

Brief article

Narcotics Anonymous participation and changes in substance use and social support

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Abstract

In Victoria (a southern Australian state) in 1995, Narcotics Anonymous had a small but growing membership providing an opportunity to study the early experience of new self-help members. Ninety-one new members were interviewed and 62 (68%) were reinterviewed after 12 months. Three measures of self-help participation were examined: service role involvement, step work, and stable meeting attendance. Lower prior involvement in treatment services and greater participation in self-help predicted subsequent self-help participation. Higher levels of secondary school education predicted service role involvement and longer periods in stable meeting attendance. Higher self-help participation through the 12 months prior to follow-up was associated with lower levels of hazardous alcohol use and higher emotional support at reinterview. Multivariate regression analysis suggested stable self-help meeting attendance and step work continued to predict reductions in hazardous alcohol use and improvements in social support, after controlling for a range of alternative predictors. © 2002 Elsevier Science Inc. All rights reserved.

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1. Introduction

Self-help groups (also known as mutual-aid groups) are considered an important adjunct to formal treatment services both in Australia (Mattick & Hall, 1993) and in other countries (Wells, 1994). Evaluation studies have associated participation in self-help groups with reductions in drug and alcohol use. Positive outcomes have been demonstrated using a range of study designs including: matching trials (Project MATCH Research Group, 1998); epidemiological (Mann, Smart, Anglin, & Adlaf, 1991); and quasi-experimental studies (Christo & Franey, 1995). The present study aimed to observe self-help participation in a naturalistic context, inferring impacts

on drug use and social support using a quasi-experimental design. Humphreys and Rappaport (1994) have emphasised this evaluation approach as a means of reducing the risks, inherent in intervention studies, of diminishing critical processes surrounding self-help group autonomy and participant control.

Narcotics Anonymous (NA) is the primary self-help group available in Victoria (a southern Australian state), offering assistance for recovery from illicit drug use problems. NA is an international fellowship based on the program and organizational traditions first espoused by Alcoholics Anonymous (AA) (Wells, 1994). Self-help groups based on the NA framework offer a 12-step program, regular group meetings, and other assistance for people recovering from substance abuse problems.

As the research examining self-help groups is not yet extensive, the effective group processes that assist substance abuse treatment remain to be clarified. For those involved in 12-step self-help groups, greater reductions in drug use have

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been associated with stable attendance on a weekly or more frequent basis (Toumbourou, U'Ren, Hamilton, & Campbell, 1996), involvement in step or service work (Emrick, 1987), and social support (Humphreys & Noke, 1997).

Many treatment professionals regard social support to be among the more important benefits available through drug user self-help groups (Woff, Toumbourou, Herlihy, Hamilton, & Wales, 1996). There are at least three theoretical frameworks that can be used to explain how social support might reduce substance abuse. Firstly, social support may reduce social isolation and in this way alleviate experiences of social disconnection and alienation (Havassy, Hall, & Wasserman, 1991). Secondly, social support interventions may alter net social influences, increasing contact with nondrug users and decreasing contact with active drug users (Azrin, Donohue, Besalel, Kogan, & Acierno, 1994). Thirdly, social support interventions may increase exposure to people who offer advice and other assistance helpful for managing stress and solving problems that may underlie substance abuse (Sarason, Levine, Basham, & Sarason, 1983).

In the present study, recent members entering NA in Victoria were observed in the context of their first year attending self-help groups. Indicators of self-help participation were observed over a 12-month period in order to examine the relationship between self-help participation, substance use, and social support. It was hypothesized that greater self-help participation would predict lower substance use and greater social support at 12-month follow-up.

2. Methods

2.1. Procedure

In order to assess the early impact of self-help involvement, the present study set out to investigate the experience of new members entering Victorian self-help groups supporting recovery from drug abuse. Based on an explicit desire to involve self-help members in evaluation research (Toumbourou & Hamilton, 1994), an advisory group was established incorporating longer-term Victorian NA members who were interested in research. Members of the advisory group assisted with recruitment into the study, which was based at the University of Melbourne and approved through the university's Ethics Committee. Recruitment proceeded from June 1994 through May 1995. Recruitment procedures were designed to introduce the study to all NA members who persisted within the Victorian fellowship for at least 3 months but who had not been members for longer than 12 months. NA traditions precluded formal affiliation or endorsement of outside research, hence group members were asked to independently decide whether or not they would cooperate with the study.

2.2. Measures

Three measures of self-help participation were examined: service role involvement, step work, and meeting attendance. Service role involvement was indexed by counting participation in five service roles within the 12-month periods prior to each interview. The five service roles examined were: serving as group secretary, chairing a meeting, helping in other service positions (e.g., committee work), sponsoring others, or being personally sponsored. Participation in step work was indexed by the highest step completed in each 12-month interview period.

Details of self-help meeting attendance and substance use were obtained using a retrospective calendar procedure. This procedure, adapted from the retrospective timeline method (Sobell & Sobell, 1981), was used to facilitate recall over the months prior to interview. Retrospective interviewing facilitated recall of frequency of self-help attendance, frequency of drug use (e.g., marijuana, injecting drug use, and alcohol use), employment status, and legal contacts. Quantity estimates were also recorded for alcohol use enabling measurement of various patterns of alcohol use through the study period. In their published guidelines for responsible alcohol use, the Australian National Health and Medical Research Council (1992) described regular consumption of 3 or more standard drinks for females and 5 or more for males to be potentially hazardous. Periods of alcohol consumption at either hazardous levels or in patterns respondents indicated to have been problematic were coded from retrospective reports.

Respondents' self-report information appeared to be valid and reliable. Official methadone program registrations were obtained and found to be highly correlated when compared with self-reported methadone use prior to the first interview (Pearson $r = 0.68$, $n = 57$, $P < 0.0001$). Reported behaviors in the 3-month period prior to the first interview were obtained both at the first interview and at reinterview demonstrating considerable reliability for over 12 months of retrospective recall. Reports were highly correlated for the time spent in at least weekly self-help attendance ($r = 0.82$, $n = 55$, $P = 0.0001$), injecting drugs ($r = 0.67$, $n = 61$, $P = 0.0001$), using alcohol problematically ($r = 0.67$, $n = 60$, $P = 0.0001$), and using marijuana ($r = 0.71$, $n = 59$, $P = 0.0001$).

A number of domains relevant to social support were examined by modifying instruments developed by Havassy et al. (1991). Three measures examined dimensions relevant to perceived social support. A 13-item index examined perceived emotional support. This index was developed by Havassy et al. (1991) from Sarason et al.'s (1983) Social Support Index. An eight-item index, examining perceptions of the availability of tangible support, was developed from a measure by Cohen, Mermelstein, Kamarck, and Hoberman (1985). A five-item index examined negative social support (social stress) and was based on Lehman, Shin, Allen, and Simko's (1983; cited in Havassy et al. [1991]) measure. Each of the items in these measures used six-point scales.

Measures developed by Havassy et al., (1991) were modified to form the social network questions used in the present study. Close social networks were scored by counting relationships with a spouse or partner, a best friend, and one or more household members, and summing these together with the number of friends and relatives respondents felt close to and contacted at least monthly.

The 28-item version of the General Health Questionnaire (GHQ) was used to measure mental health. The GHQ has demonstrated reliability and validity in a range of populations (Goldberg & Williams, 1988) and was scored as a count of the 28 symptoms.

2.3. Sample

Ninety-one members fitting the study criteria were identified and gave informed consent to be involved in this study. NA membership in Victoria was relatively small during the study period, with 183 attending the annual, state-wide meeting in 1995 (O'Brien, 1998, p. 158), an event in which all current members aim to participate. It was believed the sample represented a large proportion of the new members entering the Victorian NA fellowship through the study recruitment period.

Available information suggested the recruited sample of 91 approximated the Victorian NA populations on important domains. The geographical spread of NA groups attended was not significantly different compared to NA meeting records. The gender distribution equated that in two previous NA surveys (37% were female). The sample age distribution (mean 33.1 years, *SD* 8.2) was, however, older compared to previous surveys of NA groups (Toumbourou & Hamilton, 2002).

The sample demonstrated a disadvantaged educational and economic profile with 48% having left school without Year 11 and 58% earning less than 8000 Australian dollars per year. Eighty-nine percent of respondents experienced their first-ever attendance at a self-help group in the year prior to the first interview. The majority of those surveyed (92%) utilized a treatment service at some time prior to interview and 86% used a treatment service prior to their first attendance at a self-help group.

Respondents were invited for a second interview after 12 months (median time to reinterview 12.8 months). Tracking procedures included a recontact phone call at 6 months. Tracking, locating, and interviewing were conducted by a graduate-qualified social worker. At the completion of tracking and locating procedures, 62 people (68% of the initially recruited sample) had been interviewed. Of those not interviewed, two were dead, two had refused reinterview and 25 could not be located and/or reinterviewed within the time and resources available to the study.

Table 1 presents data from the first-interview comparing the characteristics of subjects who were and were not reinterviewed. Statistical testing revealed few differences, however, the reinterviewed sample reported slightly

Table 1
Characteristics of not reinterviewed and reinterviewed at first-interview

Measures	Not reinterviewed (<i>n</i> = 29)	Reinterviewed (<i>n</i> = 62)	
Percentages (95% confidence limits)			
Female	28 (10 45)	42 (29 55)	ns
Home owner or purchaser	10 (0 22)	23 (12 33)	ns
Previous problem with alcohol	83 (68 97)	90 (83 98)	ns
Previous problem with heroin	66 (47 84)	71 (59 83)	ns
Treatment past 6 months	69 (51 87)	68 (56 80)	ns
Mean (95% confidence limit)			
Age in years	32.7 (29.5 35.8)	33.4 (31.3 35.5)	ns
School years completed	10.3 (9.8 10.8)	10.6 (10.3 10.9)	ns
Years since first problem with alcohol ^a	5.3 (3.2 7.4)	8.8 (6.4 11.3)	<i>p</i> = 0.07
Years since first problem with heroin ^a	4.4 (2.4 6.5)	6.3 (4.7 8.0)	ns
General Health Questionnaire symptoms	5.8 (4.2 7.4)	5.5 (4.1 7.0)	ns
Number of self-help service roles	1.3 (0.7 1.8)	1.9 (1.5 2.3)	<i>p</i> = 0.04
Highest step completed	2.3 (1.5 3.1)	3.8 (3.0 4.7)	<i>p</i> = 0.01
Months of at least weekly self-help attendance	4.6 (2.7 6.4)	5.1 (3.9 6.2)	ns

ns = not significant (*p* > 0.12).

^a For those not reporting problems number of years was coded as zero.

higher self-help participation (service involvement and step work) prior to the first-interview (*p* < 0.05) and tended to report a greater number of years since first experiencing an alcohol problem (*p* = 0.07). Subsequent analyses demonstrated no significant relationship between this variable and either self-help participation or outcomes prior to reinterview. Additional testing also failed to reveal differences on a range of domains that have theoretical relevance to treatment participation or treatment outcome including social support (e.g., emotional support, tangible support, negative social support, and close social network size), involvement prior to first-interview in treatment, hazardous alcohol use, marijuana use, injecting, and full-time employment.

3. Results

The 91 newer self-help members initially recruited into the study were asked about their first attendance at a self-help group. For all but 3%, first attendance had been at a 12-step self-help group. For 48%, the first group attended had been NA, but for 41%, AA was their entry point. For the majority of those interviewed (57%) an agency or professional was described as the main factor motivating their first attendance. In most of these cases attendance had been a compulsory condition of a treatment agency. Although treatment agency conditions were a common reason given for first attending self-help meetings, frequent mention was also made of being at a stage where attending the groups

“made sense.” In other cases a referral from a medical practitioner, police officer, nurse, or counselor was the catalyst. For over one-quarter (27%), the main encouragement to attend came from a family member or a friend sympathetic to the groups. A smaller number (9%) mentioned entering the groups out of curiosity. For a small minority (7%), actions by self-help group members were reported to have been more influential for the first entry into the groups. In this regard, “NA being discussed in a radio show,” “advertising by NA,” and most commonly direct encouragement from an NA member were mentioned.

At the first-interview, the most frequently endorsed substance use problems related to alcohol use (88%) and heroin use (85%). Responses in the 6 months prior to reinterview suggested drug use problems occurred mainly in two related areas: hazardous alcohol use (with 29% reporting some period of involvement through the 6 months prior to reinterview) and injecting drug use (with 23% reporting some involvement). In half the cases where occasions of hazardous alcohol use or injecting were reported, the period of use persisted for more than 60 days across the 6 months observed.

Measures of service role involvement and step work demonstrated increases from the first-interview through to the follow-up. Among those retained to follow-up the average on the index of service role, involvement increased from 1.9 prior to first-interview to 2.7 prior to reinterview ($t = 4.2, p < 0.0001$). The average for the highest step completed increased from 3.8 to 6.1 ($t = 3.9, p < 0.001$).

Analysis of the cross-sectional data obtained at the first interview (Toumbourou et al., 1996) suggested regular meeting attendance on at least a weekly basis was strongly associated with behavioral improvements in drug use. Variation in self-help attendance across the follow-up period was examined. Thirty-six respondents (58% of the reinterviewed subjects) had maintained at least weekly self-help attendance throughout the 12 months prior to follow-up. The remaining group of 26 (42%) had been less stable in their involvement (median 5 months of at least weekly self-help attendance, ranging from no weekly attendance, for four respondents, to 11 months of at least weekly attendance, for three respondents).

Table 2 presents Pearson correlations between a range of behavioral and demographic variables and the three indicators of self-help participation over the 12 months prior to follow-up: service role involvement, highest step completed, and months spent attending self-help on at least a weekly basis. These correlations are presented for variables measured both at the first-interview and at the 12-month reinterview.

3.1. First-interview associations

In general, few of the first-interview measures were associated with subsequent self-help participation. With the exception of stable self-help attendance, each of the first-interview (baseline) measures of self-help participation sig-

Table 2
Pearson correlations with self-help participation measured through the 12-months prior to follow-up

	Self-help participation through the 12-months prior to follow-up		
	Number of service roles	Highest step completed	Months of at least weekly attendance
<i>First-interview measures</i>			
Baseline participation	.52***	.32*	.03
Female	.00	.07	-.04
Age in years	-.06	-.16	.01
School years completed	.29*	.09	.42***
Home owner or purchaser	.02	-.08	.13
Previous stable self-help	-.02	-.07	-.06
Hazardous alcohol use ^a	.00	-.02	-.04
Injecting drug use ^a	.13	-.02	.06
Marijuana use ^a	-.14	-.06	-.19
Treatment ^a	-.38**	-.25*	-.28*
Full-time employment ^a	-.04	-.02	.08
Crime (illicit income, incarcerations) ^a	.20 [†]	.04	.04
Emotional social support	-.21 [†]	-.20 [†]	-.15
Tangible social support	.05	.00	.03
Social stress	.01	.07	.07
Number in close social network	-.09	.07	-.03
GHQ mental health symptoms	-.02	.05	-.06
<i>Reinterview measures</i>			
Hazardous alcohol use ^a	-.43***	-.33*	-.55***
Injecting drug use ^a	-.20	-.11	-.19
Marijuana use ^a	-.24 [†]	-.24 [†]	-.38***
Treatment ^a	.14	.19	.02
Full-time employment ^a	.23 [†]	.06	.28*
Crime (illicit income, incarcerations) ^a	-.05	.07	-.20 [†]
Emotional social support	.37**	.33**	.39**
Tangible social support	.06	.19	.11
Social stress	-.18	-.38**	-.20
Number in close social network	.33**	.14	.22 [†]
GHQ mental health symptoms	-.13	-.09	-.17

^a Measured across the 6 months prior to first interview and reinterview.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

[†] Effect approached significance ($0.05 < p < .12$).

nificantly predicted the corresponding measures of participation in the follow-up period. Higher levels of secondary school education predicted service role involvement and longer periods in stable meeting attendance. Lower prior involvement in treatment services predicted each of the three measures of subsequent self-help participation.

3.2. 12-Month reinterview associations

Higher self-help participation through the 12-month follow-up was associated with lower levels of hazardous alcohol use. Stable meeting attendance was associated with less marijuana use. There were no significant associations between any of the measures of self-help participation and injection drug use. Stable meeting attendance was associ-

ated with longer periods in full-time employment. Self-help participation was associated with a number of the social support variables measured at follow-up. Each of the participation measures was associated with higher emotional social support. Higher levels of step work was associated with less social stress. Service work was associated with a larger social network size. Self-help participation was not associated with changes in mental health symptoms.

An important rationale for studying self-help groups is to establish whether participation in such groups is likely to be effective in supporting recovery from substance use problems. Of the three self-help participation measures examined in the present study, the highest correlations with reductions in hazardous alcohol use and marijuana use were found for stable meeting attendance. Although hazardous alcohol use and marijuana use at the first interview did not predict subsequent stable meeting attendance, further analysis was considered necessary to examine whether preexisting differences in factors such as education explained both reduced substance use at follow-up and more self-help participation.

Humphreys, Phibbs, and Moos (1996) discussed the problem of causal inference in quasi-experimental studies investigating the contribution of self-help participation to outcome improvements. They have advocated including identified predictors of self-help participation as control variables in regression analyses aiming to isolate the contribution of self-help participation to improvements at outcome. Previous research suggests potential predictors of self-help participation might include patterns of previous drug use, prior treatment (Weiss et al., 2000), mental health status, and social stability (Humphreys, Mavis, & Stofflemayr, 1991). The correlations in Table 2 present associations with variables measuring these domains together with a range of other potential predictors of self-help participation.

Multivariate step-wise regression with backwards elimination was used to select unique predictors of self-help participation yielding a model with two predictors. Longer subsequent periods of regular self-help attendance were significantly predicted by higher levels of previous service work, and more years of secondary school education ($F_{(2,59)} = 13.59, p < 0.0001, \text{adjusted } R^2 = 0.29$). These factors were incorporated in multivariate regression equations predicting outcomes.

A wide range of drug treatment outcome modifiers have been identified in previous research (Mattick & Hall, 1993). Correlations between each of the first-interview measures included in Table 2 and hazardous alcohol use were examined. Lower hazardous alcohol at follow-up was significantly predicted at first-interview by higher levels of service and step work, being female, more years of secondary school education, and by less marijuana use ($p < 0.05$). These first-interview predictors together with measures of treatment, self-help service, step work, and attendance prior to follow-up, were included in step-wise regression analyses predicting hazardous alcohol use at reinterview yielding a model with five predictors. The follow-up measures of self-

help meeting attendance and step work predicted reductions in hazardous alcohol use, after controlling for the three other predictors: female gender, first-interview marijuana use, and the follow-up measure of treatment ($F_{(5,56)} = 9.20, p < 0.0001, \text{adjusted } R^2 = 0.40$).

Correlations with higher emotional social support prior to reinterview were examined and revealed significant associations with a range of first-interview measures including less treatment, higher emotional social support, less social stress, and fewer GHQ symptoms ($p < 0.05$). These measures, together with the predictors of self-help participation and the follow-up measure of treatment, were included in stepwise regression analyses yielding a model with four predictors. The follow-up measures of self-help step work and attendance continued to significantly predict emotional social support after controlling for two other predictors: the first-interview measures of lower social stress and lower GHQ symptoms ($F_{(4,56)} = 6.89, p < 0.001, \text{adjusted } R^2 = 0.28$).

4. Discussion

The present study investigated associations between self-help participation and changes in substance use and social support over 12 months in a sample of 91 new members.

Table 1 revealed at the first-interview, respondents had spent on average less than 6 months in at least weekly self-help participation. Assuming those lost to follow-up did not maintain stable self-help participation, then about 40% maintained at least weekly self-help attendance throughout the succeeding 12 months. At the first-interview, members averaged between one and two service roles and had completed two to four steps. Although the three measures of self-help participation (e.g., service role involvement, step work, and stable meeting attendance) were highly correlated, stable meeting attendance demonstrated the strongest associations with reductions in hazardous alcohol use and marijuana use and improvements in emotional social support at follow-up. A surprising finding was that injecting drug use was not significantly associated with self-help participation. The failure to identify a relationship in the present study may have been due to a lack of statistical power due both to the small sample size and also the low level of injecting drug use at follow-up.

The present research supported previous studies of AA (Emrick, 1987) in demonstrating a prospective association between NA self-help participation and reduced alcohol use. Despite this and other significant associations, inferring a causal role for self-help participation in reducing substance use is complicated as selection factors influencing self-help may also increase the likelihood of reduced substance use. The present study attempted to clarify the contribution of self-help by assessing the factors influencing participation. Stable self-help attendance continued to predict reductions in hazardous alcohol use at reinterview after controlling for both initial predictors of self-help participation and a range

of other potential outcome modifiers such as amount of treatment at follow-up.

The methodology used in the present study involved working closely with self-help members who were interested in supporting research. Working with this group resulted in the study being made known to a sample of new members, while also respecting the requirement for NA groups to not be formally affiliated with outside research. The small sample recruited into the present study was the result of both the small size of NA in the state of Victoria and resource limitations that precluded extending this research over a longer time period. It may be possible to use the present methodology in future research to interview and follow-up larger samples.

The current study represented one of the first observations of self-help participation within a sample recruited from new NA members. The findings demonstrated an association between self-help group participation and both reductions in substance use problems and also improvements in social support. By further exploring predictors of self-help involvement in the context of more comprehensive assessment of treatment modifiers and larger samples, future research along the present lines could provide practical information for those involved in self-help groups while also better modeling the contribution of self-help groups to recovery from substance abuse.

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