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12-Step involvement among a U.S. national sample of Oxford House residents

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Abstract

A longitudinal analysis was conducted among a U.S. national sample of persons affiliated with Alcoholics Anonymous and Narcotics Anonymous living in self-run recovery homes (Oxford Houses). Categorical involvement in a set of 12-step activities (i.e., having a sponsor, reading 12-step literature, doing service work, and calling other members for help) and averaged summary scores of involvement were examined in relation to abstinence and self-efficacy for abstinence. Participants who were categorically involved in all 12-step activities reported significantly higher levels of abstinence and self-efficacy for abstinence at 1 year compared with those who were less involved, whereas averaged summary scores of involvement were not a significant predictor of abstinence. Participants' number of days in Oxford Houses, but not rates of 12-step meeting attendance, was significantly related to increased abstinence. Findings suggest that categorical involvement in a number of 12-step activities equip persons with substance use disorders with resources for ongoing recovery.

Keywords

12-Step involvement; Self-efficacy for abstinence; Abstinence; Alcoholics Anonymous; Narcotics Anonymous; Oxford House

1. Introduction

Recent epidemiological data have shown that the likelihood of maintaining abstinence is doubled among alcohol-dependent persons who participate in 12-step groups during treatment instead of using a treatment-only approach (Dawson, Grant, Stinson, & Chou, 2006). Experience with 12-step groups such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) has been shown to decrease stress in early recovery (Laudet & White, 2008) in addition to reduce alcohol/drug use at 2-year (McKellar, Stewart, & Humphreys,

2003), 5-year (Ritsher, McKellar, Finney, Otilingam, & Moos, 2002), and 16-year follow-up (Moos & Moos, 2007). It is important for clinicians who treat substance use disorders to develop interventions designed to actively engage their patients' involvement in 12-step groups (Donovan & Wells, 2007; Majer, 1992); thus, there is a need to identify specific 12-step activities that promote abstinence and protect from relapse.

Although attending 12-step meetings has been examined as an integral part of 12-step involvement (Gossop, Duncan, & Marsden, 2007; Humphreys, Kaskutas, & Weisner, 1998a; Mankowski, Humphreys, & Moos, 2001; McKellar et al., 2003; Moos & Moos, 2007; Morgenstern, Labouvie, McCrady, Kahler, & Frey, 1997; Staines et al., 2003; Tonigan, Connors, & Miller, 1998; Zenmore, Kaskutas, & Ammon, 2004), there is a current direction of inquiry where involvement/participation in 12-step groups has been examined apart from meeting attendance. For instance, Timko and DeBenedetti (2007) found that increased involvement in 12-step practices (independent of meeting attendance) was associated with an 83% likelihood of abstinence at both 6- and 12-month follow-up intervals, whereas the likelihood of abstinence was only 26% among persons who had no such involvement. Increased and consistent involvement in 12-step activities (e.g., talking with a sponsor, reading 12-step literature, working on a step) within 3 months' time, independent of meeting attendance, has been associated with decreased cocaine use at 6 months follow-up (Weiss et al., 2005).

Although specific 12-step activities such as having a sponsor and being of service might be key components of 12-step involvement that promote abstinence (Witbrodt & Kaskutas, 2005), recent investigations have examined 12-step involvement categorically (i.e., being simultaneously involved in a set of 12-step activities) as opposed to averaging involvement across such activities. Categorical involvement in a set of 12-step activities has been related to increases in both abstinence and other important recovery resources including self-efficacy for abstinence (Majer, Droege, & Jason, 2010, in press).

Based on Bandura's (1997) cognitive-behavior self-efficacy theory, self-efficacy for abstinence is a construct that is regarded as a crucial resource for relapse prevention (Marlatt & Gordon, 1985) that can help persons recovering from substance use disorders cope with high-risk situations (Annis & Davis, 1991). Research evidence suggests that self-efficacy for abstinence is developed in 12-step groups. For instance, Moos and Moos (2004) found that continued 12-step meeting attendance was related to increased self-efficacy for abstinence and abstinence in an 8-year outcome study, whereas increased self-efficacy for abstinence significantly predicted less alcohol consumption at 16-year follow-up (Moos & Moos, 2007). In addition, recent cross-sectional investigations (Majer et al., 2010, in press) found that those who were categorically involved in several 12-step activities reported significantly higher levels of self-efficacy for abstinence compared with those who were not involved in such activities. However, it is not clear whether categorical involvement in 12-step activities, separate from meeting attendance, is related to increased abstinence and self-efficacy for abstinence over time.

In summary, most studies have measured involvement in 12-step activities as a multifaceted construct that may include 12-step meeting attendance as a component (Humphreys et al., 1998a; Mankowski et al., 2001; McKellar et al., 2003; Moos & Moos, 2007; Morgenstern et al., 1997; Staines et al., 2003; Tonigan et al., 1998; Zenmore et al., 2004). In addition, many investigations have used a summary score approach in assessing participation across various 12-step activities such that involvement in any specific 12-step activity could have been artificially reduced or inflated by averaging effects (Majer et al., 2010). Alternatively, 12-step involvement that is independent of 12-step meeting attendance has been demonstrated to promote abstinence; having a sponsor, working the 12 steps, and being of service are

some activities to indicate 12-step involvement (Majer et al., 2010; Timko & DeBenedetti, 2007). Although some research investigations have examined the effects of participating in various activities, being involved in 12-step groups and one's personal recovery would consist of engaging in several activities categorically. It is important to determine whether categorical involvement in several of these 12-step activities is related to increased outcomes over time.

This study investigated categorical involvement in several 12-step activities among a national sample of persons with substance use disorders who were living in self-run, recovery homes within the United States. We hypothesized that participants who were categorically involved in a set of 12-step activities, compared with those who were not, would report significantly higher levels of abstinence and self-efficacy for abstinence throughout the course of the 1-year longitudinal study.

2. Materials and methods

2.1. Participants

Participants for this study were living in self-run, communal-living settings—Oxford Houses. Oxford Houses are self-run, democratically operated settings based on peer support (Jason, Davis, Ferrari, & Bishop, 2001). Eight hundred ninety-seven 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 indicated that 92% of Oxford Houses across the United States clustered into these regions. Most of the participants were single (49%), and in terms of race, most of the participants were Anglo American (58.4%), 34.0% were African 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.

Most participants were employed full-time (69%) and reported a mean total monthly income of \$981.80 ($SD = \867.5) with an average of 12.6 years ($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/analgesics (24%), injection drug use (intravenously or intramuscularly; 14%), and polysubstance use (74%). Participants' number of continuous months abstinent from alcohol and drugs ranged from 0.03 to 234.4 ($M = 18.2$, $SD = 22.9$), and their length of stay in an Oxford House ranged from 0.03 to 122 months ($M = 10.8$, $SD = 15.6$).

2.2. Procedures

Participants were recruited through two methods that yielded a total sample of 897 participants (also described in the parent study, Jason, Davis, Ferrari, & Anderson, 2007). The first method soliciting the most participants ($n = 797$) utilized an announcement that was published in a monthly Oxford House newsletter distributed by Oxford House, Inc., that stated a national study was forthcoming while providing contact information of the researchers. Oxford Houses were then contacted within the target geographic areas via letters addressed to House Presidents. Follow-up telephone calls to the Houses were conducted, and members of the research team arranged to visit Houses where possible. Of the 189 Oxford Houses that were approached, 169 (89.4%) 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).

One hundred individuals from a pool of approximately 300 filled out baseline questionnaires at an annual Oxford House Convention for the second method of recruitment. We 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). Data collected at the Convention versus data collected using the first method were analyzed and 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 participants. We explained that participation was entirely voluntary, withdrawal from participation without pressure was possible at any time, and the consent form was reviewed in detail during a process of informed consent with each participant. There were four waves of data collected at 4-month intervals (i.e., at baseline and 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.

We contacted a random sample of Wave 4 participants' most important person, who was a person identified by each participant at Wave 1 as someone who would be knowledgeable about the participant's alcohol and drug use, upon completion of the final surveys. 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 ($n = 111$).

2.3. Materials

2.3.1. 12-Step involvement—The Alcoholics Anonymous Affiliation Scale (AAAS; Humphreys et al., 1998a) is a nine-item measure that was administered to assess categorical involvement in several customary 12-step activities. Responses to seven of the AAAS items are coded dichotomously, whereas two items that ask for meeting attendance rates (lifetime, past 12 months) are coded as continuous variables. It was important to examine 12-step involvement categorically as involvement in a set of specific 12-step behaviors that are frequently discussed in 12-step meetings and referred to as “suggestions” or “the basics” that are to be taken collectively (Alcoholics Anonymous, 2001; Narcotics Anonymous, 2008).

However, categorical involvement in 12-step activities in this study was assessed by positive endorsement of four of the following AAAS items at Waves 1 and 4: having a sponsor, reading 12-step literature, doing service work, and calling other members for help. These items were selected because they are recovery-related actions that new members who are early in their recovery are commonly encouraged to take (AA, 2001; NA, 2008).

Consistent with previous investigations (Humphreys, Kaskutas, & Weisner, 1998b; Timko & DeBenedetti, 2007; Witbrodt & Kaskutas, 2005), the AAAS reflected involvement in 12-step activities independent of meeting attendance. Participants who had endorsed all four items at Waves 1 and 4 were considered to be categorically involved (CAT group), whereas participants who endorsed three or fewer items were not categorically involved (NCAT group) in 12-step activities. Establishing groups in this manner increased the likelihood that participants did not change with respect to their 12-step involvement during the course of the study.

Three AAAS items were not included in our assessment of categorical 12-step involvement. The item asking whether participants considered themselves as “members” was omitted because it reflects a perception instead of a specific activity. The item “having had a

spiritual awakening” was not included because it is conceptually a by-product of practicing the 12 steps and not necessarily a 12-step activity per se. In addition, we did not include the item asking whether participants were a “sponsor” to others because this activity is usually practiced among members who have considerable abstinence time and recovery experiences, and we were interested in examining involvement in 12-step activities in which new members could participate. Our approach to calculating 12-step involvement is consistent with other investigations that report some variation of scoring specific AAAS activity items (Laffaye, McKellar, Ilgen, & Moos, 2008; Timko & DeBenedetti, 2007; Witbrodt & Kaskutas, 2005).

Two other AAAS items asked participants to list their number of lifetime 12-step meetings and meetings attended in the past 12 months. Responses to these items were analyzed separately to differentiate 12-step involvement from meeting attendance. The internal reliability for the AAAS in this study was very good (Cronbach's $\alpha = .84$).

2.3.2. Abstinence—At baseline and at each follow-up interval, participants were administered Miller's (1996) Form-90, a measure that provides a 90-day retrospective time frame for assessment and has excellent test–retest reliability (Miller & Del Boca, 1994). We used the Form-90 to assess previous abstinence rates and previous number of days living in recovery homes (i.e., Oxford House) at baseline and subsequent abstinence rates (as outcomes) at each assessment interval. Participants' rate of change in abstinence during the time of their participation in the 1-year longitudinal study was assessed because it represents the most accurate history of substance use available. 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. A rate of change, or slope, equal to one (1.00) indicates that the individual remained alcohol/drug-free during each day of the study, whereas a trajectory with a slope less than one indicates some substance use during the study.

2.3.3. Abstinence self-efficacy—At each assessment interval, participants were administered the 20-item Alcohol Abstinence Self-Efficacy scale (AASE; DiClemente, Carbonari, Montgomery, & Hughes, 1994) and a slightly modified version of this measure, the Drug Abstinence Self-Efficacy scale (DASE). The AASE is based in Bandura's (1997) cognitive–behavioral self-efficacy theory and high-risk situations for relapse (DiClemente, Fairhurst, & Piotrowski, 1995). Participants are instructed to report how confident they are not to use alcohol across 20 hypothetical situations. Individuals rate their level of confidence on a 5-point scale (1 = *not at all confident*, 5 = *extremely confident*). The DASE version is identical to the AASE except that the words *use drugs* replaced *drink alcohol*. The internal reliability for both the AASE and DASE were excellent (Cronbach's alphas were .98 and .99, respectively).

2.4. Data analysis

Because the dependent variables of alcohol and drug abstinence represented cumulative rates of change in abstinence across Waves 1–4, we conducted a one-way multivariate analysis of covariance (MANCOVA) to test for differences between participants who reported they were categorically involved (CAT group) versus not categorically involved (NCAT group), whereas repeated-measures MANCOVA was used to examine differences in levels of self-efficacy for abstinence across the four assessment intervals. We controlled for the following variables in all analyses: income, race, age, gender, total number of days abstinent at baseline, and number of days in Oxford Houses because these variables have been found to predict abstinence (Majer, Jason, Ferrari, Venable, & Olson, 2002; Majer et al., 2008). We also controlled for 12-step meeting attendance rates (lifetime at Wave 1; past 12 months at Wave 4) to differentiate 12-step involvement from meeting attendance to

examine more directly the effects of categorical 12-step involvement during the course of the study.

2.4.1. Statistical methods—Descriptive analyses were used to clean the data, to determine whether transformations were needed, and to describe 12-step involvement, abstinence rates, levels of self-efficacy for abstinence, rates of 12-step meeting attendance, and previous days in Oxford Houses (total days at Wave 1; past 90 days at subsequent assessment intervals, Waves 2–4). Of the 897 participants in our total sample, 524 completed the AAAS with scores that fell in the CAT ($n = 296$) and NCAT ($n = 228$) 12-step involvement categories at both Waves 1 and 4.

2.4.2. 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 about 70% of participants in the CAT and NCAT groups for both the longitudinal analyses of abstinence ($n = 379$; $n = 223$ for CAT group and $n = 156$ for NCAT group) and self-efficacy for abstinence ($n = 363$; $n = 214$ for CAT group and $n = 149$ for NCAT group). A missing values analysis of all the independent, dependent, and covariate variables indicated that the data were missing at random (Little's MCAR test), $\chi^2(913) = 60.96, p = 1.00$.

2.4.3. Covariates—We entered previous abstinence rates, 12-step meeting attendance rates, length of stay in Oxford Houses, and sociodemographic variables as covariates in our analyses, and dummy-coded race as (a) Anglo American and (b) non-Anglo American to produce two comparably sized groups for analysis. Prior to conducting the repeated-measures analysis, we examined potential correlates of the dependent measure scores across waves and found them to be highly correlated. We conducted MANCOVAs for this reason.

3. Results

3.1. Longitudinal analyses of abstinence

Because these dependent variables represented cumulative rates of change in abstinence across Waves 1–4, we used a one-way (instead of repeated measures) MANCOVA to test for CAT versus NCAT group differences on participants' rates of change (i.e., slopes) in alcohol and drug abstinence. Results from this test demonstrated a significant main effect for categorical involvement, Wilks' $\Lambda = 0.97, F(2, 366) = 4.99, p = .007, \eta_p^2 = 0.03$. Follow-up analysis of variance (ANOVA) tests revealed participants in the CAT group ($n = 223$) reported significantly higher levels of both alcohol abstinence ($M = 0.94$ vs. $0.85, SE = 0.01$ vs. 0.02), $F(1, 367) = 8.96, p = .003, \eta_p^2 = 0.02$, and drug abstinence ($M = 0.95$ vs. $0.89, SE = 0.01$ vs. 0.02), $F(1, 367) = 9.61, p = .002, \eta_p^2 = 0.03$, than participants in the NCAT group ($n = 156$).

3.1.1. Covariate effects—Results from the MANCOVA test demonstrated a significant covariate effect for participants' total number of days abstinent at baseline (Wave 1), Wilks' $\Lambda = 0.96, F(2, 366) = 4.46, p = .012, \eta_p^2 = 0.02$. Follow-up ANOVA tests and parameter estimates of the model revealed a significant positive relationship for total number of days abstinent at Wave 1 with abstinence slopes for alcohol, $F(1, 367) = 5.98, p = .015, \eta_p^2 = 0.02, \beta = 4.23, t = 2.45, p = .015$. The covariate effect for participants' total number of days living in Oxford Houses at Wave 1, Wilks' $\Lambda = 0.99, F(2, 366) = 2.79, p = .063, \eta_p^2 = 0.02$, was further examined. Follow-up ANOVA tests and parameter estimates of the model revealed a significant positive relationship for number of days in Oxford Houses at Wave 1 with

cumulative abstinence slopes for both alcohol, $F(1, 367) = 4.24, p = .04, \eta_p^2 = 0.01, \beta = 0.001, t = 2.06, p = .04$, and drugs, $F(1, 367) = 5.60, p = .019, \eta_p^2 = 0.02, \beta = 0.001, t = 2.36, p = .019$. However, participants' 12-step meeting attendance rates (lifetime) at Wave 1, Wilks' $\Lambda = 1.00, F(2, 366) = 0.36, p = .97, \eta_p^2 = 0.00$, and in the past 12 months at Wave 4, Wilks' $\Lambda = 0.99, F(2, 366) = 2.04, p = .13, \eta_p^2 = 0.01$, were not significant covariates.

We also examined abstinence outcomes by entering 12-step involvement as a continuous variable (by assigning a value of 1 for positive endorsement and 0 for nonendorsement of 12-step activities reported at Waves 1 and 4, and averaging their summary scores) in our MANCOVA model. Results of this analysis were statistically similar to those from the original model except that 12-step involvement (as a continuous variable) was not a significant predictor, $\Lambda = 0.99, F(2, 366) = 1.60, p = .20, \eta_p^2 = 0.009$.

3.2. Longitudinal analyses of self-efficacy for abstinence

Repeated-measures MANCOVA was used to test for CAT ($n = 214$) versus NCAT ($n = 149$) group differences on two self-efficacy variables at Waves 1–4: (a) self-efficacy for alcohol abstinence and (b) self-efficacy for drug abstinence. Results from the repeated-measures MANCOVA demonstrated a significant effect for participants between groups over time, Wilks' $\Lambda = 0.98, F(2, 349) = 3.61, p = .028, \eta_p^2 = 0.02$. Univariate tests revealed that participants in the CAT group reported significantly higher levels of self-efficacy for both alcohol abstinence ($M = 84.59$ vs. $80.11, SE = 1.01$ vs. 1.24), $F(1, 350) = 6.96, p = .009, \eta_p^2 = 0.02$, and drug abstinence ($M = 85.16$ vs. $80.91, SE = 1.05$ vs. 1.28), $F(1, 350) = 5.90, p = .02, \eta_p^2 = 0.02$.

3.2.1. Covariate effects—Results from the repeated-measures MANCOVA demonstrated a significant covariate effect for participants' lifetime rates of 12-step meeting attendance at Wave 1, Wilks' $\Lambda = 0.97, F(2, 349) = 5.86, p = .003, \eta_p^2 = 0.03$. Follow-up ANOVA testing and parameter estimates of the model revealed that lifetime rates of 12-step meeting attendance had a significant negative effect on self-efficacy for alcohol abstinence at Wave 1, $F(1, 350) = 8.29, p = .004, \eta_p^2 = 0.02, \beta = -4.75, t = -2.02, p = .04$. In addition, follow-up ANOVA testing and parameter estimates of the model revealed that lifetime rates of 12-step meeting attendance at Wave 1 were a significant negative predictor of self-efficacy for drug abstinence, $F(1, 350) = 11.70, p = .001, \eta_p^2 = 0.03$, throughout most of the study (Wave 1, $\beta = -5.29, t = -2.64, p = .009$; Wave 2, $\beta = -4.28, t = -1.90, p = .05$; Wave 3, $\beta = -7.39, t = -3.08, p = .002$).

We also entered 12-step involvement as a continuous variable in the repeated-measures MANCOVA model, and the results were statistically similar to those from the original model. Twelve-step involvement (as a continuous variable) was a significant predictor, $\Lambda = 0.97, F(2, 349) = 6.89, p = .001, \eta_p^2 = 0.03$, and follow-up ANOVA tests revealed that 12-step involvement (as a continuous variable) had a significant effect on self-efficacy for alcohol abstinence, $F(1, 350) = 13.36, p = .000, \eta_p^2 = 0.04$, and drug abstinence, $F(1, 350) = 11.01, p = .001, \eta_p^2 = 0.03$.

4. Discussion

Categorical involvement in 12-step activities, independent of 12-step meeting attendance rates, was significantly related to increases in abstinence over time. Participants who were CAT in 12-step activities versus those who were not reported significantly higher rates of abstinence from alcohol and drugs during the course of the 1-year investigation, a finding that is consistent with previous investigations on involvement with 12-step activities (Montgomery, Miller, & Tonigan, 1995; Timko & DeBenedetti, 2007; Weiss et al., 2005; Witbrodt & Kaskutas, 2005). However, our findings extend previous investigations in that 12-step involvement was measured both categorically by involvement in a set of specific 12-step activities and by an averaged measure of 12-step involvement that is commonly applied in research studies. Our findings suggest that 12-step involvement in a set of activities is a better predictor of abstinence outcomes than when it is measured as an average rate of involvement across various 12-step activities. Perhaps more directly, categorical involvement in a set of 12-step activities like the ones used in the present investigation is representative of what newcomers to 12-step groups aim to do to maintain their abstinence, whereas partial involvement or a “half-measures” approach is discouraged (AA, 2001).

In addition, participants' total number of days abstinent and their total number of days in Oxford Houses (assessed at baseline) were significantly and positively related to abstinence outcomes, suggesting that greater 12-step involvement through informal networking and sober recreational events (Zenmore & Kaskutas, 2008) indirectly facilitates ongoing abstinence. In support of this claim, a recent investigation of the Oxford House model found that participants who were randomly assigned to an Oxford House versus a usual-care condition upon discharge from inpatient treatment reported significantly higher abstinence rates at the 2-year follow-up (Jason, Olson, Ferrari, & Lo Sasso, 2006).

Findings in this study also extend results from recent cross-sectional investigations of 12-step involvement upon self-efficacy for abstinence (Majer et al., 2010, in press) by demonstrating significant effects over time. Twelve-step involvement in this study was related to increased levels of self-efficacy for both alcohol and drug abstinence, a finding that is consistent with previous investigations that examined self-efficacy for abstinence where 12-step meeting attendance was an integral part of involvement (Moos & Moos, 2004, 2007; Morgenstern et al., 1997). Our findings extend previous research in that categorical involvement in a set of 12-step activities, but not 12-step meeting attendance, was related to significant increases in self-efficacy for abstinence. In fact, our investigation supports similar findings (Majer et al., 2010, in press) by demonstrating significant negative relationships between (lifetime rates of) 12-step meeting attendance and self-efficacy for abstinence at several time points. Taken together, our results demonstrated that categorical involvement in a set of 12-step activities was a better predictor of important recovery resources, such as abstinence and self-efficacy for abstinence, than 12-step meeting attendance rates, suggesting that 12-step meeting attendance may be necessary but not sufficient for ongoing recovery. One implication of these findings is that persons with substance use disorders who have been abstinent for considerable periods of time rely more on 12-step activities than meeting attendance to sustain their ongoing recovery.

Our data suggest that more critical approaches to measuring 12-step involvement might help investigators and clinicians better understand how persons with substance use disorders benefit from the 12-step model. Recent investigations have examined 12-step involvement independent of meeting attendance (Majer et al., 2010, in press; Montgomery et al., 1995; Timko & DeBenedetti, 2007; Weiss et al., 2005; Witbrodt & Kaskutas, 2005), whereas others have critically examined 12-step meeting attendance (Moos & Moos, 2004, 2007; Ritsher et al., 2002). Likewise, future investigations should endeavor to investigate

categorical involvement in key 12-step activities and duration of such involvement in addition to whether changes occur over time to better understand how 12-step involvement promotes recovery-related outcomes in addition to ongoing abstinence.

There are some limitations in this study. There was no control group for a comparative analysis to assess what might have occurred among participants involved in 12-step activities but not living in Oxford Houses. Attrition did occur between baseline and final assessment intervals of data collection. However, missing cases were completely at random and tracking rates were relatively good for this national sample. In addition, this study did not calculate total scores of the AAAS for measuring 12-step involvement. Although there are some studies that have used the AAAS in a manner similar to ours (Laffaye et al., 2008; Timko & DeBenedetti, 2007; Witbrodt & Kaskutas, 2005), not much is known in terms of the psychometric properties associated with alternative scoring of this valuable instrument.

5. Conclusion

This study investigated a national sample of persons with substance use disorders living in self-run, nonprofessional residential settings who were affiliated with AA and NA 12-step groups. Twelve-step involvement was measured categorically to control for averaging effects from a summary score approach to measurement that might have artificially inflated or reduced actual involvement in specific 12-step activities. Categorical involvement in a set of 12-step activities, but not an average of involvement across such activities (frequently used in 12-step research investigations), was significantly related to increased abstinence outcomes in this study. In addition, our results suggest that categorical involvement in a set of 12-step activities is more likely to produce increases in important recovery resources, such as abstinence and self-efficacy, for abstinence than merely attending AA and NA meetings. Furthermore, our findings revealed that living in an Oxford House, but not 12-step meeting attendance, was a significant predictor for abstinence at 1-year follow-up, reinforcing the idea that an active involvement in recovery might extend to involvement in settings such as Oxford Houses, where persons with substance use disorders can bolster their support networks. Clinicians should encourage clients' simultaneous involvement in a number of 12-step activities to maximize the benefits of 12-step involvement and consider referrals to democratically operated recovery homes such as Oxford Houses to supplement therapeutic interventions.

The large sample permitted intriguing analyses regarding categorical involvement in a set of 12-step activities over the course of 1 year. With comparison groups consisting of patients from various professionally run treatment modalities for alcohol/drug dependence and members of the 12-step community, we can better understand the effects of involvement in 12-step activities. Overall, findings from this study suggest that categorical involvement in a set of 12-step activities that are encouraged at AA/NA meetings is likely to empower their members with resources to sustain their ongoing recovery.

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