

Spirituality-Based Recovery From Drug Addiction in the Twelve-Step Fellowship of Narcotics Anonymous

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Background: Narcotics Anonymous is a worldwide fellowship that employs the Twelve-Step model for members dependent on drugs of abuse. The spiritual orientation of its program of abstinence has not been subjected to empirical study.

Methods: Responses of 527 American Narcotics Anonymous meeting attendees to a structured questionnaire were evaluated for the roles of cognitive and psychosocial aspects of spirituality in their recovery.

Results: Respondents had last used drugs or alcohol on average 6.1 years previously. They were found to be more oriented toward a spiritual than a formally religious orientation than probability samples of the general population. Aspects of membership such as affiliation toward other members and the experience of spiritual awakening were associated with lower rates of drug or alcohol craving, whereas scores on depression were associated with higher craving scores.

Conclusions: Spiritual renewal combined with an abstinence-oriented regimen in the Narcotics Anonymous social context can play a role in long-term recovery from drug addiction.

Key Words: Narcotics Anonymous, recovery from addiction, spirituality, Twelve-Step

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Health care costs in the United States for the diversity of professionally based treatments for substance dependence have been estimated to be \$15.8 billion annually (Office of National Drug Control Policy, 2004), making such continuing care highly burdensome economically. This suggests a need for ways to achieve cost savings in long-term support of abstinence for individuals dependent on a broad variety of drugs of abuse. The Twelve-Step model is a cost-free approach to addiction recovery that is spiritually based. In light of this, we undertook a study on the Narcotics Anonymous (NA), a Twelve-Step fellowship that is hospitable to people with a

diversity of addictions, to better understand how spirituality plays a role in members' recovery.

The NA reports more than 58,000 group meetings held on a regular basis worldwide (Narcotics Anonymous, 2010). It espouses abstinence from drugs of abuse, including alcohol, for those who join. Like its predecessor, the Alcoholics Anonymous (AA), it is self-designated as spiritual, rather than religious. It is not theistic as such, espousing God only "as we understood him," thereby allowing for a flexible view of acceptance of a "Higher Power," with no rules as to how or who they believe their Higher Power is.

The relationship between religion or spirituality and health has been subject to divergent perspectives in terms of the association, causative or correlative, between the 2; as reviewed by Moreira-Almeida et al. (2006). Nonetheless, the survey of a probability sample of Americans polled in the General Social Survey (Davis, 2009) revealed that the extent to which respondents self-designate as religious was correlated with the degree to which they report feeling both happy and healthy. It is unclear as to what extent the religion or spirituality and health relationship is attributable to explicitly religious aspects or those facets that are "existential" in nature (Tsuang et al., 2007). This suggests the merit of examining the role of how spiritual and religious experiences among the NA members impact their health-related behavior.

We, therefore, designed the study to clarify how the NA, a contemporary, spiritually oriented fellowship, operating outside professional care, can play a role in promoting recovery from addictive illness. The psychological mechanisms examined in this study include spiritual, cognitive, and social aspects of membership in this fellowship. The NA World Services office participated cooperatively with this undertaking, the first empirical study of its members conducted by an independent group of investigators. The procedure was reviewed for completion of an anonymous survey, in which individual respondents would not be identified. It was approved by the human subjects institutional review board of the New York University Medical Center, with no consent form required. [AQ3]

METHODS

Participants

The Narcotics Anonymous World Service Office (NAWSO), located in Chatsworth, Calif, was solicited by the investigators to select the NA meetings at which this protocol could be carried out. They were asked to select diverse meetings that, altogether, would be representative of the diversity of

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members and drugs addressed in the fellowship. Members of the NA office of public relations designated 10 of its meetings in 3 states, California, Florida, and Pennsylvania, as representative of the NA to participate in a questionnaire-based survey. The coordinators of those meetings were asked by the NAWSO whether they chose to participate in the questionnaire study that the investigators had prepared for the attendees at their respective meetings for completion on-site. The coordinators of all the 10 meetings agreed to do so.

On the basis of the prepared instructions, the coordinators proceeded as follows: The attendees were explained that the participation in the survey was both voluntary and anonymous and there was neither an expectation that a meeting attendee need participate nor would their participation or choice not to do so have any impact on the nature of their membership in the NA. The coordinators further explained that no NA member would examine any of the survey instruments before transshipment to the investigators.

Those who responded to the questionnaire at one meeting were instructed not to complete the questionnaire if present at another meeting. The procedure for collection was as follows: An empty carton was placed at the back of the meeting room where surveys could be dropped. Coordinators were instructed to seal the carton without examining the contents, and then ship the carton to the NAWSO, whereupon they were transhipped to the investigators without review of the contents.

Survey Instrument

The instrument given to the respondent sample consisted of 51 coded items. The topics addressed included demographics; biggest drug problem; abstinence duration; the NA history, including first encounter with the NA or the AA; the NA attendance, service to other members, sponsee or sponsoring experience; and spirituality, including church attendance, experience of God, and spiritual awakening. First encounter with either the NA or the AA was solicited, as both reflect introduction to the Twelve-Step orientation associated with the NA program. The depression experience in the past week was assessed by a 6-item scale included in the Brief Symptom Inventory (Derogatis, 1993). The craving for drugs or alcohol was assessed by responses on a 0- to 10-point visual analog scale, similar to the ones applied in our and other studies on substance abusers (Volpicelli et al., 1992; Galanter et al., in press). Spiritual and religious orientations were assessed by means of the items employed in surveys of the US national probability samples (Newsweek, 2005; Davis, 2009; Kosmin and Keysar, 2009).

We adapted 2 scales from our previous studies to assess the nature of the members' involvement in the NA, 1 for the NA member affiliation and the second for the ascription to the NA-related beliefs (Galanter, 1983; Galanter et al., 2012). The items on both the scales were scored on a 5-point continuum, from "not at all" to "very much." For the first of these scales, affiliation toward the other NA members, respondents scored the 10 NA members they "know best" on 8 characteristics. Typical items were "They care for me," and "I like being part of their activities." The second scale included 8 items reflecting a respondent's degree of belief in the NA's principles,

such as "I am powerless over drugs," and "I should turn my will and life over to God as I understand Him." These 2 scales and their scoring are included in an appendix to this article. Respondents were asked also to indicate whether they had experienced a "spiritual awakening," a phenomenon referred to in the 12th step of the NA.

The Statistical Product and Service Solutions, version 20, statistical software program was applied to conduct analyses. Bivariate associations between categorical variables and continuous variables were assessed by either independent-samples *t* test or 1-way analysis of variance. Multiple linear regression analyses were conducted to determine the relationship of both the NA-related experiences and the depression to the scores on alcohol or drug craving. [AQ5]

RESULTS

Scale Reliability

Cronbach α , interitem reliability for the scales employed, on the basis of the scores of the respondent sample, were as follows: for BSL depression, 0.89; for the NA beliefs, 0.86; and for the NA member affiliation, 0.82. [AQ6]

Respondent Sample

There were 527 NA members participating in the survey, with between 494 and 527 responding to each of the respective questionnaire items. They were drawn from 10 NA groups that were located in 3 states: 48% of respondents were from California, 30% from Pennsylvania, and 22% from Florida. Group coordinators from the survey sites were asked to estimate what portion of meeting attendees participated in the survey at their respective sites. They responded as follows: California, 90%; Pennsylvania, 90%; and Florida, 95%. The mean age of the respondents was 39.01 (SD = 13.01) years, and they reported last using drugs 6.12 (SD = 8.55) years previously. Among them, 72% were men and 75% were either employed or enrolled as students. The distributions of respective principle drug problem and the respondent ethnicities are reported separately (Galanter et al., in press).

Participation in NA or AA

The respondents indicated that they had first attended either an NA or AA meeting at a mean age of 27.4 (SD = 9.85) years. Only 33% had been referred to the NA by a professional. Regarding sponsorship, 88% had had a sponsor and 48% served as sponsors themselves.

Degree of Engagement in NA

The mean score on the scale for the NA beliefs was 36.2 (SD = 5.11). This is illustrated by the responses as endorsing the first and third steps of the NA, on the scale from 1 (not at all) to 5 (very much), as follows: The large majority endorsed 4 or 5 for "I am powerless over addiction" (92%), and "I should turn my will and my life over to God, as I understand Him," (88%). The mean score for the scale for the social affiliation to the NA members was 34.3 (SD = 4.9). This is illustrated by the large majority of respondents who answered 4 or 5 on the 5-point scale regarding the 10 NA members they knew best:

“They care for me” (81%); “I like being part of their activities” (78%); and “I care for them” (83%).

Affective Status

Mean raw scores were calculated for the responses on the Brief Symptom Inventory scale for depression. These were 0.903 for men, reflecting a T score of 67, and 0.992 for women, reflecting a T score of 62. The respondents' mean score on the 0- to 10-point analog scale for craving was 1.89 (SD = 2.67), with almost half (49%) indicating that they had experienced no (0) craving for drugs or alcohol in the past week.

Spirituality

Respondents designated themselves as follows: spiritual but not religious (65%), spiritual and religious (28%), neither religious nor spiritual (4%), and religious but not spiritual (3%). When asked how often they feel God's presence, they responded as follows: many times a day (25%), every day (29%), most days (18%), some days (14%), once in a while (8%), and never or almost never (6%). The large majority (84%) reported having experienced a spiritual awakening, and of them, more (70% of the entire respondent sample) reported that it came about gradually rather than suddenly. Furthermore, of those reporting a spiritual awakening, 89% reported that it made abstinence easier. With regard to church attendance, only 25% reported attending at least once a month, 40% less often, and 35% not at all.

Relationship Among the Variables

Table 1 presents the intercorrelations of the selected study variables. The pattern of the intercorrelations shows that the older the respondent and the more the number of years since the first exposure to the NA or the AA, the greater the number of years of abstinence and the lower the levels of drug craving and depression. The NA beliefs and affiliation are moderately intercorrelated, and each is significantly associated with lower craving and depression. Table 2 illustrates the relationship between 2 spiritual or religious variables, “feeling God's presence daily” and “current church attendance,” and selected NA variables. Older members are more likely to feel God's presence daily and to attend church. Of these 2 latter variables, however, only feeling God's presence daily (and not church attendance) was associated with a greater duration of abstinence (the number of NA meetings attended, the NA affiliation score) and lower craving and depression scores. A multiple linear regression analysis was performed using items reflecting involvement in the NA as predictors of craving scores, with β weights and probabilities as follows: duration of abstinence (-0.141 , $P = 0.016$), NA member affiliation (-0.151 , $P = 0.003$), spiritual awakening (-0.190 , $P < 0.001$), and served as a sponsor (-0.140 , $P = 0.009$). Altogether, these variables predicted 29% of the variance in craving scores. When depression scores were entered into the multiple linear regression analysis, however, the variables predicted 40% of the variance, with β weights and probabilities as follows: the NA member affiliation (-0.055 , not significant), NA beliefs (-0.057 , not significant), spiritual awakening (0.199 , $P = 0.009$), served as a sponsor (-0.157 , $P = 0.002$), and depression score (0.402 , $P > 0.001$).

DISCUSSION

The NA owes its origins, in the 1940s, to an attempt by opioid-addicted inmates in the United States Public Health Service Hospital in Lexington, Ky, to adapt the AA's format for narcotic dependence. Its first community-based meeting was held in New York in 1950, and shortly thereafter, the NA meetings were initiated in southern California (Narcotics Anonymous, 1998). The NA World Services Office now reports that there are more than 58,000 NA meetings in 6 continents (Narcotics Anonymous, 2010). Because of this sizeable membership, an understanding of the nature of remission from drug dependence in this fellowship can shed light on one notable way in which a spiritually grounded recovery can be achieved. We have further reviewed the literature on the NA elsewhere (Galanter et al., 2012).

Long-Term Outcome From Addiction

Studies on the long-term outcome of substance-use disorders can shed light on both the natural history of these disorders and the ways of improving the clinical options for promoting remission. The nature of populations evaluated in these studies, their substances of abuse, and the issues associated with the relative outcome, however, have varied considerably. Among the addictive disorders, problems with alcohol have been the ones most frequently examined (Vaillant, 1996; Timko et al., 2000; Moos and Moos, 2005; Schutte et al., 2006; Kelly et al., 2008). Outcome studies on other substances of abuse are less common. In relation to heroin, for example, they include an early study by Vaillant (1973), who followed up heroin addicts who were admitted to the Public Health Hospital in Lexington, Ky, in 1952, after 20 years. Hser (2007) followed the course of heroin addicts admitted to a civil substance-dependence program over 33 years, and Skinner et al. (2011) evaluated outcome after 12 years for heroin addicts presenting at community-based methadone clinics.

Remission has been examined in relation to patients treated for cocaine dependence (Weiss et al., 2005). Simpson et al. (1997) studied a large, national sample of addicts to various drugs in the Drug Abuse Treatment Outcome Study database who were admitted to residential care in terms of treatment retention and follow-up. Outcome data have been reported for the treatment for methamphetamine dependence for only limited periods of follow-up (Donovan and Wells, 2007; Gonzales et al., 2009). Many AA members are concomitant users of drugs other than alcohol, but outcome in relation to such drugs in the Twelve-Step context has been studied primarily in the AA. Findings on the nature of remission among long-standing Twelve Step-oriented drug-dependent people who are NA members are, however, limited.

This Respondent Sample

Studies on the Twelve-Step recovery have followed subjects prospectively, generally after their encounter with abstinence-oriented treatment. Our study deals with cross-sectionally obtained retrospective reports from community-based NA respondents, and not a follow-up after treatment. Significantly, respondents report on average 6.1 years of continuous abstinence that began, on average, more than 5 years after their first attendance at an NA or AA

TABLE 1. Intercorrelations Among Selected Variables

	Age of First NA Meeting	Years Since First NA/AA Meeting	Years Abstinent	NA Meetings Last Year	NA Beliefs	NA Affiliation	Level of Craving for Substance	BSI Depression
Age	0.663†	0.666	0.554‡	0.102*	0.128	0.003	-0.304‡	-0.239‡
Age of first NA meeting	—	0.111*	0.165†	0.058	0.112*	0.025	-0.110*	-0.147‡
Years since first NA/AA meeting	—	—	0.579†	0.071	0.068	-0.013	-0.255‡	-0.160‡
Years abstinent	—	—	—	0.085	0.214‡	0.139†	-0.347‡	-0.215‡
NA meetings last year	—	—	—	—	0.177‡	0.129†	-0.210‡	-0.179‡
NA beliefs	—	—	—	—	—	0.432‡	-0.266‡	-0.202‡
NA affiliation	—	—	—	—	—	—	-0.241‡	-0.263‡
Level of craving for substance	—	—	—	—	—	—	—	474‡
BSI depression	—	—	—	—	—	—	—	—

**P* < 0.05; †*P* < 0.01; ‡*P* < 0.001.

AA, Alcoholics Anonymous; BSI, Brief Symptom Inventory; NA, Narcotics Anonymous.

meeting. This suggests that the process whereby the NA engages people to achieve full abstinence may take place only after a protracted period of time after first Twelve-Step encounter, possibly punctuated by periods of relapse, until the cognitive, social, and spiritual elements of the program achieve full effectiveness. Such persons with lengthy gaps between the Twelve-Step encounter and the achievement of abstinence might be lost to a treatment follow-up, as follow-up periods are typically shorter than the period the respondents indicated since their first encounter with the NA or the AA.

Spirituality and Religious Experience

The relative role of spiritual experience in the Twelve-Step recovery process has been investigated from various perspectives, generally in relation to patients' experience in the AA. Kelly et al. (2009) reviewed studies that applied mediational tests to ascertain how the AA achieves beneficial outcomes and found little support for a role of the AA's specific spiritual mechanisms. In fact, with regard to religiosity, Tonigan et al. (2002) found that, although atheists were less likely to attend the AA meetings, those who did join derived equal benefit as did spiritually focused individuals. On the contrary, in one study on persons recovering from cocaine-dependence (Flynn et al., 2003), respondents attributed their positive outcomes to religion and spirituality. In addition, Zemor (2007) followed up a large sample of substance abusers

1 year after inpatient treatment and found that the increases in spirituality contributed to the increments in total abstinence associated with the Twelve-Step involvement.

The NA's theistic orientation is compatible with that of the general American population, because, according to Gallup (2012) polling, more than 90% of a probability sample of Americans endorses believing in "God or a Universal Spirit." Our respondents demonstrate a strong commitment in scores on the NA beliefs. They more often designated themselves as spiritual (93%) rather than religious (31%), and only 25% of the respondents reported going to church at least once a month. The finding that the NA members attend church relatively infrequently may merit further examination.

These responses stand in contrast to the probability samples of the general US population, who more often designated themselves as religious (64% vs 31%) and less often as spiritual (79% vs 93%) and were more likely (73% vs 25%) to attend church at least once monthly (Adler, 2005; Davis, 2009). On the contrary, 71% of our respondents reported that they feel God's presence most days or more, compared with 57% in a community sample (Kosmin and Keysar, 2009). The orientation of the members toward spiritual experience rather than religious practice as such is reflected in the findings on the variables "feeling God's presence daily" and current church attendance. Only the former variable was significantly correlated with a greater duration of abstinence, the number of

TABLE 2. Select NA Variables by God's Presence and Church Attendance

	Feels God's Presence Daily				Statistic, <i>t</i>	Current Church Attendance				Statistic, <i>t</i>
	Yes		No			Yes		No		
	\bar{x}	SD	\bar{x}	SD		\bar{x}	SD	\bar{x}	SD	
Age, y	41.59	12.37	36.09	13.08	4.77‡	40.72	12.90	35.76	12.50	4.11‡
Age of first NA meeting	28.77	9.99	25.64	9.36	3.54‡	28.26	9.97	25.60	9.39	2.88‡
Years since first NA/AA meeting	12.81	9.76	10.54	9.35	2.59†	12.55	9.93	10.30	8.89	2.54*
Years abstinent	89.74	110.32	54.78	88.84	3.87‡	75.02	107.16	68.78	92.07	0.65§
NA meetings last year	212.32	179.40	171.17	215.62	2.31*	188.12	179.45	203.97	227.98	0.85§
NA beliefs	37.34	4.00	34.72	6.22	5.48‡	36.57	4.77	35.44	6.06	2.14*
NA affiliation	35.04	4.85	33.38	4.91	3.67‡	34.18	4.97	34.44	4.86	0.54§
Level of craving for substance	1.39	2.45	2.40	2.76	4.24‡	1.90	2.65	1.89	2.74	-0.05§
BSI depression	0.66	0.71	1.22	0.97	7.16‡	0.89	0.88	0.98	0.90	1.02§

**P* < 0.05; †*P* < 0.01; ‡*P* < 0.001.

§Not significant.

AA, Alcoholics Anonymous; BSI, Brief Symptom Inventory; NA, Narcotics Anonymous.

meetings attended, and the NA affiliation. Furthermore, it was also associated with the less craving and lower depression scores, all underlining the importance of the concept of God or Higher Power in the Twelve-Step model.

Spiritual Awakening

One issue that we examined was whether the respondents reported having experienced a spiritual awakening. The 12th step of the NA begins with the phrase “Having had a spiritual awakening,” and this experience, although described by the NA members in different ways, is thought by many members to be a key element in their long-term recovery. In one study (Matzger et al., 2005), alcoholic persons indicated that their positive drinking outcome was attributable, at least in part, to a spiritual awakening. Perhaps most telling is the finding of Kaskutas et al. (2005) that alcoholics in a treatment follow-up who reported a spiritual awakening were more than 3 times as likely to report an abstinence outcome than those who did not. Importantly, among our sample, 89% of those who reported a spiritual awakening reported that it made abstinence easier for them. This suggests that, at least for longer-term, established NA members, spiritual experience is an integral part of their membership, even if they may be less religiously oriented than other community members.

Spirituality among long-term members is likely instrumental in sustaining the integrity of the fellowship itself. The prominence of spiritually committed long-term members at meetings and their availability to serve in the sponsorship role create readily available models for earnestly held sobriety. They serve as role models for believing commitment to the Twelve-Step spiritual ethos to help newcomers achieve stabilization in membership. Nonetheless, some people attending the NA meetings may find it hard to identify with the spiritual orientation of long-term members.

Sponsorship

The NA publishes a monograph on sponsorship with guidelines and examples for both sponsors and sponsees (Narcotics Anonymous, 2004), reflecting its role that a sizable number of long-term members have in transmitting the culture of the fellowship. Sponsorship embodies the fellowship’s altruistic orientation, reflecting a “helping and helper therapy principle” (Pagano et al. 2011). Sponsorship apparently plays an important role in the recovery process for these respondents, given the high prevalence of having a sponsor and serving as a sponsor, as do other aspects of social affiliation with members.

High sponsor involvement over time has been found to predict better abstinence over long-term membership (Witbrodt et al., 2012), although later in abstinence, its correlation with positive outcome may not be predictive when first controlling for the AA-related and motivational measures (Tonigan and Rice, 2010). It may as well be that, although social support is key to early engagement in the Twelve-Step membership, over time, spiritual issues emerge as increasingly important in the members’ Twelve-Step based recovery.

Craving

Previous studies reported a positive association of alcohol craving with the depression scores in alcoholics in

treatment (Simpson et al., 1997), with mood and sleep disturbance of treatment-seeking alcoholics (Peles et al., 2010) and attentional measures during protracted withdrawal (Gibson et al., 2007). We elected to include the craving for either “drugs or alcohol” rather than alcohol alone. The context of our use of this measure also differed from that in other addiction studies in that it addressed respondents who were mostly with long-term abstinence, as opposed to follow-up from more recent treatment. Our respondents reported low scores on this craving scale, an average of 1.9 of a possible 0 to 10, with almost half reporting 0 for craving. Given the respondents’ long-term commitment to the NA, it is likely that before they became involved in the fellowship, they had indeed experienced considerably more craving.

The subjective phenomenon of craving may decrease relative to social context, personal transformation, and the passage of time in abstinence. In the respondent sample studied here, as reflected in the multivariate analyses, the variables reflecting the NA program involvement were associated with lower craving scores, and this was the case even when depression scores were entered into the regression analysis. A better understanding of the potential malleability of craving in the face of the Twelve-Step experience would be useful, as craving is considered a criterion for the diagnosis of addiction for the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (Saunders et al., 2007).

LIMITATIONS

The NA keeps no records of its members’ identities, which otherwise would have facilitated more systematic sampling procedures. In addition, the portion of members who attend meetings frequently is greater than that of the infrequent attendees, leading to a respondent sample weighted toward a higher proportion of frequent attendees. Although coordinators in the sampled NA meetings estimated a high response rate (90%-95% of attendees), it is likely that less compliant attendees were less likely to participate. All this is suggestive of potential bias in our sampling of the NA members, engendered by the procedures we employed in this study and the designation of the NA groups by the NAWSO.

There was also no independent corroboration of the respondents’ reports, leaving their responses subject to retrospective distortion; this includes reports of duration of abstinence, as confirmation by means of urine toxicologies could not be done. Furthermore, the items solicited in this study regarding religion and spirituality as the correlates of addiction recovery are quite limited, given the relatively short amount of time that could be allotted for respondents to complete the survey at the regularly held NA meetings and the need also to characterize the substance-related aspects of membership. More extensive scales and schedules that can be related to spiritual renewal and religious experience merit inclusion in subsequent studies on a Twelve-Step program like the NA.

CONCLUSIONS

There is value in characterizing the NA members in the general community, as described here, even within the limitations of this study, as considerable societal resources are invested in helping the addicted achieve sustained abstinence.

We focused on the nature of antecedent drug use and treatment, and then examined 3 aspects of membership; cognitive (beliefs), spiritual or religious (including spiritual awakening), and altruistic. Our findings illustrate how these aspects of membership, which can be subsumed under a rubric of spirituality, are associated with the recovery of the addicted people who attend the NA meetings. They may play a role to varying degrees in the recovery of other people who achieve sobriety outside the Twelve-Step context, and in this regard, the findings reported here may be useful in other contexts of addiction recovery as well.

REFERENCES

- Adler J. The search of the Spiritual. *Newsweek* August 29, 2005:46–64.
- Davis JA. General Social Surveys, 1972–2008: Cumulative Codebook. Chicago, IL: National Opinion Research Center, 2009.
- Derogatis LR. Brief Symptom Inventory (BSI): Administration, Scoring, and Procedures Manual. 3rd ed. Baltimore, MD: National Computer Systems Inc, 1993.
- Donovan DM, Wells EA. ‘Tweaking 12-Step’: the potential role of 12-step self-help group involvement in methamphetamine recovery. *Addiction* 2007;102:121–129.
- Flynn PM, Joe GW, Broome KM, Simpson DD, Brown BS. Looking back on cocaine dependence: reasons for recovery. *Am J Addict* 2003;12:398–411.
- Galanter M, Dermatis H, Post S, Santucci C. Abstinence from drugs of abuse in community-based members of Narcotics Anonymous. *J Stud Alcohol Drugs* in press.
- Galanter M, Dermatis H, Santucci C. Young people in Alcoholics Anonymous: the role of spiritual orientation and AA member affiliation. *J Addict Dis* 2012;31:173–182.
- Galanter M. Engaged “Moonies”: the impact of a charismatic group on adaptation and behavior. *Arch Gen Psychiatry* 1983;40:1197–1202.
- Gallup M. More than 90% of Americans continue to believe in God. Available at: www.gallup.com/poll. Accessed November 21, 2012.
- Gibson A, Degenhardt L, Mattick RP, Ali R, White J, O’Brien S. Exposure to opioid maintenance treatment reduces long-term mortality. *Addiction* 2007;103:462–468.
- Gonzales R, Ang A, Marinelli-Casey P, Glik DC, Iguchi MY, Rawson RA. Health-related quality of life trajectories of methamphetamine-dependent individuals as a function of treatment completion and continued care over a 1-year period. *J Subst Abuse Treat* 2009;37:353–361.
- Hser YI. Predicting long-term stable recovery from heroin addiction: findings from a 33-year follow-up study. *J Addict Dis* 2007;26:51–60.
- Kaskutas LA, Ammon L, Delucchi K, Room R, Bond J, Weisner C. Alcoholics Anonymous careers: patterns of AA involvement five years after treatment entry. *Alcohol Clin Exp Res* 2005;29:1983–1990.
- Kelly JF, Brown SA, Abrantes A, Kahler C, Myers M. Social recovery model: an 8-year investigation of adolescent 12-Step group involvement following inpatient treatment. *Alcohol Clin Exper Res* 2008;32:1468–1478.
- Kelly JF, Magill M, Stout RL. How do people recover from alcohol dependence? A systematic review of the research on mechanisms of behavior change in Alcoholics Anonymous. *Addict Res Theory* 2009;17:236–259.
- Kosmin BA, Keysar A. American Religious Identification Survey. Hartford, CT: Trinity College, 2009.
- Matzger H, Kaskutas LA, Weisner C. Reasons for drinking less and their relationship to sustained remission from problem drinking. *Addiction* 2005;100:1637–1646.
- Moos RH, Moos BS. Paths of entry into Alcoholics Anonymous: consequences for participation and remission. *Alcohol Clin Exp Res* 2005;29:1858–1868.
- Moreira-Almeida A, Neto FL, Koenig HG. Religiousness and mental health: a review. *Rev Bras Psiquiatr* 2006;28:177–180.
- Narcotics Anonymous. Miracles Happen: The Birth of NA in Words and Pictures. Chatsworth, CA: NA World Services, 1998.
- Narcotics Anonymous. Sponsorship. Van Nuys, CA: Narcotics Anonymous, 2004.
- Narcotics Anonymous. Facts about NA. May 2010. Available at: http://www.na.org/admin/include/spaw2/uploads/pdf/PR/Information_about_NA.pdf. Accessed March 1, 2012.
- Newsweek. Beliefnet Poll Results. 2005. Available at: www.beliefnet.com/story. Accessed March 1, 2011.
- Office of National Drug Control Policy. The economic cost of drug abuse in the United States, 1992–2002. Washington, DC: Executive Office of the President, 2004.
- Pagano ME, Post SG, Johnson SM. Alcoholics Anonymous–related helping and the helper therapy principle. *Alcohol Treat Q* 2011;29:23–34.
- Peles E, Schreiber S, Adelson M. 15-year survival and retention of patients in a general hospital-affiliated methadone maintenance treatment (MMT) center in Israel. *Drug Alcohol Depend* 2010;107:141–148.
- Saunders JB, Schuckit MA, Sirovatka PJ, Regier DA, eds. Diagnostic Issues in Substance Use Disorders: Refining the Research Agenda for DSM-V. Arlington, VA: American Psychiatric Publishing; 2007.
- Schutte KK, Moos RH, Brennan PL. Predictors of untreated remission from late-life drinking problems. *J Stud Alcohol* 2006;67:354–362.
- Simpson DD, Joe GW, Brown BS. Treatment retention and follow-up outcomes in the Drug Abuse Treatment Outcome Study (DATOS). *Psychol Addict Behav* 1997;11:294–307.
- Skinner ML, Haggerty KP, Fleming CB, Catalano RF, Gainey RR. Opiate-addicted parents in methadone treatment: long-term recovery, health, and family relationships. *J Addict Dis* 2011;30:17–26.
- Timko C, Moos RH, Finney JW, Lesar MD. Long-term outcomes of alcohol use disorders: comparing untreated individuals with those in Alcoholics Anonymous and formal treatment. *J Stud Alcohol* 2000;61:529–540.
- Tonigan JS, Miller WR, Schermer C. Atheists, agnostics and Alcoholics Anonymous. *J Stud Alcohol* 2002;63:534–541.
- Tonigan JS, Rice SL. Is it beneficial to have an Alcoholics Anonymous sponsor? *Psychol Addict Behav* 2010;24:397–403.
- Tsuang MT, Simpson JC, Koenen KC, Kremer WS, Lyons MJ. Spiritual well being and health. *J Nerv Ment Dis* 2007;195:673–680.
- Vaillant GE. A 20-year follow-up of New York narcotic addicts. *Arch Gen Psychiatry* 1973;29:237–241.
- Vaillant GE. A long-term follow-up of male alcohol abuse. *Arch Gen Psychiatry* 1996;53:243–249.
- Volpicelli JR, Alterman AJ, Hayashida M, O’Brien CP. Naltrexone in the treatment of alcohol dependence. *Arch Gen Psychiatry* 1992;9:876–880.
- Weiss RD, Griffin ML, Gallop RJ, et al. The effect of 12-Step self-help group attendance and participation on drug use outcomes among cocaine-dependent patients. *Drug Alcohol Depend* 2005;77:177–184.
- Witbrodt J, Kaskutas L, Bond J, Delucchi K. Does sponsorship improve outcomes above Alcoholics Anonymous attendance? A latent class growth curve analyses. *Addiction* 2012;107:301–311.
- Zemore SE. A role for spiritual change in the benefits of 12-Step involvement. *Alcohol Clin Exp Res* 2007;31:76S–79S.

APPENDIX

Two Scales: Narcotics Anonymous Beliefs and Narcotics Anonymous Affiliation

Please use the scale below to indicate how strongly you agree with each of the statements.

Answer Choices:

1. Not at all
2. Just a little
3. A fair amount
4. A lot
5. Very much

NA Beliefs

NA is important in all my personal decisions. ()

Twelve-Step programs are the true route to achieving recovery; other methods are not as effective. ()

I believe that the 12 steps will lead me to recovery from addiction. ()

I am powerless over addiction. ()

I should turn my will and life over to the care of God, as I understand Him. ()

I should be abstinent from drugs for the rest of my life. ()

Making a searching and fearless moral inventory is important to my recovery. ()

An NA member should make amends to persons whom they harmed. ()

Consider 10 NA members whom you see the most or know the best. Select 1 of the following choices mentioned above that best applies to each group of persons:

NA Affiliation

How much do these descriptions apply to each group?

They care for me. ()

They are happy. ()

They are suspicious of me. ()

How would you describe your feelings for them?

I care for them. ()

They make me happy. ()

I am suspicious of them. ()

Do they have the positive qualities you feel an NA member should have? ()

Do you like being a part of their activities? ()

Scoring: The score for each scale is the total of individual item scores

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[AQ19]

Queries to Author

Title: Spirituality-Based Recovery From Drug Addiction in the Twelve-Step Fellowship of Narcotics Anonymous

Author: Marc Galanter, Helen Dermatis, Stephen Post, Cristal Sampson

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