

Intensive referral to 12-Step self-help groups and 6-month substance use disorder outcomes

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ABSTRACT

Aims This study implemented and evaluated procedures to help clinicians make effective referrals to 12-Step self-help groups. **Design** Randomized controlled trial. **Setting** Out-patient substance use disorder treatment. **Participants** Individuals with substance use disorders (SUDs) entering a new treatment episode ($n = 345$) who were assigned randomly to a standard referral- or an intensive referral-to-self-help condition. **Measurements** Self-reports of 12-Step group attendance and involvement and substance use at baseline and a 6-month follow-up. **Intervention** The intensive referral intervention focused on encouraging patients to attend 12-Step meetings by connecting them to 12-Step volunteers. **Findings** Among patients with relatively less previous 12-Step meeting attendance, intensive referral was associated with more meeting attendance during follow-up than was standard referral. Among all patients, compared with those who received standard referral, those who received intensive referral were more likely to be involved with 12-Step groups during the 6-month follow-up (i.e. had provided service, had a spiritual awakening and currently had a sponsor). Intensive referral patients also had better alcohol and drug use outcomes at 6 months. Twelve-Step involvement mediated part of the association between referral condition and alcohol outcomes. **Conclusions** The brief intensive referral intervention was associated with improved 12-Step group involvement and substance use outcomes even among patients with considerable previous 12-Step group exposure and formal treatment. Future 12-Step intensive referral procedures should focus on encouraging 12-Step group involvement in addition to attendance to benefit patients most effectively.

Keywords Randomized controlled trial, substance use disorder, 12-Step self-help.

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INTRODUCTION

Twelve-Step self-help groups have become an important component of the system of care for patients with substance use disorders (SUDs) in the United States and other countries. SUD patients have high rates of post-treatment relapse and additional episodes of in-patient, residential and intensive and standard out-patient care [1], and self-help may provide an element of continuing support and structure that reduces relapse rates and use of services. The American Psychiatric Association [2] recommends referrals to self-help for the treatment of SUDs.

This study implemented and evaluated procedures to help clinicians make more effective referrals to 12-Step self-help groups (SHGs). SUD out-patients were assigned randomly to a standard referral- or an intensive referral-to-self-help condition. We examined whether intensive referral, compared to standard referral, increased

patients' SHG attendance over a 6-month follow-up period. We also determined whether intensive referral increased SHG involvement (e.g. having or being a sponsor) among patients who attended. Further, we determined whether patients who received intensive referral had better substance use outcomes.

Intensive referral and 12-Step group attendance and involvement

Most formally treated SUD patients are referred to self-help [3]. However, under usual referral, formally treated patients often drop out of self-help quickly [4–6]. An early study [7] of individuals with alcohol use disorders and spouses of such individuals found that all 10 clients in an intensive referral condition attended self-help [Alcoholics Anonymous (AA) or Al-Anon] over 4 weeks, compared to none of 10 clients in the standard referral condition. In

intensive referral, the client called a SHG member during a counseling session to arrange to go to a meeting together. In standard referral, the counselor provided a description of self-help, a meeting schedule and encouragement to attend SHG meetings.

Project MATCH found that out-patients in a Twelve-Step Facilitation (TSF) treatment condition, which encouraged AA attendance, had more AA attendance and involvement during treatment and at 1- and 3-year follow-ups than did clients in a cognitive behavioral (CB) therapy or motivational enhancement therapy condition [8–10]. The TSF condition consisted of 12 weeks of individual out-patient treatment, one goal of which was to motivate patients to accept and follow the tenets of AA. In contrast to Sisson & Mallams' [7] intensive referral condition, TSF was much more than a referral to AA [11], but the intensive referral and TSF were broadly comparable in that both encouraged participation in self-help.

Consistent with Project MATCH, the VA Multisite Evaluation of Substance Abuse Treatment found that SUD patients treated in 12-Step programs had higher rates of subsequent participation in self-help [5]. Specifically, at a 1-year follow-up, patients in 12-Step or combined 12-Step/CB programs were more likely than patients in CB programs to attend SHG meetings, and were more involved in self-help [e.g. were more likely to talk with a sponsor and to read AA and/or Narcotics Anonymous (NA) literature]. Again, although 12-Step treatment constitutes much more than a referral to self-help, it resembles intensive referral in its encouragement of self-help participation.

Based on previous findings [5,7–10,12,13], we expected that intensive referral to self-help, compared to standard referral, would result in more 12-Step SHG meeting attendance and involvement at 6 months post-referral. However, because individuals with SUDs who have received relatively less help in the past are often more responsive to current treatment [14–16], we also considered the possibility that the intensive referral intervention would be especially effective at increasing 12-Step group attendance among patients who had less 12-Step group experience at intake to the present treatment episode.

Intensive referral and substance use outcomes

There are no studies comparing substance use outcomes of patients referred to SHGs by standard versus intensive referral procedures. The only study to compare standard to intensive referral *per se* [7] assessed only meeting attendance at follow-up. However, studies demonstrate clearly that patients who choose to attend SHGs after formal treatment are more likely than those who do not to maintain abstinence, and that more involvement is associated with more improvement on substance use outcomes [17–22]. In addition, among cocaine-dependent

patients, higher scores on an index assessing both 12-Step group involvement and endorsement of 12-Step philosophy mediated partially the positive relationship found between receiving out-patient counseling that encouraged participation in 12-Step groups and more improvement on drug use outcomes during a 6-month follow-up period [23].

In summary, this project used a randomized design in which patients entering out-patient SUD treatment were assigned to either standard or intensive referral to 12-Step SHGs. Patients were followed-up at 6 months to determine whether intensive referral resulted in more 12-Step SHG attendance and involvement, and in better substance use outcomes. We also examined the extent to which 12-Step participation mediated between referral condition and substance use outcomes.

METHODS

Sample

A total of 382 patients entering SUD out-patient treatment at a Department of Veterans Affairs (VA) program were eligible for the study, i.e. were clinically judged by program staff to be cognitively able to understand the study's questionnaire and interview procedures. Two patients were ineligible due to cognitive impairment; there were no other exclusion criteria. Treatment was abstinence-based with patient activities (e.g. therapy oriented toward relapse prevention, psychoeducation) scheduled each weekday. After receiving an introduction to the study, 345 patients signed an informed consent form and were enrolled. A total of 37 patients who were eligible for the project declined to participate in it. Of the 345 participants, 164 were assigned randomly (using permuted blocking) to the standard referral condition and 181 were assigned randomly to the intensive referral condition.

Procedure

Counselor training

Because of the importance of establishing and maintaining the distinctiveness of the referral conditions, 12 counselors were assigned randomly to deliver either the standard or intensive referral condition [24,25]. The counselor characteristics of gender and training were balanced between groups. All counselors attended a training seminar that reviewed the project manual containing the study background and a detailed overview of the intervention protocols. To ensure counselors' readiness to deliver the intervention to which they were assigned, we included a start-up practice phase during which counselors implemented the intervention with patients who were enrolled and randomized to condition according to the same procedures used in the study, but

patients were considered training cases and their data were not analyzed for this report. All training case sessions (a minimum of two per counselor) were audiotaped and rated by project staff using the checklist containing the standard- and intensive-referral components (see section on monitoring, below). Senior project staff reviewed the checklist results and provided supervision to each counselor. Counselors were certified after successful completion of training cases.

Standard referral procedures were designed to reflect current practices in VA SUD out-patient clinics, whereas intensive procedures were designed to be quite distinct from standard referral and feasible to implement routinely. To develop the procedures, we reviewed the literature and convened four meetings of a national expert panel composed of SUD treatment providers, including case managers and continuing care coordinators, program managers, researchers, system planners, policy-makers and self-help facilitators. Both the standard and intensive referral conditions included patients' attendance at a minimum of three individual out-patient sessions within 1 month; beyond these sessions, counselors determined how much out-patient care patients should receive.

Standard referral

In the standard referral condition, during the first session the counselor gave the patient a schedule of AA and NA meetings in the local area and encouraged the patient to attend 12-Step SHG meetings based on a standardized script agreed upon by the expert panel and provided in the project manual. Counselors in the standard condition were asked not to provide the components of intensive referral for the remainder of patients' out-patient treatment. During the standard referral sessions, counselors and patients reviewed relapse prevention (e.g. coping with stressors and triggers) and psychoeducation (e.g. substance misuse consequences, healthy living) treatment foci.

Intensive referral

As in standard referral, during the first session the counselor gave the patient a schedule of local 12-Step SHG meetings. The counselor also gave the patient a list of local meetings favored by other patients who had been in the out-patient program, with the times and locations of, and directions to (by foot, car and public transportation), those meetings. In addition, the counselor gave the patient a handout on 12-Step SHGs for alcohol and drug misuse [26,27] that provided an introduction to 12-Step philosophy and the structure and terminology of 12-Step groups, addressed common concerns about participation and encouraged patients to set goals for attending self-help, working the first Steps, joining a home group and

obtaining a sponsor. The counselor reviewed the handout with the patient.

In addition, at the first session the counselor arranged a meeting between the patient and a participating member of an AA or NA group. Specifically, the counselor and patient called a SHG volunteer during the session and the volunteer arranged to meet the patient before an AA or NA meeting so that they could attend the meeting together. Project staff members served as liaisons between counselors and SHGs to coordinate the availability of volunteers.

Also at the first session, the patient and the counselor agreed on the 12-Step SHG meetings to be attended before the next session, and this agreement was written into a journal provided to the patient by the counselor (the counselor obtained the journal from project staff). Patients in the intensive referral condition were asked to keep this journal to record the SHG meetings attended (dates, times, places) and, briefly, their personal reactions to and thoughts about the meetings (or their reasons for not attending).

At the second out-patient session, the counselor asked if the patient had read and had any questions about the handout. If the patient had not attended a SHG meeting, the counselor repeated the procedure of contacting a volunteer with the patient. The journal was reviewed by the counselor so that any doubts and concerns the patient may have had about self-help participation could be addressed. The project provided counselors with a list of patients' common concerns about attending SHGs and responses to them (taken from the literature [28,29] with review by the expert panel). The patient was asked to show the counselor that the SHG's secretary had 'signed off' on each meeting attended. Again, the patient and the counselor agreed on the 12-Step SHG meetings to be attended before the next session, and this agreement was written into the journal.

For patients who had attended a 12-Step SHG meeting the counselor provided a list, coordinated by project staff, of currently available sponsors who were active in that group. The counselor recommended, in writing in the journal, that the patient obtain a temporary sponsor from this list (by calling or by approaching the individual at a meeting) and explained that this sponsor could be replaced by a more permanent one when the patient was more familiar with other SHG members. The counselor addressed any concerns the patient may have had about asking for and working with a sponsor, using project-provided responses.

At the third out-patient session, the procedure for contacting the SHG volunteer was repeated if the patient had not yet attended a meeting. The journal was also reviewed by the counselor, and the agreement for the next week's 12-Step meeting attendance written in.

Counselors checked with patients who had already attended a meeting and had received a list of potential sponsors as to whether they had contacted an individual about sponsorship.

Monitoring fidelity

The fidelity of the standard and intensive referral procedures was monitored. Each time participants met with treatment counselors for the three out-patient sessions, both the patient and the counselor completed checklists rating the session; in addition, a research assistant blind to the patient's random assignment rated a sample of audiotaped sessions (52% of all sessions). Each of these three raters (research assistants, counselors and patients themselves) rated the majority of patients assigned to the intensive condition as having received each of the three key elements of that condition: being linked to a volunteer, completing a 12-Step journal and being asked about 12-Step meeting attendance. More specifically, blind raters judged 98% of patients to have received these three key elements; counselors judged 100% of patients to have received them, as did 92% of patients themselves. Very few patients assigned to the standard condition were so rated by blind raters (2% of patients), counselors (6% of patients) or patients themselves (17%).

Measures

Baseline

Self-report data were collected from study participants at intake to SUD out-patient treatment. These data included demographics, life-time and recent substance use and previous self-help for SUDs.

Socio-demographics

Socio-demographic information covered patients' gender, age, race and ethnicity, education, employment and marital status.

Substance use

The Addiction Severity Index (ASI) [30–32] was used to collect information on patients' substance use. The ASI is a structured, 40-minute clinical research interview that assesses seven problem areas, two of which address substance use: alcohol use and drug use. In each area, questions are asked that measure the number, extent and duration of symptoms in the patient's life-time and in the past 30 days. ASI composites are used as outcome criteria that are compared between baseline and follow-ups. The composite scores are produced from sets of objective items that are standardized and summed; they provide internally consistent evaluations of patient status in the problem areas [33]. The ASI composites range from zero to one, with higher scores indicating more severe problems.

12-Step self-help

To measure 12-Step SHG attendance and involvement, we used the AA Affiliation Scale (AAAS) [34]. Regarding 12-Step group attendance, at baseline participants were asked if they had ever attended a 12-Step SHG meeting (no or yes) and if so, for the total number of meetings attended. Regarding 12-Step group involvement, participants were asked if they had ever: read 12-Step group literature, provided service at a meeting (e.g. helped newcomers, set up chairs, made coffee, cleaned up afterwards), had a 12-Step group sponsor, been a 12-Step group sponsor or had a spiritual awakening or conversion experience since being involved in a 12-Step group. Overall involvement is the sum of 'yes' responses to these five items. Participants were also asked how many of the 12 Steps they had worked.

6-month follow-up

Patients were followed at 6 months after their intake to out-patient treatment. Follow-up assessments covered substance use outcomes and 12-Step group attendance and involvement. The interviews were conducted by a project research assistant who was blind to the patients' condition assignment.

The ASI was used to obtain information on patients' alcohol and drug use and took about 20 minutes. To measure self-help attendance and involvement, the time-frame used at baseline on the AAAS (i.e. 'ever') was changed to refer to the last 6 months. In addition to number of meetings, patients were asked the number of weeks they attended 12-Step groups during the past 6 months. There is support for the reliability and validity of self-reports regarding participation in 12-Step groups [10,35].

Patients' demographic and substance use characteristics at baseline

We compared patients assigned to the standard or intensive referral condition on baseline socio-demographic characteristics. No differences were found between groups. Of the sample, 98% were male, 43% were Caucasian and 13% were married. On average, participants were 50 years old, had 13 years of education and had worked only 1.7 days in the past month.

We also did not find differences between the standard and intensive patient groups on the ASI alcohol use or drug use composite at baseline. At intake, patients' substances of choice were: alcohol (45.9% of the sample); cocaine (36.0%); amphetamines (8.1%); cannabis (21.9%); heroin (7.2%); methadone (7.5%); other opiates or analgesics (7.2%); sedatives, hypnotics or tranquilizers (4.5%); and barbiturates (.6%). Fully 41.6% of patients were using more than one of these substances. Standard

and intensive patients did not differ on the number of times they had previously been treated for their alcohol and/or drug problems (mean = 8.5 previous episodes of professional treatment). Only 4.4% of patients had never received substance misuse treatment.

Baseline comparisons of patients followed or not followed at 6 months

We compared patients followed-up ($n = 281$, 81.4%) or not followed-up ($n = 64$, 18.6%) at 6 months on baseline socio-demographic characteristics, ASI composites and 12-Step group attendance and involvement. On socio-demographics, those followed were somewhat more likely to be Caucasian and married, but otherwise the groups did not differ. There were no differences between groups on ASI composites (alcohol use, drug use) at baseline or on 12-Step attendance and involvement at baseline.

Baseline comparisons of standard to intensive patients on 12-Step attendance and involvement

We compared patients assigned to the standard or intensive referral condition on baseline 12-Step meeting attendance and involvement using χ^2 tests for dichotomous variables and t -tests for continuous variables. There were no differences between standard and intensive patients on the proportions who had ever attended a 12-Step meeting (96.8% of the sample had previously attended a meeting), on the number of meetings ever attended (mean = 479.0 meetings, SD = 783.1; median = 150 meetings) or on involvement: had read 12-Step literature (81.3%), provided service at a meeting (50.6%), had a 12-Step sponsor (55.4%), been a 12-Step sponsor (7.0%) and had a spiritual awakening after 12-Step group involvement (44.9%). The standard- and intensive-referral groups also did not differ on how many of the 12 Steps they had worked (mean = 3.91, SD = 3.98).

RESULTS

Follow-up comparisons of standard to intensive patients on attendance and involvement

We compared patients assigned to the standard or intensive referral condition on indices of 12-Step group attendance between baseline and the 6-month follow-up. Results are presented in Table 1. The standard and intensive groups did not differ on the proportions who attended a 12-Step group meeting, the number of 12-Step meetings attended or the number of weeks of 12-Step group attendance.

On involvement, patients in the intensive condition were more likely than patients in the standard condition to have provided service during a meeting, have had a spiritual awakening and currently have a sponsor (Table 1). Overall involvement scores were higher on average for intensive patients. Unexpectedly, on average, patients in the intensive condition worked a fewer number of Steps during the 6 months (Table 1).

Patients assigned to the standard condition attended fewer (mean = 2.8) individual out-patient sessions during treatment than did patients assigned to the intensive condition (mean = 3.8) ($t = -3.44$, $P < 0.001$). Therefore, using analyses of covariance (ANCOVAs), we compared patients in the two conditions on the same indicators of 12-Step meeting attendance and involvement, controlling for number of out-patient sessions. All results held except that the two groups no longer differed on number of Steps worked.

Comparing standard to intensive patients on substance use outcomes

We compared patients assigned to the standard or intensive referral condition on ASI composite change scores (baseline minus 6 months). On average, patients in the intensive condition improved more on alcohol

Table 1 12-Step group attendance and involvement at 6 months for standard ($n = 126$) and intensive ($n = 155$) referral patients.

12-Step group attendance	Standard	Intensive	χ^2/t
Attended at least one meeting (%)	85.3	87.2	0.23
No. of meetings attended (m, SD)	56.8 (74.2)	63.7 (60.6)	0.78
No. of weeks of attendance (m, SD)	19.8 (7.8)	21.4 (6.9)	2.32
12-Step group involvement			
During the past 6 months, have you:			
Read 12-Step group literature (%)	76.6	80.1	0.56
Done service at a meeting (%)	45.3	56.2	3.66*
Been a 12-Step group sponsor (%)	12.2	8.3	1.16
Had a spiritual awakening (%)	39.2	52.1	4.77**
Do you have a sponsor now? (%)	37.7	48.1	3.30*
Overall involvement (m, SD)	2.1 (1.4)	2.4 (1.5)	4.61**
No. of Steps worked (m, SD)	4.8 (3.4)	3.8 (3.5)	4.15*

* $P < 0.05$, ** $P < 0.01$.

use (mean = 0.215, SD = 0.281) and drug use (mean = 0.079, SD = 0.115) than did patients in the standard condition (mean = 0.130, SD = 0.266 for alcohol use; mean = 0.051, SD = 0.102 for drug use) (for alcohol, $t = 6.06$, $P < 0.01$; for drugs, $t = 3.98$, $P < 0.05$). The benefits of intensive referral relative to standard referral held when ASI alcohol and drug scores at the 6-month follow-up were compared between conditions by ANCOVAs that controlled for the corresponding score, number of 12-Step meetings attended and overall involvement at baseline (for alcohol, $F = 5.9$, $P < 0.01$; for drugs, $F = 3.7$, $P < 0.05$).

At 6 months, intensive patients were more likely to be abstinent from drugs (78.2%) than were standard patients (69.5%) ($\chi^2 = 2.67$, $P < 0.05$). Intensive and standard patients did not differ significantly on 6-month abstinence from alcohol (76.4% and 70.1%, respectively; $P < 0.12$); they also did not differ on abstinence from both alcohol and drugs (64.0% and 55.1%, respectively; $P < 0.06$). Again, these results held when the number of out-patient sessions attended during treatment was controlled in analyses.

Generality of intervention effect

We examined the possibility that the intensive intervention may have been more effective among patients who had relatively less exposure to 12-Step groups at baseline than with the sample overall. Specifically, we selected patients who were below the 75th percentile on number of 12-Step meetings ever attended (500), and then compared patients who were assigned to the standard or intensive condition. We chose to eliminate only patients who reported the highest attendance from this analysis, to determine whether intensive referral was more effective than standard referral even when patients who had moderately high previous attendance were included; if so, this would indicate that the advantage for intensive referral would generalize to patients covering a wide range of utilization of 12-Step groups.

For patients who were below the 75th percentile on prior 12-Step attendance, those in the intensive condition attended more meetings during the 6-month follow-up than did those in the standard condition (62.3 versus 40.4 meetings; $t = 6.87$, $P < 0.01$) and attended 12-Step meetings for more weeks (21.3 versus 18.3 weeks, $t = 5.30$, $P < 0.01$). Patients assigned to the intensive condition were also more likely to report each type of involvement, and scored higher on overall involvement (2.2 versus 1.7; $t = 6.35$, $P < 0.01$). Furthermore, patients who were assigned to the intensive condition improved more between baseline and follow-up on ASI alcohol ($t = 3.98$) and drug ($t = 2.94$) composite scores ($P < 0.05$). We also conducted 2 (condition: standard, intensive) \times 2 (12-Step group exposure at baseline: lower

75%, higher 25%) ANOVAs predicting each index of 12-Step group attendance and involvement and substance use improvement at 6 months. Interactions ($P < 0.05$) between condition and exposure showed that intensive referral was more effective for patients who had less previous exposure to 12-Step groups in comparison to patients with more exposure.

12-Step group involvement and substance use outcomes

Having found that patients in the intensive referral condition were more involved in 12-Step groups and had better alcohol and drug use outcomes at 6 months, we next examined associations between each indicator of 12-Step group involvement and improvement at 6 months on outcomes. Specifically, we compared patients who reported each type of involvement to those who did not on ASI alcohol use and drug use change scores. More improvement on alcohol use was associated significantly with having read 12-Step literature ($t = 4.62$, $P < 0.05$), provided service at a meeting ($t = 6.73$, $P < 0.01$) and been a sponsor ($t = 3.23$, $P < 0.05$); marginally associated with having had a spiritual awakening ($t = 2.46$, $P < 0.06$); and significantly correlated with overall involvement ($r = 0.18$, $P < 0.01$). The correlation between improvement on alcohol use and number of Steps worked was not significant. Indices of involvement and number of Steps worked were not related significantly to improvement on drug use over the 6 months.

12-Step group involvement as a mediator

We examined whether 12-Step group involvement was a mediator between referral condition and alcohol use outcomes at the 6-month follow-up [36]. To establish mediation, first, referral condition was entered as the independent variable in a regression to predict the ASI alcohol composite change score. Assignment to the intensive condition was a significant predictor of more improvement on the alcohol composite ($b = 0.152$, $P < 0.01$). Secondly, referral condition was entered as the independent variable in a regression to predict overall involvement. Assignment to the intensive condition was a significant predictor of more involvement ($b = 0.149$, $P < 0.01$). Thirdly, referral condition and involvement were entered together in a regression to predict the ASI alcohol composite change score. Referral condition was a weaker, although still significant, predictor of alcohol use ($b = 0.136$, $P < 0.05$) when involvement ($b = 0.168$, $P < 0.01$) was also entered, indicating that involvement partially mediated the association of referral condition with alcohol outcomes. The indirect effect of intensive referral on alcohol misuse improvement via overall involvement was significantly different from zero according to the Sobel test ($Z = 1.97$, $P < 0.05$) [37].

DISCUSSION

These SUD patients had high rates of 12-Step group attendance prior to entering out-patient treatment and during the 6-month follow-up period. Our results agree with those of a study of individuals with alcohol use disorders entering treatment, in which 83% of the sample had some prior contact with AA. This finding prompted the authors to comment that 12-Step group exposure among treated individuals appears to have become normative [34]. However, participation in SHGs prior to a new treatment episode has not been found to be a significant factor predicting treatment outcome. Rather, positive associations of 12-Step group attendance with successful substance use outcomes have been found for attendance during and/or after a specific treatment episode [19,38,39].

Intensive referral and 12-Step group involvement

Because it appears to be normative for recurrent SUD patients to attend 12-Step groups before, during and following episodes of treatment [40,41], the intensive referral intervention had little room to increase attendance. Nevertheless, it succeeded in doing so for patients who had relatively less, but in some cases still considerable, experience with 12-Step groups at intake to the current treatment episode. Notably, patients in this study had already been in treatment an average of more than eight times before for their substance use problems. The intensive referral intervention was more effective than standard referral at promoting 12-Step group attendance and involvement for patients who had attended up to 500 meetings in the past. In addition, the intensive intervention was more effective than standard referral at increasing patients' 12-Step group involvement, even when patients with the highest rates of previous meeting attendance were considered.

Patients in the intensive referral condition worked fewer of the 12 Steps on average during follow-up than did patients in standard referral. Additional analyses revealed that standard patients were equally as likely as intensive patients to have worked Steps 1, 2 and 3 during this period, but were more likely to have worked each of Steps 4–12. Possibly, patients in the standard condition were not as serious about working the Steps in a thorough and thoughtful manner. Consistent with this notion, SUD patients enrolled in a 6-month residential program often required considerable time to move beyond Step 3 [42].

The challenge for treatment providers is how to intervene to increase patients' involvement in 12-Step groups and thereby benefit substance use outcomes. The intensive intervention, with the key elements of connecting patients to 12-Step volunteers and having

counselors follow up with patients on agreements for attendance with the aid of a 12-Step journal, was associated with increased 12-Step involvement and more improvements on alcohol and drug use. Increased involvement occurred even though the intensive referral procedures in this study focused more on encouraging patients to attend 12-Step meetings and to arrange to have a sponsor than on becoming involved in other ways, such as providing service and being a sponsor to others. Future intensive referral procedures should emphasize encouraging aspects of 12-Step group involvement, in addition to attendance *per se*, to most benefit patients.

12-Step group involvement and substance use outcomes

We found that more 12-Step group involvement, reflected in reading 12-Step literature, providing service and being a sponsor, was associated with better alcohol use outcomes. In addition, overall involvement partially mediated the association between the intensive referral condition and less alcohol use at follow-up [23]. In this regard, two elements of self-help participation—assuming a helper role, and learning new attitudes, skills and behaviors from role models or general information sharing—were related to better abstinence outcomes among 12-Step group members [43–45]. Possibly, if we had also measured these additional aspects of 12-Step group involvement, we would have found stronger evidence for involvement mediating between referral condition and substance use outcomes. In any case, treatment providers and 12-Step group volunteers aiming to help SUD out-patients sustain remission should consider recommending taking on a helping role and follow-up on that recommendation.

We considered why overall involvement in 12-Step groups did not mediate between intensive referral and better drug use outcomes. A tentative answer, provided by reviewing patients' 12-Step journals, was that patients found others' stories of misusing and quitting substances that they themselves did not misuse to be relatively unhelpful. The majority of patients (80%) in this sample misused alcohol, whereas smaller proportions misused each specific type of drug. Thus a perceived commonality of substance-related experiences among 12-Step group members may strengthen the mediational role of involvement. In future intensive referral interventions, counselors might help patients find 12-Step groups with members who share their substance of choice, and identify commonalities that exist between their own experiences and those of members who had different substances of choice.

We also considered why intensive referral resulted in better drug outcomes even though overall involvement

did not mediate the effect. As was true in Sisson & Mal-lams' [7] intensive condition but not in Project MATCH's TSF condition, patients in intensive referral had the positive experience of personal contact with a SHG volunteer who served as both a role model and an additional source of support. The review of patients' 12-Step journals suggested that, in part, intensive referral was more effective than standard referral at improving substance use outcomes because of counselor-encouraged general motivation for change (e.g. 'My goals for the next week are to go to outside AA and NA meetings, become a vocal contributor at meetings, make new contacts, and get a temporary sponsor') and also because of the general attention and caring of the 12-Step group volunteer (e.g. 'My goal for the next week is to call on the volunteer for knowledge and support').

Limitations

A limitation of this study was that the intensive referral intervention was delivered in an individual counseling format, despite findings that many out-patient SUD programs rely mainly on group counseling [46,47]. However, the design of this study was based on the expert panel's determination that new VA SUD out-patients typically already receive at least 1–2 individual sessions, and that individual therapy was provided by 99% of a random, national sample of SUD treatment programs [48]. Future efforts to evaluate intensive referral procedures should test the intervention in group treatment settings.

Another limitation is that patients were treated within the VA and virtually all of them were male. Publicly funded by the federal government, the VA operates the largest substance abuse treatment system in the United States. Studies comparing mental health (i.e. substance abuse and psychiatric) care within and outside the VA suggest that VA-based findings may generalize somewhat more effectively to non-profit than to for-profit settings, although all three systems share similarities [49,50]. Generally, mental health services in the VA are of similar quality and effectiveness to those in the private sector [51]. However, the VA patient population has poorer health status compared with the general patient population [52]. The extent to which our findings will be replicated in studies of patients with more health and social resources and in other health-care systems remains to be determined. With respect to gender, women referred for SUD out-patient treatment who received high-intensity referrals were more likely to complete the program [53]. Such findings suggest that samples with more women may also respond positively to intensive referral to 12-Step groups. Intensive referral procedures may need to be altered to be optimally effective with specific treatment subpopulations.

Strengths and conclusions

A strength of this study is that it was a randomized controlled trial that did not impose exclusionary criteria on participants that might have reduced generalizability of the findings. Rather, the sample represented the full range of SUD out-patients, with the exception of those having relatively severe cognitive impairment. This stands in contrast to Project MATCH, which imposed a number of exclusion criteria in order to study a select group of individuals diagnosed with alcohol abuse or dependence, thereby potentially limiting the generalizability of results to realistic clinical situations [54]. For example, alcohol-dependent individuals have better treatment attendance rates than do drug-dependent patients [55]. Both exclusionary and non-exclusionary studies should be conducted so that SUD treatment outcome research can be generalized to vulnerable populations [56].

An advantage of the intensive referral intervention evaluated in this study is that it is brief and feasible to implement routinely in 'real-world' SUD out-patient programs. In addition, the intensive referral procedures could be used by primary care physicians, employee assistance programs, clergy and other settings to which SUD patients may bring their problems. The intensive referral procedures stand in contrast to those used in Project MATCH's TSF treatment condition, which was delivered by master's-level therapists (who were screened for commitment to and experience with TSF) over 12 individual sessions, and involved more than referral to AA, such as working the first three of the 12 Steps with the counselor and bringing the client's partner in for two conjoint sessions [57,58].

Clinicians' influence on their patients' involvement in 12-Step SHGs provides one mechanism to enhance substance use outcomes at no additional cost. More reliance by treatment providers on self-help may reduce treatment costs. In this regard, a prospective study of individuals with alcohol use disorders found that those who chose initially to attend only self-help had lower per-person treatment costs over 3 years than did those who chose initially out-patient treatment, and that drinking-related outcomes were similar for both groups [59]. Also in this regard, patients treated in formal 12-Step programs averaged only half as many out-patient continuing care visits in the year after discharge as patients treated in other programs, and also received significantly fewer days of in-patient care, resulting in 64% lower annual costs; 12-Step patients had higher abstinence rates as well [60].

This study found that an out-patient treatment program that explained and primed individuals for 12-Step group attendance and involvement, as occurred in the intensive referral condition, was effective in helping

patients improve on alcohol and drug use. When counselors educated patients during treatment about 12-Step concepts and provided access to meetings and role models (well-functioning individuals who were in recovery and active in self-help), patients appeared to find 12-Step SHGs more palatable and increased their involvement in 12-Step activities. Intensive referral to 12-Step self-help during treatment is important to facilitate group involvement and enhance substance use outcomes, and may increase the likelihood that patients will continue to improve even after professional treatment has ended.

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References

- O'Brien, C. P. & McClellan, A. T. (1996) Myths about the treatment of addiction. *Lancet*, **347**, 237-240.
- American Psychiatric Association (1995) Practice guidelines for the treatment of patients with substance abuse disorders. *American Journal of Psychiatry*, **152**, 1-50.
- Humphreys, K. (1997) Clinicians' referral and matching of substance abuse patients to self-help groups after treatment. *Psychiatric Services*, **48**, 1445-1449.
- Chappel, J. N. (1991) The use of Alcoholics Anonymous and Narcotics Anonymous by the physician in treating drug and alcohol addiction. In: Miller, N. S., ed. *Comprehensive Handbook of Drug and Alcohol Addiction*, pp. 1079-1088. New York, NY: Marcel Dekker.
- Humphreys, K., Huebsch, P. D., Finney, J. W. & Moos, R. H. (1999) A comparative evaluation of substance abuse treatment. V. Substance abuse treatment can enhance the effectiveness of self-help groups. *Alcoholism: Clinical and Experimental Research*, **23**, 558-563.
- Littrell, J. (1991) *Understanding and Treating Alcoholism: An Empirically Based Clinician's Handbook for the Treatment of Alcoholism*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Sisson, R. W. & Mallams, J. H. (1981) The use of systematic encouragement and community access procedures to increase attendance at Alcoholic Anonymous and Al-Anon meetings. *American Journal of Drug Alcohol Abuse*, **8**, 371-376.
- Carroll, K. M., Connors, G. J., Cooney, N. L., DiClemente, C. C., Donovan, D. M., Kadden, R. R. et al. (1998) Internal validity of Project MATCH treatments. *Journal of Consulting and Clinical Psychology*, **66**, 290-303.
- Project MATCH Research Group (1998) Matching alcoholism treatments to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism: Clinical and Experimental Research*, **22**, 1300-1311.
- Tonigan, J. S., Connors, G. J. & Miller, W. R. (2002) Participation and involvement in Alcoholics Anonymous. In: Babor, T. F. & Del Boca, F. K., eds. *Treatment Matching in Alcoholism*. International Research Monographs in the Addictions, pp. 184-204. Cambridge, UK: Cambridge University Press.
- Project MATCH Research Group (1999) Project MATCH secondary a priori hypotheses. *Addiction*, **92**, 1671-98.
- Blondell, R. D., Looney, S. W., Northington, A., Lasch, M. E., Rhodes, S. B. & McDaniels, R. L. (2001) Can recovering alcoholics help hospitalized patients with alcohol problems? *Journal of Family Practice*, **50**, 447.
- Collins, G. B., Barth, J. & Zrimec, G. L. (1981) Recruiting and retaining Alcoholics Anonymous volunteers in a hospital alcoholism program. *Hospital and Community Psychiatry*, **32**, 130-132.
- Kahler, C. W., Read, J. P., Ramsey, S. E., Stuart, G. L., McCrady, B. S. & Brown, R. A. (2004) Motivational enhancement for 12-Step involvement among patients undergoing alcohol detoxification. *Journal of Consulting and Clinical Psychology*, **72**, 736-741.
- Timko, C., Finney, J. W., Moos, R. H. & Moos, B. S. (1995) Short-term treatment careers and outcomes of previously untreated alcoholics. *Journal of Studies on Alcohol*, **56**, 597-610.
- Timko, C., Moos, R. H., Finney, J. W. & Lesar, M. D. (2000) Long-term outcomes of alcohol use disorders: comparing untreated individuals with those in alcoholics anonymous and formal treatment. *Journal of Studies on Alcohol*, **61**, 529-540.
- Christo, G. & Franey, C. (1995) Drug users' spiritual beliefs, locus of control and the disease concept in relation to Narcotics Anonymous attendance and six-month outcomes. *Drug Alcohol Dependence*, **38**, 51-56.
- Ouimette, P. C., Gima, K., Moos, R. H. & Finney, J. W. (1999) A comparative evaluation of substance abuse treatment IV. The effect of comorbid psychiatric diagnoses on amount of treatment, continuing care, and 1-year outcomes. *Alcoholism: Clinical and Experimental Research*, **23**, 552-557.
- Emrick, C. D., Tonigan, J. S., Montgomery, H. A. & Little, L. (1993) Alcoholics Anonymous: what is currently known. In: McCrady, B. S. & Miller, W. R., eds. *Research on Alcoholics Anonymous: Opportunities and Alternatives*, pp. 41-75. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Fiorentine, R. (1999) After drug treatment: are 12-Step programs effective in maintaining abstinence? *American Journal of Drug and Alcohol Abuse*, **25**, 93-116.
- Miller, N. S., Ninonuevo, F. G., Klamen, D. L., Hoffman, N. G. & Smith, D. E. (1997) Integration of treatment and post-treatment variables in predicting results of abstinence-based out-patient treatment after one year. *Journal of Psychoactive Drugs*, **29**, 239-248.
- Weiss, R. D., Griffin, M. L., Gallop, R. G., Najavits, L. M., Frank, A., Crits-Christoph, P. et al. (2005) The effect of 12-Step self-help group attendance and participation on drug use outcomes among cocaine-dependent patients. *Drug and Alcohol Dependence*, **77**, 177-184.
- Crits-Christoph, P., Gibbons, M. B., Barber, J. P., Gallop, R., Beck, A. T., Mercer, D. et al. (2003) Mediators of outcome of psychosocial treatments for cocaine dependence. *Journal of Consulting and Clinical Psychology*, **71**, 918-925.
- Dennis, M. L. (1990) Assessing the validity of randomized field experiments: an example from drug abuse treatment research. *Evaluation Review*, **14**, 347-373.
- Dennis, M. L. (1994) Ethical and practical randomized field experiments. In: Wholey, J. S., Hatry, H. P. & Newcomer, K.

- E., eds. *Handbook of Practical Program Evaluation*, pp. 155–197. San Francisco: Jossey-Bass.
26. McCrady, B. S., Epstein, E. E. & Hirsch, L. S. (1996) Issues in the implementation of a randomized clinical trial that includes Alcoholics Anonymous: studying AA-related behaviors during treatment. *Journal of Studies on Alcohol*, **57**, 604–612.
 27. McCrady, B. S., Epstein, E. E. & Hirsch, L. S. (1999) Maintaining change after conjoint behavior alcohol treatment for men: outcomes at 6 months. *Addiction*, **94**, 1381–1396.
 28. Chappel, J. N. & DuPont, R. L. (1999) Twelve-step and mutual-help programs for addictive disorders. *Psychiatric Clinics of North America*, **22**, 425–446.
 29. Schulz, J. E. (1991) 12-Step programs in recovery from drug and alcohol addiction. In: Miller, N. S., ed. *Comprehensive Handbook of Drug and Alcohol Addiction*, pp. 1255–1272. New York: Marcel Dekker.
 30. McLellan, A. T., Luborsky, L., Woody, G. E. & O'Brien, P. (1980) An improved diagnostic evaluation instrument for substance abuse patients: the Addiction Severity Index. *Journal of Nervous and Mental Diseases*, **168**, 26–33.
 31. McLellan, A. T., Luborsky, L., Cacciola, J., Griffith, J., Evans, F., Barr, H. L. et al. (1985) New data from the Addiction Severity Index: reliability and validity in three centers. *Journal of Nervous and Mental Diseases*, **173**, 412–423.
 32. McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G. et al. (1985) The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment*, **9**, 461–480.
 33. McKay, J. R., Alterman, A. I., McLellan, A. T. & Snider, E. C. (1994) Treatment goals, continuity of care, and outcome in a day hospital substance abuse rehabilitation program. *American Journal of Psychiatry*, **151**, 254–259.
 34. Humphreys, K., Kaskutas, L. A. & Weisner, C. (1998) The relationship of pretreatment Alcoholics Anonymous affiliation with problem severity, social resources, and treatment history. *Drug and Alcohol Dependence*, **49**, 123–131.
 35. Morgenstern, J., Labouvie, E., McCrady, B. S., Kahler, C. W. & Frey, R. M. (1997) Affiliation with Alcoholics Anonymous after treatment: a study of its therapeutic effects and mechanisms of action. *Journal of Consulting and Clinical Psychology*, **65**, 768–777.
 36. Kenny, D. A., Kashy, D. A. & Bolger, N. (1998) Data analysis in social psychology. In: Gilbert, D., Fiske, S. & Lindzey, G., eds. *Handbook of Social Psychology*, pp. 180–232. Boston: McGraw-Hill.
 37. Baron, R. M. & Kenny, D. A. (1986) The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, **51**, 1173–1182.
 38. Emrick, C. D. (1989) Alcoholics Anonymous: membership characteristics and effectiveness as treatment. *Recent Developments in Alcoholism*, **7**, 37–53.
 39. Montgomery, H. A., Miller, M. R. & Tonigan, J. S. (1995) Does Alcoholics Anonymous involvement predict treatment outcome? *Journal of Substance Abuse Treatment*, **12**, 241–246.
 40. Kaskutas, L. A., Bond, J. & Humphreys, K. (2002) Social networks as mediators of the effect of Alcoholics Anonymous. *Addiction*, **97**, 891–900.
 41. Satre, D. D., Mertens, J. R., Areal, P. A. & Weisner, C. (2004) Five-year alcohol and drug treatment outcomes of older adults versus middle-aged and younger adults in a managed care program. *Addiction*, **99**, 1286–1297.
 42. Kingree, J. B. (1997) Measuring affiliation with 12-Step groups. *Substance Use and Misuse*, **32**, 181–194.
 43. Crape, B. L., Latkin, C. A., Laris, A. S. & Knowlton, A. R. (2002) The effects of sponsorship in 12-Step treatment of injection drug users. *Drug and Alcohol Dependence*, **65**, 291–301.
 44. Magura, S., Laudet, A. B., Mahmood, D., Rosenblum, A., Vogel, H. S. & Knight, E. L. (2003) Role of self-help processes in achieving abstinence among dually diagnosed persons. *Addictive Behavior*, **28**, 399–413.
 45. Pagano, M. E., Friend, K. B., Tonigan, J. S. & Stout, R. L. (2004) Helping other alcoholics in alcoholics anonymous and drinking outcomes: findings from project MATCH. *Journal of Studies on Alcoholism*, **65**, 766–773.
 46. Blume, S. B. (2002) Group psychotherapy in the treatment of addictive disorders: past, present, and future. In: Brook, D. W. & Spitz, H. I., eds. *The Group Therapy of Substance Abuse*, pp. 411–428. New York: Haworth Press.
 47. Panas, L., Caspi, Y., Fournier, E. & McCarty, D. (2003) Performance measures for out-patient substance abuse services: group versus individual counseling. *Journal of Substance Abuse Treatment*, **25**, 271–278.
 48. Burling, A. S., Levine, R. E., Burling, T. A., Shore, K. K. & Timko, C. (2005) *Drug/alcohol policies and services in treatment programs: current status, interrelationships, and impacts on outcome*. Palo Alto, CA: American Institutes for Research.
 49. Calsyn, D. A., Saxon, A. J., Blaes, P. & Lee-Meyer, S. (1990) Staffing patterns of American methadone maintenance programs. *Journal of Substance Abuse Treatment*, **7**, 255–259.
 50. Rodgers, J. H. & Barnett, P. G. (2000) Two separate tracks? A national multivariate analysis of differences between public and private substance abuse treatment programs. *American Journal of Drug and Alcohol Abuse*, **26**, 429–442.
 51. Rosenheck, R. A., Desai, R., Steinwachs, D. & Lehman, A. (2000) Benchmarking treatment of schizophrenia: a comparison of service delivery by the national government and by state and local providers. *Journal of Nervous and Mental Disease*, **188**, 209–216.
 52. Agha, Z., Lofgren, R. P., VanRuiswyk, J. V. & Layde, P. M. (2000) Are patients at Veterans Affairs medical centers sicker? A comparative analysis of health status and medical resource use. *Archives of Internal Medicine*, **160**, 3252–3257.
 53. Loneck, B., Garrett, J. & Banks, S. M. (1997) Engaging and retaining women in out-patient alcohol and other drug treatment: the effect of referral intensity. *Health and Social Work*, **22**, 38–46.
 54. Rounsaville, B. J., Petry, N. M. & Carroll, K. M. (2003) Single versus multiple drug focus in substance abuse clinical trials research. *Drug and Alcohol Dependence*, **70**, 117–125.
 55. Marques, A. C. & Formigoni, M. L. (2001) Comparison of individual and group cognitive-behavioral therapy for alcohol and/or drug-dependent patients. *Addiction*, **96**, 835–946.
 56. Humphreys, K. & Weisner, C. (2000) Use of exclusion criteria in selecting research subjects and its effect on the generalizability of alcohol treatment outcome studies. *American Journal of Psychiatry*, **157**, 588–594.
 57. Carroll, K. M., Kadden, R. M., Donovan, D. M., Zweben, A. & Rounsaville, B. J. (1994) Implementing treatment and pro-

- tecting the validity of the independent variable in treatment matching studies. *Journal of Studies on Alcohol Supplement*, **12**, 149–155.
58. Nowinski, J., Baker, S. & Carroll, K. (1992) *Twelve Step Facilitation Therapy Manual. A Clinical Research Guide for Therapists Treating Individuals with Alcohol Abuse and Dependence*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
59. Humphreys, K. & Moos, R. H. (1996) Reduced substance-abuse-related health care costs among voluntary participants in Alcoholics Anonymous. *Psychiatric Services*, **47**, 709–713.
60. Humphreys, K. & Moos, R. H. (2001) Can encouraging substance abuse patients to participate in self-help groups reduce demand for health care? *Alcoholism: Clinical and Experimental Research*, **25**, 711–716.