 0.5 *
<b>Change Nine to Eighteen Months</b>	0.0
<b>Change Baseline to Eighteen Months</b>	+ 0.5 *
<b>Instrument</b>	Designed for this study

Note: Differences marked with a \* are statistically significant at the 1% level.

This measure assesses participants' satisfaction with multiple aspects of their housing situations and ranges from "very dissatisfied" to "very satisfied" on a five-point scale. Participants' satisfaction with their housing situations jumped significantly from baseline to nine months (3.6 to 4.1) and then held steady between the nine and eighteen month assessments. It is likely that at the time of the baseline interview many respondents had not yet been housed. The improvement we see on this measure likely represents change among the people who had been housed by the follow-up interview.

## 4. Individual Level Changes

***Guiding Question: When examined at the individual level, did participants experience potentially important levels of change?***

The overall group-level analyses in Section 3 indicate that there are statistically significant changes on several outcome measures from baseline to follow-up. These overall trends, however, present only a limited picture. The significance tests in Section 3 indicate only whether the average change for the group as a whole is different from zero. These analyses, while important for setting the general picture, leave a range of questions unanswered:

- Are participants achieving a meaningful degree of health and stability?
- What is the range of variation in changes that participants experience during the study timeframe?
- Are changes different for different sub-groups of participants?

In this and following sections, we examine these questions in more depth and in doing so attempt to contextualize and further describe the overall findings presented in Section 3.

To provide more meaningful outcome measures that apply at the individual level, we converted some of the key continuously scaled measures from Section 3 into simple yes/no indicators. This approach provides an alternate, more intuitively understandable picture of changes in participants' lives and allows us to determine whether participants are achieving stability and health in more absolute and meaningful terms. Table 4-1 below shows definitions of the indicators.

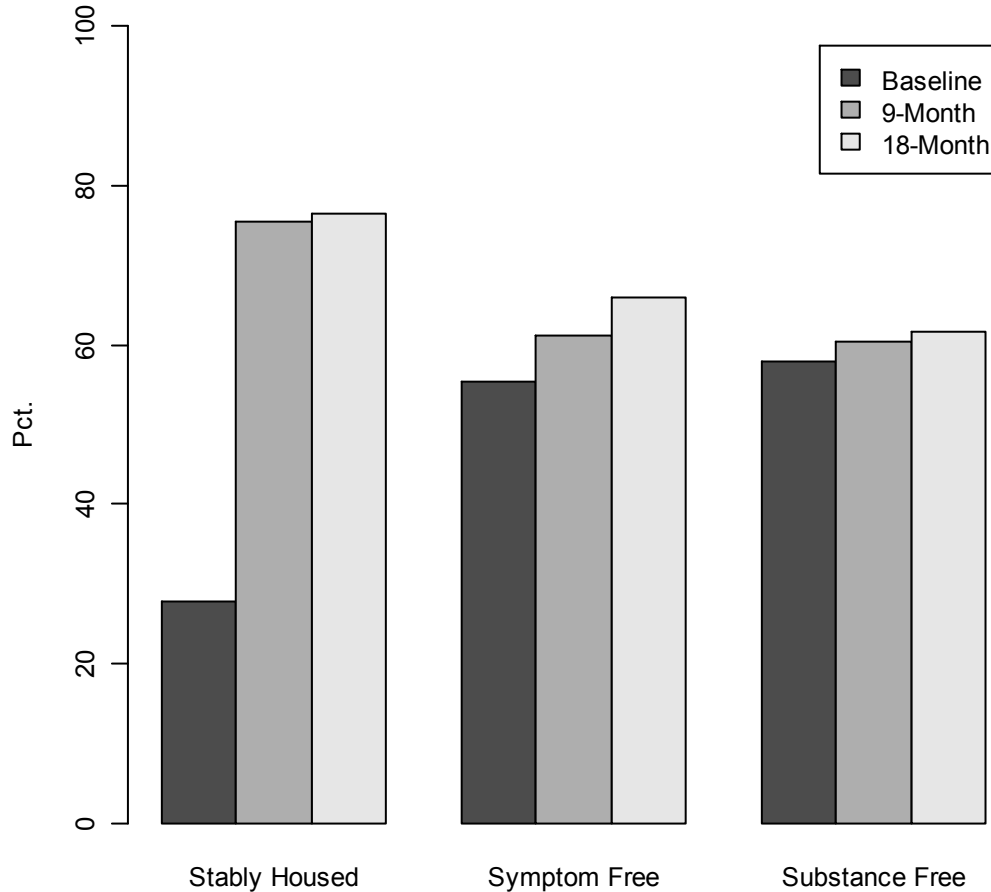
Table 4-1: Definitions of Health/Stability Indicators for Housing, Mental Health, and Substance Use

<b>Domain</b>	<b>Indicator Label</b>	<b>Definition</b>
Housing	Stably Housed	Participant lived in their own apartment 75% or more of the past 6 months.
Mental Health	Symptom Free	Participant scored in the “adapted” range of the Colorado Symptom Index, which measures mental health symptoms.
Substance Abuse	Not Using	Participant reported no use of illegal drugs or drinking alcohol to intoxication in the past 30 days.

Setting criteria in this way is somewhat arbitrary and does not mean that participants who reached these indicators have completed their “recovery,” or that smaller changes are not important for participants. Rather, the indicators provide a simple benchmark for health and stability in a particular domain. Although they oversimplify, indicators of this kind allow us to see patterns more clearly, to present results more intuitively, and to contextualize the changes described in Section 3. When looked at this way, we can discuss percentages of people who

have made meaningful progress in one or more of these areas, as defined through these indicators. Figure 4-1 shows these percentages.

Figure 4-1: Housing, Mental Health and Substance Use Health/Stability Indicators at Baseline and Follow-Up

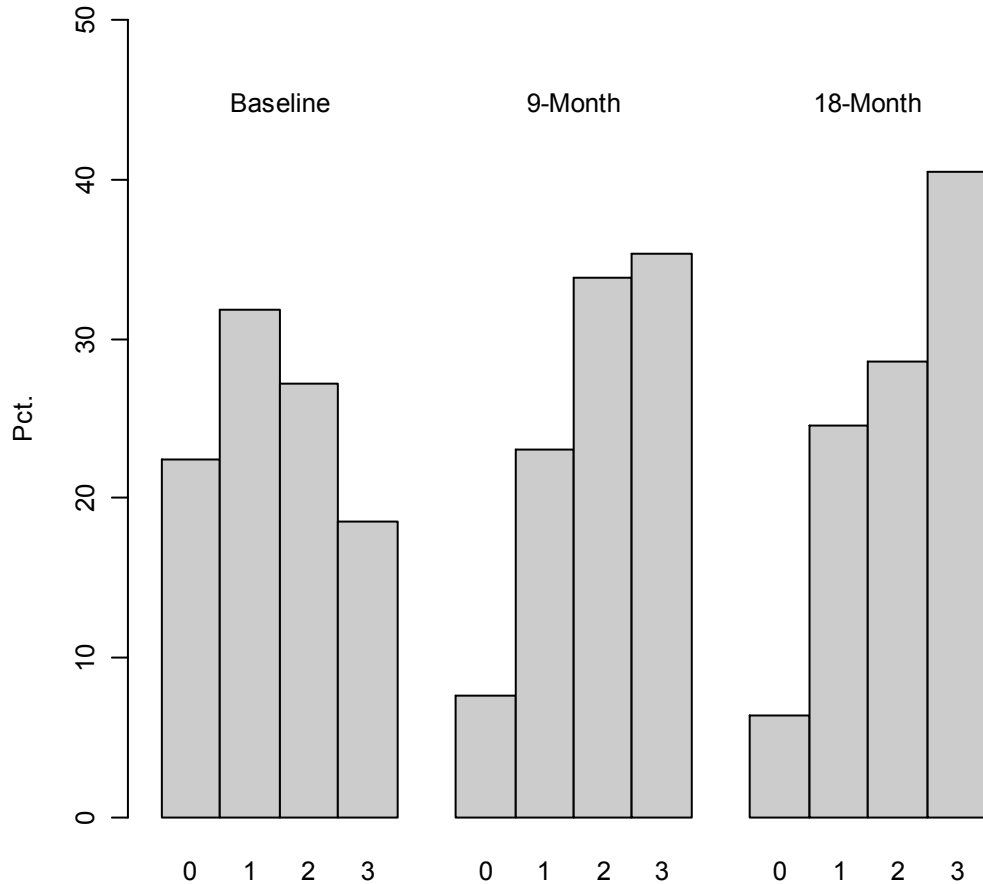


The largest change for participants was in the area of housing. At the baseline assessment, 28% of participants met the criteria for being stably housed, while at the 9-month assessment this number increased dramatically to 76%, and remained at that level for the 18-month assessment. More participants entered the pilot with stability in mental health and substance abuse (55% symptom free and 58% not using), and there was less change in these domains. By the 18-month assessment, 66% of participants had achieved the symptom free status (a gain of 11%), and 62% were substance free (a gain of 4%). These findings are largely consistent with studies of other supportive housing programs that typically find relatively quick and substantial changes in residential stability compared to changes in psychosocial domains. This pattern is to be expected given the chronic and frequently complex nature of mental health and substance abuse issues that participants face.

To determine whether participants are experiencing changes in multiple domains over time, we counted up the number of healthy domains each participant had at each assessment point. These counts can vary from zero, representing a participant who does not have the healthy/stable status

in any domains, to three, representing a participant who has the healthy/stable status in all three of domains of housing, mental health, and substance use. Figure 4-2 shows the participants' status on this measure at the three assessment points.

Figure 4-2: Number of Healthy/Stable Domains (out of 3) at Baseline and Follow-Up



In the figure, each group of bars represents the situation at one of each of the assessments (baseline, 9-month, and 18-month). For each assessment, the group of bars shows the percentage of respondents having none, 1, 2, and 3 healthy/stable domains. The figure shows dramatic change. As can be seen, the bulk of the curve shifts from left to right in going from the baseline, to 9-month, to 18-month assessments. At baseline 22% of the participants have no stable domains. For that assessment, the shortest bar, at 19%, is those participants who have stability in all three domains. By the 9 month assessment, the situation has changed dramatically: the percentage of participants with stability in all domains has shot up to 35% and is the tallest bar. In the period between the 9-month and 18-month assessments, it appears that a number of participants moved from having two stable domains to having three (the bar for two shrinks in going from 9 to 18 months, and the bar for three increases by a similar amount). By the 18-month assessment, only 6% of participants have no stable domains, and 40% meet the criteria for stability in all three domains. On average participants increase their number of stable domains by .62 of a domain between the baseline and 18-month assessments.

## 5. Profile of Pilot Disenrollees

**Guiding Question: How successful was the pilot in retaining participants and how do those who disenrolled differ from those who remained enrolled?**

Retention of participants in services is an important goal for all programs serving homeless people. Although not an outcome identified in the pilot’s logic model, retention is especially important for the pilot since the pilot’s goal is to serve “difficult to serve” populations, people who may have had poor experiences with service systems and be wary of receiving “help” from others. In this section we profile the group of participants who exited the pilot before their 18-month interview. The separate question of *attrition from the outcome study*, people whom we were unable to locate and interview at follow-up, is a methodological one which we address in Appendix C.

The table below shows how many participants in the outcome study sample of 132 had left the pilot by the time of their 18-month interview. As can be seen, the pilot has been successful in retaining a large proportion of participants – 81% were still enrolled by the time of their 18-month follow-up interviews. This translates to an annualized retention rate of 87.4%. Participants exit the pilot for a range of reasons. In some cases, participants and providers determined that pilot services were no longer needed and the participant in effect “graduated” from the program. In others, participants left the service area, could not be located, or did not need or receive services for 60 days.

Table 4-1: Attrition From the Pilot Between Baseline and 18-Month Interviews

	<b>Count</b>	<b>Pct.</b>	<b>Annualized Rate</b>
Still Enrolled at 18-Month Interview (Remainers)	107	81.1%	87.4%
Disenrolled by 18-Month Interview (Exiters)	25	18.9%	12.6%
Total	132	100.0%	100.0%

We now address the question of whether those who left the pilot (pilot “exiters”) differ systematically from those who remained in the pilot (pilot “remainers”). The table below profiles the two groups on key baseline characteristics. In the next section we examine whether exiters and remainers had different patterns of change over time.

Table 4-2: Baseline Characteristics of Pilot Exiters and Remainers

<b>Baseline Characteristic</b>	<b>Exiters - Disenrolled Before 18- Month Interview (n=25)</b>	<b>Remainers – Remained Enrolled At 18-Month Interview (n=107)</b>
% from Blue Earth County	<b>68.0</b>	<b>28.0</b>
% from single adult programs	56.0	58.9
% male	46.7	48.0
% non-white	47.2	28.0
Avg. age	36.1	39.5
Avg. number of months homeless as an adult (before entering pilot)	56.0	59.6
Avg. number of self-reported mental illnesses	2.0	2.3
Avg. cumulative number of years of use of 10 illegal drugs and/or alcohol to intoxication	26.6	38.8
Avg. number of types of traumatic experience	4.2	4.3
Avg. number of days living in own housing in past 6 months	77.3	61.6
Avg. mental health symptom score	32.6	35.0
Avg. number of days using alcohol to intoxication in past 30 days	<b>4.0</b>	<b>1.1</b>
Avg. summed number of days using each of 10 illegal drugs in past 30 days	2.4	5.0

Note: Figures in bold represent a statistically significant difference between the two groups at the 5% level.

The first row of the table highlights a large difference in the disenrollment rates between the two counties. Of those who disenrolled from the pilot, 68% were located in Blue Earth County, while of those who remained, only 28% were in Blue Earth. The Blue Earth participants represent 36% of the total sample. Looking differently, 36% of Blue Earth County enrollees had disenrolled by the time of their 18-month interview, while in Ramsey County only 9% had done so (figures not shown in table). This differential disenrollment rate between the two counties was the result of the primary provider teams in each using different rules and approaches, and customizing the pilot’s overall service model.

On individual characteristics the Exiters and Remainers are broadly similar. They are comparable on demographic, residential stability, and mental health status measures. The one individual characteristic that they differ on is alcohol use. It appears that at baseline participants who would later disenroll from the pilot reported more frequent use of alcohol to intoxication in the past month than those who remained in the pilot. The groups did not differ on the total number of years using 10 illegal drugs and/or alcohol to intoxication (a lifetime measure), though they did differ on the measure which focused on recent use (past 30 days). This pattern

might indicate that those who would later disenroll from the pilot were at active periods in their substance use disorder. This outcome suggests that pilot stakeholders may want to focus on enhancing their strategies for maintaining active alcohol users in the program.

## 6. Changes in Outcome Measures by Enrollment Status

**Guiding Question: Did participants who disenrolled from the pilot show different patterns of change from those who stayed enrolled in the pilot?**

Outcome study interviewers made every effort to locate and interview participants who disenrolled from the pilot. Using the follow-up information they obtained, we can examine the trajectories of pilot exiters and see whether they differ from those of people who remained enrolled in the pilot during the study time period. As described in Section 5, 25 of the 132 participants who completed all three interview waves disenrolled at some point before their 18 month interview.

Fig 6-1: Changes in Selected Outcome Measures By Enrollment Status

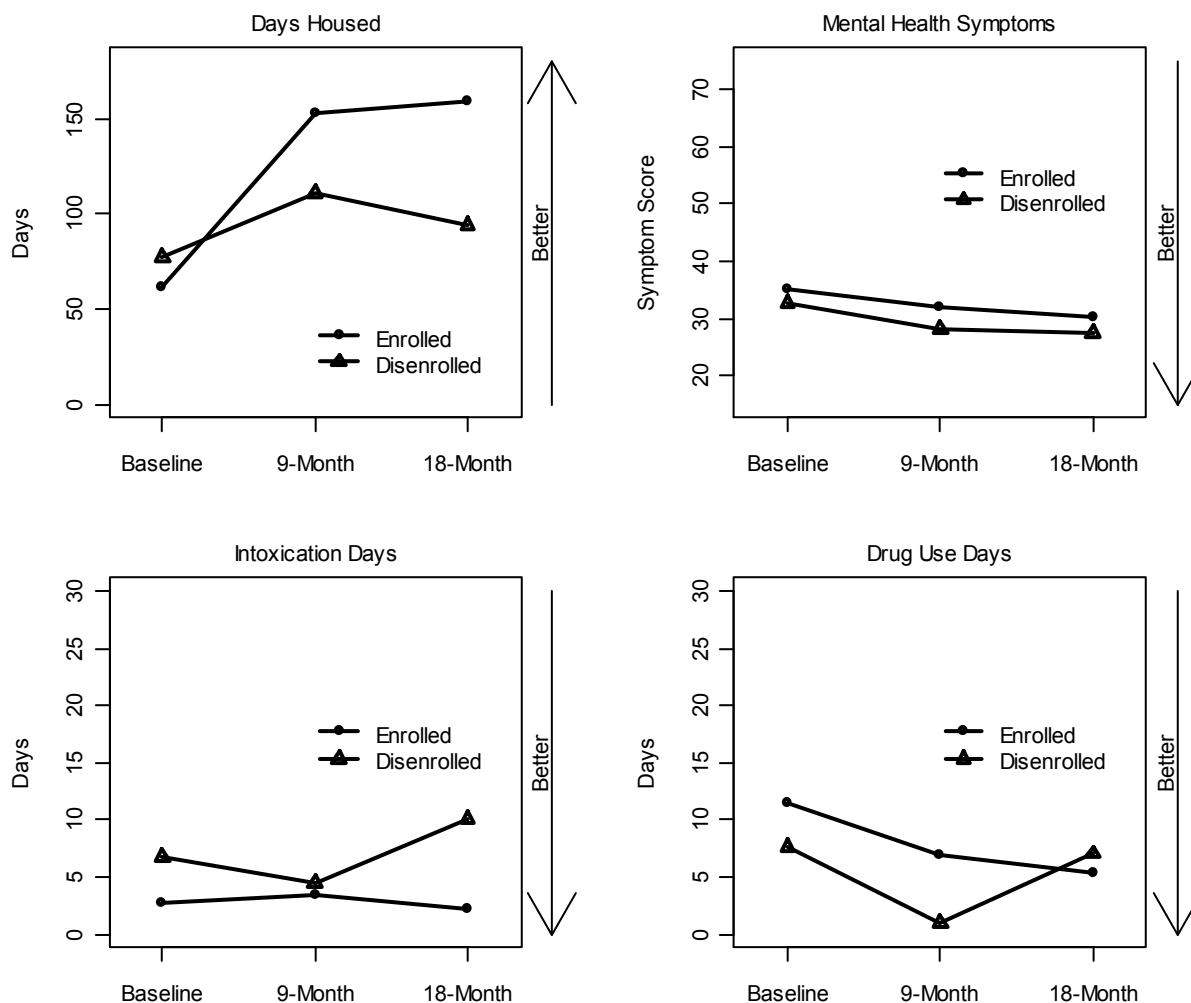


Figure 6-1 shows four of the main outcome measures: days in own housing (out of past 6 months), mental health symptom score, days of using alcohol to intoxication (out of past 30), and days using illegal drugs (out of 30, summed across 10 drugs), each broken down separately for

those who disenrolled from the pilot and those who remained enrolled. While the patterns of change for exiters and remainers on the mental health symptom score are similar (both groups decline slightly over time), the patterns of the groups differ for the housing measure and for both of the substance use measures.

The plot of days spent in own housing shows that the exiters started out at a comparable level with the remainers on this measure, but did not improve their situation over time as the remainers did. At 9 months those who remained in the pilot had increased their stability markedly, while the exiters exhibited a more modest gain. At 18 months, the remainers had been housed an average of 156 out of the past 180 days; the exiters' tenure in their own housing actually declined from the 9-month assessment to a value of 94 days. The difference between exiters and remainers in how much they changed on this measure from baseline to 18 months is highly significant statistically.

On the two substance use measures, the exiter group plot reveals a V-shaped pattern in which they decline from baseline to 9 months, and then increase from 9 to 18 months. The differences between remainers and exiters on these measures are not strongly different statistically, but the differently shaped patterns for the two groups indicate that those who exit the pilot may increase their substance use.

The fact that those who exit the pilot show much less improvement in their residential stability than those who remain suggests that the pilot is helping participants achieve stable housing. It is possible that participants who are especially "difficult to house" leave the pilot and, when outside the pilot, continue to have difficulties achieving stability. It is also possible however that people who leave the pilot fail to achieve residential stability because of the lack of a subsidy and supportive services that the pilot provides. This explanation seems more likely, given that the two groups start out comparably on residential stability.

## 7. Changes in Outcome Measures by Program Factors (Program Type and County)

***Did patterns of change in outcome measures differ by the basic program characteristics of program type (family vs. single adult) and county?***

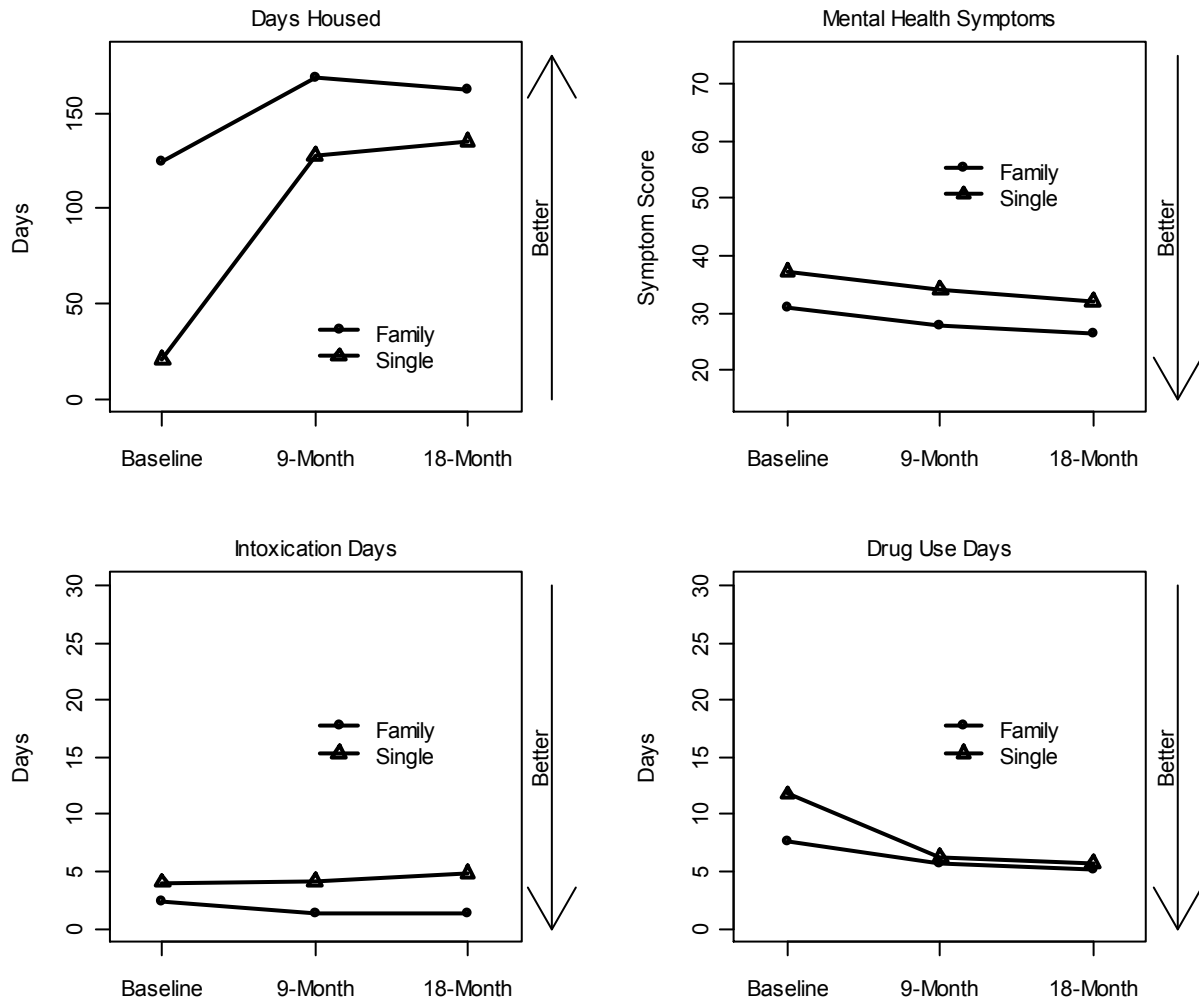
The above sections show that many participants changed over time in the domains assessed, and that there is considerable variation in how much participants changed, and in what areas. These findings naturally lead to the question, “Why do some participants show different patterns of change from others?”

The first natural explanation for participants having different patterns of outcomes would be that some participants disenrolled from the pilot, while others remained enrolled over the entire study period. In the preceding section we analyzed the trajectories of exiters and remainers separately and found that exiters did not fare as well as remainers in their residential stability.

Another possible explanation for differences is the variation in the packages of services that participants received. The pilot’s service model called for certain core elements (see Section 1), but also allowed the primary provider agencies latitude in designing and implementing their specific interventions. The way the pilot was implemented for family members vs. single adults could easily have been different, and/or was more effective for members of one group than another. Similarly, it is quite possible that the large differences in context between urban Ramsey County and rural Blue Earth County could make for differences in participant outcomes. We cannot conclusively determine the importance of these factors or make causal inferences given our data. However, we can examine patterns of change and determine whether these factors are related to the various patterns.

This section focuses on two basic program level factors that could potentially be related to patterns of change. The factors we examine are program type (single adult vs. family) and county (Ramsey vs. Blue Earth).

Figure 7-1 shows four key outcome measures: days in own housing, mental health symptom score, days using alcohol to intoxication (out of past 30) and days using illegal drugs (out of past 30, summed across 10 drugs) broken out by program type (single adult vs. family).

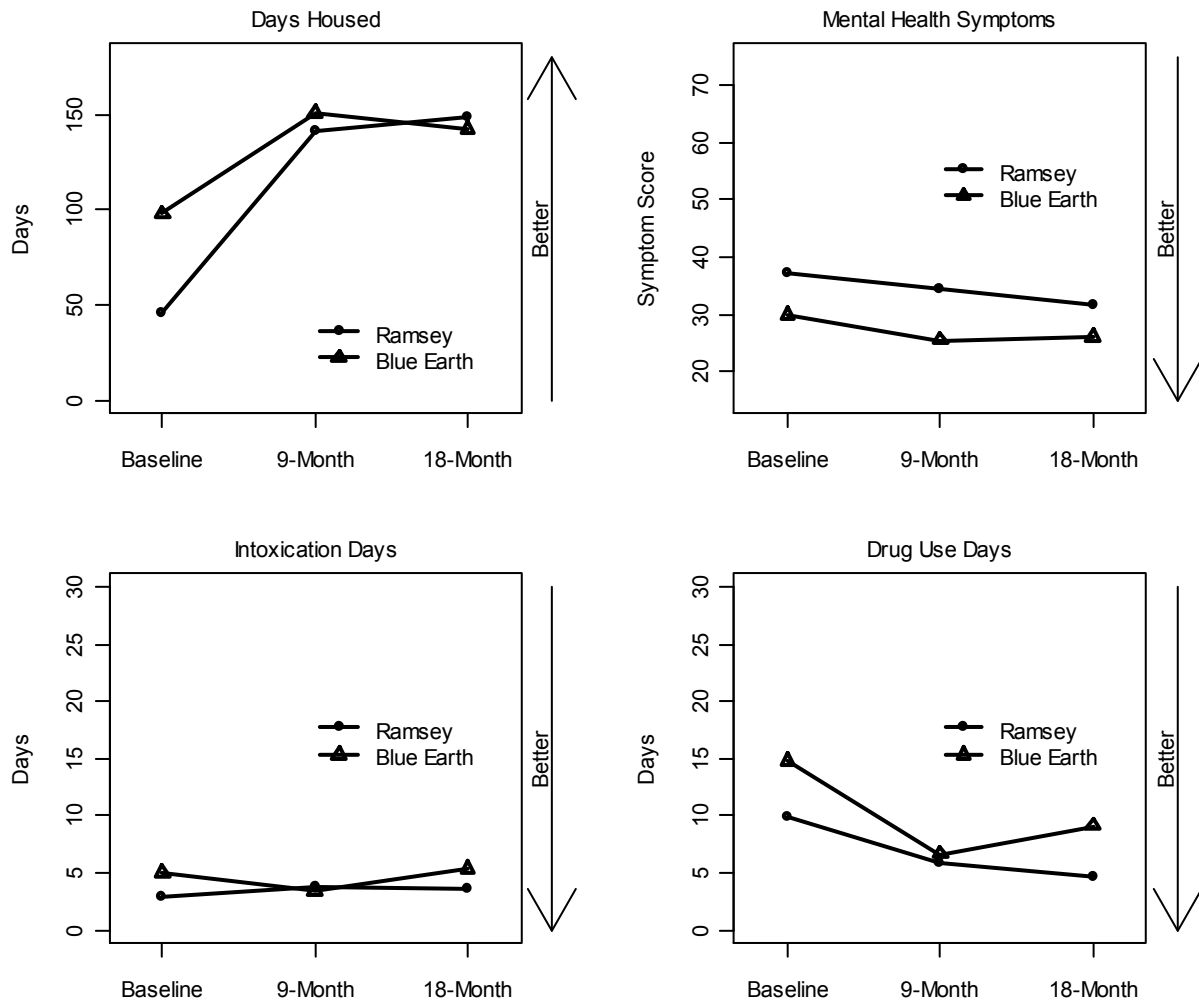


The four plots do not show markedly different patterns for single adults vs. family members. On all four measures single adults have more challenges than family members, but the patterns of change from baseline to 18 months are roughly similar.

Although the overall trends are similar, the plot of days participants spent in their own housing shows a large difference between single adults and family members in residential stability at baseline. People in families had spent on average 125 of the 180 days preceding their baseline assessment in their own housing, while single adults had spent only 21. This high initial value for families is most likely due to the methodological issue discussed in Section 1. Many families had been enrolled in the pilot for an extensive period of time before we were able to conduct baseline interviews with them. Therefore, their “baseline” value may reflect residential stability they achieved after being in the pilot for some time. (Family members whom we were able to interview “on time,” had spent only 49 days in their own housing). The plot shows that both groups significantly improved their housing stability over time, although single adults improved at a greater rate than family members.

Family members and single adults showed similar trends on the mental health symptom measure and on the substance use measures.

Figure 7-2 shows the same four outcome measures broken down separately for Ramsey and Blue Earth counties.



These plots of outcomes by county, like those for program type above, do not show marked differences. Participants in Blue Earth County had higher residential stability at baseline, and their degree of improvement over time was statistically less than that of participants in Ramsey County. However, both groups end up at the 9-month and 18-month assessments in comparable positions. The higher initial value for Blue Earth participants may be because we were unable to conduct timely baseline interviews with more participants there (because more participants there are family members and family services started before single adult services, largely before the evaluation began).

On the other three measures the patterns of change for the two counties are broadly similar, and statistically the degree of change between baseline and 18 months are comparable.

## Section 8: Changes in Outcome Measures by Individual Characteristics

***Guiding Question: What factors predict which participants will achieve stability/health in housing, mental health, and substance use?***

In Section 4 we developed simple criteria for whether pilot participants had achieved health/stability in the core domains of housing, mental health, and substance use. We developed simple measures of housing stability, symptom free mental health, and abstinence from illegal drug alcohol use to intoxication. In this section we now break the data down by those groups, using data from the 18-month assessment. Starting with the participants' status at the end of the study, we examine whether there are baseline factors that predict which participants achieve stable housing, which participants achieve symptom free mental health, and which participants achieve a substance free lifestyle.

Table 8-1 shows for each of the three follow-up status indicators the statistically significant differences at baseline between those who ended up achieving the healthy status and those who did not. It reveals a range of baseline factors that do in fact differentiate those who ultimately achieved stable status in the three domains from those who did not. Some of these relationships would be expected because the baseline measure assesses the same area as the follow-up status measure. These relationships have been shaded. For example, as one would expect, those who had achieved symptom free mental health at 18 months reported fewer mental illnesses at baseline. Similar relationships hold for the substance use measures. Interestingly, housing status at baseline and adult homelessness history did not predict who would become stably housed by follow-up. This may be due to the methodological issues around the timeliness of baseline assessments, or could suggest that the pilot uniformly helps participants achieve housing stability.

Table 8-1: Statistically Significant Baseline Predictors of Achieving Stable Housing, Symptom Free Mental Health and Abstinence from Substances at 18 Months

<b>Baseline Characteristic</b>	<b>Stably Housed N=97</b>	<b>Symptom Free N=87</b>	<b>Not Using N=80</b>
% from single adult programs			43% of those not using are from singles programs vs. 85% of users
% male			33% of those not using are male vs. 68% of users
% non-white			
Avg. age			
Avg. number of months homeless as an adult (before entering pilot)		45.1 for symptom free vs. 85.0 for not	50.0 for not using vs. 76.5 for using
Avg. number of self-reported mental illnesses		1.9 for symptom free vs. 2.9 for not	
Avg. cumulative number of years of use of 10 illegal drugs and/or alcohol to intoxication			30.7 for not using vs. 47.4 for using
Avg. number of types of traumatic experience	4.1 for stably housed vs. 5.3 for not	3.9 for symptom free vs. 5.1 for not	4.0 for not using vs. 4.9 for using
Avg. number of days living in own housing in past 6 months			
Avg. mental health symptom score		29.8 for symptom free vs. 43.9 for not	32.5 for not using vs. 38.0 for using
Avg. number of days using alcohol to intoxication in past 30 days	1.0 for stably housed vs. 3.7 for not		0.13 for not using vs. 3.9 for using
Avg. summed number of days using each of 10 illegal drugs in past 30 days		3.0 for symptom free vs. 7.4 for not	3.5 for using vs. 6.2 for not using

Looking at the demographic variables at the top of the table we see a strong relationship between being a male single adult and substance use. Those who were not using at 18 months are much more likely to be from the family programs than from the singles programs, and much less likely to be male than female.

Looking at the un-shaded boxes in the lower portion of the table we see a range of relationships among the domains of housing, mental health, and substance use. Those who would ultimately be symptom free and substance free came into the pilot with a less severe history of homelessness as an adult. There is evidence for a reverse relationship as well: Those who would ultimately achieve stable housing came into the program having used alcohol to intoxication a

fewer number of days before the baseline interview. In this population, as has been noted in many other studies, mental health status and substance use appear interconnected.

The factor that stands out as the only one which relates to *all three* 18-month status measures is trauma. Across all three domains, those who did not achieve the healthy/stable status by 18 months reported a more extensive history of traumatic experiences at baseline. Other studies have documented the extremely high prevalence and devastating impact of traumatic experience on individuals' cognitive, social, and emotional functioning. This finding concerning traumatic experience parallels that of a recent federally funded multi-site study of homeless families. In that study traumatic experience emerged as a central predictor of outcomes across a broad range of domains. While we cannot infer a causal relationship between traumatic experience and successful housing, mental health status, and abstinence from substances, this finding indicates an area that pilot stakeholders may want to investigate further.

## 9. Conclusion

This report examines changes in pilot participants' lives across multiple outcomes areas and across three time points separated by nine months apiece. Taken together, the analyses of outcome measures in Section 3 show several statistically significant and substantively important improvements in pilot participants' lives during the 18 months of participants' time in the pilot that the study covered.

We observed strong improvements *between baseline and nine months* in participants' housing status, as well as modest, though statistically significant improvements in other domains such as mental health symptoms and housing satisfaction.

Looking at the changes *from nine to eighteen months*, however, we find stability across all of the domains we assessed. Participants showed virtually no changes on our measures from the nine month to 18-month assessments. This lack of change may be because people are likely to experience the biggest changes in their situations when they first come off the streets into more stable housing, a transition that occurred for many pilot participants in the first few months of their enrollment. Given the positive changes that do seem to occur initially, a lack of change from the second to third assessments can be viewed as positive; the gains that were achieved had been maintained. This interpretation fits well in the domain of housing, for example, where participants, in general, achieved stable housing and maintained it through the 18-month assessments. In some domains, however, such as mental and physical health functioning, participants made no gains in our initial overall analysis of the nine month outcomes, and we wondered whether improvements would require more time, becoming evident in the 18-month data. This has not proved to be the case. Several of these measures show small trends that may, with time, grow into more meaningful changes for participants, but none were substantial at this time.

The analyses in Section 4 show that many participants ended up by the 18-month assessments having relative health/stability in multiple domains. The analyses in Section 8 point to traumatic experience as a possible important factor that may predict who does and does not achieve stability in housing, mental health, and substance use.

Analyses in Section 5 and 6 examined those who exited the pilot. Exiters had higher average levels of alcohol use at baseline and were more likely to be enrolled in the programs in Blue Earth County. Those who exited the pilot did not fare in housing stability as well as those who remained.

The analyses in Section 7 examined changes in outcomes separately for single adults and families, and for Blue Earth County vs. Ramsey County. These analyses revealed few meaningful differences in trend on these program level factors.

In sum, pilot participants achieved large gains in housing and more modest gains in other areas. Although our data do not allow us to determine the extent to which participant improvements are due to the pilot versus due to natural recovery processes, we believe it likely that the pilot played a role in helping participants improve their lives, given the complex burdens enrollees are struggling with, and demonstrated changes over a relatively short interval.