Predictors of Participation in AA-Related Helping: Findings from Project MATCH

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Abstract

Objective—The purpose of this paper is to identify the factors that distinguish those who engage in AA-related helping (AAH) following treatment intake.

Method—Data were derived from Project MATCH, a longitudinal prospective investigation of the efficacy of three behavioral treatments for alcohol abuse and dependence. Cox regression analysis was performed to determine the extent to which demographic, clinical, belief, and AA affiliation factors predicted initial participation in AAH over the course of 15-months following treatment intake.

Results—Demographic characteristics, drinking severity, and antisocial personality did not distinguish helpers. Increased religiosity, drinking self-efficacy, and AA affiliation predicted initial participation in AAH. Individuals reported elevated depression prior to participating in AAH, lower depression at initial engagement in AAH, and similarly lower depression in the interval following initial participation in AAH.

Conclusions—The profile of prospective helpers in AA is not limited to individuals from certain backgrounds or higher functioning in terms of drinking or clinical severity. To increase participation in AA-related helping and hence outcomes, results suggest strengthening self-efficacy and meaning in life.

Keywords

helping; alcohol use disorders; alcoholics anonymous; self-efficacy; depression

INTRODUCTION

The symbol for Alcoholics Anonymous (AA), emblazed on celebratory coins members receive for accumulating periods of sobriety, is a triangle representing three core dimensions of the program of AA. One side of the triangle is Service, defined in the context of AA as “anything whatever that legitimately helps us to reach fellow sufferers” (AA, 1985, p. 140). Likewise,

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the Twelfth Step is often taken as synonymous with helping and reads, "Having had a spiritual awakening as the result of these steps, *we tried to carry this message to alcoholics (italics added)*, and to practice these principles in all our affairs" (AA, 1981, p.106). Service work ranges from sharing personal experiences or visiting detoxification centers to greeting members at the door to being a sponsor. The role of a sponsor is to help other alcoholics to stay sober by sharing experiences and assisting their progress through the 12 steps.

Service work has a clear benefit to the survival of an organization. AA's emphasis on members helping other alcoholics builds a certain infrastructure to maintain operations, which may be partly responsible for AA's international presence and longevity (Emrick et al., 1993; McIntire, 2000; Tonigan et al., 1996). Yet it is doubtful that betterment of the group alone is what motivates recovering alcoholics to give service. AA literature explains: "The average alcoholic, self-centered in the extreme, doesn't care for this prospect [service work]—unless he has to do these things in order to stay alive himself" (AA, 2001, p. 22–23). An emerging body of literature points to the helper health benefits (Post, 2007) and sobriety benefits (Emrick et al., 1993; Pagano et al., 2004; Pagano et al., 2007; Zemore et al., 2004; Zemore and Pagano, forthcoming).

The current investigation is a natural extension of this work using data from Project MATCH (Project MATCH Research Group, 1993; Project MATCH Research Group, 1997). If helping helps the helper to stay sober, what are the precipitating characteristics of alcoholics in treatment who go on to help other alcoholics? Although a copious literature examines predictors of 12-step affiliation broadly, little is currently known about the conditions facilitating active engagement in helping within the context of 12-step participation. We focus particularly on the influence of alcohol problem severity, treatment orientation, psychosocial variables, and length of sobriety on the odds of initial participation in AA-related helping (AAH), defined (following Pagano et al., 2004) as having sponsored another AA member and/or completed the Twelfth Step. Results from this investigation will identify the precipitating characteristics that promote the onset of participation in AAH.

Predictors of Service in AA

Our predictors and hypotheses were based in part on conclusions from the literature on predictors of AA involvement, a latent construct with several identified components, such as meeting attendance, step-work, and having a sponsor. Due to the moderate to high correlations between AA involvement components (Emrick et al., 1993), we expect predictors of initial participation in AAH to have some overlap with predictors of other forms of AA involvement.

Demographic Factors—Investigations studying predictors of AA involvement and service have not found strong and consistent effects for demographic characteristics (Crape et al., 2002; Pagano et al., 2004; Pagano et al., 2007), with the possible exceptions of gender, employment, and age. There is some evidence to suggest that adults involved in AA service activities are more likely to be employed (Crape et al., 2002) and older (Pagano et al., 2004). However, given the lack of theory and inconsistent findings, we do not expect demographic variables to differentiate those who do and do not start to help others with 12-step contexts.

Clinical Factors—In contrast to the lack of distinguishing demographic characteristics, several clinical factors have consistently differentiated those who become highly involved in 12-step programs. The association between greater AA involvement and alcohol problem severity is well-documented (Kelly et al., 2000; Morgenstern et al., 1997; Tonigan et al., 1996; Weiss et al., 2000). Indicators of problem severity include higher levels of alcohol consumption and alcohol-related problems, requiring treatment in intensive settings, and increased number of prior treatments. The link between alcohol severity and AA involvement

may be due to the intermediating role of motivation or commitment to abstinence. Higher levels of motivation/commitment to abstinence are associated with higher AA participation (Morgenstern et al., 1997); greater participation in AA's rigorous program of action may increase the likelihood of AAH onset.

Lastly, the clinical factors of depression and antisocial personality disorder (APD) may differentiate those who begin to help others following treatment admission. There is some support for an association between higher depressive symptoms and reduced likelihood and intensity of AA involvement (Kelly et al., 2003; Timko et al., 1993); this may be due to certain symptoms such as extreme fatigue or weariness. APD symptoms, including an inability to make or keep friends and a tendency to violate the rights of others, may also reduce AA involvement, especially in interactive activities such as helping. There is some evidence that characteristics opposed to APD, such as interpersonal competence and sensitivity to others, relate to greater AA participation (Galaif and Sussman, 1995; Timko et al., 2006). Still, given the dearth of research on APD and AA involvement, we include APD as an exploratory variable in relation to helping behaviors. In sum, we hypothesize that clinical indicators of higher alcohol severity, higher readiness for change, and lower depression will predict onset of participation in AAH.

Belief Factors—There is a large body of literature documenting the links between beliefs about religion and spirituality, drinking self-efficacy, and purpose in life with AA involvement (Carroll, 1993; Connors et al., 2001; Kelly and Moos, 2003; Owen et al., 2003; Timko et al., 2006; Tonigan et al., 2002). Thus, we expect greater religiosity/spirituality, confidence in one's ability to resist drinking, and purpose in life to predict onset of AAH.

AA Factors—Four AA-related factors are hypothesized to predict initial engagement in AAH. First, the link between Twelve-Step Facilitated (TSF) professional treatment and AA involvement (Emrick et al., 1993; Humphreys, 1999; Timko, 2006) suggests that TSF treatment will promote engagement in service. Next, two components of AA involvement, meeting attendance (Emrick et al., 1993) and step-work (Gilbert, 1991), are expected to predict onset of AAH, given repetitive exposure to AA's primary purpose to help others. Lastly, as a result of behavioral modeling, having a sponsor is expected to increase odds of providing sponsorship.

Length of Time Sober—We expected accrued experiences living sober to predict initial engagement in AAH. This expectation was driven by AA's literature that recommends sponsors to have one year or more of continuing sobriety (AA, 1983).

Purpose of This Paper

The purpose of this paper is to identify the factors that distinguish those who start to help others during the treatment period or in the 12 months following the end of treatment. To achieve this aim, our investigation highlights the use of event history analysis with time-varying explanatory covariates. In essence, this technology allows us to examine the predictability of explanatory variable scores as assessed at the time of a prospectively observed event. This statistical methodology employs a partial maximum likelihood function derived from the values of covariates for all subjects in the risk set at the time of each observed event (see Allison, 1995 for mathematical overview of Cox models). This study applies time-varying statistical analysis to adequately model fluctuating conditions such as behaviors, beliefs, and moods as they relate in time to the course of involvement in AA (Stout and Papandonatos, 2003).

METHOD

Our study was based on Project MATCH, a longitudinal investigation of the efficacies of three behavioral interventions for individuals with alcohol use disorders delivered over 12 weeks (NIAAA, 2001). The three theoretically derived psychosocial interventions selected for use in this randomized clinical trial were Cognitive-Behavioral Therapy (CBT), Motivational Enhancement Therapy (MET) and Twelve Step Facilitation (TSF). Project MATCH included 1,726 patients in treatment for alcohol abuse and dependence. There were two study arms: outpatient and aftercare. Patients in the outpatient arm were recruited directly from the community or outpatient centers (N=952). Patients in the aftercare arm were recruited from intensive inpatient or day-hospital treatment (N=774). Inclusion criteria included participation in either current treatment (for the outpatient arm) or treatment in the prior three months (for the aftercare arm) for alcohol abuse or dependence according to DSM-III-R criteria. Exclusion criteria included current DSM-III-R diagnosis of sedative/hypnotic drug, stimulant, cocaine, or opiate dependence; intravenous drug use during the previous six months; current danger to self or others; symptoms of acute psychosis; and/or severe organic impairment. Detailed information regarding the overall aims, organizational structure, and research design of Project MATCH is explicated elsewhere (Babor and Del Boca, 2003).

Measures

We first describe our dependent variable, initial participation in AAH, followed by our static and time-varying predictor variables. Static predictor variables were those measured once: demographic variables, most clinical factors (drinking severity prior to treatment, treatment history, treatment setting, readiness for change, APD), and TSF treatment assignment. Time-varying predictor variables were those measured at regular intervals (baseline, 3-months, 9-months, 15- months): depression, belief factors (religious behaviors, self-efficacy, purpose in life), AA factors (meeting attendance, completed step-work, having a sponsor), and length of time sober.

Initial AA-Related Helping—Initial participation in AAH activities was assessed with the Alcoholics Anonymous Involvement (AAI) scale. Developed for use by Project MATCH, the AAI scale consists of 13 items, 8 of which are scored dichotomously. Using the same criterion as a previous investigation (Pagano et al., 2004), participants were considered to be participating in AAH from two AAI items: being a sponsor and/or Step 12 completion (previously described) in the last 90 days. The first endorsement of these two items after the baseline assessment identified initial AAH.

Demographic Factors—Demographic characteristics of participants included gender, race, marital status, full-time employment status, age, and years of education.

Clinical Factors: Alcohol Severity—Alcohol severity was measured as the number of drinks per drinking day, using the semistructured Form 90 (Miller, 1996). The Form 90 is a calendar-based daily drinking estimation method that incorporates a grid-averaging approach to provide a comprehensive and efficient assessment of a person's drinking over a designated period of time (90 days in this study). It has demonstrated test-retest reliability for treatment-seeking alcoholics (Tonigan et al., 1997) and problem use of illicit drugs (Westerberg et al., 1998). Additionally, time to first drink from the nominal end of treatment at Month 3, a primary time-to-event outcome measure used in Project MATCH (Babor et al., 2003), was used to measure length of time sober.

Two additional indicators of alcohol severity were treatment history and treatment setting. Treatment history was measured as the number of prior treatments, with a higher number of

treatment attempts reflecting higher alcohol severity. Treatment setting refers to the threshold of care provided by the study arm (outpatient or aftercare) from which individuals were recruited. Prior analyses of Project MATCH data consistently found higher alcohol severity and alcohol-related consequences among aftercare participants (Tonigan et al., 2003). Treatment settings differ depending upon the level of care provided; aftercare treatment generally follows required care and stabilization of late stage alcoholism in settings with increased structure and clinical monitoring (residential, inpatient).

Stages of Change Readiness and Treatment Eagerness Scale—Readiness to change was assessed with the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller and Tonigan, 1996). The 19-item instrument was designed to assess motivational aspects specific to problem drinking (e.g. “There are times when I wonder if I drink too much”). Items are scored on a 5-point Likert scale and summed to form an overall score. The SOCRATES does not measure the five stages of change constructs, as conceived by Prochaska and Diclemente (1986). Rather, the SOCRATES provides a continuous measurement of motivational processes that underlie the stages of change and three factors that have little overlap with each other: taking steps, recognition, and ambivalence. The SOCRATES has demonstrated adequate internal consistency (Cronbach’s alphas ranging from .60–.83) and excellent test-retest reliability (Pearson r’s ranging from .83–.91) among Project MATCH participants (Miller and Tonigan, 1996).

Depression—Depression was assessed with the Beck Depression Inventory (BDI). The BDI is one of the most widely used self-report instruments for assessing depression severity (Beck et al., 1961). Each of the 21 items is scored on a 4-point Likert scale and summed. The BDI has been used for over 25 years to identify depressive symptoms in a wide range of populations (Beck et al., 1988). The BDI has demonstrated high internal consistency (.92), high test-retest reliability (.93), and adequate concordant validity with the Hamilton Psychiatric Rating Scale for Depression (.71) (Beck, 1988).

Antisocial Personality Disorder—Antisocial Personality Disorder was assessed with a computerized administration of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (C-DIS; Robins et al., 1981). Designed to make diagnoses according to DSM-III criteria, Feighner criteria (Feighner et al., 1972), and Research Diagnostic Criteria (Spitzer et al., 1978), the C-DIS has demonstrated fair to good test-retest reliability (alphas ranging from .60–.70) and concordant validity (kappas ranging from .57–.86; Robins et al., 1981; C-DIS Management Group, 1991).

Belief Factors: Religious Behaviors—Religious behaviors were measured with the Religious Background and Behavior (RBB) questionnaire (Conners et al., 1996). The RBB is a 13-item measure that taps such domains as the use of prayer and meditation, reading of scripture, attendance at worship services, and experiences of God. On the first item, respondents endorse the best descriptor of belief: atheist, agnostic, unsure, spiritual, and religious, scored 0–4 respectively. On the next 6 items, rated on an 8-point Likert scale from 1 (never) to 8 (more than one a day), respondents endorse the frequency at which they engaged in religious behaviors in the past year. On the last six items, rated on a 3-point Likert scale ranging from 1 (never), 2 (past practice only), and 3 (past and current practice), respondents indicate the frequency of engagement in religious behaviors in terms of lifetime occurrence. Items are summed to obtain a total score that ranges from 0 to 60. The RBB total score has demonstrated good internal reliability (alpha=.86), and excellent test-retest reliability (Pearson r=.97; Connors et al., 1996).

Self-Efficacy—Self-efficacy regarding alcohol abstinence was assessed with the Alcohol Abstinence Self-Efficacy Scale (AASE; DiClemente et al., 1994). The AASE, based on Marlatt's cognitive-behavioral model of relapse (1980), is an easily used, psychometrically sound, 20-item self-report measure designed to assess Bandura's (1977) construct of self-efficacy applied to alcohol abstinence. Subjects rate their vulnerability to drink and confidence to abstain from alcohol across 20 different high-risk situations on a 5-point Likert scale. A summary score is created that reflects the average score across the 20 high-risk situations.

Purpose in Life (PIL)—The Purpose in Life Test (PIL; Crumbaugh, 1968) assesses current perception of meaning and purpose in life, and has been used in a variety of clinical and alcohol treatment settings (Molasso, 2006; Black, 1991). The PIL consists of 20 statements, each rated on a 7-point Likert scale. The end points of each item are descriptive anchors from low (1) to high (7) in sense of meaning, with the middle position (4) as neutral. As an example, one item asks: "If I could choose, I would…" and the choices of "prefer never to have been born (1)" to "live nine more lives just like this one (7)". The 20 items are summed to form a total PIL score ranging from 20 to 140. The PIL has demonstrated good internal consistency (alpha=. 91), test-retest reliability, and adequate concordant validity (kappas ranging from .61–.89; Zika and Chamberlain, 1992).

AA Factors—Four factors within the context of AA were pre-specified as predictors of helping behaviors: three identified components of AA involvement, and receipt of 12-Step Facilitated Treatment. AA involvement components of having a sponsor, meeting attendance, and step-work were measured from three items of Alcoholics Anonymous Involvement (AAI) questionnaire (Tonigan et al., 1996). The AAI has demonstrated high internal consistency (alpha=0.85) and excellent test-retest reliability (Tonigan et al., 1996). Having a sponsor is measured from one AAI item that is dichotomously scored (yes-no). Meeting attendance was measured from the item "How many meetings have you attended in the past 90 days?" This item was converted to 4 deciles that were then separately divided by 10, resulting in a value ranging between .1 and 1.00. Step-work was measured from the continuous AAI item asking respondents to endorse what steps (1–11) they completed during the assessment period. Individual steps endorsed were summed for a total score of number of steps "worked". The correlation between meeting attendance and step-work has been shown to be modest (r=.52; Tonigan et al., 1996), indicating related, but distinct dimensions of the AA program. Lastly, receiving 12-Step Facilitated Treatment versus not (CBT or MET) was ascertained from the randomized treatment assignment of individuals in Project MATCH.

Statistical Analysis

Statistical analyses were conducted with SAS version 8.0 (SAS Institute Inc., 1999), using the PHREG procedure for Cox proportional hazard regression analyses. Depending upon the type of variables (continuous or discrete), analysis of variance or chi-square analyses were performed to evaluate demographic or clinical differences between groups. Demographic characteristics were first entered into Cox proportional hazard regression models in a two-stage approach. At the second stage, non-significant demographic variables were removed using the default of .10 for probability to remove. This two-stage approach was used because demographic characteristics have not been predictive of alcohol outcomes in general, and to limit the number of predictor variables to the recommended 1:20 ratio (Allison, 1995).

To distinguish predictors unique to onset of AAH from predictors of AA involvement more broadly, cox proportional hazard regression models controlled for AA meeting attendance, completed Step work, having a sponsor, history of AAH, and length of time sober. In order to reduce potential collinearity (Aiken and West, 1991), baseline assessments of static predictor scores were centered by subtracting the sample mean from each score. The intra-relationship

correlations between predictor variables at baseline were low (Pearson r=.01–.30), with the exception of a moderate correlation between BDI and PIL scores (r=−.54). ; consecutive interval correlation matrix patterns were similar but reduced in magnitude. For time-varying predictor variables, indicator scores are tagged to the preceding interval when initial helping was observed. Tests for violations of the proportional hazard assumption found no evidence of nonproportionality in Cox regression models. Results of a sensitivity analysis found no appreciable effect of possible informative censoring on parameter estimates. We reported all two-tailed tests with significance values greater than 95% ($p < 0.05$).

RESULTS

Sample Demographic Characteristics

This investigation's sample consisted of 1593 participants with complete baseline and 3-month follow-up assessment data on all study measures. There were no significant differences between study participants (N= 1593) and participants with incomplete 3-month data (N=133) in terms of demographic or predictor variables at baseline. The majority of the sample was retained across the 15-month study period: 86% (1374/1593) completed a 9-month interview, and 81% (1286/1593) completed a 15-month interview. Characteristics of the study sample at baseline are presented in Table 1. Study participants were predominantly male (76%), Caucasian (83%), and single (65%). Fifty-percent were employed full-time. On average, participants were in their early 40's (M=40.3, SD=10.0), had graduated from high school, and had approximately one year of college or technical training (M=13.3, SD=2.1). Prior engagement in AA-related activities was low in the 90 days before study participation. On average, the sample had attended 3.0 meetings, completed approximately 2 steps, and 71% entered treatment without a sponsor.

Two hundred and forty-three participants began to help others within 12-step contexts over the course of a 15 month time period from the start of treatment. Fifty-one percent of helpers reported initial AAH at the 3-month interval), 25% reported initial AAH at the 9-month interval, and 23% reported initial AAH at the 15-month interval. Univariate comparisons at baseline found no distinguishing demographic or clinical characteristics between those who begin to help others during follow-up (N=243) and those who do not (N=1350) with the exception of age (F=19.20, df=1, p<.0001). Those who began to help others during follow-up were more likely to have a pre-treatment history of higher AA meeting attendance (F=30.13, df=1, p<.0001) and being sponsored (X2=63.55, df=1, p<.0001). Pre-treatment history of participation in AAH was associated with helper status (X2=59.88, df=1, p<.0001), although most future helpers (88%) had no prior history. For the length of time followed in the study, individuals who began to participate in AAH continued to help others (92%), and all helpers were sober at the follow-up assessment when engagement in helping was endorsed.

Predictors of Initial AA-Related Helping

Demographic and Clinical Factors—In the preliminary Cox regression (not shown), none of the demographic characteristics assessed predicted initial AAH, except for age. However the positive relationship between age and AAH onset did not replicate in multivariate models (see Table 2). In the final Cox model (Table 2), the following pre-treatment characteristics did not predict initial AAH: age, drinks per drinking day, treatment history, treatment setting, SOCRATES, and APD. In the direction opposite than expected, a significant positive relationship was found between BDI scores and initial AAH. Individuals with higher levels of BDI scores in the prior interval were more likely to begin to help others (p<.05).

Belief Factors—In contrast, significant effects for belief factors were found for religious behaviors and drinking self-efficacy (see Table 2). Consistent with our hypothesis, increased

RBB and SOCRATES scores were associated with a greater likelihood of AAH onset; the likelihood of initial AAH increased by 2% for each one unit increase in RBB total score ($p<.01$) and 19% for each one unit increase in SOCRATES total score ($p<.05$). Consistent with our hypothesis, a trend related increased PIL scores with initial AAH ($p=.10$).

AA Factors—The majority of hypotheses regarding AA factors were confirmed. Table 2 shows very strong effects for both the number of meetings attended and steps worked in the prior interval. In addition, those who had a sponsor in the prior interval were about two times more likely to begin to help others ($p<.0001$). However, contrary to expectation, assignment to TSF bore no relation to initial AAH.

Length of Time Sober—Greater length of sobriety predicted initial AAH ($p<.0001$). The likelihood of initial AAH increased 6% with each additional day sober.

Course of Depression and Initial AA-Related Helping—To clarify the finding for depression, we conducted one post-hoc analysis among participants who began to help others after the baseline assessment. We designated the interval of initial AAH as time point zero. BDI scores were then assembled relative to time point zero, with up to two intervals preceding and following time point zero. Because the focus of our analysis was on change in depression before and after initial AAH, we also required that subjects have at least one interval of nonmissing scores immediately pre- and post- time point 0. We modeled depression over time for each subject as an interrupted time series (Allison, 2005) with four random effects: 1) intercept, 2) linear change in depression level over time, 3) shift in the depression mean level around time point 0, and 4) change in the slope of depression scores after time point 0. The model was fitted using a compound symmetry within-subject variance-covariance matrix and controlled for static covariates modeled in the Cox regression. Results indicated a significant shift in BDI scores around time point zero ($F=18.79$, $df=1$, $p<.0001$) that reflected elevated BDI scores in the preceding interval ($M=10.29$, $SD=0.58$), significantly lower BDI scores at the time of starting to help others ($M=7.20$, $SD=0.58$), and similarly lowered BDI scores in the following interval ($M=7.20$, $SD=0.63$).

DISCUSSION

As increased length of sobriety predicted initial engagement in AAH, members of AA are strongly encouraged to help others as a way to stay sober. Prior work focused on service given specifically during the treatment period (Pagano et al., 2004); this investigation expands prior work to include service given over the 12 months following treatment. Approximately 15% of treatment-seeking adults helped others during this 15-month investigation; approximately 50% of helpers began helping during treatment; most helpers continued helping once engaged in these behaviors; and no helper helped others while drinking. This study furthers understanding of the conditions that precede initial participation in AA-related helping. In addition, this work addresses the question of whether helping behaviors are simply a marker of those with more resources and better psychological health.

As expected, and consistent with other studies of AA involvement, the background characteristics of gender, race, age, marital status, education, and employment status of alcoholics seeking treatment did not differentiate those who went on to help others. A similar pattern was found for the majority of clinical severity indicators: drinking severity, treatment setting, history of prior treatments, readiness for change, and APD did not differentiate alcoholics who began to help others in 12-step programs. Contrary to expectation, adults presenting with a wide range of alcohol severity appear equally as likely to participate in AA-related helping. Helping others appears to be a distinct component of the AA program given alcohol severity was not predictive of service onset but has been linked to other AA

involvement indices (Emrick et al., 1993; Humphreys, 1999). These results imply that helping others within AA is not limited to individuals of a certain educational, gender, race, marital, employment, antisocial personality status, or problem history. Accordingly, as demonstrated in prior work (Pagano et al., 2004), the benefits derived from helping are not limited to certain types of alcoholics based upon background and presenting clinical characteristics.

The one clinical factor linked to increased likelihood of helping others challenges the assumption of helping as a signal for higher psychological health. Prior research explored this assumption and found no link between psychological health and participation in helping activities (Zemore and Kaskutas, 2004). Our study also did not find support for higher psychological health as a prerequisite for AAH onset. Instead, we found that individuals who were more depressed subsequently engaged in helping; their depression then lowered with service involvement. This latter effect suggests salutary effects of helping. Replication of these findings is needed among a diverse sample of alcoholics. This research highlights the use of time-varying statistic methods to further understanding of the interplay between variable conditions, such as mood, in relation to fluctuating alcohol outcomes, such as participation levels in AA.

Hypotheses pertaining to belief factors were largely confirmed. Controlling for levels of AA affiliation, increased practice of religious-oriented behaviors, increased confidence in one's ability to resist temptation, and increased sense of purpose in life predicted future engagement in helping. Findings are noteworthy for extending prior work relating greater spirituality to greater helping (e.g. Zemore et al., 2004). Still, it is worth noting that prior work in Project MATCH found no link between religious orientation and 12-step participation (Tonigan et al., 2002). Leaving aside the important distinctions between religious orientation, practices, and beliefs, there is a clear link between religious practices and AAH onset. Lastly, less strong but notable associations were found for drinking self-efficacy and purpose in life. It is likely that confidence to resist temptation and sense of life purpose are further strengthened as a result of giving service. Because temptation to drink may actually increase in the company of active alcoholics, future research is needed to support AA theory that the helper benefit manifests independent of recipient characteristics.

Three of the four hypotheses pertaining to AA factors were confirmed. The more meetings attended, step-work completed, and sponsorship received, the more likely individuals were to become sponsors or work the 12^{th} step. More time sober also predicted onset of AAH. These findings make sense in light of Bill Wilson's comment "you cannot transmit what you do not have" (AA, 2001, p. 164). Providing sponsorship or 12^{th}-step work implies having experience to transmit; these results suggest such experience accrues from increased meeting attendance, personal progress through the 12-steps, learning how to be a sponsor from having a sponsor, and more time sober.

In contrast to supported hypotheses, the hypothesis of association between TSF treatment assignment and greater odds of AAH onset was not confirmed. Although TSF treatment may increase participation in many components of the AA program (Humphreys, 1999), TSF treatment given by professionals does not appear to promote the onset of AAH. To maximize helping behaviors and hence outcomes, TSF programs may consider emphasizing the helper benefits from helping, explicitly encouraging patients to help others, and strengthening self-efficacy and purpose in life linked to generative behavior.

There are several limitations to consider when interpreting the results of this study. First, although several hundred adults in this large national sample began to help others that allowed adequate modeling of study predictors in a 1:20 variable per events ratio, there was insufficient power to detect small effects of associations between characteristics and AAH onset. Second,

this study employed a narrow view of service activities based upon a two-item construct from prior work (Pagano et al., 2004). Several recovery-oriented helping scales have since been developed to better assess the myriad of ways that alcoholics help others in recovery. The research of Kaskutas and colleagues (Kaskutas et al., 2002; Kaskutas et al., in press; Kaskutas and Zemore, 2004;) has broadened the narrow conceptualization of helping beyond sponsorship or the 12th step. Other forms of AA service partaken by newcomers and oldtimers alike include: making coffee, greeting members at the door, putting away chairs, visiting detoxification centers, volunteering at local AA Service Centers, welcoming newcomers at meetings, and sharing experiences in sobriety to help a fellow sufferer. As research further elucidates the service activities that exist within the orb of AA helping, much work is needed to determine which helping matters most to staying sober. Third, we were unable to examine social, contextual variables within 12-step settings as predictors of service participation. Future research is needed to explore influential ingredients within AA environments that further engagement in 12-step oriented helping. Fourth, the population in this study consisted of adults only; additional studies are needed to determine if findings are replicated among youth. Given that the majority of alcoholics begin drinking during adolescence, empirical study of the helper benefit as it applies to the daily lives of adolescents in recovery from substance use disorders is warranted. A National Institute on Alcohol Abuse and Alcoholism-sponsored study is underway to quantify the daily practice of helping others that sustains sobriety for both adolescent and adult alcoholics.

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TABLE 1

Intake Characteristics of Study Participants

Intake Characteristic		Total 1593 (100%)
Demographic Factors		
Gender	Male	1207 (76%)
	Female	386 (24%)
Race	Caucasian	1316 (83%)
	Black	151 (9%)
	Other	126 (8%)
Marital Status	Married	555 (35%)
	Single	1038 (65%)
Employed Full-time	No	791 (50%)
	Yes	802 (50%)
Age	M (SD)	40.3 (10.0)
Years of Education	M (SD)	13.3 (2.1)
Clinical Factors		
Drinks per drinking day	M (SD)	16.7 (10.7)
Treatment History	M (SD)	1.3 (2.2)
Treatment Setting	Outpatient	858 (54%)
	Aftercare	735 (46%)
SOCRATES	M (SD)	11.9 (4.1)
Beck Depression Inventory	M (SD)	10.1 (8.2)
Antisocial Personality	No	1381 (87%)
	Yes	212 (13%)
Belief Factors		
Religious Background and Behaviors	M (SD)	36.8 (11.2)
Self Efficacy	M (SD)	3.1 (0.9)
Purpose in Life	M (SD)	93.9 (18.9)
AA Factors		
Number of AA meetings	M (SD)	0.03 (0.01)
Number of AA Steps worked	M (SD)	1.9 (2.9)
Has AA Sponsor	No	1162 (73%)
	Yes	427 (27%)
TSF Treatment	No (CBT)	520 (33%)
	No (MET)	532 (33%)
	Yes	541 (34%)

TABLE 2

Predictors of Participation in AA-Related Helping

Variable	Parameter Estimate	Standard Error	Chi-Square	Pr > Chisq	Hazard Ratio	Confidence Limits (95%)
Demographic Factors						
Age	0.00810	0.00651	1.5474	0.2135	1.008	0.995, 1.021
Clinical Factors						
Drinks per Drinking Day	0.00892	0.00639	1.9456	0.1631	1.009	0.996, 1.022
Treatment History	−0.00095	0.02832	0.0011	0.9731	0.999	0.945, 1.056
Treatment Setting	0.03890	0.15741	0.0611	0.8048	1.040	0.764, 1.415
Socrates	−0.01102	0.01971	0.3129	0.5759	0.989	0.952, 1.028
Beck Depression Inventory	0.02457	0.01009	5.9277	0.0149	1.025	1.005, 1.045
Antisocial Personality Disorder	−0.18581	0.22064	0.7092	0.3997	0.830	0.539, 1.280
Belief Factors						
Religious Practices and Beliefs	0.01936	0.00690	7.8709	0.0050	1.020	1.006, 1.033
Self-Efficacy	0.17686	0.07437	5.6554	0.0174	1.193	1.032, 1.381
Purpose in Life	0.00783	0.00486	2.5964	0.1071	1.008	0.998, 1.018
AA Factors						
Number of AA Meetings Attended	0.92451	0.28690	10.3841	0.0013	2.521	1.436, 4.423
Number of Steps Worked	0.15171	0.02164	49.1412	<.0001	1.164	1.115, 1.214
Has a sponsor	0.59684	0.17268	11.9467	0.0005	1.816	1.295, 2.548
TSF Treatment	0.00078	0.08729	0.0001	0.9928	1.001	0.843, 1.188
Length of time sober	0.00206	0.00049	17.3992	<.0001	1.002	1.001, 1.003