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How do homeless adults change their lives after completing an intensive job-skills program? A prospective study

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Abstract

Among people experiencing homelessness, difficulty securing housing is often compounded by concurrent challenges including unemployment, chronic illness, criminal justice involvement, and victimization. The Moving Ahead Program (MAP) is a vocational rehabilitation program that seeks to help adults facing these challenges to secure competitive employment. We prospectively studied how MAP graduates ($N = 97$) changed from the beginning of MAP to about six months after graduation. We observed a variety of positive outcomes not just in employment and housing but also in health, substance use, and criminal justice involvement. However, these gains were not universal; for instance, participants were less likely to report positive outcomes at follow-up if they started MAP with a serious mental illness, made relatively small gains in work skills, or did not seek mental health treatment during the six months after they completed MAP. These findings might encourage program staff to devote additional resources toward supporting at-risk students.

Keywords

homelessness; mental illness; employment; job skills; life skills; substance use; rehabilitation

People experiencing homelessness typically face a number of simultaneous barriers to securing employment and stable housing. The stress of navigating complicated systems of housing and employment services is often compounded by illness, substance use disorders, criminal justice involvement, victimization, limited social support, and a history of traumatic experiences (Fischer, 1989; Fischer & Breakey, 1991; Roy, Crocker, Nicholls, Latimer, & Ayllon, 2014). As a result, SAMHSA recommends that programs that work with this population integrate mental illness and addictions services and provide workplace training

and support “as part of a larger strategy that cares for the whole person” (Shaheen, Williams, & Dennis, 2003, p. 41).

St. Francis House, a day shelter for homeless adults in Boston, has recognized the need for such integrated services. St. Francis House began the Moving Ahead Program (MAP) during 1995. MAP is an integrated vocational rehabilitation program that attempts to prepare adults with histories of homelessness, substance use disorders, mental illness and/or incarceration to find and maintain competitive employment. Using a 14-week, interactive classroom-based model, MAP couples employment skills training with life supports including residential housing, a stipend, transportation, case management, and ongoing job coaching, on the condition that students are abstinent from substance use (except cigarette smoking) before and during the program.

MAP represents an effort to assist people experiencing homelessness to construct occupational roles that support self-sustainability and a sense of meaningful participation in community life. MAP's curriculum reflects the fact that some homeless people—particularly those experiencing chronic or episodic homelessness—experience cumulative stress and often lack the stress management, social, and independent living skills necessary to secure and retain employment (Davis & Kutter, 1998; Lippert & Lee, 2015). In a 1997 review of outcome data from 63 organizations providing vocational services to people experiencing homelessness, the US Department of Labor (1997) defined best practices for developing vocational programs for homeless people. These best practices included (1) providing comprehensive services, often in coordination with other local service providers; (2) stabilizing homeless individuals prior to enrollment, including by providing transitional housing and addressing acute needs (e.g., potential for domestic violence); (3) providing thorough assessment and ongoing case management to identify potential barriers to success; and (4) providing follow-up support services, even after clients have secured competitive employment.

To the extent that it engages in these best practices, MAP should help clients move toward long-term self-sustainability. Previous research revealed that MAP participation appears to strengthen work and life skills, which in turn are associated with increased self-esteem and self-efficacy, and ultimately, better housing stability at a 6-month follow-up (Nelson, Gray, Maurice, & Shaffer, 2012). In a subsequent study, we found that MAP students reported positive changes in some aspects of their social networks from the beginning to the end of the program (Gray, Shaffer, Nelson, & Shaffer, 2015).

This paper extends past research by examining a wider scope of how MAP students change after participation in this program. We prospectively studied how MAP students changed from the beginning of MAP, to the end of MAP, to a follow-up assessment completed about six months after MAP graduation. The current study was made possible through improvements to the data collection system at St. Francis House during the spring of 2011. These improvements allowed for more comprehensive intake assessments and better tracking of students over time. As a result of the comprehensive assessment completed during intake, this evaluation examines change in a broader range of life domains compared with the first published evaluation of MAP (Nelson et al., 2012). In the current study, we

examined employment and changes in housing stability—the two primary goals of MAP—as well as changes associated with life satisfaction, self-perceived mental health, and access to mental health and substance use treatment options during the period between MAP graduation and follow-up. Improved measurement precision allowed us to examine both (1) whether MAP graduates report positive changes in their lives during the six months after MAP and (2) the moderators and mediators of improvement over time. We studied three types of potential predictors: stable characteristics (e.g., age and race); personal factors measured at intake (e.g., having an alcohol or drug problem); and change factors—ways in which participants changed their lives either during MAP or in the months after MAP. Finally, this evaluation benefitted from improved retention into the follow-up period, as compared to our group's previous evaluation of this program (Nelson et al., 2012). Improved retention was made possible through better data collection technology, including detailed contact information collected at intake, as well as dedicated staff time. As others have noted, longitudinal research with people experiencing homelessness is traditionally difficult and impractical, but necessary (Lippert & Lee, 2015).

This evaluation is part of a broader effort to evaluate and understand the effectiveness of services provided to homeless individuals served by one of the largest integrated homeless service centers in New England across a 3.5-year window of observation. This prospective cohort study adds to our understanding of life changes among people experiencing homelessness, a population traditionally understudied, especially prospectively.

Methods

Participants

A total of 441 unique St. Francis House (SFH) guests began the Moving Ahead Program (MAP) between March, 2011 and February, 2014. These students, who represent all non-duplicative sequential admissions during the window of observation, included 207 women, 225 men, and 2 transgender men; gender was missing for 7 students. When registering for SFH programs, the average student was 41.9 years old ($SD = 10.3$; range = 21 to 71). The majority (68.5%) of students identified themselves as White, 24.9% identified as Black/African American, and 2.0% or fewer identified as each of the remaining racial categories. The majority of participants (81.9%) identified as non-Hispanic/Latino.

Setting

St. Francis House (SFH) provides basic services (e.g., meals, fresh clothes, showers) and rehabilitative services (e.g., MAP, individual mental health and substance abuse counseling) for individuals experiencing homelessness. During fiscal year 2016, SFH served over unduplicated 6,500 guests. They fed just over 5,900 guests, provided just over 9,000 clothing appointments, and provided individualized services (beyond food and clothing) to over 2,700 guests. To participate in MAP, an individual must be at least 18 years of age, experiencing homelessness, sober for at least 30 days and committed to a sober lifestyle, able to read and write in English independently, and intending to look for and accept employment. An earlier internal review found that in a typical class, between 25-35% of students do not complete the program. Failure to complete MAP typically results from

noncompliance with program rules and expectations following written warnings and performance improvement plans. Less frequently, students do not complete MAP because they earn job offers before program completion (Stebbins, Joyce, & Ryan, 2013).

Measures

Participants provided basic demographic data (i.e., year of birth, gender, race, and ethnicity) during their initial registration for SFH services. Program staff conducted two interviews with each MAP student at the beginning of MAP. The first, referred to as the “program entry” interview, collected information about current employment, living situation, and substance use within a program entry interview at the start of the MAP. The more in-depth “intake” interview consisted of a variety of demographic and background measures. The program exit interview generally repeated the questions about employment, living situation, and substance use. The 6-month follow-up interview was similar in content to the program entry and program exit interviews. In the following sections, we describe the variables included in the current study in more detail. Supplementary Table 1 provides a summary of the study variables and their assessment time points.

Education—During the intake interview, participants identified the highest grade of school they completed.

Employment, income, and benefits—During the intake interview, participants reported whether they had ever supported themselves with paid employment and whether they had done so in the past 6 months before MAP. At intake and follow-up, they reported on whether they currently had paid employment. They reported on their current total income from all sources, including wages and benefits (e.g., Social Security Disability, food stamps, Temporary Assistance for Needy Families), at program entry, program exit, and follow-up. We calculated each participant's number of benefits sources, as well as whether they received income from wages. At follow-up, those who had jobs identified whether their jobs were occasional/irregular, part-time, or full-time. They also responded to the question, “How satisfied are you with your current job?” on a scale from 1 (*very dissatisfied*) to 5 (*very satisfied*).

Work skills—At intake and follow-up, participants answered 13 questions about their work and life skills and interest in improving skills. These questions were adapted from the Adkins Life Skills Program self-assessment (Adkins 1984). The skills assessed include job interviewing, customer service, career exploration, workplace technology, and social networking. Each skill was assessed on a 5-point scale from 1 (*no skills*) to 5 (*maximum skill*). We computed an average score across items. Internal reliability of this overall scale, assessed using Cronbach alpha, was very strong at intake (alpha = 0.93) and at follow-up (alpha = 0.86).

Housing—At registration, participants reported how many times they had been homeless in the past three years. At program entry, program exit, and follow-up, they reported whether they were currently homeless and where they spent the previous night.

Life satisfaction—At intake and follow-up, participants responded to the question, “In general, how satisfied are you with your life?” on a scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*).

Substance use—During program entry and follow-up interviews, participants were asked, “Do you feel that you have a problem with alcohol?” and “Do you feel that you have a problem with drugs?” During intake interviews, participants indicated whether they had ever used 17 substances for non-medical purposes. If participants indicated lifetime use of a particular substance, interviewers followed up by asking “How often have you used that substance during the past 6 months?” Responses options ranged from 0 (*never/not used in past 6 months*) to 8 (*used 4+ times a day in the past 6 months*). Program staff asked about past 6-month frequency of use of these substances during the follow-up interviews using the same response options. During follow-up interviews, interviewers asked participants whether they had attended “any AA/NA or similar self-help groups in the past 6 months.” They also asked, “Other than self-help groups, have you received substance abuse treatment for alcohol problems in the past 6 months?” Interviewers asked the same question for other drug problems.

Health—At program entry and follow-up, participants were asked, “Do you feel that you have a mental health problem such as serious depression, serious anxiety, hallucinations, violent behavior, or thoughts of suicide?” At intake, participants were asked, “Have you ever been diagnosed with a mental health problem” and “Have you ever been treated for a psychiatric or mental health issue other than substance abuse?” At follow-up, participants answered the questions, “Is your health in general now better, worse, or about the same as it was 6 months ago?” and “Is your mental health in general now better, worse, or about the same as it was 6 months ago?” Also during follow-up interviews, participants were asked, “Have you sought treatment for a psychological or psychiatric issue other than substance abuse in the past 6 months?”

Criminal justice involvement—At intake and follow-up, participants reported whether they had had any arrests or incarcerations during the past six months.

Use of support services—At follow-up, staff asked participants questions about their use of follow-up support services, including, “In the past 6 months, how many times have you been in contact with MAP?”

Procedures

SFH registration takes place before entry into the first service/program a guest uses. Staff scheduled program entry and intake interviews as close to a student's entry into MAP as possible. Intake interviews took 1-2 hours to complete. As close as possible to the end of the program (or at discharge, for students who did not complete the program), students completed a program exit interview. Program staff aimed to conduct follow-up interviews 6 months after participants completed MAP. Staff used their limited resources to conduct follow-ups only with students who completed MAP and typically did not attempt to conduct interviews with those who did not graduate. During most of the follow-up period, one staff

member was tasked with scheduling and conducting follow-up interviews. Staff used a 3 month window for contacting graduates for follow-up interviews, sending an initial email at the 5 month mark to alert students about the upcoming interview, and then alternating calling and emailing throughout the rest of months 5, 6, and 7 following graduation. Students who completed a follow-up interview received a \$10 gift card. Follow-up interviews typically lasted 30-45 minutes and were conducted either in-person or over the phone. At the close of each interview, program staff asked participants if the data collected during that interview could be used for research purposes.

Analytic Plan

We used χ^2 and ANOVAs for categorical and continuous variables, respectively, to test for systematic differences between participants who completed all of the interviews and those who did not. We examined whether participants who completed different assessments (e.g., follow-up versus no follow-up) varied in terms of gender, race (white or non-white), ethnicity (Hispanic or non-Hispanic), age, number of homeless episodes during the past three years, self-perceived problems with alcohol, self-perceived problems with drugs, self-perceived mental health problems, current homelessness status, education (no high school diploma, high school diploma/GED, some secondary school) and employment (paid employment in past 6 months: yes or no), as reported during the program entry and intake interviews.

Next, to evaluate MAP's effectiveness, we examined changes in our domains of interest from program entry to follow-up using repeated measures ANOVAs and McNemar tests. Finally, we used logistic regression analyses to evaluate whether participant characteristics predicted five key outcomes measured at follow-up: paid employment, homelessness, substance use (other than cigarettes), alcohol or drug problem, and improvement in mental health. We grouped potential predictors into three types that varied in terms of their stability. We entered the demographic characteristics at Step 1 (i.e., gender, age, race). At Step 2, we entered personal factors measured at intake. For all outcomes, we included in Step 2 (1) reporting a perceived alcohol or drug problem and (2) reporting a perceived serious mental health problem. We applicable, we also entered in Step 2 a baseline measurement of the given outcome (measured at program entry or intake). Finally, at Step 3, we entered change factors—ways in which participants changed their lives either during MAP (e.g., improvement in work skills) or in the months after MAP (e.g., attendance in 12-step groups, receiving mental health treatment, having contact with the MAP program).

Results

Attrition Analysis

Of the 441 MAP students who began MAP during the window of observation, 282 (63.9%) graduated from the program and 152 (34.5%) did not. Information about program completion was missing for the remaining 7 students. For all further analyses, we retained only the 282 participants who completed the program. Of these, 92.2% ($n = 260$) completed a program entry interview and allowed it to be used for research purposes. Because program entry serves as the baseline for this study, further analyses are limited to these 260

participants. We used intake, program exit, and follow-up data only for participants who (a) indicated that their responses to a given interview could be used for research purposes and (b) completed a given interview within our specified timeframe.¹ Using these standards, we collected intake interviews from 78.8% of eligible participants (205 of 260), program exit interviews from 88.1% of eligible participants (229 of 260), and follow-up interviews from 37.3% of eligible participants (97 of 260). Figure 1 illustrates participants' interview status.

To test for systematic differences according to interview status, from our 260 study-eligible participants, we created four mutually-exclusive groups: (1) participants who completed intake, program exit, and follow-up interviews ($n = 86$); (2) those who completed the intake and program exit interview but no follow-up interview ($n = 105$); (3) those who completed the intake interview but no program exit or follow-up interview ($n = 14$); and (4) those who did not complete an intake interview, regardless of other interviews they might have completed ($n = 55$). For the analyses of outcome variables reported at intake (i.e., education, employment), we excluded the final sub-set of participants. We observed one group difference, concerning housing status reported at program entry ($\chi^2(3) = 8.6, p < 0.05$). While 90.7% of participants who did not complete intake interviews reported being homeless at program entry, fewer than 85% of participants in the other groups did so. Characteristics measured at the start of MAP (i.e., demographics; number of prior homeless episodes; housing status; self-perceived problem with alcohol, drugs, or mental health; education; and employment status) did not distinguish those who failed to complete a follow-up interview from those who did complete follow-up interviews. Supplementary Table 2 provides additional detail.

Program Evaluation

Next, we evaluated changes in participants' lives from the beginning of MAP to the 6-month follow-up.

Employment and income—We examined the proportion of participants who reported having paid employment at intake and at the follow-up. We observed a significant increase, from 5.5% to 53.6%² (McNemar's $\chi^2(1) = 40.00, p < 0.001$, 95% CI for difference in proportions = 40.01 to 63.03).³ Participants were also more likely to earn income from wages over time: 5.9% did so at program entry, 38.2% did so at program exit, and 52.6% did so at follow-up. The proportion of participants who earned any income from wages increased significantly *both* from program entry to program exit (McNemar's $\chi^2(1) = 62.24, p < 0.001$, 95% CI for difference in proportions = 25.18 to 38.87) *and* from program exit to follow-up (McNemar's $\chi^2(1) = 8.53, p < 0.05$, 95% CI for difference in proportions = 5.84 to 27.82).

¹We allowed for 1 month between program entry and intake, 1 month between expected date of graduation and program exit interviews, and 4-8 months between expected date of graduation and 6-month follow-up interviews. We based expected dates of graduation off program entry dates.

²The frequencies reported in the text are based on all available observations. Proportions used in the chi square analyses change slightly due to listwise deletion. For instance, a participant with data for intake but not follow-up is included in the proportions mentioned in the text but not in the proportions used in the chi square analysis.

³We used the SPSS syntax written by Marta García Granero and provided here (<http://www.how2stats.net/2011/09/two-proportions-test-related-spss.html>) to calculate uncorrected χ^2 values and CIs for differences in proportions.

Consistent with this positive trend, participants reported earning more money in the past month from wages over time ($F(2, 150) = 20.28, p < 0.001, \eta^2 = 0.21$), from an average of \$27.10 at program entry, to \$374.26 at program exit, to \$651.36 at follow-up. At the follow-up, 80.4% of participants who had jobs described their jobs as permanent (as opposed to temporary or seasonal). Just over half (54.5%) described their jobs as full-time. Of those who had jobs, 76.8% described themselves as somewhat or very satisfied with their job.

Work skills—Participants' self-reported that their work skills increased from the intake (mean = 3.16, SD = 0.70) to the follow-up (mean = 3.70, SD = 0.59), $t(80) = 7.12, p < 0.001$.

Housing status—At follow-up, 30.9% of participants considered themselves to be homeless, compared to 81.5% at program entry (McNemar's $\chi^2(1) = 39.34, p < 0.001$, 95% CI for difference in proportions = 32.96 to 54.54). At follow-up, of all the housing response options, participants were most likely to report spending the previous night in (1) a house, apartment, or room that they owned or rented (29.9%), (2) a residential program (25.8%), or (3) doubling up on a temporary or permanent basis (20.6%). We compared how participants' responses to the question, "Where did you stay last night?" changed from program entry to follow-up. Over time, more participants reported sleeping in a house, apartment, or room that they owned or rented (with or without subsidies) (1.5% to 29.9%: McNemar's $\chi^2(1) = 28.00, p < 0.001$, 95% CI for difference in proportions = 20.15 to 38.92). Conversely, fewer participants reported sleeping in emergency shelters at follow-up (24.6% to 8.2%: McNemar's $\chi^2(1) = 12.57, p < 0.01$, 95% CI for difference in proportions = 8.26 to 27.30). Supplementary Figure 1 illustrates these trends.

Next, we examined how participants' lives changed along a variety of other dimensions throughout their engagement with MAP.

Life satisfaction—We examined responses to the question, "In general, how satisfied are you with your life?" on a scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Participants' average responses increased from 2.85 (SD = 1.31) at intake to 3.52 (SD = 1.09) at follow-up, $t(86) = 4.63, p < 0.001$.

Substance use and substance use disorders—At the start of MAP, 40.2% of participants reported any past 6-month use of a substance other than cigarettes. By follow-up, this proportion dropped to 19.5%, a significant reduction (McNemar's $\chi^2(1) = 9.53, p < 0.01$, 95% CI for difference in proportions = 7.78-32.71). At the start of MAP, most participants reported having a problem with alcohol (51.3%) or with drugs (56.6%). At the follow-up, fewer participants (33.0%) reported having a problem with alcohol (McNemar's $\chi^2(1) = 19.20, p < 0.001$, 95% CI for difference in proportions = 14.47 to 34.53), and fewer (39.2%) reported having a problem with drugs (McNemar's $\chi^2(1) = 14.73, p < 0.01$, 95% CI for difference in proportions = 9.54 to 27.30). At follow-up, the majority of participants (80.5%) reported attending AA/NA or similar self-help groups in the past 6 months. Smaller proportions reported receiving other kinds of treatment (e.g., inpatient or outpatient treatment programs) for alcohol problems (15.5%) or drug problems (22.7%) in the past 6 months.

Health—We examined responses to the question asked at follow-up, “Is your *health in general* better, worse, or about the same as it was 6 months ago?” Just over half (50.5%) of participants answered “the same.” A substantial minority (36.1%) answered “better.” Finally, 13.4% answered “worse.” Responses followed a different pattern for the question, “Is your *mental health* better, worse, or about the same as it was 6 months ago?” Over half (53.6%) of participants reported that their mental health was better, 37.1% reported that it was the same, and 9.3% reported that it was worse. Just under half (49.5%) of participants reported, at follow-up, that they had sought treatment for a psychological or psychiatric issue other than substance abuse during the past 6 months. We examined responses to the question, “Do you feel you have a mental health problem such as serious depression, serious anxiety, hallucinations, violent behavior, or thoughts of suicide?” which was asked at program entry and follow-up. Nearly two-thirds (60.8%) of participants responded affirmatively at program entry, and slightly more (63.9%) did so at follow-up. The difference in these proportions was not significant (McNemar's $\chi^2(1) = 0.17$).

Criminal justice involvement—Participants tended to enter MAP with extensive criminal justice histories. At intake, most (94.1%) reported having ever been arrested. On average, participants reported being arrested 12.67 ($SD = 17.46$) times. Most (68.8%) had been incarcerated; on average, participants had been incarcerated 4.10 ($SD = 4.19$) times. However, participants' criminal justice involvement was minimal in the months preceding MAP; most reported no arrests (87.3%) and no incarcerations (73.1%) in the 6 months before MAP. Participants maintained their lack of criminal justice involvement in the 6 months after MAP; at the follow-up, 96.9% reported not being arrested in the past six months. The increase in the proportion of participants with no past 6-month arrests from intake to follow-up was significant (McNemar's $\chi^2(1) = 4.50$, $p < 0.05$, 95% CI for difference in proportions = 0.00 to 15.01).

Use of support services—Participants reported having between 0 and 100 contacts with MAP after graduation, with a mean of 11.68 contacts ($SD = 20.50$). Only 13.6% of participants had had no contacts since graduation.

Hierarchical Logistic Regression

Our five follow-up outcomes of interest were all binary: (1) currently having paid employment; (2) currently being homeless; (3) reporting past 6-month use of any substance except cigarettes; (4) self-reporting an alcohol or other drug problem; and (5) mental health improvement (i.e. better, as opposed to same or worse, than 6 months ago). We first examined the relationships among the outcome variables and found them to be uncorrelated. We then conducted a series of logistic regressions, one for each primary outcome variable. In the following, we report all statistically significant predictors.

Paid employment—Participants who had a serious mental health problem at intake were less likely to have paid employment at follow-up (odds ratio = 0.16, 95% CI = 0.04-0.59, $p < 0.05$) compared with participants who did not report such mental health difficulties. In other words, MAP students who felt they had a serious mental illness at the start of the program were 6.25 times less likely to have paid employment at follow-up than those who considered

themselves free of serious mental illness. In addition, greater improvement in work skills from the beginning of MAP to follow-up predicted having paid employment at follow-up (odds ratio = 2.45, 95% CI = 1.02-5.90, $p < 0.05$; Table 1).

Homelessness—Homelessness at the start of the program predicted homelessness at follow-up (odds ratio = 6.87, 95% CI = 1.42-33.35, $p < 0.05$). We also found evidence for protective factors against homelessness. As Table 2 shows, participants who reported having more sources of benefits at follow-up were less likely to be homeless at follow-up (odds ratio = 0.43, 95% CI = 0.22-0.90, $p < 0.05$). To illustrate, participants with no sources of benefits at follow-up had a 50% chance of being homeless; on the other extreme, no participants with four benefits sources were homeless.

Substance use—Participants who reported receiving substance use treatment for alcohol problems during the follow-up period were more likely to report using substances other than cigarettes (odds ratio = 12.54, 95% CI = 2.06-76.46, $p < 0.01$; Table 3).

Substance use problem—With regard to self-perceived substance use problems, we observed that White participants were more likely to report having a problem with alcohol at follow-up (odds ratio = 10.02, 95% CI = 3.27-30.70, $p < 0.05$). Those who felt they had an alcohol or other drug problem at intake were more likely to feel the same way at follow-up (odds ratio = 9.27, 95% CI = 2.04-42.07, $p < 0.05$) (See Table 4.)

Mental health improvement—Those who sought treatment for a psychological or psychiatric concern during the six months after they completed MAP were nearly three times more likely to report improved mental health than those who did not (odds ratio = 2.75, 95% CI = 1.04-7.25, $p < 0.05$). (See Table 5.)

Discussion

This study was intended to add to the existing literature about the changes people experiencing homelessness make during and after an integrated job- and life-skills training program. We completed a program evaluation, exploring differences among a sub-set of MAP graduates over time and studied potential predictors of sustained improvements in a variety of life domains.

At the beginning of their engagement in MAP, the participants who made this study possible were truly disadvantaged. Only 5.5% of them had paid employment at the outset; across all of them, at the outset, their mean monthly income was only \$39.70. Recognizing these challenges, MAP's primary mission is to "increase students' ability to secure and maintain employment and housing, thus improving their lives and the community-at-large" (St. Francis House, 2015). Consistent with this mission, we identified a variety of positive employment-related trends among participants who graduated from MAP. Six months after graduating, approximately 53% of students reported having paid employment, and the majority of these (about 55%) had full-time jobs. Participants as a whole reported concomitant boosts to their work skills. Participants reported higher incomes over time, including more income from wages.

Still, this leaves 47% of MAP graduates who did not have paid employment at follow-up. Our subsequent analyses revealed that at least two factors independently put some MAP students at especially high risk of unemployment: having a serious mental illness at the beginning of MAP; and having relatively small improvements in work skills. These findings are consistent with past work on poor mental health as a barrier to competitive employment, potentially due to stigma and discrimination as well as poor coping skills, communication problems, and other functional limitations (Cunningham, Wolbert, & Brockmeier, 2000; Taskila et al., 2014). Perhaps the MAP environment is not well suited to help students with serious mental illness secure future competitive employment once they leave its supportive environment. Students with serious mental health problems might benefit from more intensive and ongoing treatment services for these disorders, provided before, during, and/or after MAP. This is especially important because work appears to provide not only financial gain, but also improvements to general health, mental health and wellbeing, including improved cognitive functioning, among those with serious mental illness (as reviewed by Taskila et al., 2014). Regardless of mental health status, those who made larger gains in work skills were more likely to be employed at follow-up. This finding should reinforce the value of training for job interviewing, customer service, career exploration, and other skills within MAP's curriculum, with the caveat that we have measured students' perceptions of these skills over time, rather than more objective measures. Having more contacts with the MAP program after graduation did not predict employment status. It is possible that students who especially struggled to find employment during the follow-up period sought more contact with the staff than those who were not struggling, and their subsequent poor outcomes cancelled out beneficial effects of follow-up support services.

Consistent with MAP's primary mission, its graduates typically moved out of homelessness. Most (81.5%) participants considered themselves to be homeless at program entry; fewer (30.9%) did so at follow-up. Still, this represents a substantial minority who remain homeless six months after graduating from MAP. We observed that getting connected with more sources of benefits helped protect participants from homelessness at follow-up, as did having income from wages. It is likely that participants who had benefits did not have to choose between paying rent, on one hand, and affording food, transportation, and other basic necessities, on the other hand. This conclusion is consistent with prior research revealing that providing public assistance benefits to persons with mental illness provides a pathway out of homelessness (Chen, Rosenheck, Greenberg, & Seibyl, 2007; Edens, Kaspro, Tsai, & Rosenheck, 2011). On a practical level, this pattern suggests that assisting SFH guests with benefits application, appeals, and adjustments might be a vital component to help ensure long-term housing stability.

Participants reported making positive improvements in terms of substance use throughout their involvement with MAP. At follow-up, the majority (about 80%) reported no past 6-month use of substances other than cigarettes, a significant increase from program entry. It appears that MAP graduates made positive changes to their substance use as they were seeking employment and independent housing. This is consistent with research indicating that two of the central components of MAP – social support and a pathway to employment – are influential in helping formerly homeless people achieve and maintain substance abuse recovery (Henwood, Padgett, Smith, & Tiderington, 2012). We observed only one significant

predictor of substance use: those who reported receiving formal treatment for an alcohol problem were nearly 13 times more likely than others to report substance use during the follow-up period. It is likely that those who experienced alcohol-related problems during the follow-up period sought and received treatment for this condition.

We examined self-perceptions as well as reported substance use, and we observed that participants were less likely to report having a problem with alcohol or drugs over time. This is another indication that the benefits of MAP extend beyond employment and housing. Past work suggests that housing stability and employment can have positive “downstream” effects on substance use because creating physical distance from substance-using social networks and engaging in meaningful activities, such as work or school, help formerly homeless people maintain their sobriety (Davis & O'Neill, 2005). We also observed that many participants considered themselves to have alcohol or other drug problems despite abstaining from use of these substances. At follow-up, 74.5% of participants who felt that they had an alcohol or other drug problem reported no past 6-month use of any substance other than cigarettes. Moreover, participants who attended a 12-step program during the six months after MAP tended to be *more likely* than others to feel they had a substance use problem at follow-up. This is consistent with the notion that mutual disclosures of substance use history, including identifying oneself as an addict, is a central part of creating group cohesion within 12-step groups. As Hill and Leeming (2014, p. 761) note, within 12-step programs, “...there is encouragement to accept and retain a potentially stigmatising identity as an ‘alcoholic,’ but one who is abstinent” instead of taking sobriety for granted.

Not surprisingly given these positive outcomes, participants tended to report improved mental health. This is important because, consistent with other research with homeless persons, mental health concerns were highly prevalent among our sample. A total of 85.8% of study-eligible participants reported having a problem with alcohol or other drugs, or a serious mental health problem, at program entry. By comparison, researchers estimate that one-quarter of domiciled Americans meet criteria for any alcohol/other drug use or mental health disorder (Kessler, Chiu, Demler, & Walters, 2005). Participants who sought treatment for a psychological or psychiatric concern during the six months after they completed MAP were especially likely to report improved mental health. This finding encourages program staff and administrators to devote resources toward supporting students as they seek additional resources post-graduation.

This prospective study has a variety of strengths. One strength of this study is our measurement of multiple life domains. In addition to experiencing improvement in employment, income, and housing, participants who graduated from the Moving Ahead Program reported improvement in substance use, mental health, life satisfaction, and criminal justice involvement. Another study strength of this study is our use of a follow-up sample that is likely more representative of all program graduates than our previous evaluation (Nelson et al., 2012). In that evaluation, we retained for follow-up a convenience sample of students who were easily located by St. Francis House staff because they were involved in either the MAP alumni program or other St. Francis House services. It is likely that they represented a sub-group of graduates who had done well and had been particularly happy with SFH programs and services; however, it is also possible that those who were

especially well connected to follow-up programs and services were *not* doing well and were still in need of support services. In any case, in the current evaluation, SFH attempted a more rigorous outreach to alumni, regardless of their level of engagement with services and programs, through multiple avenues (i.e., email, phone calls, emergency contacts). As a result, our retention rate was several times higher than our previous evaluation, and we have more confidence that the participants included in the current follow-up sample were representative of all MAP graduates.

Our follow-up sample represents a minority of all eligible students who graduated from MAP, and this is a limitation of the study. Though participants who completed the follow-up did not differ from others on the measured variables, we cannot rule out the possibility that our follow-up sample included students who responded to our retention efforts because they had particularly positive (or negative) responses to the program. If positively biased, this could have exaggerated the observed benefits of the program; if negatively biased, this could have underestimated the benefits of the program. Because we restricted this study to participants who graduated from MAP, these results are not generalizable to the 35% of students who were discharged from the program prior to graduation. Another limitation of this study is that we were unable to construct a waitlist control group for purposes of comparison. Fortunately for students, the wait to begin the program was fairly short—much shorter than the length of the program and follow-up period. As a result, we cannot conclude that participation in MAP caused the changes in life domains we observed. People who were equally motivated to improve their own lives but did not engage in MAP might have experienced similar improvements. Because the follow-up period was relatively short, we cannot conclude that participants made sustained, lasting improvements to their substance use or other behaviors after completing MAP. A longer follow-up period would be necessary for drawing such a conclusion.

In summary, the Moving Ahead Program appears to help people experiencing homelessness achieve housing stability and employment; this circumstance improves their lives in a number of other ways. However, these findings also demonstrate a need to make more assistance available for the minority of MAP graduates who were unable to transition to self-directed lives during the six months after graduation. Further, these results suggest that program staff target any additional resources to students who begin the program with especially pernicious mental health challenges.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.

Table 1

Hierarchical logistic regression for variables predicting paid employment at follow-up (n = 72).

Predictors	Model 1					Model 2					Model 3				
	B	SE	Odds ratio	95% C.I.		B	SE	Odds ratio	95% C.I.		B	SE	Odds ratio	95% C.I.	
				Lower	Upper				Lower	Upper				Lower	Upper
Step 1: Demographic characteristics															
Gender	-0.12	0.49	0.89	0.34	2.35	-0.50	0.57	0.60	0.20	1.84	-0.50	0.62	0.61	0.18	2.03
Age	-0.02	0.03	0.98	0.93	1.03	-0.02	0.03	0.98	0.92	1.04	-0.01	0.03	0.99	0.93	1.06
Race	0.40	0.52	1.49	0.53	4.14	0.71	0.69	2.04	0.53	7.87	0.78	0.72	2.18	0.53	8.92
Step 2: Personal Characteristics measured at the start of MAP															
Drug or alcohol problem						0.16	0.73	1.17	0.28	4.86	-0.07	0.76	0.94	0.21	4.11
Mental health problem						-1.86	0.68	0.16	0.04	0.59	-1.97	0.70	0.14	0.04	0.55
Paid employment						<i>1.16</i>	<i>0.66</i>	<i>3.21</i>	<i>0.89</i>	<i>11.58</i>	0.92	0.69	2.51	0.65	9.59
Step 3: Change variables															
Improvement in work skills during MAP											0.89	0.45	2.45	1.02	5.90
Contacts with MAP (past 6 mo)											0.00	0.01	1.00	0.97	1.02
Nagelkerke R ²			0.03					0.25					0.32		

Note: SE = standard error; OR = odds ratio; CI = 95% confidence interval. Paid employment = whether participant had paid employment during the 6 months preceding MAP (0 = no, 1 = yes). Gender is coded as 0=female, 1=male. Race is coded as 0=non-White, 1 = White. Bolded rows represent predictors significant at $p < .05$. Italicized rows represent predictors at $p < .10$.

Table 2

Hierarchical logistic regression for variables predicting homelessness at follow-up ($n = 95$).

Predictors	Model 1				Model 2				Model 3			
	B	SE	Odds ratio	95% C.I. Lower Upper	B	SE	Odds ratio	95% C.I. Lower Upper	B	SE	Odds ratio	95% C.I. Lower Upper
Step 1: Demographic characteristics												
Gender	0.70	0.47	2.02	0.80 5.07	0.53	0.50	1.70	0.64 4.49	0.83	0.53	2.30	0.81 6.55
Age	-0.03	0.02	0.97	0.93 1.02	-0.03	0.02	0.97	0.92 1.01	-0.02	0.03	0.98	0.93 1.04
Race	0.14	0.49	1.15	0.44 3.03	-0.16	0.59	0.85	0.27 2.68	-0.22	0.61	0.80	0.24 2.66
Step 2: Personal Characteristics measured at the start of MAP												
Drug or alcohol problem					-0.06	0.60	0.95	0.29 3.07	0.05	0.62	1.05	0.31 3.56
Mental health problem					0.42	0.52	1.52	0.55 4.20	0.54	0.58	1.72	0.55 5.42
Homeless					1.93	0.81	6.87	1.42 33.35	<i>1.61</i>	<i>0.84</i>	<i>4.98</i>	<i>0.97 25.62</i>
Step 3: Change variables												
Any income from wages at follow-up									<i>-1.12</i>	<i>0.59</i>	<i>0.33</i>	<i>0.10 1.03</i>
N. of benefits sources at follow- up									-0.81	0.36	0.44	0.22 0.90
Nagelkerke R ²			0.06				0.17				0.26	

Note: SE = standard error. OR = odds ratio. CI = 95% confidence interval. Homelessness is coded as 0 = not homeless, 1 = homeless. Gender is coded as 0=female, 1=male. Race is coded as 0=non-White, 1 = White. N. = number. Bolded rows represent predictor significant at $p < .05$. Italicized rows represent predictors at $p < .10$.

Table 3

Hierarchical logistic regression for variables predicting any substance use (except cigarettes) at follow-up (n = 80).

Predictors	Model 1			Model 2			Model 3			
	B	SE	OR	CI: lower	CI: upper	B	SE	OR	CI: lower	CI: upper
Step 1: Demographic factors										
Gender	0.40	0.58	1.49	0.48	4.62	0.42	0.59	1.52	0.48	4.86
Age	-0.02	0.03	0.98	0.93	1.04	-0.01	0.03	0.99	0.93	1.06
Race	-0.26	0.59	0.77	0.24	2.44	-0.22	0.67	0.80	0.21	3.01
Step 2: Personal factors measured at start of MAP										
Drug or alcohol problem						-0.62	0.74	0.54	0.13	2.31
Mental health problem						-0.01	0.61	0.99	0.30	3.30
Any substance use (except cigarettes)						0.97	0.63	2.65	0.77	9.09
Step 3: Change factors										
AA/NA attendance (past 6 mo)						-1.58	0.89	0.21	0.04	1.19
Treatment for drug problems (past mo)						-0.21	0.88	0.81	0.15	4.52
Treatment for alcohol problems (past 6 mo)						2.53	0.92	12.54	2.06	76.46
Nagelkerke R ²				0.02					0.07	0.26

Note: SE = standard error. OR = odds ratio. CI = 95% confidence interval. Gender is coded as 0=female, 1=male. Race is coded as 0=non-White, 1 = White. Bolded row represents predictor significant at $p < .05$. Italicized rows represent predictors at $p < .10$.

Table 4

Hierarchical logistic regression for variables predicting self-perceived alcohol or drug problem at follow-up ($n = 86$).

Predictors	Model 1					Model 2					Model 3				
	B	SE	OR	CI: lower	CI: upper	B	SE	OR	CI: lower	CI: upper	B	SE	OR	CI: lower	CI: upper
Step 1: Demographic factors															
Gender	-0.86	0.53	0.42	0.15	1.19	-0.61	0.57	0.54	0.18	1.65	-0.50	0.60	0.61	0.19	1.95
Age	-0.02	0.03	0.98	0.93	1.03	-0.04	0.03	0.96	0.91	1.02	-0.03	0.03	0.97	0.91	1.03
Race	2.31	0.57	10.02	3.27	30.70	1.92	0.62	6.84	2.03	23.10	1.76	0.66	5.83	1.61	21.15
Step 2: Personal factors measured at start of MAP															
Drug or alcohol problem						2.23	0.77	9.27	2.04	42.07	1.92	0.82	6.83	1.38	33.88
Mental health problem						-0.66	0.62	0.52	0.15	1.74	-0.49	0.63	0.61	0.18	2.10
Step 3: Change factors															
AA/NA attendance (past 6 mo)											1.80	0.96	6.02	0.93	39.22
Treatment for drug problems (past 6 mo)											0.28	0.76	1.33	0.30	5.85
Treatment for alcohol problems (past 6 mo)											0.18	0.88	1.19	0.21	6.75
Nagelkerke R ²	0.33					0.45					0.49				

Note: SE = standard error. OR = odds ratio. CI = 95% confidence interval. Alcohol problem is coded as 0 = absent, 1 = present. Gender is coded as 0=female, 1=non-White, 1 = White. Bolded rows represent predictor significant at $p < .05$. Italicized rows represent predictors at $p < .10$.

Table 5

Hierarchical logistic regression for variables predicting mental health improvement measured at follow-up (n = 85).

Predictors	Model 1			Model 2			Model 3			
	<i>B</i>	SE	OR	CI: lower	CI: upper	<i>B</i>	SE	OR	CI: lower	CI: upper
Step 1: Demographic factors										
Gender	0.11	0.44	1.11	0.47	2.64	0.11	0.45	1.12	0.46	2.69
Age	-0.02	0.02	0.98	0.94	1.03	-0.02	0.02	0.98	0.94	1.03
Race	-0.10	0.48	0.90	0.35	2.29	-0.09	0.53	0.91	0.32	2.56
Step 2: Personal factors measured at start of MAP										
Drug or alcohol problem						0.04	0.57	1.04	0.34	3.17
Mental health problem						-0.13	0.47	0.88	0.35	2.21
Step 3: Change factors										
Treatment for psych. issue (past 6 mo)										
Nagelkerke R ²				0.01					0.01	

Note: *SE* = standard error. *OR* = odds ratio. *CI* = 95% confidence interval. Mental health improvement is coded as 0 = same or worse, 1 = better. Gender is coded as 0=female, 1=male. Race is coded as 0=non-White, 1 = White. Psych. = psychological/psychiatric issue other than substance abuse. Bolded row represents predictor significant at $p < .05$.