



Published in final edited form as:

Am J Drug Alcohol Abuse. 2003 May ; 29(2): 301–322.

Mediators of Effectiveness in Dual-Focus Self-Help Groups[#]

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Abstract

Although research on the effectiveness of 12-step group participation has been increasing, there has been little examination of the processes by which such participation leads to positive outcomes. Two kinds of factors have been proposed as mediating between 12-step group affiliation and outcomes for members, common process factors that have been identified in a range of behavioral treatments and factors that are relatively unique to the 12-step model. The study tested the hypotheses that two common process factors (internal locus of control and sociability) and two unique factors (spirituality and installation of hope) mediate the effects of 12-step group affiliation on drug/alcohol abstinence and health promoting behavior. The study respondents were members of a dual focus 12-step-based fellowship, Double Trouble in Recovery (DTR), designed to address issues of both substance use and mental health. Members of 24 DTR groups in New York City were recruited and followed-up for 1 year. The degree of 12-step group affiliation during the study period was associated with more positive outcomes at follow-up. Internal locus of control and sociability mediated the effects of 12-step group affiliation on both outcomes, whereas spirituality and hope acted as mediators only for health promoting behavior. Understanding that the therapeutic factors inherent in 12-step are not mysterious, but appear to capitalize on well-documented social learning principles, may increase the acceptance of 12-step programs among addiction and mental health professionals.

Keywords

12-step groups; Dual diagnosis; Outcome evaluation; Drug use; Effectiveness

INTRODUCTION

Self-help groups are based on the premise that a group of individuals who share a common behavior they identify as problematic can collectively support each other and control or eliminate that behavior. Many self-help groups are based on the 12-step recovery model originally developed by the founders of Alcoholics Anonymous (1).

A growing body of evidence indicates that 12-step groups are helpful in maintaining abstinence from alcohol and drugs (2–13), especially for those who attend regularly or become affiliated (14–18). For example, Moos and associates (9) found that increased affiliation in 12-step groups was associated with higher abstinence from drugs and alcohol, less severe distress and

[#]This study was supported by Grant No. R01 DA11240 from the National Institute on Drug Abuse. The cooperation of the members of Double Trouble in Recovery is deeply appreciated.

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psychiatric symptoms, and more employment at 1-year follow-up. Specialized 12-step groups for persons dually diagnosed with substance abuse and mental health disorders also appear to be useful in encouraging abstinence and adherence to psychiatric medication (86). Self-help affiliation can be an important complement to formal treatment, increasing the likelihood that gains made during treatment are reinforced and sustained (4,19,20).

Although research on the effectiveness of 12-step participation has been increasing, there has been little examination of the processes by which such participation leads to positive outcomes. Several authors have argued that despite clear theoretical differences between the 12-step recovery model and formal treatment approaches, the 12-step model shares a number of common change strategies with effective behavioral treatment and with mechanisms used by successful self-changers (21,22). Self-help fellowships' ability to mobilize generic change processes common to both formal treatment models and self-changers may help explain self-help's therapeutic effects. This "common factor" hypothesis has been examined empirically by only three previous studies. Morgernstern and associates found that the influence of AA affiliation on abstinence appears to be mediated by a set of common change factors, specifically the maintenance of self-efficacy and motivation, and increased active coping efforts (23). Humphreys and associates reported that active coping and friends' support for abstinence mediated the effect of 12-step involvement on substance use outcomes (5). Kelly and associates found that "the modest beneficial effects of 12-step attendance were mediated by motivation but not by coping or self-efficacy" (24).

Participation in 12-step fellowships is also believed to represent to some degree a unique helping strategy (25–28). In this perspective, the outcomes of 12-step affiliation are mediated by several factors that are especially pertinent to the 12-step recovery philosophy; these include belief in 12-step principles, spirituality, and the installation of hope.

The purpose of this article is to test the hypotheses that the effects of 12-step affiliation on outcomes are mediated by both common and unique personal change factors. Specifically, it is proposed that members' active participation in 12-step will affect common and unique change factors, which are the proximate influences on desired behavioral change. The context for this study is a 12-step based fellowship for dually diagnosed people, who face more challenges than those with a "single" disorder (6). The National Comorbidity Study found that persons with lifetime comorbidity, compared with those with only one disorder, were significantly more likely to experience major impairments in economic (e.g., unemployment, financial problems) and social (e.g., social isolation, interpersonal conflicts) roles (29). This is the first examination of self-help mediating processes among a dually diagnosed population.

Conceptual Model

The study includes four hypothesized common change factors—motivation, coping, self-efficacy, and sociability—and two factors more unique to 12-step participation—spirituality and the installation of hope. The rationale for the inclusion of each construct is given.

Motivation—This construct has assumed considerable theoretical and empirical importance recently in substance abuse research and practice. Clinicians have always believed motivation to be crucial to treatment engagement and outcomes, but only recently are valid methods being developed to measure and incorporate the construct systematically into quantitative research (28,30,31). Motivational constructs have been identified as key process factors predicting abstinence from alcohol (23) and drug use (32) and are targets of several behavioral addiction treatments (33,34). Motivation in the sense of "readiness to change" predicted treatment engagement and drug use outcomes (35). Hoffman and associates reported that "not really wanting to quit" and craving level distinguished abstinent from relapsed patients (36). Motivation for change can come from the individual (intrinsic) or from his or her environment

(extrinsic). Higher intrinsic motivation predicted subsequent abstinence and higher extrinsic motivation impeded abstinence, after adjusting for total motivation (37). In 12-step groups, members model commitment to change their lives and reinforce each others' stated intentions to address their "issues." For example, the practice of "testifying" to their personal struggle to overcome addiction and mental problems includes declarations of commitment to change, evidence that the struggle for recovery can be successful (self-efficacy), and examples of specific actions that helped (coping strategies); the latter two constructs are discussed later.

However, it should also be noted that several recent studies suggest that the positive effect of 12-step involvement may not be solely a proxy for greater participant motivation (5,14,16). For instance, posttreatment 12-step attendance decreased the likelihood of relapse even when patient motivation was controlled by using treatment completion as a covariate (5).

Coping—The ability to deal with temptations and opportunities to use drugs/alcohol depends largely on the individual's coping skills (38). In the substance abuse field, the concept of coping is represented by the development of the theory and practice of relapse prevention techniques (39,40), and particularly the work of Prochaska and DiClemente in defining "processes of change" (28). Individuals describing their recovery process frequently cite strategies that allow one to resolve stress successfully. Coping styles also may influence abstinence by reducing appraised stress in high-risk relapse situations (41). Coping style has been associated with abstinence from alcohol (5,12) and illicit drugs (42). Frequent 12-step attendance can be a direct way to cope with cravings by avoiding other, potentially high-risk activities; greater attention to avoid high-risk situations predicts a lower likelihood of relapse (43). Further, attending 12-step meetings exposes members to others who are successfully maintaining abstinence and sharing strategies with the group. These strategies (e.g., dealing with a drug dream, negative experiences associated with facing the past) become part of the members' repertoire. Process investigations with smokers have revealed that the transition from action to maintenance is marked by a shift in the use of various behavioral and cognitive processes of change as well as distinctive variations in the patterns of self-efficacy ratings (44). As suggested by Morgenstern and colleagues (23), 12-step affiliation facilitates better coping; in particular, active behavioral and cognitive coping increases as a result of 12-step participation (3,10–12,45–48). Finally, coping has been identified as a mediator of the therapeutic effects of 12-step involvement on abstinence (5,23).

Self-Efficacy—The construct of self-efficacy refers to confidence in being able to perform or refrain from specific behaviors (49,50). It is posited as a key regulatory mechanism in determining human action. High self-efficacy to resist the cues associated with drugs and alcohol has been found to assist in relapse prevention (39,51,52) and is associated with abstinence from alcohol (23). Addictions do vary in their course and severity, but societal attitudes that regard drug/alcohol abuse as incurable, and the low expectations of clients held by some professionals, contribute to clients' low self-efficacy (53). Many of the processes in self-help groups have implications for increasing self-efficacy. Participation exposes members to individuals with whom they can identify. Listening to similar others share experiences about how they dealt successfully with drug-related and other high relapse risk situations gives members the confidence that they too have the ability to cope with similar situations. High levels of emotional arousal can block effective action, as when there is anxiety about the self-punishing or socially punishing consequences of anticipated actions (54). The emotionally supportive, nonblaming climate of self-help groups encourages members to express their failures, fears, hopes, and plans, enabling more adaptive behaviors. Moreover, self-punishment is abated by observing other members modeling appropriate emotional responses to various experiences. In the only longitudinal process study of self-help that examined the factor of self-efficacy, the construct was both a correlate of prior self-help affiliation and a mediator of the effects of self-help affiliation on abstinence (23). Note that although 12-step requires an initial

admission of “powerlessness” over one’s addiction problem, fostering self-efficacy is fully consistent with the 12-step program. Several of the 12 steps (steps 6, 7, and 11) indicate that a person will be empowered once he/she humbly appeals for and accepts the help of a Higher Power as he or she defines it. Moreover, individuals are required to accept personal responsibility for mitigating the consequences of their addiction, whatever the cause(s) (Steps 8 and 9). The recovery process is graduated, with members expected to take increasing responsibility for repair and change as they progress through the steps.

Sociability—The importance of social support in influencing behavior has been shown in many different contexts. In the context of addiction, both treatment programs and 12-step fellowships place considerable emphasis on substance users’ needs for support from significant others. Levels and types of support are correlated with substance use outcome (7,55–62). Isolation can be a serious problem for individuals trying to address their substance use; this is especially true for those simultaneously struggling with mental health problems. Becoming involved with self-help groups is a means by which newly recovering individuals can develop friendships with those further advanced in recovery, who can model and reinforce positive attitudes and appropriate behaviors (63). One study found that new fellowship members usually replaced substance-abusing associates with friends involved in 12-step groups (61).

Spirituality—A key aspect of affiliation with 12-step groups is acceptance of the belief that members cannot recover simply of their own volition, but rather need to seek spiritual strength from a power greater than themselves (Step 2). The spiritual foundation of the 12 steps is one of the best-known aspects of the program and probably the most controversial. The spiritual component of 12-step fellowships may offend some (64), and it sometimes leads those unfamiliar with the program to misunderstand 12-step fellowships as a cult or religion (65). In 12-step fellowships, spirituality is a personal orientation that every individual is allowed to define for himself or herself, not a religious practice. Several researchers have noted the need for examining the role of spiritual support as a potential mediator of mutual aid groups’ effectiveness (5,47,66). In our current self-help study among dually diagnosed persons, many participants have credited 12-step affiliation with reconnecting them with a spiritual belief system discarded when they began using drugs; those beliefs in turn were credited with helping provide the support and strength to remain abstinent (7).

Installation of Hope—Hope is generally defined as positive expectations for the future, hopelessness as negative expectations. The installation and maintenance of hope is believed to be important to the effectiveness of psychotherapies (67–69), although therapies vary as to whether hope is an explicit target of the therapy. However, the early installation of hope for the future is a key element to recovery through the 12 steps. This is most explicit in the second step, which states, “we came to believe that a Power greater than ourselves could restore us to sanity.” The factor of hope, in the sense of faith that help is forthcoming, is also implied in the sixth step (readiness to have defects of character removed) and seventh step (humbling requesting that one’s shortcomings be removed). The installation of hope also constantly takes place at a practical level at fellowship meetings: “One of the great strengths of Alcoholics Anonymous is the fact that the leaders are all [persons in recovery] living inspirations to others” (67). The personal stories told by members of overcoming adversity, although there may have been many ups and downs, help give those who are in early recovery the hope that they too will ultimately succeed. Hopelessness is correlated with depression, suicidal ideation and suicidal behavior in clinical populations (70,71), including substance abusers (72–74). Persons diagnosed with schizophrenia showed strong relationships among hope, subjective health, and quality of life variables (75).

METHODS

Setting

Study participants were recruited from persons attending DTR meetings throughout New York City. DTR is a mutual aid fellowship adapted from the AA 12-step program of recovery, embracing those who have a dual diagnosis of mental and substance use disorders. DTR was started in New York State in 1989 and currently has about 200 groups meeting in the United States, with the most currently in New York, Georgia, Colorado, and New Mexico. New DTR groups are being started continually, some initiated by consumers and others by professionals who believe that mutual aid fellowships are a useful complement to formal treatment. Groups meet in community-based organizations, psychosocial clubhouses, day treatment programs for mental health, substance abuse and dual-diagnosis; and hospital inpatient units. All DTR groups, including those initiated by professionals, are led by recovering individuals.

Participants

Prospective study participants were recruited at 24 DTR meetings held in community-based organizations and day treatment programs throughout New York City. Study staff went to the various meetings, explained the study to the members, and invited all members to participate in the study, with the only requirement that they had to be attending DTR for at least 1 month. Those with less than 1 month of attendance, who might not continue, were excluded because the study intended to focus on the effects of long-term DTR participation.

Participation was voluntary based on informed consent; the study was approved by the Institutional Review Board of National Development and Research Institutes, Inc. Five staff, two African American males, one African American female, and two Caucasian females, three of whom had personal experience with DTR or traditional 12-step fellowships, performed recruitment and interviewing. Field staff was trained in interviewing skills and confidentiality procedures by senior research staff.

Baseline interviews ($n = 310$) were conducted during January–December 1998, and 1-year follow-up interviews ($n = 276$) were conducted during January–December 1999, for a follow-up rate of 90% (276/306) of those remaining alive (4 died). Reasons for no follow-up were: unable to locate or contact (19), refused (6), residential treatment out of state (4), and incarcerated (1). The interviews required about 2.5 hours, and participants received \$35 at baseline and \$40 at follow-up for their time. The follow-up sample of 276 was used for this article to give all respondents an equal opportunity to have at least 1 year of DTR attendance before measuring their extent of DTR affiliation, behavioral outcomes, and hypothesized mediating variables.

Study Measures

The interview was a semistructured instrument administered as part of a broader prospective longitudinal study of the effectiveness of self-help for dually diagnosed persons. The study created indices to measure DTR affiliation during the follow-up period, the hypothesized mediating variables, and two outcome measures, drug/alcohol abstinence, and health promoting behavior, which included medication adherence. All Cronbach alphas were computed for the present sample.

Drug/Alcohol Abstinence—(Abstinent = 1 vs. any use reported in the past year = 0). Based on 11 items (e.g., “alcohol,” “marijuana/grass,” “crack/rock”) coded as any use vs. no use, adapted from the Addiction Severity Index (76).

Health Promoting Behavior Health promoting behavior was measured by an index consisting of three items. Respondents were asked, “thinking back over the past year, have things gotten better, gotten worse or stayed the same for you” in the areas of medication adherence (“taking your medications as prescribed”); medical care (“keeping appointments with doctors”); and self-care (“taking care of yourself, such as eating, getting enough sleep” etc.). The score is the mean of the three items, coded as 5 = “much better,” 4 = “better,” 3 = “stayed the same/no change,” 2 = “worse,” 1 = “much worse” (alpha = 0.85).

DTR Affiliation measured participants’ degree of affiliation with the DTR fellowship during the past year, based on five items: “How frequently are (or were) you attending?” (“less than once a month” to “6 or 7 times a week.”) “How often do you share at DTR meetings?” (“never” to “always”.) “How many times have you qualified at a DTR meeting?” (i.e., being the main speaker and sharing one’s story of addiction and recovery.) “Have you chaired a DTR group for any period of time?” “Did you speak to other DTR members about your issues?” The individual item scores were standardized and their mean is the index score. (Because this is a count of affiliative behaviors, no alpha is computed.)

Internal Motivation for Change was measured with 11 items adapted from the Treatment Motivation Questionnaire (77) (e.g., I came to DTR because it is important to me; I accept the fact that I need help and support). The only change in wording was changing the references from “treatment” to, instead, “DTR.” The score is the mean of the items, coded as 1 = strongly disagree/4 = strongly agree (alpha = 0.86).

Perceived Coping was measured with 16 items from the Mental Health Confidence Scale (78). Respondents were asked to rate their level of confidence in their ability to deal with potentially difficult or stressful situations (e.g., deal with symptoms of your illness? deal with feeling lonely?) The score is the mean of the items, coded 1 = not at all confident/4 = very confident (alpha = 0.89).

Recovery Self-Efficacy was measured by eight items adapted from the Internal items of the Health Locus of Control scale (79), (e.g., if I work the program and take care of myself I can get better; I am directly responsible for my recovery). The index score is the mean of the eight items, coded as 1 = strongly disagree/4 = strongly agree (alpha = 0.85).

Sociability—This was measured by the 14-item Social Relations subscale of the Quality of Life Enjoyment and Satisfaction Scale (80). This measures interest in and enjoyment of activities with other people (e.g., during the past month, how often have you: enjoyed being with other people; felt affection toward someone). The index score is the mean of the items, coded as 1 = never/5 = all the time (alpha = 0.84).

Spiritual Well-Being was measured by the 12-item Spiritual Well-Being Scale (81) (e.g., I feel very fulfilled and satisfied with life; I have a personally meaningful relationship with my Higher Power; life doesn’t have much meaning [reversed]). The index score is the mean of the items, coded as 1 = strongly disagree/4 = strongly agree (alpha = 0.87).

Importance of Spirituality was measured by 11 items developed by the authors asking the respondent how important he/she considers belief in God/Higher Power or spiritual experiences for recovery (e.g., having God in my life has given me a choice over drugs and alcohol; I will have a spiritual experience by working the 12 steps). The index score is the mean of the items coded as 1 = strongly disagree/4 = strongly agree (alpha = 0.81).

Installation of Hope was measured by the 12-item Hopelessness Scale (82) (e.g., I have great faith in the future; my future seems dark to me [reversed]). The index score is the mean of the

items, coded as 1 = strongly disagree/4 = strongly agree ($\alpha = 0.75$); higher scores indicated greater hope.

Analytical Methods

To reduce the possibility of chance statistical findings, the number of individual mediation hypotheses to be tested was reduced by combining variables that were conceptually similar. Thus the scales for internal motivation, perceived coping and self-efficacy were transformed to standard scores (z-scores) and combined into an additive index termed “internal locus of control.” The scores for spiritual well-being and importance of spirituality were standardized and combined into an additive index termed “spirituality.” Sociability and installation of hope were maintained as individual scales.

The study hypotheses are:

1. Higher degree of DTR affiliation is associated with better behavioral outcomes (i.e., drug/alcohol abstinence and health promoting behavior).
2. Greater internal locus of control, sociability, spirituality and hope are associated with better behavioral outcomes.
3. The association between DTR affiliation and behavioral outcomes is explained (mediated) by internal locus of control, sociability, spirituality and hope.

The logic of testing for mediation follows Baron and Kenny (83). First a regression is constructed with DTR affiliation as the independent variable and a behavioral outcome as the dependent variable. Then a hypothesized mediator is added as a second independent variable. If the initially significant effect of DTR affiliation on outcome becomes nonsignificant, full mediation is indicated, whereas if the effect becomes weaker but still significant, partial mediation is indicated. The mediation analysis will be conducted using logistic regression for the binary dependent variable (drug/alcohol abstinence) and ordinary least squares regression for the continuous dependent variable (health promoting behavior). There are eight mediation hypotheses to be tested (four mediators \times two outcomes).

A small amount of the data was missing for some variables, never exceeding 7%. To maintain a consistent sample size of 276 when conducting multivariate analyses, mean substitution was used to impute missing values for all variables except health promoting behavior, which had a valid sample size of 247; this was the number of respondents who reported having a prescription for medication.

All statistical analyses were performed with SPSS Version 6.14.

RESULTS

Description of Sample

The sample was 73% male, 27% female; 58% black, 25% white, 14% Hispanic, 3% other ethnicity; 60% single, 33% separated, divorced, or widowed, 7% married/common law; and 50% lived in a community residence or apartment program, 24% in their own apartment or house, 6% with friends/relatives, 13% in single room occupancy, 5% in an institution, and 2% in a homeless shelter. Their mean age was 41 years (Standard Deviation [SD] = 8). Sixty percent graduated from high school or received a GED; 40% did not complete high school. Sixty-three percent were arrested as adults and 37% had multiple arrests. Self-reported psychiatric diagnoses were: schizophrenia (35%), major depression (23%), bipolar (23%), other (16%), and unknown (3%). The primary substance of abuse reported by participants was (abused either

in the past or currently): cocaine/crack (39%), alcohol (36%), heroin (12%), marijuana (11%) and other (2%).

Statistical Analyses

With respect to the first hypothesis, the degree of DTR affiliation during the follow-up period was significantly associated with both drug/alcohol abstinence and health-promoting behaviors. With respect to the second hypothesis, all four proposed mediating variables were significantly associated with each outcome variable, with the exception that hope was not correlated with drug/alcohol abstinence (Table 1).

Note that none of the sociodemographic characteristics of the sample were associated with the measures of outcome, thus these variables are not included as covariates in the following regression analyses.

The third hypothesis was tested by a series of regression analyses. Mediation tests for the dependent variable of drug/alcohol abstinence are presented in Table 2. (The R statistic is analogous to a partial correlation coefficient; its value is between -1 and +1 and provides a measure of the direct effect of an independent variable on a dichotomous dependent variable.) Consistent with correlation results, degree of DTR affiliation shows a significant effect on abstinence. In the first mediation test, internal locus of control is added to the regression, resulting in a significant effect for locus of control and loss of significance for DTR affiliation; this suggests that internal locus of control mediates the observed relationship between DTR affiliation and abstinence. In the second mediation test, sociability shows a significant effect on abstinence, but DTR affiliation also remains significant, although the magnitude of the latter effect is somewhat attenuated; this suggests that sociability is a partial mediator. In the remaining two tests, neither spirituality nor hope have a significant effect on abstinence, whereas DTR affiliation remains significant; this suggests that spirituality and hope are not mediators.

Mediation tests for the dependent variable of health promoting behavior are presented in Table 3. Again, degree of DTR affiliation shows a significant effect on health promoting behavior. In the first mediation test, internal locus of control is added to the regression, resulting in a significant effect for locus of control and loss of significance for DTR affiliation; this indicates that internal locus of control mediates the observed relationship between DTR affiliation and health promoting behavior. In the second mediation test, sociability shows a significant effect on health promoting behavior, but DTR affiliation also remains significant; this suggests that sociability is a partial mediator. In the third and fourth tests, spirituality and hope, respectively, show significant effects on health promoting behavior, whereas DTR affiliation loses significance each time; this suggests that spirituality and hope are both mediators of the relationship between extent of DTR affiliation and health promoting behavior.

DISCUSSION

The study lends substantial but not complete support to all three hypotheses. The extent of respondents' affiliation with dual-focus self-help groups during the study period was associated with both drug/alcohol abstinence and health promoting behavior at follow-up. The proposed mediators of self-help affiliation likewise were associated with both behavioral outcomes, with the exception that hope was not correlated with abstinence. In the tests for mediation, internal locus of control and sociability, the common process factors, were more robust mediators than spirituality and installation of hope, the factors proposed as more unique to 12-step participation. Nevertheless, although not acting as mediators of DTR affiliation on abstinence, both spirituality and hope did appear to mediate the effect on DTR affiliation on health promoting behavior, which includes the important component of medication adherence.

The results help to demystify the effects of 12-step group participation on behavioral change. Partly these effects are attributable to processes that are well-documented in the contemporary social learning literature, including the relapse prevention approach to the treatment of addiction (39,84). The attitudes and beliefs captured under the concepts of internal locus of control and sociability are well-documented facilitators of behavioral change. The previous literature review discussed how motivation, self-efficacy for recovery, and coping are encouraged and reinforced during 12-step participation. Further, the encouragement of sociability makes it possible for a member to benefit from the help of others in the process of recovery; 12-step groups provide opportunities both for informal socializing and formal mentoring (“sponsoring”). These study results are entirely consistent with DiClemente’s conceptualization of the universal social learning processes that can be identified as underlying many of the traditional 12 steps to recovery (85).

However, the 12-step program is multifaceted and includes elements that are not typical or at least not emphasized in social learning models generally or most formal addiction treatment specifically. Two of these elements relatively “unique” to the 12-step program are identified as spirituality and the installation of hope. Hope has a spiritual overtone as well, because it may be seen as analogous to the concept of “faith,” that is, a belief that the desirable or the good will prevail by means other than one’s own agency; this distinguishes it clearly from self-efficacy. Spirituality and hope were independently associated with more frequent health promoting behavior, but not with greater likelihood of abstinence. Despite this finding, it may be too facile to conclude that greater spirituality and hope are irrelevant to the quest for abstinence. Observations indicate that 12-step participants value spirituality, which includes but is not limited to mainstream religious beliefs; assistance from a person’s Higher Power is considered important. Although this particular study did not adduce effects of spirituality and hope on abstinence that were independent of the extent of DTR affiliation, further research on this issue should be conducted, perhaps using different measures of spirituality and hope/faith, which are subtle concepts difficult to operationalize. At the least, from a strictly pragmatic perspective, the spiritual element of 12-step programs is useful because it helps attract participants, who then have the opportunity to benefit from affiliation, however those benefits are achieved.

Additional research should be conducted to determine the generalizability of these findings to other self-help group programs. The acceptance of 12-step programs among addiction and mental health professionals may be increased by understanding that the therapeutic factors inherent in 12-step programs are neither mysterious nor mystical, but appear to capitalize on well-documented social learning principles, although the language employed differs from clinical terminology. Moreover, the potential effectiveness of self-help programs can be estimated by observing the extent to which social learning factors are identifiable in group activities.

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Table 1

Correlations of study variables.

	(2)	(3)	(4)	(5)	(6)	(7)
1. DTR affiliation	0.32 ^{***}	0.17 ^{**}	0.26 ^{***}	0.18 ^{**}	0.15 ^{**}	0.16 ^{**}
2. Internal locus of control	—	0.33 ^{***}	0.49 ^{***}	0.60 ^{***}	0.17 ^{**}	0.37 ^{***}
3. Sociability		—	0.26 ^{***}	0.33 ^{***}	0.19 ^{**}	0.15 [*]
4. Spirituality			—	0.58 ^{***}	0.11 [*]	0.18 ^{**}
5. Installation of hope				—	0.06	0.22 ^{***}
6. Drug/alcohol abstinence ^a					—	0.16 ^{**}
7. Health-promoting behavior						—

*
 $p < 0.05$.**
 $p < 0.01$.***
 $p < 0.001$.^a73% of respondents reported abstinence.

Table 2Stepwise logistic regressions of drug/alcohol abstinence on DTR affiliation and mediators ($n = 276$).

Independent variables	Regression coefficient	Standard error	R	p value
DTR affiliation	0.58	0.24	0.11	0.01
1. Mediation test				
DTR affiliation	0.42	0.25	0.05	0.09
Internal locus of control	0.14	0.07	0.09	0.03
2. Mediation test				
DTR affiliation	0.48	0.24	0.08	<0.05
Sociability	0.65	0.26	0.12	0.01
3. Mediation test				
DTR affiliation	0.51	0.24	0.08	0.04
Spirituality	0.11	0.08	0.00	0.19
4. Mediation test				
DTR affiliation	0.55	0.24	0.10	0.02
Hope	0.27	0.47	0.00	0.57

Table 3Stepwise OLS regressions of health promoting behavior on DTR affiliation and mediators ($n = 247$).

Independent variables	Regression coefficient	Standard error	R	<i>p</i> value
DTR affiliation	0.64	0.26	0.16	0.01
1. Mediation test				
DTR affiliation	0.14	0.26	0.03	0.60
Internal locus of control	0.39	0.07	0.36	0.00
2. Mediation test				
DTR affiliation	0.56	0.26	0.14	0.04
Sociability	0.56	0.28	0.13	<0.05
3. Mediation test				
DTR affiliation	0.49	0.27	0.12	0.07
Spirituality	0.20	0.09	0.15	0.02
4. Mediation test				
DTR affiliation	0.49	0.26	0.12	0.06
Hope	1.57	0.50	0.20	0.00