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Housing and abstinence self-efficacy in formerly incarcerated individuals

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Abstract

To avoid recidivism, formerly-incarcerated individuals must successfully navigate barriers to re-entry, including finding adequate housing and avoiding substance use. This study examined the role that time in diverse housing situations affect abstinence self-efficacy in formerly-incarcerated individuals. Formerly-incarcerated individuals were surveyed about previous housing situations and abstinence self-efficacy after release from prison or inpatient substance use treatment. Models were estimated with both days spent in different housing situations in the past 180 and past 30 days. More time spent in recovery situations was associated with increased abstinence self-efficacy, while more time spent in precarious situations was associated with decreased abstinence self-efficacy.

Keywords

addicted offenders; offender re-entry; offender rehabilitation; reentry; substance abuse; self-efficacy

Substance use problems among justice-involved individuals is cause for concern and affects these individuals and society, both during incarceration and after release. In the United States (U.S.), 2.3 million people are incarcerated (The National Center on Addiction and Substance Abuse [CASA] at Columbia University, 2010; Bureau of Justice Statistics [BJS], 2014a). Of that population, 65%, or approximately 1.5 million individuals, suffer from substance use disorders (CASA, 2010). The prison system is inundated with individuals struggling with drug/alcohol addiction. Although substance use treatment programs exist for inmates, only 11%, or approximately 165,000, of the 1.5 million incarcerated individuals with substance use problems receive any treatment while incarcerated (CASA, 2010). As such, this population is often released without skills necessary to maintain abstinence. These and other factors contribute to the 75% of inmates who recidivate within 5 years of release (BJS, 2014b).

Additionally, substance use recovery is fraught with episodes of relapse. Individuals in recovery often suffer multiple relapses, due to various stressors. Relapse may be due to any number of factors, including negative life events, cognitive appraisals such as motivation for change or self-efficacy, available coping resources, cravings, and affective states (Miller,

Westerberg, Harris, & Tonigan, 1996). McKay and Weiss (2001) reported that up to 40% of individuals in treatment cycled through periods of abstinence and use. Of those who enter treatment for substance abuse, only 50% eventually achieve remission (White, 2012).

Formerly-incarcerated individuals face unique barriers to recovery after release. Along with navigating recovery, individuals must navigate re-entry into society. Due to barriers such as restricted access to public housing and limited access to gainful employment to pay for adequate housing (Geller & Curtis, 2011), formerly-incarcerated individuals are often forced to live in adverse situations. Many formerly-incarcerated individuals, upon release, return to the same neighborhoods they lived in prior to incarceration (Kirk, 2012). These individuals are then surrounded by reminders of previous use. Additionally, formerly-incarcerated individuals may be denied public and private housing, due to certain laws and background checks, respectively (Geller & Curtis; Helfgott, 1997). These barriers may force justice-involved persons into unstable or precarious housing environments (Geller & Curtis), which may increase likelihood of relapse.

The problematic housing situations for formerly-incarcerated individuals supports the importance of understanding the relation between housing and substance use. Results of prior studies with adults and youth suggest a bidirectional relation between these two variables. Drug use or recovery is affected by housing situations. For example, in a study of adult veterans entering substance use treatment, those who were consistently homeless throughout treatment and follow-up had significantly worse treatment outcomes, including higher levels of substance use and less improvement in substance use disorders over time, than those who were consistently housed or were homeless but later found housing (Buchholz et al., 2010). Additionally, in a study of youth in the foster care system, youth who lived in stable housing tended to have less substance use and mental health problems than those in unstable housing situations (Fowler, Toro, & Miles, 2011). Drug use also may affect later housing situations. Studying homeless adults, North, Eyrich-Garg, Pollio, and Thirthalli (2009) found that cocaine use during the first year of the study was predictive of housing patterns over the next two years. Specifically, abstinence from cocaine use during the first year was associated with stable housing over the next two years. In light of these effects, more research is needed to understand how housing impacts substance use recovery.

The apparent bidirectional relation between housing and substance use is reminiscent of Social Cognitive Theory (SCT). The underpinning of SCT, a theory of learning and behavior developed by Bandura (1986), is the concept of triadic reciprocity, referring to interactions between behavior, personal factors, and the environment. SCT posits a reciprocal relationship behavior, personal factors, and environment. These reciprocal relations allow for the inclusion of multiple explanatory factors in behavioral models. Triadic reciprocity finds unique application in the explanation of substance use/recovery due to the various personal, environmental, and behavioral factors associated with it.

As part of the personal aspect of triadic reciprocity, self-efficacy is an important facet in psychosocial functioning (Bandura, 1986). Self-efficacy is the confidence to use resources, skills, and motivation to accomplish something (Ozer & Bandura, 1990). According to Bandura, self-efficacy affects psychosocial functioning in several ways. Self-efficacy

influences (a) behaviors, (b) how much energy is expended and how long the behavior persists, and (c) the cognitive and emotional reactions that co-occur with the behavior.

Self-efficacy has found particular usefulness in substance abuse research. Self-efficacy affects substance use recovery at three stages: commencement of recovery attempts, recovery from relapse, and long-term maintenance of recovery (Bandura, 1999). As such, researchers have studied self-efficacy as a predictor of substance use. Self-efficacy has been shown to predict both quantity and frequency of substance use. McKay et al. (2005) found that higher self-efficacy was associated with lower alcohol and cocaine use. In addition, Holt, Litt, and Cooney (2012) reported lower self-efficacy ratings one day predicted smoking relapses the following day, and that lower self-efficacy ratings predicted both smoking and drinking relapse. Dolan, Martin, and Rohsenow (2008) reported self-efficacy to abstain from cocaine use predicted both quantity and frequency of use at 3-month follow-up, but not at 6-month follow-up.

Abstinence self-efficacy, or the confidence to remain abstinent from drugs or alcohol, has often been used as a predictor of substance use outcomes. Many studies have concluded that abstinence self-efficacy predicts substance use outcomes. Holt and colleagues (2012) found that drinking and smoking lapses were preceded by decreases in smoking abstinence self-efficacy. Moos and Moos (2006) followed individuals with alcohol use disorders in recovery over sixteen years. Those who achieved remission at the 3-year follow-up reported higher self-efficacy and consumed alcohol less frequently at the baseline interview. Those who achieved remission at the 3-year follow-up, but relapsed at the 16-year follow-up, had less abstinence self-efficacy and consumed alcohol more frequently and heavily at the 3-year follow-up than those who did not relapse. Jason, Davis, and Ferrari (2007) studied abstinence self-efficacy in residents of democratically-run recovery homes. They found abstinence was predicted by abstinence self-efficacy, social support, and length of time spent in the recovery home.

Similarly, several studies have sought to determine the extent to which abstinence self-efficacy affects abstinence. Chavarria, Stevens, Jason, and Ferrari (2012) studied individuals recently released from substance use treatment programs. They found that abstinence self-efficacy predicted abstinence from substance use. Specifically, for every one-point change in abstinence self-efficacy, there was a 2% decrease in the likelihood that the participant would use drugs or alcohol. Ilgen et al. (2005) studied nearly 3,000 individuals entering substance use treatment and followed them for one year after discharge. After one year, reporting 100% abstinence self-efficacy was the strongest predictor of abstinence.

Less research has examined predictors of abstinence self-efficacy. Studies examining abstinence self-efficacy as an outcome have found many different factors to be predictive of self-efficacy. Factors such as years of education (Ilgen, McKellar, & Moos, 2007), gender (McKellar et al., 2008), and race (McKay et al., 2005) have been associated with abstinence self-efficacy.

Beyond demographic variables, several studies have sought to understand the relation between treatment-related activities and abstinence self-efficacy. Ilgen et al. (2007) followed

2,350 participants from residential treatment facilities for one year. For individuals involved in inpatient treatment programs, greater participation in group therapy sessions, coping skills classes, and vocational training programs predicted greater self-efficacy. In addition, more frequent participation in off-site Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) predicted higher self-efficacy, but not participation in on-site meetings. Longer involvement with AA is associated with higher self-efficacy (McKellar et al., 2008). Litt, Kadden, Kabela-Cormier, and Petry (2008) found that using coping skills during treatment predicted higher self-efficacy. These results suggest that active participation in treatment and related activities produces greater self-efficacy.

Other variables not directly related to substance use treatment predict substance use-related self-efficacy. In a 16-year longitudinal study of alcohol users, factors including amount of heavy drinking, depression, impulsivity, and avoidance coping all predicted alcohol-related self-efficacy at a 1-year follow-up (McKellar et al., 2008). Specifically, improvements in these factors over time predicted increased self-efficacy. After 16 years, having more education and being female predicted higher self-efficacy.

While the relation between housing and substance abuse has been shown, few studies have been conducted to explore the relationship between housing and self-efficacy. Housing environments have the potential to positively or negatively affect self-efficacy. These situations may provide the environment through which self-efficacy is developed. Vijayaraghavan, Jacobs, Seligman, and Hernandez (2011) found that, for individuals with diabetes, housing instability predicted diabetes self-efficacy, or confidence to manage diabetes. Those who had the most unstable housing situations had the lowest self-efficacy. This suggests that housing instability, such as living doubled up with family/friends, living in overcrowded situations, moving frequently, and so forth, negatively affects self-efficacy. The relation between housing and abstinence self-efficacy will likely show similar results.

In light of the paucity of research related to housing and abstinence self-efficacy, more research is needed to understand how housing affects abstinence self-efficacy, as abstinence self-efficacy is a strong predictor of recovery and reduced substance use. This study examined the relation between time spent in different housing environments and abstinence self-efficacy. It was hypothesized that more stable or recovery-oriented housing environments (e.g., independent and recovery settings) would predict increased self-efficacy, while more unstable or not specifically recovery-oriented environments (e.g., homeless, precarious, and controlled situations) would predict decreased self-efficacy.

Method

Sample

A total of 270 participants were recruited from inpatient substance abuse treatment centers or re-entry/case management programs in or near a large Midwestern city. Full demographic information can be found in Table 1. Participants were predominantly male (83%), and predominantly African American (71.6%). Age of participants averaged 40.39 years ($SD = 9.73$). Participants were included as part of a two-year longitudinal study funded by the National Institute on Drug Abuse (NIDA). Several inclusion criteria were used: participants

must have been 1) at least 18 years of age at recruitment, 2) recovering from alcohol or drug dependence, and 3) released from prison or jail within 2 years of recruitment. Participants were informed that they would be randomized into one of three conditions: a self-run abstinent living home (Oxford House), a Therapeutic Community, or usual care. Individuals with violent crime convictions or sexual offenses were excluded (e.g., homicide, pedophilia, etc.) because the Therapeutic Community did not accept these types of high-risk clients. Of the 324 participants approached for recruitment, 26 were excluded based on criteria violations, 13 were not interested in participation, and 15 refused randomization, resulting in a sample of 270 individuals. No participants were mandated to specific housing in this study, and all participants were randomly assigned to one of the three housing conditions. For the present study, only baseline data were used, which represents participants' state prior to randomization. Complete information about the methods, randomization procedures, and outcomes of the parent National Institutes of Health (NIH) study are presented by Jason, Olson, and Harvey (2014).

Procedure

Participants were recruited by case managers or inpatient treatment center staff prior to release from treatment. The study was described to eligible participants. Informed consent was received. Research assistants conducted interviews in private to decrease the likelihood of socially desirable responses and to ensure privacy. The baseline interview took approximately 2.5 hours to complete. Participants received \$40 for participating.

Measures

Demographics—Demographic questions included age, gender, race, previous attempts at substance abuse recovery, incarceration, and re-entry services. For this study, age, gender, and race were used. Race was dummy-coded as African-American/Non-African-American.

The Drug Taking Confidence Questionnaire—The Drug Taking Confidence Questionnaire (DTCQ; Annis & Martin, 1985) is a 50-item questionnaire that assesses abstinence self-efficacy in hypothetical high-risk relapse situations. Situations are represented by eight subscales including (a) unpleasant emotions, (b) physical discomfort, (c) pleasant emotions, (d) testing personal control, (e) urges and temptations to use, (f) conflict with others, (g) social pressure to use, and (h) pleasant times with others. Participants were instructed to rate their confidence that they would abstain from their drug of choice in each situation. Ratings were on a 6-point scale from 0% to 100% confidence to abstain. Internal consistency for the subscales ranged from .80 to .95, and the total DTCQ had a Cronbach's alpha of .98 (Sklar, Annis, & Turner, 1997). Sklar, Annis, and Turner (1997) also provide evidence of construct validity.

The Housing Timeline Follow-Back—The Housing Timeline Follow-Back was designed by this research team to assess the stability of living environments over 6 months. Questions included (a) type of housing situation, (b) length of stay, (c) who the participant lived with, (d) whether he/she contributed financially to housing payments, and, if the participant left the setting, (e) why he/she left. Participants were asked to categorize their living situations into one of eleven different groups: controlled (e.g., jail/prison), homeless,

residential program with staff, transitional program without staff, shared housing (with roommates, contributing financially), mutual living (living in someone else's home but providing little or no set financial contribution), temporary housing, own house/apartment, nursing home, medical setting, and other housing situations.

In this study, four condensed housing categories were used, including homeless, precarious, independent, and recovery housing settings. Time spent in the controlled housing situation (e.g., jail/prison) was not used in this analysis, as the focus of the research was on re-entry for formerly-incarcerated individuals. Time spent in the "other" housing situation also was not used, as this category included miscellaneous housing situations that did not group together. The remaining 9 housing situations were condensed. Two research assistants with previous knowledge of housing for formerly-incarcerated individuals identified potential condensed categories following the rationale of Fowler, Toro, and Miles (2009). Potential categorization was presented to the research team, feedback was provided, and consensus was established. Stable and unstable housing settings were identified. Literal homelessness and precarious living settings were differentiated. Precarious living settings were those in which individuals lived in shared housing but did not contribute financially. Stable living situations were also differentiated. Independent living situations, in which the person lived alone or with others while contributing financially, were separated from residential settings such as recovery settings and medical settings. The 9 original categories were grouped into the condensed categories as follows: Homeless included homeless settings; Recovery included residential, transitional, and medical settings; Independent included shared housing and own house/apartment; and Precarious included mutual living and temporary housing (see Figure 1).

Timeline Follow-Back

The Form 90 Timeline Follow-Back was designed to assess alcohol and drug use over time (Miller & Del Boca, 1994). It is a self-report calendar method which captures daily patterns/frequency of drug and alcohol use. This retrospective substance use interviewing provides reliable substance use data (Del Boca, Babor, & McRee, 1994) and has demonstrated convergent validity (Project MATCH, 1993). For this study, participants were asked to describe substance use 6 months prior to the interview. Past 180 days sobriety was calculated.

Addiction Severity Index-Lite—The Addiction Severity Index Lite (ASI-lite; McLellan, Cacciola, & Zanis, 1997) was adapted from the Addiction Severity Index 5th Edition (ASI; McLellan et al., 1992). It is a reliable and valid structured interview to determine progress in substance abuse treatment. The ASI-Lite assesses potential problem areas related to substance abuse and recovery such as medical status, employment/support, substance use, illegal activity, family/social relationships, and psychiatric condition. The ASI has demonstrated good internal consistency, predictive and concurrent validity (McLellan et al., 1992). The ASI-Lite has demonstrated comparable reliability and validity (Cacciola, Alterman, McLellan, Lin, & Lynch, 2007). In this study, amount of education was used.

Statistical Analyses

Hierarchical regression models were used to test the relation between days spent in different housing situations and abstinence self-efficacy. Tests of normality were performed. Initial correlations and one-way ANOVAs were used to determine which variables to include in subsequent models. Correlations were used to determine the relation between days spent in each condensed housing situation and self-efficacy. Hierarchical regression models included variables with significant correlations and ANOVAs in the first step. Significant housing variables were entered in the second step. Separate models were estimated using days spent in each housing situation in the past 180 days and the past 30 days.

Results

Testing Assumptions

Of the 270 participants, 204 had adequate housing data to be included in analyses. No differences in mean self-efficacy were found between participants who provided housing information and those who did not, $F(1,265) = 0.08, p = .773$. The Kolmogorov-Smirnov test was used to determine whether mean self-efficacy was normally distributed. The mean abstinence self-efficacy scores significantly deviated from normal, $D(204) = .171, p < .001$. To account for this non-normal distribution, bootstrapped models were estimated for each analysis.

Initial Analyses

Correlations were conducted with age, education, length of sobriety, and mean abstinence self-efficacy. The minimum length of sobriety between alcohol and drugs was used in analyses to reflect sobriety from the more problematic substance. Mean length of sobriety was 79.48 days ($SD = 76.46$). Abstinence self-efficacy levels ranged from zero to 100 ($M = 77.53, SD = 23.33$). Mean days spent in the five housing situations ranged from 9.17 days to 62.56 days for the past 180 days, and 3.07 to 18.50 days for the past 30 days (see Table 1). Correlations were conducted to determine which control and predictor variables to include in the final analyses. Two control variables had significant correlations with mean abstinence self-efficacy. Age was positively correlated with self-efficacy, $r(203) = .229, p = .001$, as was length of sobriety, $r(203) = .364, p < .001$. ANOVAs were used to determine whether to include race and gender as control variables. Significant differences existed within the race variable groups, $F(1,203) = 9.74, p = .002$. No significant differences existed within the gender variable groups, $F(1,203) = .002, p = .967$. Of the four housing predictor variables (homeless, precarious, independent, and recovery), two were significantly correlated with self-efficacy. Days spent in recovery settings was positively correlated with self-efficacy, $r(203) = .285, p < .001$, and days spent in precarious settings was negatively correlated with self-efficacy, $r(203) = -.287, p < .001$. The hierarchical regressions included age, length of sobriety, and race in the first step, and days spent in recovery and precarious settings in the second step. For all models, tolerances ranged from .64 to 1.00 and VIF ranged from 1.00 to 1.56, suggesting that multicollinearity was not an issue.

The two-step hierarchical regression with past 180-day housing situations (i.e., predictors) and mean abstinence self-efficacy (i.e., dependent variable) was significant at both steps.

Variables in the first step significantly contributed to the variation in self-efficacy, $F(3,200) = 14.27, p < .001$, and accounted for 18% of the variation. When age, length of sobriety, and race were entered together, age and race became non-significant. The second step explained variance beyond that of the first step, $F(2,198) = 3.35, p = .037$, and accounted for an additional 2.7% of the variance. Days spent in recovery setting was the only significant housing predictor of self-efficacy, $b = .075, t = 2.34, p = .015$.

Age and race were then removed from the analyses, and the models were estimated. The first step explained significant variation, $F(1,202) = 30.52, p < .001$, and accounted for 13.10% of the variance. The addition of the two housing variables explained significant variation, $F(2,200) = 3.42, p = .035$, and accounted for an additional 2.90% of the variance. Days spent in recovery settings was the only significant housing variable in the second step, $b = .067, t = 2.16, p = .037$ (see Table 2).

Additionally, housing analyses were run using days spent in a housing situation in the past 30 days. Mean days spent in condensed housing situations can be found in Table 1. Correlations between the past month housing variables and abstinence self-efficacy showed significant correlations for days spent in precarious settings, $r(209) = -.381, p < .001$, and recovery settings, $r(209) = .341, p < .001$.

Hierarchical regression models were estimated using age, length of sobriety, and race in the first step, and days spent in precarious and recovery settings during the past month in the second step. The first step explained significant variance in mean abstinence self-efficacy, $F(3,200) = 14.27, p < .001, R^2 = .18$. When age, length of sobriety, and race were included in the first step, only length of sobriety was significant, $b = .11, t = 5.63, p = .001$. The addition of the two housing variables accounted for significant increase in explained variance in abstinence self-efficacy, $F(2,198) = 10.69, p < .001, R^2_{\text{Change}} = .08$. In the second step, days spent in a recovery setting was the only significant housing predictor, $b = .36, t = 2.50, p = .012$.

Age and race were removed from the model because they were non-significant when included with length of sobriety. The first step, in which length of sobriety was entered, explained significant variance in self-efficacy, $F(1,202) = 30.52, p < .001, R^2 = .13$. In the second step, days spent in precarious and recovery settings were entered. The addition of these housing variables explained significant variance beyond the first step, $F(2,200) = 9.80, p < .001, R^2_{\text{Change}} = .08$. Days spent in a precarious housing setting significantly predicted self-efficacy, $b = -.49, t = -2.06, p = .041$. Days spent in a recovery setting also significantly predicted self-efficacy, $b = .31, t = 2.15, p = .030$ (see Table 3).

Discussion

The hypothesis that days spent in stable or recovery-oriented settings, like independent living or recovery situations, would predict higher abstinence self-efficacy was partially supported. After controlling for length of sobriety, more days in recovery settings during the past 180 and 30 days predicted increases in abstinence self-efficacy. However, no effect was found for days spent in independent housing situations. In addition, the hypothesis that days

spent in unstable or not specifically recovery-oriented housing situations (e.g., precarious, controlled, or homeless situations) was partially supported. No relation was found between days spent in controlled or homeless situations and abstinence self-efficacy. However, more days in the past 30 days spent in precarious settings predicted lower abstinence self-efficacy. These effects were larger for model with past 30-day housing situations as predictors.

These results suggest that, for formerly-incarcerated individuals, longer time spent in stable housing situations focused on recovery can increase confidence in long-term abstinence. As shown in previous studies, this increased confidence often leads to longer abstinence (Moos & Moos, 2006). Alternatively, living in unstable situations (e.g., couch surfing) can have detrimental effects on abstinence self-efficacy. These results support previous work on housing and self-efficacy (Vijayaraghavan et al., 2011). Unstable housing may provide an additional stressor for formerly-incarcerated individuals, due to the uncertainty of continued housing and lack of control over surroundings. Unfortunately, individuals often leave prison or jail and enter unstable housing situations (Geller & Curtis, 2011). The relations reported here may help explain high levels of relapse and recidivism in this population.

The implications of this research are both theoretical and practical. This study tested the relation between environmental factors, represented here as time in different housing situations, and personal factors, represented as abstinence self-efficacy. The finding that more time spent in recovery and housing situations affects abstinence self-efficacy adds to the research currently compiled which support the relation between the two factors. It supports the directional relation from environment to personal factor reported by Vijayaraghavan et al. (2011). While these results provide support for the unidirectional effect, more work is needed to provide support for the bidirectional effects of environment and personal factors. The concept of triadic reciprocity explained in SCT suggests that the relationship between environmental and personal factors is reciprocal or bidirectional. While results supporting an aspect of triadic reciprocity is beneficial, results testing both directional relations would give credence to the concept and theory. Additionally, the small effect size associated with the inclusion of housing variables suggests that, while housing may affect changes in abstinence self-efficacy, other variables (e.g., environmental, personal, and behavioral factors) also may help explain abstinence self-efficacy more completely.

In addition to theoretical implications, these results have practical implications both for formerly-incarcerated individuals and for those who work with them. As higher self-efficacy is strongly associated with decreased substance use and increased abstinence (Ilgen et al., 2005), factors that increase self-efficacy in this population should be a major focus. While the effect of housing on self-efficacy in this study was small, it nevertheless had an effect on self-efficacy. To enhance recovery, individuals leaving prison should avoid precarious housing situations and instead focus on finding stable recovery housing situations. One possible housing option is Oxford House. Oxford Houses are democratically-run, self-supporting, abstinence-based homes for individuals in recovery from substance abuse (Oxford House Inc., 2015). Compared to usual care, Oxford House residents have lower substance use, higher monthly incomes, and lower incarceration rates (Jason, Olson, Ferrari, & Lo Sasso, 2006). Those who work with formerly-incarcerated individuals (e.g., case workers, probation/parole officers, etc.) may also benefit from understanding these

relationships, in order to provide information and support to individuals recently released from prison about potential housing situations that will increase their likelihood of remaining abstinent and out of prison. Greater resources for finding adequate housing and information on housing post-incarceration, its influence on later substance use, and available and affordable recovery-oriented housing that may decrease likelihood of relapse and recidivism, may benefit practitioners and formerly-incarcerated individuals.

There were several limitations to this study. First, the data used were cross-sectional. While the housing data were retrospective, the housing, self-efficacy, and demographic variables were collected at the same time point. This limited generalizability of the results and the ability to detect self-efficacy change over time. Second, the method used to conceptualize housing situations focused on total days spent in each situation in a time period. While this allowed for more housing situations to be analyzed, it was unclear whether which housing situation was most recent. Finally, days spent in controlled, homeless, or independent housing situations in the past 30 days were low. These housing situations may have effects on self-efficacy, but current data may not have had significant variation on these variables to detect effects.

Future research may enhance knowledge of the relation between housing and self-efficacy. To better understand the totality of individuals' housing environments and their effects on self-efficacy, future research may focus on developing housing trajectories after release from prison. These trajectories may be used to descriptively explain pathways during re-entry and to determine the differential effects these profiles have on abstinence self-efficacy. The unidirectional relation from abstinence self-efficacy to housing may also be tested. As this relation is theorized in SCT to be bidirectional, abstinence self-efficacy should influence an individual's housing situation. Also, longitudinal data, tracking both housing environments and abstinence self-efficacy, may enable the testing of the bidirectional relation between housing and self-efficacy. Lastly, future research may consider whether the relation between housing and abstinence self-efficacy changes based on the inclusion of other variables, such as drug of choice. Research has shown differences in abstinence self-efficacy based on drug of choice (Sheikh & Bashir, 2004; Sklar, Annis, & Turner, 1999). In addition to understanding interactional effects, it may also be beneficial to understand the direct effects of other barriers, such as drug of choice and employment, on abstinence self-efficacy post-incarceration.

In conclusion, recovery-oriented housing situations may help to increase self-efficacy in formerly-incarcerated individuals, while precarious housing situations may decrease self-efficacy. Formerly-incarcerated individuals, or those working with them, may benefit from finding recovery-oriented housing after release from prison. While the effects were small, the results nevertheless help explain the relation between environment and self-efficacy. More work is needed to understand how housing affects recovery.

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Figure 1. Breakdown of condensed housing categories. Condensed categories are represented on top (e.g., recovery), while original housing categories are represented on bottom (e.g., medical setting).

Table 1

Participant Characteristics and Time Spent in Housing Situations

Variable	% (<i>n</i>)
Sex	
Male	83.3 (170)
Female	16.7 (34)
Race/Ethnicity	
Black/African-American	71.6 (146)
White/Caucasian	23.0 (47)
Hispanic/Latino	3.9 (8)
Other	1.5 (3)
	<i>M (SD)</i>
Age	40.39 (9.73)
Education (in years)	10.8 (2.00)
Days since release from prison	142.53 (121.84)
Days spent in housing (past 180 days):	
Controlled	62.56 (61.10)
Homeless	8.92 (30.24)
Recovery	48.81 (51.20)
Independent	9.17 (30.94)
Precarious	47.98 (64.15)
Days spent in housing (past 30 days):	
Controlled	3.07 (7.56)
Homeless	1.69 (5.89)
Recovery	18.50 (12.09)
Independent	.79 (4.23)
Precarious	5.50 (9.83)

Table 2

Past 180-Day Housing Hierarchical Regression Predicting Abstinence Self-Efficacy, Controlling for Length of Sobriety

Variables Entered	<i>b</i>	<i>S.E.</i>	<i>t</i>	<i>p</i>
Step 1				
Intercept	67.26	2.57	26.18	.001
Length of Sobriety	.12	.02	6.11	.001
Step 2				
Intercept	69.31	3.66	18.95	.001
Length of Sobriety	.08	.02	3.35	.004
Days in Recovery Setting	.07	.03	2.16	.037
Days in Precarious Setting	-.04	.03	-1.33	.184

Table 3

Past 30-Day Housing Hierarchical Regression Predicting Abstinence Self-Efficacy, Controlling for Length of Sobriety

Variables Entered	<i>b</i>	<i>S.E.</i>	<i>t</i>	<i>p</i>
Step 1				
Intercept	67.26	2.67	25.20	.001
Length of Sobriety	.12	.02	6.11	.001
Step 2				
Intercept	67.56	4.35	15.54	.001
Length of Sobriety	.08	.02	3.80	.001
Days in Recovery Setting	.31	.14	2.15	.030
Days in Precarious Setting	-.49	.24	-2.06	.041