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Person–environment interactions among residents of Oxford Houses

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Abstract

The continued struggle of addiction recovery support systems suggest that the paradigm of this field needs to continue its evolution, which has increasingly emphasized environments. Field Theory suggests that the products of individual and environmental characteristics be considered rather than a summation of the two. This study examined such interactions in *Oxford Houses*, a network of democratic, and self-governed addiction recovery homes. This study examined sobriety in experienced houses (average length of residency > six months) compared to less experienced houses (average length of residency ≤ six months) in relation to individual resident characteristics (age, length of residence in an Oxford House, and referral from the criminal justice system). Using *multilevel modeling*, findings indicated that older residents living in an experienced Oxford Houses were more likely to remain abstinent over time than those in inexperienced homes. Additionally, for inexperienced houses, residents who had been in the Oxford House for a longer period had a higher the probability of abstinence than those that had been in the house for a shorter period of time. Finally, legal referral was related to a lower probability of one-year abstinence but only for those in experienced homes. These types of person–environment interactions point to the need for more research to better understand how person variables interact with environmental variables in the processes of recovery and adaptation to settings, as well as for treatment professionals' consideration of both person and environment when making recovery home referrals.

Keywords

Person–environment; Field Theory; Problem Behavior Theory; addiction; recovery homes; Oxford House

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Introduction

The Substance Abuse and Mental Health Services Administration (SAMHSA, 2009) estimates that 22.2 million (8.9%) Americans meet diagnostic criteria for substance dependence. Such addiction comes at a cost to both the individual and society. For example, the US Office of National Drug Control Policy (ONDCP, 2004) estimates the costs associated with addiction in 2002 to be \$180.9 billion, with an average increase of 5.3% per year from 1992 to 2002. A wide range of services have been developed to address the problem of substance dependence; however, only about 11% of those with substance addictions reach any type of substance abuse treatment (SAMHSA, 2010), and those that are treated evidence high rates of premature termination and substance use recidivism (Dutra et al., 2008). The continued difficulties with treatment retention and effectiveness suggest that the current paradigm of addiction research and treatment may not be sufficient for addressing this public health dilemma. This paradigm continues to be dominated by clinical perspectives that focus on the average individual rather than understanding the uniqueness of the people in ecological systems.

An early framework for understanding persons in context was Lewin's (1951) Field Theory, which posited that behavior is a function of both persons and their environment – $B = f(P, E)$. Lewin recognized the importance of considering the entire psychological situation (life space) rather than individual components of a person's life. Field Theory suggests that both individual and environmental forces contribute to valence, or a force that pulls individuals toward or away from a specified behavior. Furthermore, Field Theory suggests that the valence is a product of simultaneous contributions from all components rather than a summation of influences from individual factors.

Jessor (1987) drew on Lewin's (1951) Field Theory in developing Problem Behavior Theory, a framework for understanding deviant behavior such as substance use through individual and ecological risk and protective factors. Risk factors are variables that are believed to be positively related to deviant behavior; whereas, protective factors are believed to be negatively related to such behavior. Thus, risk factors increase the valence toward deviant behavior while protective factors increase the valence away from the behavior. Problem Behavior Theory focused on three aspects of the life space – personality, perceived environment, and behavior systems. However, the theory also included background variables such as demographic characteristics, experiences, and culture.

Although community influences on addiction and recovery and person–environment interactions are increasingly given attention, more research is needed to fully understand important individual and contextual constructs, as well as potential interactions between them. Ecological models of addiction recovery (Davis & Tunks, 1990–1991) may indicate important contexts for examining environmental-level constructs. These ecological models suggest that addiction living environments are important factors to consider for substance use outcomes. Oxford House is the largest mutual-help residential recovery home program (Oxford House, 2008), which is a network of democratically run recovery homes, in which residents are involved in all management and housekeeping responsibilities. There is no paid staff in these homes. Mandatory rules for Oxford Houses are the maintenance of abstinence, paying weekly rent, and complying with house chores. These rules are enforced during weekly business meetings in which discussion revolves around personal issues such as job searchers and recovery efforts and household issues such as rent payments and household chores. All rules are enforced through a democratic process, in which the group of residents determines infringement and penalties. Recovering individuals who reside in Oxford House are more likely to remain abstinent, employed, and refrain from illegal activities compared to those who receive typical community supports (Jason, Olson, Ferrari, & Lo Sasso, 2006).

In addition, those who stay in Oxford House for at least six months were one-third as likely to use substances at a two-year follow-up (Jason, Olson, et al., 2007) compared to those who stayed less than six months. Further research demonstrated that those who stayed six months in Oxford House demonstrated lower substance use relapse, criminal justice recidivism, and aggressive behavior at one-year follow-up compared to those who stayed less than six months (Aase et al., 2009; Jason, Davis, Ferrari, & Anderson, 2007). These studies suggest that residency in an Oxford House for at least six months may be a critical factor in maintaining abstinence. However, the dynamics of how length of stay affects this change process is not well understood. Thus, although Oxford House appears to be a protective factor according to Problem Behavior Theory, the protective effect may be related to length of residency.

H₁ Oxford House residents who are newer to Oxford House at baseline will be more likely to use substances over a one-year period.

Other personal characteristics of the Oxford House members, such as age, have also been shown to be related to length of residency and outcomes. For example, Bishop, Jason, Ferrari, and Huang (1998) found that older men were more likely to remain in an Oxford House for a longer period of time than younger men. In addition, Olson, Jason, Davidson, and Ferrari (2009) found that older residents living in a house for six or more months experienced greater increases in tolerance for diversity than younger residents. Furthermore, Jason, Davis, et al. (2007) found that younger residents were more likely to engage in criminal behavior over time than older Oxford House residents. However, younger members who lived in a house for six or more months experienced more positive outcomes than older members in terms of substance use, employment, and self-regulation. This literature suggests a potential protective effect of age.

H₂ Older Oxford House residents will be less likely to use substances over a one-year period.

Because the criminal justice system is the largest source of referrals to substance abuse treatment (37% of referrals in the USA; SAMHSA, 2009), it is important to consider issues relating to criminal background issues. In one Oxford House study, Majer, Jason, Ferrari, Venable, and Olson (2002) found that residents who personally identified with their formerly incarcerated status and perceived this identity as being an obstacle to identification with other recovering peers, reported lower levels of abstinence social support. In addition, residents who reported at least one identification issue reported lower levels of abstinence self-efficacy. Majer, Jason, and Olson (2004) found that 12-step members who had one or more convictions reported lower optimism and were less confident that they could remain abstinent than those without one or more convictions; however, for the Oxford House members, those with and without convictions had similar levels of optimism and beliefs that they could remain abstinent. These studies suggest that criminal justice involvement may be a potential risk factor for substance use by Oxford House residents.

H₃ Oxford House residents who were referred to the recovery home setting by the criminal justice system will be more likely to use substances over one year.

In addition to the aforementioned individual factors of residency duration, age, and criminal justice involvement, Field and Problem Behavior Theories suggest that it is also important to consider the house level characteristics as risk and protective factors. Field Theory suggests that these factors should be considered in relation to individual factors to better account for the life space, such as through interactions with individual characteristics. Past research has examined some house level characteristics in Oxford House. For example, larger size Oxford Houses (eight or more residents) were associated with less criminal and aggressive

behavior (Jason et al., 2008) and that Oxford House residents whose ages differed from the average house age stayed in the recovery home longer (Bishop, Chertok, & Jason, 1997). These studies point out the importance of environmental-level characteristics in Oxford House; however, further research is needed to examine additional environmental risk and protective factors related to substance-related out-comes and their interaction with individual factors.

It is certainly possible that some individual risk and protective factors (e.g., younger, referred by the criminal justice system, residing in the recovery homes for a brief amount of time) could interact with environmental characteristics, such as whether a house is experienced (average member length of stay was at least six months) or inexperienced (members had been in the house for an average of less than six months). In this study, we hypothesized that abstinence outcomes over a prospective one-year period of time would be positively associated with baseline house characteristics (having lived in an Oxford House for more than six months), baseline individual characteristics (older age, living in the house for a longer period of time, and not being referred from the criminal justice system), and the interaction between these individual and environmental characteristics. Although a number of studies have examined person and environmental variables related to substance use outcomes in Oxford House (see Jason, Davis, Ferrari, & Bishop, 2001 and Jason, Olson, et al., 2007 for reviews of this research), little Oxford House research has examined cross-level interactions.

H₄ The aggregate level of experience in an Oxford House will moderate the relationship between length of stay at baseline and substance use over the course of one year.

H₅ The aggregate level of experience in an Oxford House will moderate the relationship between resident age and substance use over the course of a one-year period.

H₆ The aggregate level of experience in an Oxford House will moderate the relationship between being legal referral to Oxford House and substance use over a one-year period.

Methods

Participants

To examine person–environment interactions within the Oxford Houses, a secondary data analysis was conducted on data collected by Jason, Davis, et al. (2007). For the original study, Oxford House residents participated in a one-year longitudinal series of surveys. Of the 897 residents living in 219 Oxford Houses, 691 completed the second wave survey four months after the baseline one, 591 completed the third wave survey eight months after the baseline one, and 609 completed the final fourth wave survey one year after the baseline one. Because the secondary data analysis used aggregated individual-level data for household environmental-level data, only Oxford Houses in which at least five residents responded at baseline were included in the analysis ($n = 94$). For these houses, 641 residents completed the baseline survey, 508 completed the wave 2 survey, 452 completed the wave 3 survey, and 450 completed the final wave 4 survey. All 641 residents were retained for the sample, since participants could have completed any or all of the subsequent waves.

For the overall sample, 433 participants reported being male (67.6%), 206 reported being female (32.1%), and 2 did not report their sex (see Table I for demographics by experience level of house). Resident length of Oxford House residency at the baseline varied, with a range 0–10 years, a mean of 0.89 years (10.63 months; $SD = 1.27$), and a median of 0.42 years (five months). The mean length of abstinence at baseline was 1.44 years, with a median of 1.28 years (9.40 months) and a range of 0–19.26 years ($SD = 1.93$). The mean

monthly income was \$954, with a median of \$800/month and a range of \$0–6800/ month (SD = \$877.24). The sample had a mean of 12.61 years of education, with a median of 12 years and a range of 2–22 years (SD = 2.06). The mean age was 38.44 years, with a median of 38.83 years and a range of 18.25–66.17 years (SD = 9.08). The majority of these participants identified themselves as Caucasian (n = 373, 58.2%), with a large proportion identifying as African American (n = 220, 34.3%) and a smaller proportion identifying as Hispanic/Latino (n = 21, 3.3%) and other. Of the participants who responded to a question (n = 638, 97%) asking if they had been referred to Oxford House by the criminal justice system, 552 (86.5%) reported they had not been referred and 86 (13.5%) reported they had.

Measures

The *Addiction Severity Index-lite* (ASI; McLellan et al., 1992) is a reliable and well-validated instrument that assesses problem areas commonly related to substance abuse. We administered the entire scale at the baseline survey and portions of it (namely, related to employment and criminal involvement) at the final, fourth follow-up assessment. McLellan et al. (1992) indicated that it is appropriate and psychometrically sound to administer only sub-sections of this scale. Substance use was not examined with this measure beyond the baseline assessment. The following information was derived from the ASI along with socio-demographic data at baseline: substance abuse history, physical and mental health information, and criminal activity. In each area, objective questions measure the number, extent, and duration of problem symptoms in the person's lifetime and in the past 30 days. For this study, baseline questions included age (level 1 predictor), legal referral (level 1 predictor), and length of current residency in the Oxford House at baseline (both levels 1 and 2 predictors).

At the baseline and at each of the subsequent follow-up waves, participants were administered a modified version of Miller and Del Boca's (1994) *Form 90 Timeline Followback*, which measures general health care utilization and residential history, as well as past 90 day alcohol and drug use. The *Form 90* has been reported to have good reliability for all key summary measures of alcohol consumption and psychosocial functioning and moderate reliability for most frequently used illicit drugs. Even though the intervals in this study were four months, the instrument was used to capture alcohol and drug usage during the past 90 days of the four-month period. Because Oxford Houses are an abstinence model in which residents maintain goal of refraining from all psychoactive substance use, total abstinence was used as the outcome for this study (see Jason, Davis, et al. (2007) for how abstinence was computed). Individuals were categorized as being either abstinent or not abstinent over the entire year, and this dichotomous variable served as the dependent variable. This one-year period for substance use was used, because it allowed us to examine the longest duration of sustained abstinence with the available data.

Data Analyses

Person-environment interactions were examined using Hierarchical Linear and Non-linear Modeling software (HLM; Raudenbush, Bryk, & Congdon, 2004) with restricted maximum likelihood estimation and a log link for the dichotomous outcome. HLM was selected, because it allows for the simultaneous analysis of individual and environmental-level variables while accounting for dependence. The level 1 predictors were individual age dichotomized (individual age, 38 vs. >38), individual previous length of stay in the Oxford House prior to baseline data collection (individual length of stay, in years), and individual referral to Oxford House by the criminal justice system (legal referral, yes vs. no). Previous Oxford House literature has dichotomized age using the mean (Jason, Davis, et al., 2007). In order to make our results concordant with past literature, this study similarly dichotomized

the age data using the mean, with residents who were 38 years of age designated as older participants and those under 38 designated as younger.

The aggregate mean length of stay for each house was used to dichotomize the 95 Oxford Houses into 63 homes that were experienced (at baseline, average stay greater than six months) and 32 that were inexperienced (at baseline, average length of stay of equal to or less than six months). This dichotomization was based on DiClemente, Fairhurst, and Piotrowski's (1995) assertion that recovery stabilization occurs after six months of abstinence and past Oxford House research that has shown evidence of positive outcomes after six months of residence in the homes (Aase et al., 2009; Brown, Davis, Jason, & Ferrari, 2006; Jason, Davis, et al., 2007; Jason, Olson, et al., 2007; Olson et al., 2009). Homes with residents, who, on average, have reached this point of stability, would be expected to be more stable environments for other residents. The experience level of each house (experienced house > six months *vs.* inexperienced house ≤ six months) was the level 2 predictor for our model. In the model estimation procedure, the less experienced houses were considered the reference group. The outcome variable was a dichotomization of one-year abstinence for residents (total abstinence *vs.* any use over the prospective one-year period since the baseline data collection). We used the population-average model with robust standard errors.

Results

The authors found a significant amount of variability around the average dependent variable score (one-year abstinence), $\chi^2=1.01$, $\chi^2(81) = 138.69$, and $p < 0.001$. Hence, a random intercept was estimated in the model. We also tested random slopes individually for each predictor and significant random slopes were found only for age ($\chi^2=0.98$, $\chi^2(81) = 103.75$, and $p = 0.045$), therefore, only a random slope for age was used in the model.

The main effect of resident age was not significant; whereas, the main effect for individual length of residence was significant, and the main effect of legal referral was marginally significant. The level 2 dichotomous variable of experienced *versus* inexperienced houses did not significantly predict the odds of abstinence (see Table II for HLM results). In other words, this house level variable of the experience level of the houses did not have an overall effect on abstinence among the Oxford House residents.

Figure 1 indicates the probability of abstinence over a one-year period for residents of experienced and inexperienced houses who had been in the Oxford House for different numbers of years at baseline. Individual length of stay significantly predicted the probability of abstinence for those in less experienced houses. For each additional year of residency at baseline in an inexperienced house, individuals were 11.51 times more likely to maintain abstinence for each year they had already lived in the house. Furthermore, the impact of individual length of stay was moderated by house experience. For homes with house experience greater than six months, the odds ratio associated with individual length of stay was slightly positive, $OR = 1.58$. In these experienced homes, residents were 1.58 times more likely to remain abstinent for each year they had already resided in the house. However, for residents of these experienced houses, the probability of one-year sobriety was similar for both members who had been in the house for a few months and those who had been there for a few years.

Figure 2 shows the probability of abstinence for younger *versus* older residents residing in experienced and inexperienced houses. The variable age did not have a main effect on the probability of abstinence. However, the impact of individual age on the probability of abstinence was significantly moderated by house experience. As is evidenced by Figure 1,

younger residents had a similar probability of abstinence in experienced and inexperienced houses, but among older residents, those in the more experienced houses were more likely to maintain abstinence for the year than those in inexperienced homes.

Figure 3 shows the probability of one-year abstinence for legally referred and non-legally referred residents of experienced and inexperienced houses. Legal referral had a marginally significant main effect on the odds of abstinence in the less experienced houses. Legally referred residents of inexperienced houses were 57% less likely to maintain abstinence than those not legally referred. There was also a marginally significant moderating effect of house experience on the impact of legal referral on odds of abstinence. For the high experience house, the odds ratio was 1.31. In homes with house experience greater than six months, legally referred residents were 1.31 times more likely to maintain abstinence than those not legally referred. As is evident by Figure 3, residents not legally referred by the criminal justice system had a similar probability of abstinence in experienced and inexperienced houses, but among residents who were legally referred, those in the more experienced houses were more likely to maintain abstinence for the year than those in inexperienced houses. Figure 3 also demonstrates that legally referred residents living in experienced houses had a probability of sobriety that was similar to residents who were not legally referred.

Discussion

Summary

This study examined resident age, length of residency at baseline, and legal referral by the criminal justice system as level 1 predictors for the probability of abstinence one year later to assess these individual variables as risk and protective factors for relapse in recovery homes. The main effects suggest that resident age may not be a protective factor as hypothesized; however, length of stay may be a protective factor and legal referral may be risk factor as hypothesized. However, the directionality of these relationships cannot be determined in this cross-sectional study. Residents of Oxford House who relapse are not allowed to remain, so people who relapsed may have been involuntarily evicted, thereby resulting in a briefer length of stay.

The level 2 predictor was whether the members of the house had, on average, been there for more than six months, which was examined as a potential environmental-level protective factor. The absence of a level 2 main effect suggests that house experience may not have the protective effect hypothesized. However, as Field Theory suggests, it may be more important to consider the entire field, which includes interactions between individual and environmental characteristics. In examining these interactions, house experience was found to moderate each of the individual-level predictors of sobriety.

Length of stay was associated with better odds of abstinence in inexperienced homes but was not associated with better odds of abstinence in the experienced homes. Thus, length of residence appears to have a protective effect in inexperienced Oxford Houses. Residents that are new to Oxford House are likely uncertain about their future. Experienced homes may provide these newer members opportunities for mentorship for both the Oxford House model and recovery in general, thereby attenuating the risk. These more established settings may also be more effective in providing inspiring models of success. However, these resources would not be as plentiful in inexperienced homes. In other words, in an inexperienced house, personal characteristics such as previous amount of time in an Oxford House might matter more possibly because the home offers fewer resources in terms of experience and mentoring.

For residents who were older, living in the experienced Oxford Houses was associated with significantly higher abstinence over time. Thus, being in an experienced house appears to have a protective effect for older individuals. Because older residents may be more discouraged by their longer tenure of use and treatment experiences, more experienced houses may provide inspiration and hope to these older residents, whereas the instability of inexperienced homes may have a larger effect in discouraging older residents. Furthermore, recovery often entails a period of denial and resistance. Older residents may have more experience with treatment systems and learned how to disguise their potential for relapse. In inexperienced homes, efforts to deceive themselves and others may be more successful than in experienced homes, where other residents have had the opportunity to learn from experiences with other residents and can provide more frequent and accurate feedback about recovery and relapse indicators.

Finally, those referred by the legal system to Oxford Houses and living in inexperienced houses tended to have the worst abstinence outcomes. However, those in the experienced houses had directionally higher abstinence rates than those who were not referred in either the experienced or inexperienced houses. Thus, inexperienced houses appear to be a risk factor for those with criminal justice system involvement. As with older residents, those referred by the criminal justice system have likely had greater experience with treatment systems. These individuals have also had encounters with the criminal justice system. Both of these experiences may have diminished these individuals' sense of hope, which could be further diminished by the instability of inexperienced homes but promoted by the inspiration and mentoring of experienced homes. Experiences with the criminal justice system may also have instilled in these residents a sense of recovery as an adversarial process. Inexperienced homes may also not have residents with the knowledge and skills needed for feedback about behaviors that may signal relapse.

Although these findings provide new insights about person–environment interactions in substance use recovery settings, we recognize that there are some limitations to the findings. One limitation of this study is its reliance on self-reports of substance use. Although no biological assays were collected to corroborate these self-reports, self-reports have been found to be similar to such assays (Fals-Stewart, O'Farrell, Freitas, McFarlin, & Rutigliano, 2000). Although the focus on abstinence could be considered a limitation of this study, the goal of the Oxford House network of recovery homes is to promote abstinence, so that outcome was incorporated into this study. We were only able to assess this abstinence goal over the course of one year, because the data set did not contain longer-term abstinence data. Another limitation of this study is the marginal significance for the interaction between house experience and referral to Oxford House by the criminal justice system. The marginal significance suggests there is a relatively high probability that this interaction may not be present in the population (type I error). Further research will be needed to affirm this hypothesis. In addition, the analyses were limited to data that were not collected with environmental characteristics and cross-level interactions in mind. Ideally, we would have constructed a study based on hypothesized interactions, but the current research is limited to explorations of existing data using Field and Problem Behavior Theories to guide us. Although we were able to derive environmental-level characteristics by aggregating individual-level in houses with five or more respondents, an examination of these interactions would ideally include environmental measures. A final limitation was that the experience level of the houses was calculated based on baseline data. However, the experience levels of these homes likely changed over the course of the year as residents transitioned into and out of the houses. Data on these transitions were not available to assess ongoing experience levels of the Oxford Houses; however, the typical length of stay in Oxford House is 10 months (Oxford House, 2012), which suggests that house characteristics

such as aggregate experience level likely did not shift dramatically during the year of the study.

Conclusions

These findings suggest that, although Oxford House has been demonstrated to be successful in promoting recovery from substance use environments, not all homes are equally effective for all residents. There are various factors such as different age, length of stay, and referral by the criminal justice system that aids or hinders the effectiveness of an Oxford House. Some homes that are less experienced may pose a greater risk of relapse for certain individuals; whereas, other homes that are more experienced may be particularly helpful for others. Although past research has found that staying in Oxford House for greater than six months a protective factor for recovery (Aase et al., 2009; Jason, Davis, et al., 2007; Jason, Olson, et al., 2007), this study suggests that in the effect of this environmental protective factor may depend on whether individual risk and protective factors are present. For those in less experienced homes, residents may need to stay longer to have the outcomes equivalent to those in experienced homes.

The findings also suggest that, although characteristics such as legal referral may be risk factors for relapse, this may not be the case for those in more stable environments. Even though past research has found that risk factors for relapse were related to criminal justice involvement and legal referral to Oxford House (Majer et al., 2002, 2004), this research did not account for environmental factors that may moderate these outcomes. Although age, length of stay at baseline, and referral by the criminal justice system were the only individual-level factors examined for these analyses and house experience was the only environmental-level factor examined, these findings demonstrate the importance of examining interactions between persons and environments.

These interactions demonstrate the importance of individual and environmental characteristics, as well as their interaction, for addiction recovery. The findings have potential implications for treatment providers and others providing referrals for aftercare settings. The observed interactions suggest that those providing these referrals may want to consider the experience level of houses (average resident length of stay) when determining placement sites for clients. For clients under the age of 38, this experience level may not be important for abstinence outcomes, but for clients over the age of 38, more experienced houses may be a more optimal recovery setting. Perhaps more importantly though, the findings point toward the importance of considering the experience level of houses for clients being referred to recovery housing by the criminal justice system. Although legally referred residents may have lesser odds of one-year abstinence than those not legally referred, a house with experienced residents may buffer the influence of this legal referral. Even though the average length of stay for houses is likely to change as residents transition in and out of the homes, the current experience level of the homes could be determined by placing a phone call to an Oxford House to ask about how long residents have lived there.

This research demonstrates the importance of examining individual and environmental-level factors for individuals in mutual-help recovery housing, as well as the interaction between these levels. Further research on person-environment interactions in substance use recovery housing is needed to corroborate these findings and explore other aspects of these interactions. Although this study examined only one-year abstinence outcomes, future research could assess longer-term abstinence, as well as substance use severity and other outcomes. Finally, additional individual and environmental variables should be explored in future research. Examples of these include individual identities and demographics of the

setting, such as ethnic make-up or sexual orientation, as well as person-environment fit characteristics, such as individual needs and environmental supply of those needs.

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Figure 1. Relationship between resident length of stay in Oxford House at baseline and probability of abstinence for the following year.

Figure 2.
Abstinence for younger vs. older residents between experienced vs. inexperienced houses.

Figure 3.
Abstinence for those with and without legal referrals between experienced vs. inexperienced houses.

Table I

Demographics by house level of experience.

	Inexperienced homes (<i>n</i> =221)	Experienced homes (<i>n</i> =420)
Male	54.8%	74.6%
Female	45.2%	25.4%
Caucasian	62.0%	56.2%
African American	31.2%	36%
Latino	3.6%	3.1%
Legally referred	17.4%	11.4%
Length of residency ^a	0.30	1.20
Age ^a	36.42	39.51
Income	\$873.09	\$974.78
Education ^a	12.66	12.54

Note:

^aReported in years.

Table II

HLM analysis results.

Fixed effect	Coefficient	SE	t-Ratio	p	OR
House experience	-0.05	0.38	-0.14 ^a	0.89	0.95
Resident age	-0.39	0.38	-1.04 ^a	0.30	0.68
Resident age x house experience	0.96	0.45	2.14 ^a	0.04	2.60
Length of residency	2.44	0.64	3.82 ^b	<0.001	11.51
Residency x house experience	-1.98	0.65	-3.05 ^b	0.003	0.14
Legal referral	-0.84	0.46	-1.85 ^b	0.06	0.43
Legal referral x house experience	1.11	0.61	1.84 ^b	0.07	3.04

Note:

^a_d/f=93 and^b_d/f=535.