

THE EFFECTS OF TWELVE-STEP PARTICIPATION ON SOCIAL SUPPORT: A LONGITUDINAL INVESTIGATION WITHIN A RECOVERY HOME SAMPLE*

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ABSTRACT

Mutual-aid/12-step involvement has been found to relate to numerous positive facets of social support. However, this present investigation is the first known study to longitudinally assess the influence of 12-step involvement on social support within a U.S. Oxford House recovery home sample ($N = 897$). As predicted, AA/NA attendance predicted social networks containing more general social support over a 1 year period, and it is recommended that individuals in recovery lacking positive social support might turn to 12-step groups to develop these necessary forms of support. However, 12-step participation failed to predict network drinking behaviors or support for drinking. Although counterintuitive, it is possible that 12-step groups impact general support more than recovery-specific types of support. It is true that more of AA's 12 steps deal with mending relationships than alcohol use.

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From a public policy perspective, it is important to understand how mutual-aid groups and self-help treatments provide alternatives to professional aftercare programs (Humphreys, 2004; Tonigan, Toscova, & Miller, 1996). Unlike traditional treatment programs, self-help or mutual-aid groups represent voluntarily gathered social support assemblies, working together on a common problem with self-directed leadership and the sharing of experiences. In general, self-help therapy might be more effective and less expensive than traditional, professional-focused therapy (Humphreys, 2004). The best known example of mutual-aid groups supporting abstinence is the 12-step program, which includes Alcoholics Anonymous (AA) and Narcotics Anonymous (NA; McCrady & Miller, 1993).

Alcoholics Anonymous was created in 1935 as a self-help group for individuals in alcohol recovery to maintain sobriety through spirituality, social support, and progression through 12-step treatment. Today, more people turn to AA to recover from alcohol addiction than any other program (McCrady & Miller, 1993; Weisner, Greenfield, & Room, 1995). Members progress toward recovery at their own pace through the sharing of experience, hope, and strength, while admitting powerlessness over alcohol through self-disclosure at each of 12 steps (Emrick, Tonigan, Montgomery, & Little, 1993). Unlike conventional alcohol treatments, AA is not time-limited, lacks professional involvement, charges no dues or fees, and keeps no membership lists at weekly meetings (Kurtz, 1979).

Twelve-step participation is related to improved alcohol use outcomes (e.g., Humphreys, Moos, & Cohen, 1997; Longabaugh, Wirtz, Zweben, & Stout, 1998; Montgomery, Miller, & Tonigan, 1995; Ouimette, Moos, & Finney, 1998). In addition, AA may be indirectly related to abstinence through changing lifestyles (Owen, Slaymaker, Tonigan, McCrady, Epstein, Kaskutas, et al., 2003). Correlational meta-analyses of AA effectiveness studies concluded that AA participation related to positive drinking outcomes and modestly related to better psychological health, social functioning, employment situation, and legal situation (Emrick et al., 1993; Tonigan et al., 1996). However, not all studies have found AA to be better than alternative treatments (Kownacki & Shadish, 1999), and there is a general lack of longitudinal 12-step effectiveness research (Humphreys, 2004), with researchers debating the rigor and quality of AA outcome studies (Emrick et al., 1993; Humphreys, 2004; McCrady & Miller, 1993; Tonigan et al., 1996).

Social support is often regarded by treatment professionals as a significant benefit of mutual-aid groups for substance abuse (Woff, Toumbourou, Herlihy, Hamilton, & Wales, 1996), and mutual-aid group participants may have more incentive to recover because they have social commitments hinged on abstinence (Bischof, Rumpf, Hapke, Meyer, & John, 2000). Mutual-aid involvement is related to higher friendship quality (Humphreys et al., 1997; Humphreys, Mankowski, Moos, & Finney, 1999), more friend resources (Humphreys, Finney, & Moos, 1994; Timko, Finney, & Moos, 2005), greater

friend support (Bischof et al., 2000; Ouimette et al., 1998), lower support for use by friends (Humphreys & Noke, 1997), and greater support for abstinence by friends (Humphreys et al., 1999). Furthermore, research illustrates that social support plays a mediational role in the relationship between mutual-aid participation and abstinence (Bond, Kaskutas, & Weisner, 2003; Groh, Jason, & Keys, 2007; Humphreys et al., 1999; Kaskutas, Bond, & Humphreys, 2002; Laudet, Cleland, Magura, Vogel, & Knight, 2004).

Another way mutual-aid groups aid in alcohol recovery is by providing new, positive peer social support networks that promote abstinence. For instance, Zywiak, Longabaugh, and Wirtz (2002) found that recovering individuals who remained in close contact with pre-treatment networks encouraging alcohol use were more likely to relapse, while individuals whose networks reflected less use were more likely to maintain abstinence. Although people in recovery often lose a number of friendships (e.g., with those who continue to use alcohol or drugs; Ribisl, 1997), mutual-aid groups help counteract this effect. For instance, Humphreys and Noke (1997) found that 12-step participants tend to replace their non-12-step friends with 12-step friends. At 1 year post-treatment, alcoholics in 12-step recovery had more close friends, more contact with friends, more friends who were abstinent, and more friend resources.

In a longitudinal study of African-American recovering alcoholics, those who entered 12-step mutual-aid programs had the same number of friends after 1 year, while those who did not lost an average of 18% of their friend network (Humphreys, Mavis, & Stoffelmayr, 1994). These factors are important because larger social networks are associated with higher abstinence rates (Zywiak et al., 2002), and may help to avoid isolation and social disconnection (Havassy, Hall, & Wasserman, 1991). Moreover, these new mutual-aid friendships may be more fulfilling. Based on qualitative interviews with gay male AA members, Kus (1991) reported that mutual-aid group friendships were more respectful, supportive, and trusting than those previous to AA.

This present study examined the relation between 12-step attendance and social support within a sample of Oxford House residents. Oxford House (OH), a grass roots movement founded in 1975, applies the tenets of mutual-aid groups to communal-living alcohol treatment. Each house is a rented, multi-bedroom dwelling for same-sex occupants, located in a low-crime residential neighborhood. Residents are free to stay in a house for as long as they want, given that they avoid substance use and disruptive behavior. This policy is similar to 12-step programs, but very different from most traditional approaches. Also like AA, Oxford House is completely devoid of professional therapists or treatment providers (Ferrari, Jason, Olson, Davis, & Alvarez, 2002; Jason, Ferrari, Dvorchak, Groessl, & Molloy, 1997). As house members are required to pay for their own rent, food, utilities, and share house chores, Oxford House is no more expensive than any other place of residence (Ferrari, Jason, Blake, Davis, & Olson, 2006; Jason, Davis, Ferrari, & Bishop, 2001).

Oxford House is an ideal setting in which to examine the effects of 12-step participation on social support constructs. The Oxford House organization encourages 12-step participation (Oxford House Inc., 1988), and the majority of residents are involved in AA or NA (Flynn, Alvarez, Jason, Olson, Ferrari, & Davis, 2006; Nealon-Woods, Ferrari, & Jason, 1995). Yet, no study has longitudinally examined the impact of AA/NA involvement on different types of social support within Oxford House recovery home residents. However, based on past research illustrating a link between 12-step involvement and social support, it was expected that greater 12-step involvement within a national sample of Oxford House residents would predict increases in positive types of social support over a 12-month period. In particular, it was predicted that greater 12-step involvement at baseline would account for a significant percentage of the variance in the 1-year outcomes of higher general social support, less support for drinking from network members, and fewer drinking behaviors of network members.

The present investigation contributes to the 12-step literature in several important ways. The AA literature (see Emrick et al., 1993; Humphreys, 2004; McCrady & Miller, 1993; Tonigan et al., 1996), including research specifically examining the relation between AA and social support (Groh, Jason, et al., 2007), has been criticized for employing cross-sectional designs and samples that were predominantly male and European American. Therefore, much of the 12-step literature might not generalize to the diverse population of individuals in recovery that exists in the real world. Thus, advantages of this current study include the greater ethnic and gender diversity of participants, the 1-year longitudinal nature, and the large sample size.

METHOD

Participants

This study ($N = 897$) consisted of 293 women and 604 men who were U.S. residents of Oxford Houses (see Jason, Davis, Ferrari, & Anderson, 2007). The sample was 58.4% European American, 34.0% African American, 3.5% Hispanic/Latino, and 4.0% others. The average age of the sample was 38.4 ($SD = 9.2$) and the average education level was 12.6 years ($SD = 2.1$). Regarding marital status, 49.0% were single or never married, 46.2% were divorced, widowed, or separated, and only 4.8% were currently married. Illegal or non-prescribed drug use outcomes were not assessed in the present study because the *Important People Inventory* was not intended to measure support for drug use, and because it is likely that there would be more variation in alcohol-related support than drug-related support; nevertheless, many participants in this study were poly-substance abusers. During the 90 days prior to the baseline assessment, 15.7% of participants had used either alcohol or drugs. During this 90-day window, the average participant consumed alcohol on 2.26 days ($SD = 9.22$), drugs on 5.45 days ($SD = 20.32$), and attended 12-step meetings on about half of the days ($M = 44.85$ days; $SD = 28.08$).

Regarding baseline social support characteristics, out of a maximum of 12 possible individuals, participants identified an average of 6.16 people in their *Important People* networks ($SD = 3.47$). The average participant had contact with network members about once or twice a week ($M = 5.09$; $SD = 1.37$) and daily contact with 1.97 individuals ($SD = 2.05$). Most network members were abstainers or also in recovery. Overall, 74.7% of network members abstained from alcohol use, and only 2.8% of network members were heavy drinkers. Average importance of *Most Important People* network members (a maximum of four people) fell between very and extremely important ($M = 5.52$; $SD = .64$). Finally, the average participant had 1.62 other Oxford House residents in their baseline social networks ($SD = 1.87$); thus, Oxford House residents comprised 23.5% of *Important People* networks.

Of the original sample of 897 Oxford House residents, 607 participants completed the 1-year follow-up, indicating that 67.7% of the sample was retained. Chi-square analyses indicated that baseline gender, race/ethnicity, marital status, employment status, and religion were similar for those who dropped out and those who were retained over the 1-year period.

Regarding continuous variables, ANOVA results indicated that dropouts and those who completed both waves were similar on the variables of total income, length of education, number of past 90 days consuming alcohol, number of 12-step meetings attended in the past 90 days, and two of the three *IP* social support factors (i.e., *Drinking Behaviors of Network Members* and *Support for Drinking from Network Members*). However, the two groups differed significantly in several ways. Overall, those who completed the 1-year follow-up were older, $F(1, 892) = 13.72, p = .000$, and had longer lengths of stay in Oxford House, $F(1, 886) = 18.02, p = .000$. Those who dropped out had shorter lengths of alcohol, $F(1, 895) = 8.87, p = .003$, and drug sobriety at baseline 1, $F(1, 895) = 10.87, p = .001$, and used drugs on more days in the 90-day period before baseline, $F(1, 890) = 8.38, p = .004$. Finally, those who completed the follow-up assessment had more general social support than those who did not complete, $F(1, 894) = 8.55, p = .004$. Thus, this final sample of participants completing the 1-year follow-up does not appear to be entirely representative of the original sample of Oxford House residents recruited. It is certainly possible that some participants who had dropped out had relapsed, rendering the present sample a select population. However, following 897 individuals in recovery over a 1-year period is no easy task (though every effort was made), and retaining two-thirds of participants over this length of time appears respectable.

Procedure

This study performed secondary analysis on data from a large national investigation funded by the National Institute on Drug Abuse of current residents of Oxford House who were at various stages in their substance abuse recovery

(see Jason et al., 2007). This larger study contained four waves of data collected at intervals of 4 months; the present investigation mainly focused on the baseline (Wave 1) and 12-month assessments (Wave 4). The majority of participants ($n = 797$, 88.9%) were recruited through an announcement published in a monthly newsletter distributed throughout these recovery settings. Members of the research team then contacted participants via letters to the houses, conducted follow-up phone calls, and wherever possible, arranged to visit to administer the measures. The remainder of participants ($n = 100$, 11.1%) filled out the baseline questionnaires at an annual Oxford House convention.

The nature, purpose, and goals of the study were explained to the potential participants. Participation was entirely voluntary, and payments of \$15 were made to participants following each survey. Data were gathered by research staff who primarily administered questionnaires in person to the participants. Additionally, some data were collected by telephone. No significant sociodemographic differences were found based on data collection method.

Measures

Baseline demographic information was obtained from items on the 5th Edition of the *Addiction Severity Index-lite* (*ASI*; McLellan, Kushner, Metzger, Peters, Smith, Grissom, et al., 1992). The *ASI* assesses common problems related to substance abuse: medical status, drug use, alcohol use, illegal activity, family relations, and psychiatric condition. In addition, questions in the *ASI-lite* measure the number, extent, and duration of problem symptoms in the person's lifetime and in the past 30 days. The *ASI* has been used extensively in substance abuse studies over the past 15 years, and has been shown to have excellent test-retest reliability ($\geq .83$; McLellan et al., 1992). For the present study, demographic and background information from the *ASI* included age, sex, ethnicity, years of drug use, and whether participants abused alcohol, drugs, or both alcohol and drugs.

At the baseline assessment, participants completed a version of Miller and Del Boca's (1994) *Form 90 Timeline Followback*, which measures general health care utilization, residential history, and past 90-day alcohol and drug use. Reliability of self-reported drinking has not been found to suffer across test-retest interviews (Tonigan, Miller, & Brown, 1997). Individual items were taken from this measure to assess alcohol use along with 12-step participation: *number of days consuming alcohol in the past 90 days* and *number of days attending 12-step meetings in the past 90 days* (Miller & Del Boca, 1994).

Because it is important to assess for socially desirable response tendencies when examining self-reports of social support among substance abuse populations (Groh, Ferrari, & Jason, in press), participants completed Paulhus' (1998) *Balanced Inventory of Desirable Responding* (*BIDR*). This scale contained 40 items rated along a 7-point Likert-type response scale (1 = *not true*; 7 = *very true*) that are used to create two composite scores. The *self-deceptive enhancement*

subscale (M sum score = 81.10, SD = 12.91), which examined a person's tendency to endorse statements that exaggerate one's abilities and skills, was administered only at Wave 2 (i.e., 4 months following baseline). The *impression management* subscale (M sum score = 81.93, SD = 18.78), an assessment of one's self-presentation style to favorably impress others, was only administered at the 1-year follow-up. Paulhus (1988) reported Cronbach's alphas between 0.74 and 0.86 for the two subscales, respectively, and the alphas in the present study were 0.65 and 0.78.

Finally, the *Important People Inventory* (*IP*; Clifford & Longabaugh, 1991; Clifford, Longabaugh, & Beattie, 1992) was administered at the 1-year follow-up to assess the social support outcomes (see Groh, Olson, Jason, Ferrari, & Davis, 2007, for more information on the usage of this measure in the present study). This structured interview requires participants to identify important members in their networks with whom they have had frequent contact within the past 6 months. In the first section of the *IP*, labeled the *Important People* section, a participant is asked to identify up to 12 social contacts over the age of 12 years. For each individual the participant lists, the *IP* examines the type of relationship, the duration of relationship in years, and the frequency of contact. In addition, the participant assesses how often the network member drinks, how much the network member drinks on a maximum drinking day, and the network member's overall drinking status. In the next segment, called the *Most Important People* section, the participant chooses up to four network members who were the most important over the past 6 months. The participant then rates each network member's importance, how much he/she likes the person, and how the person reacts to the participant's drinking.

This study used the 3-factor, 9-index model of the measure developed by Groh, Olson, and colleagues (2007):

1. *General Social Support* (sum of indices 1-3; Cronbach's alpha = .43)
2. *Drinking Behaviors of Network Members* (sum of indices 4, 7, 8; Cronbach's alpha = .75)
3. *Support for Drinking from Network Members* (sum of indices 9-11; Cronbach's alpha = .81)

Because these factors are a summation of standardized scores, they all have a mean score of zero. In addition, higher factor scores indicate more negative social networks (i.e., less general support, more drinking behaviors, and more support for drinking) because items are scored to point in the direction of support for drinking.

Although two of the *IP* composite scores provided good internal reliability, the general support factor had lower internal reliability; index 3 (*Average importance of most important people*) and index 1 (*Number of people in the network*) each had high loadings in one but not both of the samples examined in Groh, Olson et al.'s (2007) factor analysis study. Index 2 (*Amount of contact*

with one's network) consistently had strong loadings onto *General Social Support*. Nonetheless, all three of the factors loaded onto the general support factor as opposed to the other two factors and conceptually held together.

Overall, the *Important People Inventory* is still in a dynamic exploratory phase; we feel that it is too early to remove this potentially valuable general support factor (which appears in both the original 2-factor and the new 3-factor models). After all, studies indicate that general social support relates to positive treatment outcomes. For example, people who receive more general support possess higher levels of subjective well-being, which relates to improved post-treatment outcomes (Beattie, Longabaugh, Elliott, Stout, Fava, & Noel, 1993). In addition, social networks that are larger (Zywiak et al., 2002) and more supportive (MacDonald, 1987) are more likely to promote recovery.

RESULTS

Linear regressions were run to test whether 12-step involvement at the start of the study predicted positive types of social support over a 1-year period. The number of days participating in 12-step meetings (from the *Form-90*) at baseline was included in three separate regression models predicting the *IP* composite scores from the new 3-factor model (i.e., *Support for Drinking from Network Members*, *Drinking Behaviors of Network Members*, and *General Social Support*). In addition, the control variables of baseline demographics (i.e., age, gender, race/ethnicity, education, and length of stay in Oxford) and Wave 2 *Self-deceptive Enhancement* (i.e., 4 months following baseline) were included in the regression models. *Impression Management* was not included in the regression models because it was not administered until the last wave of data collection (i.e., 1 year); however, it was included in the correlation matrix to assess whether impression management relates to the predictor and outcome variables.

Table 1 presents correlations between all of the variables included in the regression analysis. Regarding key variables, *Network Support for Drinking* (i.e., the summary score from the original model of the *IP*) had a high and significant correlation with *Drinking Behaviors of Network Members* (i.e., the composite score from the new model of the *IP*), $r(870) = .75, p = .000$. Wave 1 *Network Support for Drinking* significantly correlated with race/ethnicity, $r(896) = -.12, p = .000$, such that European Americans reported/received the most support for drinking, followed by African Americans, Hispanics/Latinos, and finally "others."

In addition, this support for drinking variable showed a significant relationship with length of stay in Oxford House, $r(888) = -.07, p = .03$, such that individuals with more support for drinking in their networks had shorter stays in Oxford House. This summary score correlated with education, $r(873) = .09, p = .01$, indicating that people who were more educated reported less support for drinking in their networks.

Table 1. Correlations between the Three IP Factors, 12-Step Participation, Demographics, and Social Desirability (N = 419)

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. 12 mo. General Social Support	—								
2. 12 mo. Drinking Behaviors of Network Members	.03	—							
3. 12 mo. Support for Drinking from Network Members	.07	.26***	—						
4. 0 mo. 12-step participation	-.12**	-.07	.01	—					
5. 0 mo. gender	-.23***	.08*	.02	.02	—				
6. 0 mo. length of stay in Oxford House	.05	-.07	-.09*	-.18***	-.10**	—			
7. 0 mo. age	-.002	-.09*	.01	-.07*	-.15***	.25***	—		
8. 0 mo. race/ethnicity	-.11**	-.17***	-.01	.05	.02	.08*	.06	—	
9. 0 mo. length of education	.02	.10*	.02	.02	-.09**	-.04	.14***	-.10**	—
10. 4 mo. Self-deceptive Enhancement	.08	-.01	.02	-.01	.03	-.004	-.01	.002	.02
11. 12 mo. Impression Management	-.09*	-.15***	-.07	-.06	.10*	.08*	.20***	.01	.08

Note: mo. = month

* $p < .05$. ** $p < .01$. *** $p < .001$.

Tables 2 through 4 show the regression results for predicting social support factor scores from 12-step participation. As predicted, AA/NA meeting attendance did significantly predict lower 1-year *General Social Support* scores (indicating more general support), $\beta = -.17$, $t(411) = -3.57$, $p = .000$ (see Table 2). In addition, gender predicted general support, with females receiving greater general support. Concerning *Drinking Behaviors of Network Members* scores (see Table 3), race/ethnicity $\beta = -.14$, $t(399) = -2.82$, $p = .01$, and length of education, $\beta = .11$, $t(399) = 2.11$, $p = .04$, were significant predictors, such that being African American or "other" race and having more years of education related to fewer drinking behaviors in one's social network. Regarding *Support for Drinking from Network Members* scores (see Table 4), education was a significant predictor, $\beta = .11$, $t(387) = 2.05$, $p = .04$, with more years of education related to less support for drinking. However, contrary to our predictions, the drinking behaviors and support for drinking factor scores were not significantly predicted by 12-step attendance.

DISCUSSION

In previous studies, mutual-aid/12-step involvement has been found to be associated with numerous positive facets of social support (e.g., Groh, Jason, et al., 2007; Humphreys et al., 1999). However, this present study is the first known to longitudinally evaluate the impact of 12-step involvement on social support within a large, diverse sample of Oxford House residents. The 1-year longitudinal nature of the study and the diversity with regard to participants are particular strengths of this study that are frequently absent in the 12-step literature (see

Table 2. Summary of Regression Analysis for Predicting One-Year General Social Support from 12-Step Participation, Social Desirability, and Demographics ($N = 411$)

Variable	B	SE B	β
0 mo. 12-step Participation	-.01	.003	-.17*
4 mo. Self-deceptive Enhancement	.25	.14	.08
0 mo. age	-.001	.001	-.04
0 mo. race/ethnicity	-.22	.12	-.08
0 mo. gender	-1.13	.20	-.29*
0 mo. length of stay in Oxford House	.002	.01	.02
0 mo. length of education	.01	.004	.06

Note: $R^2 = .13$. mo. = month

* $p < .001$

Table 3. Summary of Regression Analysis for Predicting One-Year Drinking Behaviors of Network Members from 12-Step Participation, Social Desirability, and Demographics ($N = 406$)

Variable	B	SE B	β
0 mo. 12-step Participation	-.01	.004	-.08
4 mo. Self-deceptive Enhancement	-.05	.17	-.01
0 mo. age	-.001	.001	-.07
0 mo. race/ethnicity	-.43	.15	-.14**
0 mo. gender	.36	.25	.07
0 mo. length of stay in Oxford House	-.01	.01	-.07
0 mo. length of education	.01	.01	.11*

Note: $R^2 = .06$. mo. = month

* $p < .05$. ** $p < .01$.

Table 4. Summary of Regression Analysis for Predicting One-Year Support for Drinking from Network Members from 12-Step Participation, Social Desirability, and Demographics ($N = 387$)

Variable	B	SE B	β
0 mo. 12-step Participation	-.003	.004	-.04
4 mo. Self-deceptive Enhancement	.05	.18	.02
0 mo. age	.001	.001	.06
0 mo. race/ethnicity	-.04	.16	-.01
0 mo. gender	-.01	.25	-.001
0 mo. length of stay in Oxford House	-.01	.01	-.08
0 mo. length of education	.01	.01	.11*

Note: $R^2 = .02$. mo. = month

* $p < .05$.

Emrick et al., 1993; Groh, Jason, et al., 2007; Humphreys, 2004; McCrady & Miller, 1993; Tonigan et al., 1996).

It was hypothesized that greater 12-step involvement within a U.S. sample of Oxford House residents would predict increases in positive types of social support over a 1-year period. Although the variance explained was low, AA/NA attendance did predict having networks containing more general social support over a 1-year period. This finding fits with a growing literature illustrating the

relation between 12-step involvement and general social support, particularly from friends (see Groh, Jason, et al., 2007). Among other things, greater AA involvement is related to higher friendship quality (Humphreys et al., 1999; Humphreys et al., 1997) and increased network size (Humphreys & Noke, 1997). Twelve-step involvement might lead to the formation of healthy friendships (and the loss of negative ones) with experientially similar others with whom to spend quality social time engaged in sober activities. These friends provide each other with positive global support toward well-being, which can help promote recovery (Beattie et al., 1993). It is suggested that Oxford House residents and others in recovery lacking supportive social networks may benefit from 12-step participation to develop these necessary forms of support, which are longitudinally linked to abstinence (Beattie et al., 1993; Humphreys et al., 1999).

However, 12-step participation did not predict network drinking behaviors or support for drinking at 1-year. This differs from some past research reporting that AA involvement relates to lower support for alcohol use by friends (Humphreys & Noke, 1997), greater support for abstinence by friends (Humphreys et al., 1999), and greater recovery-related helping behaviors (e.g., Pagano, Friend, Tonigan, & Stout, 2004; Snow, Prochaska, & Rossi, 1994; Zemore & Kaskutas, 2004). Although counterintuitive, it is possible that 12-step groups impact general support more than recovery-specific types of support. It is true that more of AA's 12 steps deal with mending relationships than alcohol use (Alcoholics Anonymous, 2006). It is also possible that because most Oxford House residents are members of AA/NA (Flynn et al., 2006; Nealon-Woods et al., 1995), there was not enough variation in 12-step attendance to find meaningful results. Therefore, it might be useful to examine this hypothesis in a sample of participants engaging in different treatments or recovery processes.

Finally, it is important to investigate demographic predictors of social support. Because African Americans as a whole consume less alcohol than European Americans (e.g., Kandel, Chen, Warner, Kessler, & Grant, 1997; U.S. Dept of Health and Human Services, 1995), it is not surprising that African Americans in this study had fewer friends and family to drink with. In addition, being less educated predicted less support for drinking and fewer network drinking behaviors. Previous studies show that higher education and income relate to greater drinking frequency, whereas lower education and income relate to greater drinking consumption (Casswell, Pledger, & Hooper, 2003; Hartford, 2003). Thus, it is likely that more educated participants (who drink more frequently) had more friends to go drinking with, whereas less educated participants drank greater quantities, but in isolation or small groups. Female gender also predicted more general support, which is consistent with research indicating that women tend to report greater general social support than men (Hamper, 2007; Lyons, Perrota, & Hancher-Kvam, 1988; Vo, 1995). Finally, age predicted *Drinking Behaviors of Network Members*. As one ages, it is likely that drinking friends go into recovery, end up in jail, or even die due to age or addictions-related conditions.

Regarding limitations, some selection bias may have occurred during recruitment with only the more successful or motivated recovering individuals choosing to participate. Participation rates were difficult to assess because the study was announced through an advertisement in a newsletter and through letters mailed to Oxford Houses. However, in a previous Oxford House study, more than 97% of individuals approached agreed to participate (Jason, Olson, Ferrari, & Lo Sasso, 2006), suggesting that selection bias may not be a significant issue. Another potential problem is that some participants were not retained across the 1-year course of the study. Thus, participants might possibly represent a "select sample" of individuals. Nevertheless, prior research indicated that Oxford House research participants did not differ from individuals in traditional treatment studies on demographic and substance use characteristics (Jason, Davis, Ferrari, & Bishop, 2001).

Several methodological limitations to this study are also worth addressing. For example, these analyses may have limited generalizability because this investigation only focused on alcohol use (as originally intended by the *IP*) even though many participants were poly-substance abusers. Thus, future research in this area may need to examine social support for both alcohol and drug use. However, analyses from this dataset (Groh, 2005) found that correlations between alcohol and drug social support variables were stronger than correlations between actual alcohol and drug use. This suggests that social support received by Oxford House residents is fairly similar regardless of whether it is related to alcohol or drugs, whereas actual substance use varies. Another limitation is reflected by the low Cronbach's alpha for the *General Social Support* factor, but the *IP* is still in a developmental phase. Finally, more research on this topic is required before any strong conclusions can be drawn given the small percent of variance explained in general support by 12-step participation.

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