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Categorical 12-Step Involvement and Continuous Abstinence at Two-Years

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Abstract

A longitudinal analysis of 12-step involvement was conducted among a U.S. sample of patients exiting treatment for substance dependence. Categorical involvement in a set of 12-step activities and summary scores of involvement from the *Alcoholics Anonymous Affiliation Scale* were examined in relation to continuous abstinence and aftercare (Oxford House or usual care) condition. Participants who were categorically involved in 12-step activities were significantly more likely to maintain continuous abstinence at two years compared to those who were less involved, predicting a greater likelihood of complete abstinence than summary scores of involvement. In addition, participants in the Oxford House condition were significantly more likely to remain continuously abstinent throughout the course of this randomized clinical trial. Findings suggest that categorical involvement in a set of 12-step activities and communal-living settings such as Oxford Houses are independent factors associated with continuous abstinence from both alcohol and illicit drugs among substance dependent persons.

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Keywords

12-step involvement; Continuous abstinence; Alcoholics Anonymous; Narcotics Anonymous; Oxford House; Randomized clinical trial; Alcoholics Anonymous Affiliation Scale

1. Introduction

The *Alcoholics Anonymous Affiliation Scale* (Humphreys, Kaskutas, & Weisner, 1998) is frequently used in assessing involvement in 12-step activities that are practiced by members of 12-step groups such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA). Scores derived from this measure typically consist of summary scores that include rates of 12-step meeting attendance.

Twelve-step meeting attendance rates have been examined as an integral part of 12-step involvement (Gossop, Duncan, & Marsden, 2007; Humphreys, Kaskutas, & Weisner, 1998; Mankowski, Humphreys, & Moos, 2001; McKellar, Stewart, & Humphreys, 2003; Moos & Moos, 2007; Morgenstern, Labouvie, McCrady, Kahler, & Frey, 1997; Staines, Magura, Rosenblum, Fong, Kosanke, Foote, et al., 2003; Tonigan, Connors, & Miller, 1998; Zenmore, Kaskutas, & Ammon, 2004), whereas some investigations have used 12-step meeting attendance coded as an interval variable to measure involvement (Davey-Rothwell, Kuramoto, & Latkin, 2008; Ritsher, McKellar, Finney, Otilingam, & Moos, 2002). However, a critical examination of 12-step meeting attendance revealed the duration of attendance might be more important than frequency of meetings in relation to outcomes (Moos & Moos, 2004), and some investigations have found negative relationships between 12-step meeting attendance rates and outcomes (Laudet, Savage, & Daneyal, 2002; Majer, Droege, & Jason, 2010; Majer, Jason, Ferrari, & Miller, 2011). Involvement in 12-step groups like AA/NA might be better understood by examining 12-step activities apart from meeting attendance.

For instance, some investigations have calculated 12-step involvement with summary scores across 12-step activities (Montgomery, Miller, & Tonigan, 1995; Weiss, Reilly, & Kearns, 2005; Witbrodt & Kaskutas, 2005) and the average number of 12-step activities endorsed from a given set (Kaskutas, Subbaraman, Witbrodt, & Zenmore, 2009). Although other investigations have demonstrated individual 12-step activities (e.g., having a sponsor) apart from attendance to be significantly related to outcomes (Cloud, Ziegler, & Blondell, 2004; Majer, Jason, Ferrari, Venable, & Olson, 2002; Timko, Sutkowi, & Moos, 2010; Tonigan & Rice, 2010; Toumbouro, Hamilton, Stevens-Jones, & Storey, 2002; Witbrodt & Kaskutas, 2005; Zenmore & Kaskutas, 2008), individual 12-step activities that significantly predict outcomes are not highly consistent across studies. Perhaps more importantly, there is a lack of theoretical basis to support the use of these approaches (i.e., averaging or summarizing responses across activities, examining individual activities per se) toward measuring involvement in AA and NA fellowships. We believe that AA/NA members endeavor to engage in several 12-step activities simultaneously thus assessing 12-step involvement should reflect this practice.

Categorical 12-step involvement is a term used to indicate simultaneous involvement in several 12-step activities. Majer, Droege, and Jason (2010) argue involvement in various 12-step activities should be measured categorically because it is a representative assessment of what 12-step members are encouraged to do for their recovery (Alcoholics Anonymous, 2001; Narcotics Anonymous, 2008). In addition, a categorical approach to assessing 12-step involvement controls for artificial reduction or inflation of true scores (for individual 12-step activities) created by summary score approaches that are typically used in assessing

participation (i.e., involvement or affiliation with 12-step groups). Recent investigations have demonstrated categorical 12-step involvement in several 12-step activities is a significant predictor of increases in cognitive resources (Majer et al.; Majer et al, in press), and a better predictor of abstinence rates at one-year compared to averaged summary scores (Majer et al., 2011).

Furthermore, abstinence-related outcomes have been measured in longitudinal investigations of 12-step involvement by examining substance use in the past 30 days (Kaskutas et al., 2009; Staines et al., 2003; Timko & DeBenedeti, 2007; Timko et al., 2010; Witbrodt & Kaskutas, 2005; Zenmore & Kaskutas, 2008; Zenmore, Kaskutas, & Ammon, 2004), the past 90 days (Cloud et al., 2004; Gossop et al., 2007; Majer, et al., 2011), and by reductions in both substance use (Toumbouro et al., 2002) and alcohol-related problems (Moos & Moos, 2007), and there appears to be a trend in measuring abstinence from alcohol and illicit drugs separately (Laffaye, McKellar, Ilgen, & Moos, 2008; Majer et al., 2011; Majer et al., 2008; Timko & DeBenedeti, 2007; Timko et al., 2010; Kaskutas et al., 2009; Toumbourou et al.). These various abstinence-related outcomes do not fully capture a major aim of 12-step groups; complete and continuous abstinence. Thus it is important to measure continuous abstinence from both alcohol and illicit drugs among 12-step members while investigating representative involvement in 12-step groups.

The present study investigated categorical 12-step involvement in relation to continuous abstinence among substance dependent persons exiting inpatient treatment who were randomly assigned either to a self-run, communal-living setting (i.e., Oxford House condition) or usual care condition. Jason, Olson, Ferrari, and Lo Sasso (2006) found that the Oxford House condition produced better abstinence outcomes at two years with the present sample. However, Jason et al., (2006) did not control for the effects of 12-step involvement in their examination of conditions, and it is important to determine whether 12-step involvement is related to abstinence outcomes independent of condition. We hypothesized participants who were categorically involved in 12-step activities, compared to participants who were not categorically involved, would be significantly more likely to maintain continuous abstinence at two-years. We also hypothesized that categorical 12-step involvement would be a better predictor of continuous abstinence outcomes at two years compared to summary scores of 12-step involvement.

2. Materials and methods

2.1 Participants

One hundred, fifty adults (57 men, 93 women) with a mean age of 37.1 years ($SD = 8.1$) were recruited from inpatient treatment centers located in northern Illinois, in the United States. The largest proportion of participants were single (60%), and in terms of race, the majority of participants were African-American (77.3%), 11.3% were Anglo-American, 8.0% were Latino/a-American, and 3.3% reported other racial groupings.

Most participants were unemployed (81%), and reported a mean total monthly income of \$169 ($SD = \498) with an average of 12.0 ($SD = 2.1$) years of education. Participants reported a history of substance dependence (based on DSM-IV criteria) with: cocaine (60%), alcohol (56%), cannabis (38%), heroin/opioids (35%), sedatives (28%), and amphetamines (20%). The sample had a lifetime average of 3.2 ($SD = 2.1$) episodes of inpatient and 0.8 ($SD = 2.6$) episodes of outpatient substance abuse treatment.

2.2 Procedures

Participants were recruited from residential substance dependence treatment facilities located in northern Illinois (also described in the parent study; Jason et al., 2006).

Participants were recruited over a one-and-a-half year period to allow a gradual transition of individuals into both (i.e., Oxford House, usual aftercare) conditions. Data were collected from 2002 to 2005. In order to participate in the study, inpatient clients agreed to be assigned randomly to an Oxford House or usual aftercare condition. Of those people approached to be in the study, only four individuals indicated that they were not interested in being involved in the project. A total of 150 adults approached at treatment facilities agreed to participate, were engaged in a process of informed consent, and were randomly assigned to one of two conditions.

There were 75 adults (46 women, 29 men) in the Oxford House and 75 adults (47 women, 28 men) in the usual aftercare conditions at baseline. However, our data analyses were comprised of responses from 105 participants due to missing cases across five assessment intervals; mostly at baseline where only 110 participants completed all measures.

All participants completed a baseline questionnaire 2–3 days before discharge from their inpatient treatment facilities. Clients randomly assigned to the Oxford House condition, however, were scheduled to visit one of 20 Illinois Oxford Houses with one of our research staff. During that initial visit, each participant completed a one-page application form for entry into the Oxford House and was interviewed by the House residents. Residents then voted within 24 hours of the interview on whether or not to accept the applicant into the House. If the applicant was voted into the Oxford House, that participant moved into the house at her/his planned discharge date from the treatment facility. All but one of the Oxford House participants were voted successfully into a house at this initial attempt. The participant not voted into the first Oxford House was brought to a second Oxford House and was then accepted as a resident.

After participants entered the study, they were interviewed every 6 months over a 2-year period, yielding a total of five assessment waves (i.e. baseline and 6-, 12-, 18- and 24-month follow-ups). The follow-up rate across the 2-year study was comparable for the Oxford House (89%) and usual after-care (86%) conditions.

Usual care condition—Participants who were randomly assigned to the usual care condition following discharge from their inpatient treatment facility were referred by their case managers to different forms of outpatient treatment, self-help groups or other resources in the community. These participants went to the following sites: a relative's home (32%), a staffed recovery home (18%), a partner's or spouse's home (16%), their own home or apartment (16%), a homeless shelter (10%), a substance dependence treatment program (4%) or a friend's home (3%).

Oxford House condition—Over the 2-year follow-up, Oxford House participants spent an average of 256.2 days (range 8 to 730) in this setting. Of the 75 Oxford House participants, 5% stayed in Oxford House for the entire 24 months of the study, 35% moved into their own home or apartment after leaving the Oxford House, 20% went to relatives' homes, 15% moved into a partner's or spouse's home; 9% went to a friend's home; 5% went to a substance dependence treatment program; 4% went to jail; 4% went to a staffed recovery home; and 3% went to a homeless shelter.

2.3 Materials

Twelve-step involvement—The *Alcoholics Anonymous Affiliation Scale* (AAAS; Humphreys et al., 1998) is a nine item measure that was administered to assess categorical involvement in several customary 12-step activities at baseline (Wave 1) regardless if participants were affiliated with AA or NA. 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, and together they are used in calculating summary scores of the AAAS (Humphreys et al.). We calculated summary scores of the AAAS in this manner, and compared this approach to a categorical approach to 12-step involvement.

It was important to examine 12-step involvement categorically as involvement in a set of specific 12-step activities because they are to be taken collectively (Alcoholics Anonymous, 2001; Narcotics Anonymous, 2008). Categorical involvement in 12-step activities in the present study was assessed by positive endorsement of four of the following AAAS items at Wave 1: 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 (Alcoholics Anonymous, 2001; Narcotics Anonymous, 2008), whereas the other three AAAS items are neither direct activities (e.g., identifying as a “member,” having had a “spiritual awakening”) nor relevant to new members (being a “sponsor” to others). Participants who had endorsed all four items at baseline were considered to be categorically involved (CAT group) whereas participants who endorsed three or fewer of items were not categorically involved (NCAT group) in 12-step activities.

The AAAS has been calculated using these four items (Majer et al., 2011), and our approach to calculating categorical 12-step involvement with the AAAS is consistent with other investigations that report variation of scoring specific AAAS activity items (Kaskutas et al., 2009; Laffaye et al., 2008; Majer et al., 2011; Timko & DeBenedetti, 2007; Timko et al., 2010; Witbrodt & Kaskutas, 2005). The internal reliability for AAAS items in the present study was very good (Cronbach’s alpha = .79).

Abstinence—We used the *Addiction Severity Index-Lite* (ASI; McLellan, Kusher, Metzger, Peters, Smith, Grissom, et al., 1992), a measure that assesses problems in commonly affected areas related to substance abuse, to collect sociodemographic data and data on substance use at baseline and each subsequent six-month assessment interval (i.e., Waves 1–5) over the course of two years. We asked participants to use the entire 6-month period between waves to give us an assessment of whether they had used alcohol and/or illicit drugs at each assessment interval. In addition, participants’ self-report data of their continuous abstinence were corroborated by having a person in each participant’s support network listed on the 24-month follow-up assessment confirm the participant’s level of total abstinence at the 2-year assessment (Morgenstern et al., 1997). This collateral information was obtained from the person who was rated by the respondent as most important in his or her life (Longabaugh, Wirtz, Zweben, & Stout, 1998). If the collateral report indicated alcohol or drug use, and the individual reported no use, we counted this person as using at the 2-year assessment interval.

2.4 Data analysis

We conducted binary logistic regression analyses to examine baseline predictors (categorical 12-step involvement, AAAS scores, condition) of continuous abstinence (substance use, no substance use) at two-years, while treating sociodemographic variables (age, education level, ethnicity, gender, and income) as covariates of the model because these variables have been related to outcomes in previous Oxford House investigations (Jason et al., 2006; Jason, Olson, Ferrari, Majer, Alvarez, & Stout, 2007; Majer et al., 2002). We constructed separate binary logistic regression models to control for multicollinearity between predictor variables of 12-step involvement (i.e., categorically involved, AAAS summary scores) that were positively and significantly correlated ($r = .81$) in order to provide a more conservative estimation of coefficients. Due to the number of cases available for analyses ($n = 105$), we

limited the number of predictors in the logistic models to decrease the chance of overestimation of odds ratio and beta coefficients (Agresti, 2007) by coding ethnicity into two categories (African American, other). To interpret the statistically significant effects of the model, the regression coefficients that were expressed in log units were exponentiated to produce an odds ratio interpretation of the coefficient.

Statistical methods—Descriptive analyses were used to clean the data, determine whether transformations were needed, and to describe baseline 12-step involvement and continuous abstinence at two-years. Of the 150 participants in our total sample, 71 reported continuous abstinence from both alcohol and illicit drugs whereas 67 reported some substance use throughout the two-year study.

In addition, 110 participants completed the *Alcoholics Anonymous Affiliation Scale* (AAAS) at baseline with scores that fell in the CAT ($n = 54$) and NCAT ($n = 56$) 12-step involvement categories; approximately 75% of the overall sample. We compared characteristics of these participants to the remainder of the sample ($n = 40$) and found that they were similar in terms of their age [$F(1, 149) = 0.072, p = .788$], education [$F(1, 149) = 0.000, p = .991$], ethnicity, $\chi^2(1) = 3.01, p = .083$, and income [$F(1, 144) = 0.873, p = .352$]. However, there were proportionately more men ($n = 29$) than women ($n = 11$) who did not complete all surveys, $\chi^2(1) = 27.56, p < .000$. In all, we had 105 cases for our primary analyses due to missing data.

Missing data—A listwise deletion approach was used to evaluate data and calculate analyses, and participants with missing data (30% of all available cases) were excluded from analyses. We utilized a listwise approach instead of imputing values that would have increased the risk of artificially reducing variance given the large proportion of missing cases, as the use of true scores are ideal for multiple regression models. In addition, we had data for about 95% of participants in the CAT and NCAT groups for the longitudinal analyses of abstinence ($n = 105$; for CAT group, $n = 51$, for NCAT group, $n = 54$). A missing values analysis of all the independent, dependent, and covariate variables indicated that the data were missing completely at random, Little's MCAR test; $\chi^2(33) = 21.01, p = .95$, thus our listwise deletion approach to treating missing cases was a valid technique for producing relatively unbiased estimates of regression coefficients (Allison, 2009).

3. Results

3.1 Longitudinal Analyses of Abstinence

Our first model examined two baseline predictors, categorical 12-step involvement (CAT, NCAT groups) and condition (Usual Care, Oxford House conditions), of continuous abstinence (substance use, no substance use) at two-years while treating sociodemographic variables (age, education level, ethnicity, gender, and income) as covariates of the model. The omnibus test of this logistic model was significant $\chi^2(7) = 24.60, p = .001$, and components of this model are present in Table 1. Categorical 12-step involvement was a significant predictor, Wald's $\chi^2(1) = 4.68, p = .026$, indicating that participants who were categorically involved in 12-step activities at baseline were 2.8 times more likely to maintain continuous abstinence from both alcohol and illicit drugs at two-years. In addition, condition was a significant predictor of the model, Wald's $\chi^2(1) = 14.50, p < .001$, indicating that participants who were randomly assigned to the Oxford House condition at baseline were 5.6 times more likely to maintain continuous abstinence at two-years.

Our second model examined AAAS scores and condition as baseline predictors of continuous abstinence at two-years, while entering the same sociodemographic variables as covariates from the first model. The omnibus test of this second logistic model was

significant $\chi^2(7) = 25.49, p = .001$. Twelve-step involvement as measured by AAAS scores was a significant predictor, Wald's $\chi^2(1) = 5.47, p = .019$, indicating that participants with high AAAS scores were only 0.7 times more likely to maintain continuous abstinence from both alcohol and illicit drugs at two-years. In addition, condition was a significant predictor of this second model, Wald's $\chi^2(1) = 13.81, p < .001$, indicating that participants who were randomly assigned to the Oxford House condition were 5.4 times more likely to maintain continuous abstinence at two-years.

There were no other significant variables within these two logistic models. In addition, we conducted another set of binary regression analyses based on these two models that included predictors representing (respective) main factor interactions between condition x categorical 12-step involvement (Interaction Model 1), and condition x AAAS scores (Interaction Model 2). There were no significant interaction effects or main effects for 12-step involvement in either model. However, a significant main effect for condition was observed only in Interaction Model 1, Wald's $\chi^2(1) = 4.94, p < .026$, indicating that participants who were randomly assigned to the Oxford House condition were 4.1 times more likely to maintain continuous abstinence at two-years when the interaction effect between condition x categorical 12-step involvement was examined.

Furthermore, we ran another regression model that examined both measures of 12-step involvement (categorical involvement, AAAS scores) in addition to condition as predictor variables, and the results were similar in that only categorical 12-step involvement and condition, but not AAAS scores, were significant predictors of abstinence at two years. No significant interaction effects between 12-step involvement and condition were observed, and all analyses bore similar results when sociodemographic variables were withheld from the models.

4. Discussion

Participants who were categorically involved with 12-step activities, compared to those who were not, were more likely to maintain continuous abstinence at two-years, a finding that is consistent with previous investigations on categorical 12-step involvement (Majer et al., in press; Majer et al., 2010). Although a continuous measure of 12-step involvement (i.e., AAAS summary scores) was related to abstinence outcomes in the present study, the odds ratio for abstinence was not as robust for AAAS scores as it was among participants who were categorically involved in 12-step activities. Taken together, our findings are consistent with results from a recent longitudinal study (Majer et al., 2011) that found categorical 12-step involvement (but not AAAS summary score averages) predicted favorable yet separate outcomes for alcohol and drug abstinence at one-year. Findings in the present study suggest the relationships between 12-step involvement and outcomes might be better understood when considering concurrent or categorical involvement across a number of specific 12-step activities, instead of the use of a summary score approach that artificially inflates or decreases actual involvement in any one 12-step activity from a given set.

Categorically involved participants in the present study reported that they had a sponsor, had read 12-step literature, were involved with service work, and called other members for help; activities that newer members can engage in early in their recovery. These 12-step activities were used in a recent longitudinal study (Majer et al., 2011) and they are nearly identical to those described in recent investigations on categorical 12-step involvement (Majer et al., in press; Majer et al., 2010). Although such 12-step activities listed in the AAAS (Humphreys et al., 1998) are very similar to those in the *Alcoholics Anonymous Involvement Scale* (Tonigan et al., 1998), both instruments include additional items that are not directly relevant to new members (e.g., sponsoring others), are not direct behaviors/activities (e.g.,

considering oneself as being a “member”), or appear to be more of a consequence of an action (e.g., having had a “spiritual awakening” or “birthday”). Although 12-step activities like the ones used in the present study are encouraged in AA and NA, they are not the only activities that are commonly practiced by 12-step members.

We acknowledge that the 12-step activities reported in the present study are representative of some important activities 12-step members engage in for their personal recovery. For instance, other 12-step activities that were not assessed in the present study include the application of the 12-steps, practicing spiritual principles, helping the newcomer, and participating in the group conscience of one’s home group. Our experiences in working directly with this population, both clinically and as community-based researchers, have informed us that AA and NA members benefit by engaging in such activities concurrently. We believe it is important to examine 12-step involvement categorically as involvement in a set of specific 12-step behaviors we have heard discussed in our observations at 12-step meetings and referred to as “suggestions” or “the basics” that are to be taken collectively (Narcotics Anonymous, 2008), reflecting the sentiment that is expressed in AA meetings, “Half measures availed us nothing” (Alcoholics Anonymous, 2001). Our findings add empirical support to 12-step theory in this respect. Although some AAAS items ask respondents whether their involvement in such activities occurred within the past 12 months, our results are consistent with previous investigations that show favorable outcomes when AA/NA members engage in all, not most of, these activities.

Summary scores from the AAAS in the present study included participants’ rates of 12-step meeting attendance; a 12-step activity that might not necessarily be directly related to positive outcomes (Laudet et al., 2002; Majer et al., 2010; Majer et al., 2011; Moos & Moos, 2004). Although meeting attendance rates in the present longitudinal study were not controlled for throughout our two-year investigation (because we collected these data only at baseline), it is possible that meeting attendance rates might have accounted for weak yet statistically significant relationship between AAAS scores and continuous abstinence at two-year follow-up. However, a recent longitudinal investigation that included multiple measures of 12-step involvement (Majer et al., 2011) demonstrated averaged summary scores of 12-step involvement did not significantly predict abstinence outcomes when controlling for meeting attendance. We believe that more investigations regarding 12-step meeting attendance rates and duration of attendance (Moos & Moos, 2004) are needed to better understand this important 12-step activity in relation to categorical 12-step involvement, and to determine how and why 12-step members change their rates of meeting attendance over the course of long-term recovery in maintaining their complete and continuous abstinence.

In addition, findings in the present study extend previous investigations in that we examined continuous abstinence from both alcohol and illicit drugs (together, not separately) throughout the course of two years instead of the past 30 or 90 days at key assessment intervals. Although biological measures would have provided a direct and arguably valid assessment of abstinence at each assessment interval, they do not detect substance use between long assessment intervals (e.g., every 3–6 months). However, corroborated self-reports through collateral informants provided some assurance of complete and continuous abstinence throughout the course of the present study. We encourage researchers to examine continuous abstinence from both alcohol and illicit drugs in future investigations because this best reflects the aim of 12-step groups like AA and NA.

Furthermore, participants who were randomly assigned to the Oxford House condition were also more likely to remain completely abstinent throughout the course of the investigation. Our randomized clinical trial allowed us to examine more closely the effects of categorical

12-step involvement upon continuous abstinence, independent of condition (and vice versa), as other investigations on categorical 12-step involvement (Majer et al., 2010; Majer et al., 2011) were limited to Oxford House residents, did not include comparison groups, and did not examine continuous abstinence from both alcohol and illicit drugs over time. Findings in the present study, in lieu of the absence of any interaction effect between 12-step involvement and condition, suggest that categorical 12-step involvement and the Oxford House model are mutually exclusive factors. Even though the vast majority of Oxford House residents are involved in 12-step groups (Jason, Davis, Ferrari, & Anderson, 2007), findings in the present study are consistent with previous research (Majer, Jason, & Olson, 2004) that found Oxford House living provides additional benefits to recovering persons apart from their 12-step involvement. Nonetheless, the use of clinical samples in the present study might be a limitation, and future investigations with community-based samples would help us further understand the effects of categorical 12-step involvement.

4.1 Conclusion

Findings from the present study suggest that categorical involvement in a set of 12-step activities that are encouraged at AA/NA meetings and Oxford House living is likely to empower persons with substance dependent disorders in maintaining their abstinence. Clinicians should encourage clients' active and concurrent involvement in a number of 12-step activities early in their recovery such as the ones used in the present study, and consider referrals to self-run, communal-living settings like Oxford Houses.

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Table 1

Components of the first logistic regression model for continuous abstinence at two years

Variable	Beta Coefficient	Standard Error	Odds Ratio	95% CI [LL, UL]
Categorical 12-step Involvement	1.02*	.46	2.77	[1.13, 6.76]
Condition	1.725***	.45	5.62	[2.31, 13.60]
Age	0.001	.03	1.00	[0.95, 1.05]
Education	0.003	.10	1.00	[0.83, 1.20]
Ethnicity	-0.530	.68	0.59	[0.16, 2.22]
Income	-0.001	.00	0.99	[0.99, 1.00]
Gender	-0.258	.60	0.77	[0.24, 2.52]

Note. CI = confidence interval; LL = lower limit, UL = upper limit.

*
 $p = .026$,

 $p < .001$.