



ORIGINAL PAPER

## A Longitudinal Analysis of Psychiatric Severity upon Outcomes Among Substance Abusers Residing in Self-Help Settings

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**Abstract** A longitudinal analysis of psychiatric severity was conducted with a national sample of recovering substance abusers living in Oxford Houses, which are self-run, self-help settings. Outcomes related to residents' psychiatric severity were examined at three follow-up intervals over one year. Over time, Oxford House residents with high versus low baseline psychiatric severity reported significantly more days using psychiatric medication, decreased outpatient psychiatric treatment, yet no significant differences for number of days abstinent and time living in an Oxford House. These findings suggest that a high level of psychiatric severity is not an impediment to

residing in self-run, self-help settings such as Oxford House among persons with psychiatric comorbid substance use disorders.

**Keywords** Psychiatric severity · Addiction · Self-help settings · Oxford House · Psychiatric comorbid substance use disorders (PCSUDs) · Psychiatric comorbidity · Mental health

Approximately four million Americans recovering from substance addiction also have other psychiatric disorders (Abou-Saleh and Janca 2004; Grant et al. 2004; Regier et al. 1990). It is estimated that persons with *psychiatric comorbid substance use disorders* (PCSUDs) make up approximately 15% of the homeless population (Tessler and Dennis 1989). Individuals with PCSUDs are faced with unique stressors that are triggers to relapse into substance use (Laudet et al. 2004). In particular, psychiatric symptoms are often perceived as a reason for substance use among people with PCSUDs (Laudet et al. 2004). Even in research where improvements are found among individuals with PCSUDs in treatment, outcomes are still frequently worse than those without PCSUDs (Burns et al. 2005). These findings present a challenge to treatment providers to assist individuals with PCSUDs in maintaining psychological functioning and long-term abstinence.

Effective interventions for persons with PCSUDs might be those that engage clients (Moos 1994) and promote naturally occurring healing processes (Vaillant 1995). For instance, persons recovering from alcohol and substance use disorders typically utilize social support through their involvement in self/mutual-help programs such as those found in twelve-step fellowships (Humphreys 2004; Humphreys et al. 1999). Involvement in twelve-step

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fellowships (e.g., Alcoholics Anonymous, Narcotics Anonymous) has been related to improvements in remission rates among persons with substance use disorders and psychiatric comorbidity (Ritsher et al. 2002). Research data from an 8-year outcome study (Moos and Moos 2004) suggest that continued involvement in self-help programs might produce additional desirable health outcomes. More participation in self-help settings might result in an increased amount of social support experienced by individuals in recovery (Humphreys et al. 1999), and this support has been associated with better outcomes for both abstinence (Noone et al. 1999) and psychological functioning (Laudet et al. 2000). However, the lack of stable living environments for persons with PCSUDs poses significant obstacles to community reintegration, and this might be accomplished through the use of therapeutic communities.

Therapeutic communities are homelike environments that differ from traditional treatment settings in that they are residential settings that rely less on professional direction and more on client participation (DeLeon 1997). These environments nurture self-help behavior as substance abusers live together, participate in work responsibilities, and embrace a collective and supportive lifestyle (Condelli and Hubbard 1994; DeLeon 1985; DeLeon and Rosenthal 1989; Van den Langenberg and Dekker 1988). However, there has been a shift in the structure of the therapeutic community model for persons with PCSUDs as some therapeutic communities have incorporated more professional staff. For example, "modified" therapeutic communities are grounded in psychiatric treatment in addition to therapeutic community principles to promote abstinence and mental health among substance abusers (Galanter et al. 1993; Westreich et al. 1996).

Professional interventions within modified therapeutic communities include psychological and psychiatric interventions, substance abuse counseling, and 24-hour nursing. Previous investigations have shown persons with PCSUDs who have severe mental illness benefit by professional mental health services that are provided within these modified therapeutic communities in terms of abstinence and six-month program completion rates of about 33% (Mierlak et al. 1998; Westreich et al. 1996). However, modified therapeutic communities might not be accessible due to costs associated with these programs, and we cannot tell from these studies whether psychiatric severity among persons with PCSUDs might impede the utilization of self-directed, non-professional residential approaches.

In contrast to therapeutic communities whose length of stay is limited to about six months on average (DeLeon 1997), self-help recovery homes such as Oxford House may provide longer-term care because they have no time restrictions to residents' length of stay. Oxford Houses are

non-professional, self-run recovery homes where residents are voted into each House by an 80% majority vote. Residents attend weekly business meetings led by a House president, engage in House chores, pay their share of rent, and abstain from alcohol and illicit substance use (Jason et al. 2001). There are 1,300 Oxford Houses located in the United States, Canada, and Australia (J. Paul Molloy, personal communication, June 23, 2008). The Oxford House model is an appropriate setting for the present study because they are self-help, residential settings that might provide a supportive, low-cost, and effective intervention for persons with PCSUDs.

Jason et al. (1997) assessed sociodemographic characteristics of Oxford Houses and found that residents were typically similar to those from more traditional treatment studies. Residents reported that the most important benefits gained from living in an Oxford House were sense of fellowship and community with similar others in a stable environment, plus self-paced time for personal psychological growth while abstinent (Jason et al. 1997).

Majer et al. (2002a) investigated prevalence rates of psychiatric comorbidity in a Midwestern sample of Oxford House residents and found considerable psychiatric comorbidity, as antisocial personality disorder, affective disorders, and anxiety disorders were the most frequently observed comorbid psychiatric disorders among Oxford House residents. However, Majer et al. (2002a) measured rates of lifetime history of psychiatric comorbidity, and it is not clear whether residents' current psychiatric problems had an impact on their ability to effectively engage and benefit from participating in these self-help, residential settings.

The present study examined whether high psychiatric severity was a deterrent to positive outcomes among a national sample of recovering substance abusers residing in Oxford Houses to extend findings from a recent longitudinal investigation that examined the processes of social support, self-efficacy, and abstinence (Jason et al. 2007). Although a number of Oxford House residents reported histories of psychiatric service utilization and psychiatric symptoms, Jason et al. did not examine the relation between psychiatric severity and outcomes. We do know that persons with PCSUDs reside in Oxford Houses (Majer et al. 2002a). In addition, researchers have generally found that outcomes are worse for those with PCSUDs (Burns et al. 2005). Therefore, we hypothesized that Oxford House residents with high versus low levels of psychiatric severity would have worse outcomes on the following variables: number of days taking psychiatric medications, number of days in psychiatric residential treatment, number of days in outpatient treatment; and would have fewer days of abstinence, and less time living in an Oxford House self-help setting.

## Method

### Procedures

Participants for the present study were recruited through two methods that yielded a total sample of 897 participants (also described in the parent study, Jason et al. 2007). The first method soliciting the most participants ( $n = 797$ ) utilized an announcement that was published in the monthly Oxford House newsletter distributed by Oxford House, Inc. The announcement indicated that we were conducting a national study and provided contact information. We then contacted Oxford Houses within the target geographic areas via letters addressed to House Presidents, conducted follow-up phone calls to the Houses, and where possible members of the research team arranged to visit Houses. Of 189 Oxford Houses that were approached, 169 (89.4%) Houses had at least one individual who agreed to participate in the study, and the average number of participants per house was 4.7 (there were an average of 7.1 individuals per House).

For the second method, 100 individuals filled out the baseline questionnaires at an annual Oxford House Convention. There were approximately 300 people at this convention, and the authors attempted to secure a random volunteer sample of those attending the Convention (a table was set up in a room where individuals could complete the questionnaires with our research staff). Analyses of data collected at the Convention versus data collected using the first method did not reveal significant differences in outcome variables, thus we collapsed participants from both recruitment methods ( $n = 897$ ) for our analyses.

In each case, the longitudinal nature, purpose, and goals of the study were explained to the potential participants. Staff members also explained that participation was entirely voluntary, withdrawal from participation without pressure was possible at any time, and the consent form was reviewed in detail with each participant. After completing the baseline surveys, each participant received a \$15 payment. There were three subsequent waves of data collected at 4-month intervals (i.e., at 4-, 8-, and 12-months) and \$15 payments were made to participants following each survey. These data were gathered by research staff who primarily administered questionnaires in person to the participants. Some data were collected by telephone, particularly when an individual had left an Oxford House. Results of data analyses indicated no significant differences between participants based on data collection method.

Upon completion of the final surveys, research staff contacted a random sample of Wave 4 participants' *Important Person*, who was a person identified by each participant (at the first interview) as someone who would be knowledgeable about the participant's alcohol and drug

use. Of the random sample of collateral informants who were contacted regarding participants who reported they were abstinent from drugs throughout the study ( $N = 114$ ), 98.25% reported consistently regarding participant's drug abstinence and 97.30% furnished collateral reports that were consistent with participants' reports of abstinence from alcohol ( $N = 111$ ).

### Participants

A total of 897 adults (604 men, 293 women) with a mean age of 38.4 years ( $SD = 9.4$ ) were recruited from the Northeast, Southeast, Midwest and Northwest regions of the United States. Analyses of records provided by Oxford House, Inc. using a geographical information systems program (GIS) indicated that 92% of Oxford Houses across the United States clustered into these regions (Oxford House, Inc., personal communication, January, 10, 2002). In terms of race, 34.0% were African-American, 58.4% were Anglo-American, 3.5% were Latino/a-American, and 4.0% reported several other racial groupings (e.g., Pacific Islander, Asian) that were collapsed into a single category from a choice of nine.

The majority of participants were single (49%), employed full-time (69%), had a mean total monthly income of \$981.80 ( $SD = \$867.5$ ), and had a mean of 12.6 ( $SD = 2.1$ ) years of education. Participants reported a lifetime history of use of the following drugs: alcohol (83%), cocaine (79%), cannabis (69%), heroin (30%), other opioids/analogues (24%), injection drug use (intravenously or intramuscularly; 14%) and polysubstance use (74%). Participants' number of continuous months abstinent from alcohol and drugs ranged from .03 to 234.4 ( $M = 18.2$ ,  $SD = 22.9$ ), and their length of stay in an Oxford House ranged from .03 to 122 months ( $M = 10.8$ ,  $SD = 15.6$ ).

### Instrumentation

#### *Psychiatric Severity*

The *Addiction Severity Index (ASI)-Lite* (McLellan et al. 1985) was administered at baseline to assess current problem severity including alcohol and drug use; medical problems, employment, illegal activity, family/social relations, and psychiatric problems. The composite score for the Psychiatric Severity Index (PSI) was calculated by using a weighted formula that included questions regarding current problems (McLellan et al. 1992) with scores ranging from .00 to 1.00. Higher scores represent greater psychiatric severity that has been found to be consistently higher over time among persons with PCSUDs compared to substance abusers without any psychiatric comorbidity (McKay et al. 2002). The internal consistency for this composite score has been

reported to be good ( $> .70$ ; McLellan et al. 1992). With the present sample, the PSI (Cronbach's  $\alpha = .83$ ) was good. The PSI is a widely used reliable and valid global estimate of the severity of psychopathology without regard to the particular type (McLellan et al. 1983), and is one of the few ASI indices to demonstrate high internal consistency across studies (Makela 2004). The PSI is a significant predictor of mood and anxiety disorders among substance abusers (Dixon et al. 1996; Franken and Hendriks 2001). In addition, PSI scores have been found to be significant predictors of future psychiatric hospitalizations in a methadone maintenance population (Bovasso et al. 2001).

The PSI scores were dichotomized into 2 groups (i.e., high vs. low), and this approach has been used by other investigators (Ball et al. 2004). McLellan et al. (1983) defined high and low PSI scores as 1 *SD* from the mean. The present sample had a mean of .16 and a *SD* of .20. We therefore selected those participants ( $n = 349$ ) with a score of .00 to represent the low group, and those ( $n = 169$ ) participants above the score of .36 (.16 plus .20) to represent the high group. Residents with high psychiatric severity in the present study reported an average PSI score of .52 ( $SD = .13$ ), which is higher than PSI scores ( $M = .34$ ,  $SD = .19$ ) reported in a sample of persons with persistent mental disorders (Carey et al. 1997), and higher than PSI scores reported in other studies among substance abusers with psychiatric comorbidity (Bovasso et al. 2001; Franken and Hendriks 2001; McKay et al. 2002).

### Dependent Variables

At the baseline and at each follow up, participants were administered Miller's (1996) *Form-90*, a measure that provided a continuous record of alcohol and drug use, number of days living in an Oxford House, and health care utilization including those related to psychological functioning. The *Form-90* provides a 90-day retrospective time frame for assessment and has excellent test-retest reliability (Miller and Del Boca 1994). We used the *Form-90* to assess outcomes related to psychological functioning, number of days abstinent, and number of days living in an Oxford House at each assessment interval (i.e., Waves 1–4). Scores for each of the psychological functioning (dependent) variables consisted of: participants' number of days using prescription medication for psychological/emotional problems, number of days in outpatient psychiatric treatment, and the number of days spent in residential treatment for psychiatric problems. These variables were chosen as measures of psychological functioning because they reflect the types of services utilized by persons with PCSUDs.

Participants' rate of change in abstinence during the time of their participation in the current one-year longitudinal

study was assessed because it represents the most accurate history of substance use available. Thus, rate of change was calculated as a function of the cumulative numbers of days abstinent from alcohol and drugs, beginning with the time of the first survey. Therefore, a rate of change, or slope, equal to one (1.00), indicates that the individual remained alcohol/drug free during each day of the 12-month study (i.e., number of days abstinent is equal to number of days participating in the study). A trajectory with a slope less than one indicates some substance use during their participation in the study. Of the 748 cases in which a slope can be calculated (i.e., have more than one wave of assessment data), 79.4% of the alcohol abstinence trajectories, and 80.5% of the drug abstinence trajectories have slopes equal to one (See Jason et al. 2007 for more details).

### Data Analysis

Data were analyzed by examining differences between residents who reported high versus low psychiatric severity scores at baseline on outcome variables related to psychological functioning, abstinence (in days), and time living in Oxford House (in days) at each assessment interval (i.e., Waves 1–4). Repeated measures MANCOVAs were employed, controlling for the following variables at baseline: income, race, age, sex, total number of days abstinent, and total number of days living in an Oxford House. We controlled for sociodemographic variables, and both abstinence time and time living in an Oxford House that was accrued prior to baseline assessment at Wave 1 because these variables have been found to predict abstinence (Majer et al. 2002b). Controlling for previous abstinence time and time living in an Oxford House allowed us to examine more directly the effects of Oxford House living during the course of the study.

### Statistical Methods

Descriptive analyses were used to clean the data, determine whether transformations were needed, and describe overall level of psychological functioning, abstinence rates, and time living in Oxford Houses. Of the 897 participants in our total sample, 518 completed Psychological Severity Index (PSI) data with scores that fell in the high ( $n = 169$ ) and low ( $n = 349$ ) PSI categories.

### Missing Data

A complete-case approach was used to evaluate baseline demographic data and calculate analyses. Participants with missing follow-up data on outcome variables were excluded from analyses. We had data for 96% of participants in the high and low PSI groups for most of our longitudinal

analyses ( $n = 495$ ; for baseline high psychiatric severity group,  $n = 331$ , for low psychiatric severity group,  $n = 164$ ). However, for the analysis of abstinence outcomes, we had data on 80% of participants ( $n = 415$ ; for baseline high psychiatric severity group,  $n = 282$ , for baseline low psychiatric severity group,  $n = 133$ ).

A missing values analysis of all the independent and dependent variables indicated that the data were missing at random, Little's MCAR test;  $X^2(260) = 273.97$ ,  $p = .26$ . In addition, it was important to examine missing cases in relation to psychiatric severity to rule out (or confirm) the possibility that residents with high baseline psychiatric severity were more likely than those with low baseline psychiatric severity to drop out of the study. We found no significant differences in the proportion of residents with high versus low baseline psychiatric severity, in terms of missing cases at the one-year follow-up,  $X^2(2, n = 892) = 1.55$ ,  $p < .67$ . We also conducted these analyses at Waves 2 and 3 and the results were not significant.

#### Covariates

We entered sociodemographic variables as covariates in our analyses, and dummy-coded race as (1) Anglo-American and (2) non-Anglo-American to produce two comparably sized groups for analysis. Prior to conducting the repeated measures analysis, we examined potential correlates of the psychological functioning and behavioral (cumulative alcohol and drug abstinence slopes, days in Oxford House) dependent variables. Dependent measure scores across waves for psychological functioning were found to be highly correlated (participants' number of days using prescription medication for psychological/emotional problems, number of days in outpatient psychiatric treatment, the number of days spent in residential treatment for psychiatric problems). In addition, dependent measure scores for the cumulative alcohol and drug abstinence slopes at Wave 4 were highly correlated. We employed MANCOVAs for this reason, and conducted separate analyses among dependent variables (i.e., psychological functioning, cumulative alcohol and drug abstinence slopes, days in Oxford House) in order to maximize the number of complete cases available for testing.

## Results

### Longitudinal Analyses of Psychiatric Severity

#### Psychological Functioning

Repeated measures MANCOVA was employed to test for baseline high ( $n = 331$ ) versus low ( $n = 164$ ) psychiatric

severity group differences on three mental health-related variables at Waves 1–4: (1) number of days using prescription medication for emotional or psychological problems, (2) number of days in outpatient psychiatric treatment, (3) number of days in residential treatment for psychiatric problems.

Results from the repeated measures MANCOVA demonstrated a significant effect for PSI groups over time, Wilks'  $\lambda(9, 479) = 9.16$ ,  $p < .01$ ,  $\eta^2 = .15$ . When examining the univariate tests (at an adjusted alpha level of .0167 to correct for multiple tests), the number of days participants used prescribed medications for emotional and psychological problems over the last 90 days, measured at Waves 1–4, differed significantly between PSI groups,  $F(3, 1461) = 29.39$ ,  $p < .01$ ,  $\eta^2 = .06$ . Contrasts tests for the interaction of time and PSI group indicated a significant linear trend,  $F(1, 487) = 57.81$ ,  $p < .01$ ,  $\eta^2 = .11$ . The low PSI group slightly increased their number of days using psychiatric medications from Waves 1–4 ( $M_s = 2.81$  vs. 10.34;  $SE_s = 1.47, 1.41$ ), whereas the high PSI group moderately decreased their number of days ( $M_s = 46.72$  vs. 30.13,  $SE_s = 2.12, 2.03$ ).

Results from the repeated measures MANCOVA also demonstrated a significant univariate effect for the PSI group variable over time in relation to number of days in outpatient psychiatric treatment. The number of days participants utilized outpatient psychiatric treatment over the past 90 days, measured at Waves 1–4, differed significantly between PSI groups over time,  $F(3, 1461) = 3.67$ ,  $p < .01$ ,  $\eta^2 = .01$ . Contrasts tests for the interaction of time and PSI group indicated a significant linear trend,  $F(1, 487) = 6.04$ ,  $p < .012$ ,  $\eta^2 = .01$ . The number of days utilizing outpatient psychiatric treatment from Waves 1–4 stayed about the same for those in the low PSI group ( $M_s = 1.03$  vs. .98,  $SE_s = .49, .29$ ), yet decreased among those in the high PSI group ( $M_s = 5.74$  vs. 3.24,  $SE_s = .70, .42$ ). However, results from repeated measures MANCOVA did not demonstrate a significant univariate effect for the PSI group variable on number of days participants utilized residential treatment for psychiatric problems over the past 90 days, measured at Waves 1–4,  $F(3, 1461) = 3.11$ ,  $p < .025$ ,  $\eta^2 = .001$  because the level of significance for our MANCOVA testing was established at  $p < .0167$ .

#### Abstinence

Because these dependent variables, representing cumulative rates of change in abstinence across Waves 1–4 were highly correlated, we used one-way (instead of repeated measures) MANCOVA to test for baseline high ( $n = 282$ ) versus low ( $n = 133$ ) PSI group differences on participants' rates of change (i.e., slopes) in alcohol and drug

abstinence. One-way MANCOVA testing was preferred to a repeated measures approach because the majority of participants reported no change in their alcohol (>79%) and drug (>80%) abstinence slopes across all assessment intervals. Results from the MANCOVA test for the alcohol and drug slopes demonstrated no significant main effect for psychiatric severity group,  $F(2, 406) = 1.48, p = .23, \eta^2 = .01$ . We also examined abstinence outcomes with repeated measures MANCOVA, using alcohol abstinence and drug abstinence measures from Form-90 at Waves 1–4, and the results were statistically similar, Wilks'  $\lambda(6, 255) = .95, p < .46, \eta^2 = .02$ .

#### *Oxford House*

Repeated measures ANCOVA was employed to test for baseline high ( $n = 331$ ) versus low ( $n = 164$ ) psychiatric severity group differences on residents' number of days living in an Oxford House during the past 90 days, assessed at Waves 1–4. Results demonstrated that there were no significant effect for the PSI groups over time,  $F(3, 741) = .33, p = .80, \eta^2 = .01$ . However, the sex covariate was significant,  $F(3, 1461) = 4.27, p < .01, \eta^2 = .02$ , such that women tended to spend less time living in an Oxford House than men.

#### **Discussion**

Residents with high levels of psychiatric severity versus those with low levels of psychiatric severity at Wave 1 reported significantly more psychiatric medications (in the past year) for psychological problems. These findings are consistent with research among persons with psychiatric comorbid substance use disorders (PCSUDs) who have current psychological problems and typically utilize pharmacological services (Dixon et al. 1996; Grant et al. 2004; Kadden et al. 1995; Kessler et al. 2003; Narrow et al. 1993). High levels of psychiatric severity in the present study are indicative of persons with PCSUDs who have severe co-occurring mental illness (Bovasso et al. 2001; Carey et al. 1997; Franken and Hendriks 2001; McKay et al. 2002).

Significant differences between high versus low psychiatric severity groups in relation to outpatient psychiatric treatment utilization is consistent with research that suggests persons with PCSUDs frequently utilize such services (Bovasso et al. 2001; Hendryx et al. 2003). However, residents with high psychiatric severity in the present study reported decreased psychiatric outpatient treatment utilization over the course of the study. In addition, there were no significant differences between residents with high and low psychiatric severity in terms of residential psychiatric

treatment utilization over the course of the study. Taken together, these findings suggest that the self-help atmosphere within Oxford Houses complements psychiatric treatment protocols among residents who have PCSUDs, thereby decreasing the need for more frequent and intensive treatment utilization while facilitating medication adherence.

In addition, there were no significant differences in terms of alcohol and drug abstinence rates between residents with high versus low levels of psychiatric severity. These findings suggest that persons with PCSUDs, compared to substance abusers who do not have psychiatric co-occurring mental illnesses, are not at greater risk for relapse when they reside in self-help residential settings such as Oxford House. Our findings suggest that total abstinent, self-help settings such as Oxford House help persons with PCSUDs maintain ongoing abstinence. While effective interventions for comorbid disorders involves treating both the substance use and the mental disorder(s) (Dixon et al. 1997; SAMHSA 2002 (Unpublished Manuscript); Weiss et al. 1992), the lack of supportive and stable living environments for persons with PCSUDs poses significant obstacles to community reintegration (North et al. 2004). Results from the present study have implications for policy recommendations in favor of using self-help programs such as Oxford House for substance abusers who have co-occurring severe mental illness.

Our results also extend findings from a recent investigation of this sample that found abstinence-specific social support, and living in an Oxford House for six months or longer, predicted significant increases in abstinence rates at Wave 4 (Jason et al. 2007). Even though Jason et al. found significant decreases in the number of outpatient sessions for psychological problems over time, psychiatric items were examined only as outcome variables in this investigation. However, the present study extends these findings because psychiatric items were used as independent variables (i.e., high vs. low PSI groups), and decreases in psychiatric treatment utilization was observed among residents with high psychiatric severity. In addition, sex was a significant covariate in the present study as men reported greater lengths of stay than women did in Oxford Houses. Future research is necessary to clarify its role in relation to length of stay in self-help settings such as Oxford House.

Persons with PCSUDs might maintain abstinence longer in highly supportive settings where abstinence is encouraged because people who have social support networks that support abstinence are most likely to maintain their recovery (Beattie and Longabaugh 1997; Longabaugh et al. 1995; Zywiak et al. 2002). An Oxford House self-help living experience can provide residents who have additional mental health problems with these essential social support networks. For example, newer residents may

be exposed to a variety of high-risk situations for relapse (e.g., medication noncompliance, alcohol/drug cravings, poor impulse control), and House residents with seniority may act as positive role models for dealing with these situations. Research studies have found significant and positive relationships between Oxford House living, abstinence-specific social support, cognitive resources, and abstinence (Jason et al. 2007; Majer et al. 2002b; Majer et al. 2004). Future studies should directly investigate these relationships among persons diagnosed with PCSUDs in order to understand how self-help models like Oxford House work for this population.

Furthermore, there were no significant differences in terms of rates of departure from an Oxford House between residents with high versus low levels of psychiatric severity. These results of our national study extend findings from a previous investigation of substance abusers diagnosed with PCSUDs who had positive outcomes with the Oxford House model in terms of remaining abstinent and transitioning into their communities at six-month follow-up (Majer et al. 2002a). Taken together, findings from the present study are consistent with research that supports a total abstinence model for persons with PCSUDs (Laudet et al. 2000), and that a high level of psychiatric severity is not an impediment to living in self-run, self-help residential settings such as Oxford Houses.

There are a few limitations in the present study. Attrition did occur between baseline and follow-up assessment intervals of data collection. Nonetheless, the tracking rates were relatively good for this national sample, and there were no significant differences between those who remained in and those who attrited at each follow-up assessment interval in relation to the psychiatric severity variable (i.e., high vs. low PSI groups). In addition, no control group was included to assess what might have occurred had persons with PCSUDs not been provided self-run, self-help residential settings. Finally, there might have been some selection bias in the recruitment effort, with only more motivated residents expressing an interest in participating in this study. However, if any selection bias did occur in the present study, our findings suggest that the effects were relatively equal among residents in the high and low PSI groups.

## Conclusion

The present study investigated a national sample of recovering substance abusers living in self-help, residential settings. The large sample permitted analyses that yielded intriguing findings related to psychiatric severity, psychological functioning, abstinence from substance use, and communal-living in self-run settings. The use of a

standardized diagnostic instrument could provide current rates of specific co-occurring mental disorders for additional analyses and should be considered in future community-based research. In future research, with comparison groups that might involve either therapeutic communities or other professionally-run treatment modalities, we can better understand how the Oxford House model may differentially serve residents with PCSUDs. Overall, findings from the present study suggest that involvement in self-run, self-help settings such as Oxford Houses might facilitate good prognoses for recovering substance abusers who have co-occurring severe mental illness.

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