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## Spiritual Awakening Predicts Improved Drinking Outcomes in a Polish Treatment Sample

Stephen Strobbe, PhD, RN, NP, PMHCNS-BC, CARN-AP<sup>1</sup>, James A. Cranford, PhD<sup>2</sup>, Marcin Wojnar, MD, PhD<sup>3</sup>, and Kirk J. Brower, MD<sup>2</sup>

<sup>1</sup>University of Michigan School of Nursing (UM-SON) <sup>2</sup>University of Michigan Addiction Research Center (UMARC) <sup>3</sup>Medical University of Warsaw (MUW), Poland

### Abstract

**Purpose**—This study examined concurrent and longitudinal associations between two dimensions of affiliation in Alcoholics Anonymous (AA)—attendance and spiritual awakening—and drinking outcomes among adult patients who were in treatment for alcohol dependence in Warsaw, Poland. In a study conducted at four addiction treatment centers, male and female patients ( $n = 118$ ) with a DSM-IV diagnosis of alcohol dependence were assessed at baseline (Time 1 or T1), one month (T2), and 6 to 12 months post-baseline (T3) for AA meeting attendance, various aspects of AA affiliation, and alcohol use. AA meeting attendance and alcohol consumption were measured using the Timeline Followback (TLFB) interview. Self-report of having had a spiritual awakening was measured using a modified version of the Alcoholics Anonymous Involvement (AAI) scale.

**Results**—There were no cross-sectional or longitudinal associations between AA meeting attendance and improved drinking outcomes. In contrast, self-report of a spiritual awakening between T2 and T3 was significantly associated with abstinence ( $OR = 2.4, p < .05$ ) and the absence of any heavy drinking ( $OR = 3.0, p < .05$ ) at T3, even when demographic and clinical characteristics were statistically controlled.

**Conclusions**—Self-reports of spiritual awakening predicted improved drinking outcomes in a Polish treatment sample.

### Keywords

Alcoholics Anonymous; alcohol dependence; Poland; spiritual awakening; spirituality

### Introduction

Alcohol misuse is now viewed as a global health risk. About two billion people worldwide consume alcoholic beverages, and more than 76 million have a diagnosable alcohol use

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Please address correspondence to Dr. Stephen Strobbe, University of Michigan School of Nursing, 400 North Ingalls, Ann Arbor, MI 48109-5482, strobbe@umich.edu.

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disorder (WHO, 2004). While most adults around the world abstain from drinking alcohol (45 % of men, and 66% of women), its consumption is consistently listed among the world's leading health risk factors, accounting for 2.3 million deaths (3.8% of total) and 70.9 million Disability-Adjusted Life Years (DALYs, 4.6% of total) annually (Rehm et al., 2009).

One nation that may be disproportionately affected is Poland. Since 1989, there has been a substantial increase in alcohol consumption in Poland, together with changes in drinking patterns and alcohol-related health problems (Cherpitel, Moskalewicz & Swiatkiewicz, 2004). This increase has been attributed to changing political, social, and economic forces associated, at least in part, with the fall of communism and an abrupt shift to a market economy (Moskalewicz, 1991).

Poland is predominately a spirits-drinking country, characterized by relatively infrequent but heavy drinking, with high levels of intoxication (Wald, Morawski & Moskalewicz, 1986), particularly among males (Wojtyniak, Moskalewicz, Stokwiszewski & Rabczenko, 2005). From a cultural perspective, it is worth noting that some Poles may consider themselves to be abstinent from alcohol even if they consume beer or wine, but not vodka (Zielinski, 1987). A study of brief interventions in primary care settings in Poland found that among more than 4,000 patients screened in 20 physician's offices, nearly 25% met criteria for at-risk, problem, or dependent drinking (Fleming, 1999). The prevalence of alcohol misuse in Poland highlights the importance of identifying factors that may enhance outcomes for treatment and recovery.

### **Alcoholics Anonymous in Poland**

Alcoholics Anonymous (AA) has been described as “the largest and most popular mutual-help program for individuals with alcohol-related problems” (Tonigan, Connors & Miller, 2003, p. 184). Founded in 1935 by William Griffith Wilson (Bill W.) and Dr. Robert Holbrook Smith (Dr. Bob), two chronic alcoholics, AA recently reported having more than two million members and 115,000 groups in over 180 countries throughout the world (AAWS, 2010), including Poland. As early as 1981, the World Health Organization (WHO) began to view self-help groups, more recently referred to as mutual-help groups, as an integral part of public health (WHO, 1981).

Despite a worldwide presence, even basic information about the role of AA in treatment and recovery remains lacking for many countries outside the United States. One notable exception was an international research initiative that examined Alcoholics Anonymous as a mutual-help movement in eight societies, including Poland (Mäkelä et al., 1996). Nonetheless, specific mechanisms of change that may contribute to improved outcomes are not yet fully understood, either in the U.S. or in other parts of the world.

Alcoholics Anonymous is present and active in Poland. According to minutes from the 2006 World Service Meeting Report, Poland had “one of the fastest growing fellowships in Europe,” consisting of more than 2,000 groups (AAWS, 2006, p. 41). The General Service Office (GSO) in Warsaw has translated and published a wide array of conference-approved literature, including an official translation of the “Big Book,” or *Alcoholics Anonymous* (AAWS, 1976), the basic text for the society, which was first released in Poland in 1996.

The GSO in Warsaw has also launched an official AA web site ([www.aa.org.pl](http://www.aa.org.pl)). Although AA maintains no formal relationships with hospitals, treatment centers or other outside entities, and AA membership is strictly voluntary, AA meeting attendance is expected in at least some alcohol treatment programs in Poland, and continued involvement in AA is frequently recommended and encouraged.

### AA Attendance

One relatively well-studied dimension, at least in the United States, is AA meeting attendance. Going to “90 meetings in 90 days” is commonly prescribed to newcomers, based on the fellowship’s shared wisdom and anecdotal observations that attendance is fundamentally important, although such frequency of attendance may not easily be attainable in all parts of the world. Early research supported a positive relationship between AA meeting attendance and drinking outcomes, most notably abstinence (Ferris-Kurtz, 1981; Thurstin, Alfano & Nerviano, 1987), although some studies failed to find such relationships, or reported mixed results (McLatchie & Lomp, 1988; Miller, Leckman, Delaney & Tinkcom, 1992; Ogborne & Bornet, 1982).

Two meta-analyses (Emrick, Tonigan, Montgomery & Little, 1993; Tonigan, Toscova & Miller, 1996) and Project MATCH (Tonigan et. al., 2003) subsequently reported modest, positive associations between AA meeting attendance and improved outcomes, and other more recent studies have generally supported this view. For example, Gossop et al. (2003) found that AA attenders had superior drinking outcomes when compared to non-AA attenders and infrequent attenders. An 8-year investigation of 12-step group involvement among adolescents following inpatient treatment also found that early Alcoholics Anonymous and/or Narcotics Anonymous (NA) attendance was associated with long-term abstinence (Kelly, Brown, Abrantes, Kahler & Myers, 2008).

Some authors have suggested that AA meeting attendance may be “an indirect reflection” of other important processes that are more strongly related to outcomes, and that attendance by itself may not indicate “genuine involvement” (Montgomery, Miller & Tonigan, 1995). Other researchers have examined constructs such as AA affiliation, involvement, or participation as either separate from, or in addition to, attendance alone. For example, in a prospective study of male veterans receiving inpatient treatment for alcoholism, McKellar, Stewart and Humphreys (2003) quantified AA participation using four indicator variables: (1) the number of AA meetings attended, (2) frequency of reading AA books and/or pamphlets, (3) frequency of talking to one’s AA sponsor, and (4) the number of AA friends, and found that AA participation had positive associations with alcohol-related outcomes. Likewise, Cloud and colleagues (2004) derived a 3-item affiliation composite scale consisting of AA attendance, sum of steps completed, and identifying oneself as an AA member, which predicted abstinence outcomes in Project MATCH.

### AA and Spirituality

Another dimension of AA is its association with spirituality. Recent theoretical and empirical work has highlighted the role of spirituality-related variables in the recovery process (Connors, Walitzer & Tonigan, 2008; Galanter et al., 2007; Piderman, Schneekloth,

Pankrantz, Maloney & Alchluler, 2007; Robinson, Krentzman, Webb & Brower, 2011). For example, Matzger, Kaskutas & Weisner (2005) found that endorsement of the statement, “You had a religious or spiritual experience,” predicted remission and sustained abstinence in non-treatment and treatment samples, and was listed as an important reason for not drinking in the treatment sample. Another study found an association between AA attendance and drinking outcomes that was partially mediated by increases in spirituality (Kelley, Stout, Magill, Tonigan & Pagano, 2011; also see Zemore, 2007). Step 12 of Alcoholics Anonymous specifically references spirituality when it states, “Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics, and to practice these principles in all our affairs” (AAWS, 2001, p. 60). Of particular interest is a study showing that helping other alcoholics, consistent with 12<sup>th</sup> step work, was associated with staying sober after controlling for AA attendance (Pagano, Friend, Tonigan & Stout, 2004).

Similarly, Kaskutas, Bond & Weisner (2003) conducted a longitudinal study of adults entering substance use treatment and reported that having a recent spiritual awakening was associated with higher odds of sobriety, even after controlling for AA attendance, alcohol problem severity, and treatment factors. To our knowledge, however, no studies have yet examined the effects of spirituality-related variables in general, or spiritual awakening specifically, in a Polish sample of alcoholics in treatment.

To summarize, alcohol dependence is highly prevalent in Poland, where AA is becoming an increasingly common adjunct to alcohol treatment. Determining the extent to which AA attendance and/or spiritual awakening relates to drinking outcomes may extend results observed in the U.S. and help to inform alcohol treatment efforts. Accordingly, the purpose of our study was to examine relationships between Alcoholics Anonymous (AA) meeting attendance, spiritual awakening, and longitudinal drinking outcomes among patients treated for alcohol dependence in Warsaw, Poland. We hypothesized that both AA meeting attendance and the experience of a spiritual awakening would be positively associated with improved drinking outcomes.

## Methods

This study was a collaborative project between the University of Michigan and the Medical University of Warsaw (MUW), Poland. It was approved by the Institutional Review Board for Human Subjects Research (IRBMED) at the University of Michigan, and the Bioethics Committee at the Medical University of Warsaw. Participation was voluntary, with full, written, informed consent. Consistent with cultural norms for research participants in Poland, no financial compensation was offered or provided for taking part in the study.

## Design

A prospective longitudinal study design was employed, using three data collection points: baseline (Time 1 or T1), one month post-baseline (T2), and 6 to 12 months post-baseline (T3). These time-points were selected because (1) the greatest risk for relapse to alcohol use is during the first month following the initiation of treatment or abstinence (Hunt, Barnett & Branch, 1971), (2) following treatment, more than half of all patients can be expected to

return to some level of drinking within 6 to 12 months (Project MATCH Research Group, 1997), and (3) course specifiers for early and sustained remission from alcohol dependence, as defined by the Diagnostic and Statistical Manual for Mental Disorders, 4<sup>th</sup> edition, text revision (DSM-IV-TR), are determined at one and 12 months, respectively (APA, 2000).

## Participants

Included in the study were men and women, ages 18 years and older, with a DSM-IV diagnosis of alcohol dependence. Diagnoses were determined by consensus in a multidisciplinary team of specialists, including a psychiatrist and an addictions therapist. The baseline study sample ( $n = 154$ ) was Caucasian (100%), predominately male (76%), unmarried (53%), unemployed (62%), and admitted to residential treatment (78%). See Table 1 for additional information related to demographic and clinical characteristics.

## Setting

The study was conducted simultaneously at four addiction treatment centers (two residential and two intensive outpatient programs) in Warsaw, Poland. These programs were abstinence-based, and included group and individual therapy, incorporating elements of relapse prevention (Marlatt & Gordon, 1985) and twelve-step facilitation (TSF; Humphreys, 1999).

## Measures

Background information was obtained using a modified version of the University of Arkansas Substance Abuse Outcomes Module (SAOM), a self-report tool that assesses a number of patient characteristics including demographics, family history, social support, alcohol and drug use, and consequences. Measures in this module have good psychometric properties, and compare favorably with several other substance abuse research instruments (Smith et al., 2006). Social support was measured by the tangible support subscale from the Medical Outcomes Study Social Support Scale (MOS-SSS; Sherbourne & Stewart, 1991). Severity of alcohol dependence was measured using the Michigan Alcoholism Screening Test (Falicki, Karczewski, Wandzel & Chrzanowski, 1986; Selzer, 1971). Psychiatric symptom severity was measured with the Global Severity Index (GSI) of the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983).

Primary variables of interest included AA meeting attendance, having had a spiritual awakening, and alcohol consumption. Alcohol use and AA attendance were measured using the Timeline Followback Interview (TLFB). The TLFB uses a calendar of holidays and personal events (e.g., birthdays) to facilitate the collection of retrospective reports of drinking over a designated period of up to 12 months (Sobell & Sobell, 1996). It has good psychometric properties across a variety of drinking groups (Sobell, Sobell, Leo & Cancilla, 1988). An official version of the TLFB was available in Polish. Drinking data and AA attendance were collected at baseline (T1), recording data for 90 days prior to entry into treatment, and then again at T2 (one month) and T3 (6 to 12 months), with each assessment going back to the previous study visit.

Having had a *spiritual awakening* was measured using a single item from a modified version of the Alcoholics Anonymous Involvement (AAI) scale (Tonigan, Connors & Miller, 1996), incorporating certain changes from the subsequently released and revised Twelve-Step Participation Questionnaire (Tonigan, Miller & Connors, 1997a; Tonigan, Miller & Connors, 1997b). At T1, patients were asked, “Have you ever had a spiritual awakening since you started to participate in AA?” At T2 and T3, the question was phrased, “Have you had a spiritual awakening since the last study visit?” Answers were coded as either yes or no.

Any research instruments for which Polish versions were not available were translated using the simultaneous forward/single back-translation method (Cella, Lloyd & Wright, 1996; Guillemin, Bombardier & Beaton, 1993; Hunt, 1988). The translation process used for this study has been described elsewhere (Wojnar et al., 2008).

The primary outcome variable was *abstinence*, defined as no alcohol use from baseline to study completion at T3, and coded as abstinent or not. This outcome was selected because it is most consistent with the drinking goal recommended both by AA and the abstinence-based treatment programs from which study participants were recruited. As a secondary outcome variable, *no heavy drinking* was also considered, defined as no episodes of 5 standard European drinks (10 gm ethanol each) in a day for men, or 4 standard European drinks for women (Dawson, Grant & Li, 2005) throughout the study, as assessed at T3 for the entire follow-up period. Self-reports of drinking behaviors were further corroborated with breathalyzer readings taken at each study visit.

## Analyses

Bivariate associations between baseline variables (Table 1) and drinking outcomes were tested using chi-square tests, independent group *t*-tests, and correlational analyses. If significant, then these items were controlled during subsequent analyses. AA attendance (i.e., the number of AA meetings attended) was measured as a continuous variable at baseline with the question, “How many AA meeting have you attended in your whole lifetime?” At follow-up, AA attendance was derived from Timeline Followback data, and compared to dichotomous drinking outcomes using independent group *t*-tests. Having had a spiritual awakening was examined in relation to drinking outcomes using chi-square analyses. Multiple logistic regression analyses were used to examine the cross-sectional associations between AA attendance and spiritual awakening at T3 and the two binary drinking outcome variables (abstinence and no heavy drinking) at T3.

## Results

Of 154 participants at baseline, 118 (77%) were assessed at T3, and constituted the sample of interest for this study. Mean time to study completion was 313.9 (SD = 85.4) days, or approximately 10.5 months.

### Attrition Analysis

Baseline data were compared between study participants who did not complete assessment at T3, and those who did, to test for possible attrition bias. Noncompleters (23%) were

significantly more likely than completers to be less educated (mean = 11.1, SD = 4.1 years vs. 12.6, SD 3.4,  $t(116) = -2.0, p < .05$ ), unemployed (81% vs. 62%,  $\chi^2 = 4.1, p < .05$ ), unmarried (81% vs. 57%,  $\chi^2 = 4.1, p < .05$ ), and court-ordered to treatment (33% vs. 10%,  $\chi^2 = 10.8, p < .05$ ). Noncompleters were more likely to have been assigned to residential rather than outpatient treatment (92% vs. 87%,  $\chi^2 = 5.2, p < .05$ ). They also reported a greater number of drinks per drinking day in the 90 days prior to treatment when compared to study completers (mean = 27.9, SD = 18.0 vs. 18.3, SD = 11.6,  $t(116) = 3.2, p < .05$ ), however, not a greater number of drinking days in the 90 days prior to treatment. They did not differ significantly in terms of age, race, gender, other drug use, lifetime AA meeting attendance or social support.

### Prevalence and Correlates of T3 Drinking Outcomes

At study completion (T3), more than half of the participants (54%) reported having remained abstinent from alcohol, and 65% reported no episodes of heavy drinking. Of those who engaged in heavy drinking, the mean number of heavy drinking days at T3 was 44.6 (SD = 53.0), with a range of 2 to 117 days, suggesting a wide variety of drinking behaviors, from a brief “slip” to full alcoholic relapse if, in fact, abstinence or recovery were initiated at all.

Those who abstained from alcohol throughout the study were more likely at baseline to have been employed (66% vs. 47%,  $\chi^2 = 4.1, p < .05$ ) and admitted to intensive outpatient rather than residential treatment (70% vs. 48%,  $\chi^2 = 4.2, p < .05$ ), and had greater tangible social support (mean 17.9 vs. 15.8,  $t(116) = 2.1, p < .05$ ). Similarly, those who reported no episodes of heavy drinking were more likely to have been employed (77% vs. 58%,  $\chi^2 = 4.7, p < .05$ ), and to have had greater tangible support (17.8 vs. 15.2,  $\chi^2 = 2.6, p < .05$ ) than those who engaged in any heavy drinking during the study.

AA meeting attendance across the duration of the study (T1-T3), however, was not associated with either drinking outcome. In addition, reporting an experience of spiritual awakening at the baseline (T1) interview was not associated with either drinking outcome at T3, or completion of the study. In contrast, self-report of a spiritual awakening between T2 and T3 was significantly associated both with abstinence at T3 (63% vs. 45%,  $\chi^2 = 3.9, p < .05$ ) and the absence of any heavy drinking at T3 (75% vs. 55%,  $\chi^2 = 5.2, p < .05$ ).

Multiple logistic regression analyses were conducted to determine predictors of abstinence and no heavy drinking days at T3. All bivariate correlates of abstinence and/or no heavy drinking days (employment status, level of care, social support, and spiritual awakening) were included. As seen in Table 2, spiritual awakening between T2 and T3 was the only predictor that was significantly associated statistically with higher odds of abstinence at T3, whereas both spiritual awakening at T3 and tangible support at T1 were associated with higher odds of no heavy drinking days at T3 (Table 3).

### Discussion

Cross-sectional and longitudinal associations between AA meeting attendance, spiritual awakening, and drinking outcomes were examined in an alcohol-dependent treatment

sample in Warsaw, Poland. In summary, we found that AA meeting attendance did not predict drinking outcomes, whereas self-reports of a spiritual awakening between T2 (one month) and T3 (approximately one year) predicted abstinence, as well as the absence of any heavy drinking at study completion, or T3.

Our results are consistent with a growing body of research linking spirituality-related variables to positive drinking outcomes (Matzger et al., 2005; Piderman et al., 2007; Piedmont, 2004; Robinson et al., 2011; Zetmore, 2007; for a review, see Galanter, 2008). For example, our findings are remarkably similar to those of Kaskutas et al. (2003), who followed a sample of 587 participants over 3 years, and found that spiritual awakening was associated with higher odds of sobriety. Matzger et al. (2005) followed two groups of problem drinkers (one group in treatment, the other not) who indicated at a 1-year follow-up that they were drinking “a lot less” than at baseline. Those who indicated that they reduced their drinking due to “having a religious experience” had higher odds of remission from problem drinking at 1-, 3-, and 5-year follow-ups.

Our findings are also consistent with the fellowship and program of Alcoholics Anonymous, which was predicated on the basis of spiritual experiences and principles. Forchimes (2004) regarded spiritual awakening as “the true mechanism of change in A.A.” (p. 504). While our findings do not address mechanisms of changes, they directly link spiritual awakening to improved drinking outcomes for the first time in a Polish sample.

Why is spiritual awakening associated with better drinking outcomes? Tonigan, Miller and Connors (2000) highlighted the importance of spiritual awakening as a subjective reaction to AA-related practices and beliefs. Green and colleagues (1998) analyzed data from focus groups conducted with members of a peer counseling program at an addiction treatment center. Participants reported that spirituality helped their recovery process in several ways, for example, by providing a source of comfort as participants met the challenges of daily life. Zetmore and Kaskutas (2004) found associations between spirituality, length of sobriety, and helping behaviors in a sample of recovered alcoholics, suggesting that helping others in recovery and involvement in community projects is an important manifestation of spirituality that may facilitate the recovery process.

It has also been shown that spirituality and religiousness are associated with negative beliefs about alcohol and more involvement with nondrinking social networks (Johnson, Sheets & Kristeller, 2008). Other researchers have also suggested that the association between spirituality and drinking outcomes is indirect (Tonigan, 2007). Clearly, identification of the direct and indirect effects of spiritual awakenings on drinking outcomes is an important direction for future research.

Several limitations warrant discussion. First, the term “spiritual awakening” was not directly defined in the context of this study. However, the vast majority of study participants were exposed to Alcoholics Anonymous meetings before (85%) and during formal treatment (97%), and were highly likely to have encountered this notion. In addition to Step 12 (cited above), Appendix II of the Big Book is dedicated to the topic of spiritual experiences (AAWS, 2001, p. 57). Nevertheless, the 42% rate of spiritual awakening at T3 is much



higher than those reported in U.S. treatment samples. For example, Zemore (2007) found that 22% of patients reported a spiritual awakening as a result of 12-step program involvement between treatment entry and 12-month follow-up. Kaskutas et al. (2003) reported that 11.8% had a spiritual awakening as a result of AA involvement within one year following treatment entry (T2), with an additional 26.7% reporting a spiritual awakening between 1 and 3 years (T3). One possibility is that Polish patients more easily experience spiritual awakenings than Americans do, but Polish patients may also interpret the phrase, “spiritual awakening,” differently from Americans.

The study sample was notably homogeneous in relation to several characteristics, including gender (male), race (Caucasian), and ethnicity (Polish), which may limit the ability to generalize findings across broader populations. At the same time, this is the first study of its kind in a Polish sample and it is likely representative of patients undergoing treatment for alcohol dependence there, at least in an urban setting. Finally, results from attrition analyses revealed significant differences between study completers and noncompleters in relation to several baseline measures, further limiting the ability to generalize findings.

Despite these limitations, this study generated a number of intriguing findings which may hold implications for clinical care and future research. First, it may be that AA attendance alone represents an important, but insufficient, condition for the initiation and maintenance of long-term sobriety in Alcoholics Anonymous. Second, this study cast spirituality in a practical—even pragmatic—light, illuminating relationships between spiritual awakening and improved drinking outcomes. In fact, those who reported having experienced a spiritual awakening between T2 and T3 were more than twice as likely to remain abstinent from alcohol (OR = 2.4), and three times as likely to have refrained from any heavy drinking (OR = 3.0) when compared to those who did not report a spiritual awakening during the same period. Third, the possibility of achieving such an outcome did not appear to be remote. All told, nearly half of those who completed the study (48%) reported having had a spiritual awakening between one month and approximately one year post-baseline. Of those, 63% remained abstinent from alcohol, while 75% refrained from heavy drinking. The fact that this effect appeared to be somewhat “delayed” (i.e., found only at T3) may speak to the need for a minimum period of abstinence from alcohol before certain bio-behavioral or spiritual changes can be expected to take place, at least for some.

Spirituality has established itself as a viable area for research in the field of addictions. Future investigations may include (1) study replication across different populations and cultures, (2) recruitment from communities, rather than treatment samples only, (3) examining relationships between spiritual awakenings and other quality-of-life measures, (4) and applying qualitative and mixed-methods approaches to the study of spiritual awakenings.

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**Table 1**

Demographic and clinical characteristics of the baseline study sample (n = 154)

Characteristic	Participants
Age, years: mean (SD)	44.2 (9.4)
Race, Caucasian: <i>n</i> (%)	118 (100%)
Gender, male: <i>n</i> (%)	88 (75%)
Education, years: mean (SD)	12.6 (3.4)
Employment status, unemployed: <i>n</i> (%)	73 (62%)
Marital status, unmarried: <i>n</i> (%)	67 (57%)
Tangible support (MOS-SSS) score: mean (SD)	16.9 (5.2)
Lifetime alcohol severity, MAST score: mean (SD)	35.6 (9.0)
Psychiatric severity (GSI) score: mean (SD)	49.8 (12.0)
Drinking days past 90 days: mean (SD)	23.5 (26.9)
Drinks per drinking day: mean (SD)	18.3 (11.6)
Other drug use past 28 days, yes: <i>n</i> (%)	18 (19%)
Court-ordered treatment: <i>n</i> (%)	11 (10%)
Level of care, residential: <i>n</i> (%)	87 (74%)
Ever attended an AA meeting, yes: <i>n</i> (%)	100 (86%)
AA meetings, lifetime number: mean (SD)	52.3 (147.4)
Spiritual awakening since participation in AA: <i>n</i> (%)	50 (42%)

SD = standard deviation; MOS-SSS = Medical Outcomes Study Social Support Scale; MAST = Michigan Alcoholism Screening Test; GSI = Global Severity Index; AA = Alcoholics Anonymous

**Table 2**

Multiple logistic regression analysis of predictors for abstinence status at T3 (n = 118)

Predictor	Coefficient	SE	OR	95% CI
Employed at baseline (T1)				
Yes	<sup>a</sup>			
No	-0.4	0.5	0.6	0.3–1.6
Type of Treatment (T1)				
Residential	<sup>a</sup>			
Intensive Outpatient (T1)	0.7	0.5	2.1	0.8–5.7
Tangible support (T1)	0.08	0.04	1.1 <sup>+</sup>	0.99–1.2
Spiritual awakening at T3	0.9	0.4	2.4 <sup>*</sup>	1.1–5.3
Intercept	-0.3	0.4		

Note: Coefficients are in the metric of log odds. SE = Standard error for the logistic coefficient. OR = Adjusted odds ratio. 95% CI = 95% confidence interval for the odds ratio.

<sup>a</sup>Reference group.

<sup>+</sup> $p = .06$ ,

<sup>\*</sup> $p < .05$

**Table 3**

Multiple logistic regression analysis of predictors for no heavy drinking at T3 (n = 118)

Predictor	Coefficient	SE	OR	95% CI
Employed at baseline (T1)				
Yes	<sup>a</sup>			
No	-0.7	0.5	0.5 <sup>+</sup>	0.2–1.3
Type of Treatment				
Residential	<sup>a</sup>			
Intensive Outpatient (T1)	0.1	0.5	1.2	0.4–3.4
Tangible support at T1	0.09	0.04	1.1 <sup>*</sup>	1.01–1.2
Spiritual awakening at T3	1.1	0.4	3.0 <sup>*</sup>	1.3–7.1
Intercept	0.9	0.9		

Note: Coefficients are in the metric of log odds. SE = Standard error for the logistic coefficient. R = Adjusted odds ratio. 95% CI = 95% confidence interval for the odds ratio.

<sup>a</sup>Reference group.

<sup>+</sup> $p = .09$ ,

<sup>\*</sup> $p < .05$