

# The Feasibility of Enhancing Psychiatric Outpatients' Readiness to Change Their Substance Use

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**Objective:** This stage I therapy development study evaluated the feasibility and acceptability of a brief motivational intervention for outpatients with severe and persistent mental illness and drug use problems and examined preliminary indicators of outcome. **Methods:** A motivational intervention was evaluated with 22 outpatients. The intervention consisted of four individual sessions that were guided by the therapeutic principles of motivational interviewing. All participants met *DSM-IV* criteria for substance abuse or dependence within the previous six months and were not engaged in treatment for substance abuse. Substance use, treatment involvement, and attitudes toward substance use and cessation were assessed before and after the intervention and at a three-month follow-up session. **Results:** The feasibility of the motivational intervention was demonstrated. The median time to completion of the intervention was 28 days. It was possible to retain psychiatric outpatients in the intervention, and the patients had favorable perceptions of the intervention. Readiness to change and involvement in treatment increased between preintervention and postintervention assessments. However, many of the postintervention gains had not been maintained at three-month follow-up. **Conclusions:** Use of brief motivational interventions can enhance patients' readiness to change substance use to better prepare them for drug treatment programs. Future interventions might benefit from the integration of the intervention with ongoing treatment to ensure that motivational gains are maintained. (*Psychiatric Services* 53:602–608, 2002)

Substance use disorders are prevalent among persons who have severe and persistent mental illness (1,2). Although many persons with dual diagnoses participate in psychiatric treatment, many do not recognize their substance use as problematic. Evidence suggests that the vast majority of persons who have

substance use disorders are not in the action stage of change (3). Most outpatients with dual diagnoses exhibit low levels of readiness to change their substance abuse (4,5). Data indicating poor treatment attendance (6–8) and compliance (9,10) among persons with dual diagnoses suggest that greater attention should be paid to

problem recognition and treatment engagement (11). Thus there is a need to develop therapies to increase motivation to reduce or cease substance use.

Individual differences in readiness to change have important implications for treatment. Most therapies for the treatment of substance use disorders focus on active treatment and the prevention of relapse (12,13). However, according to the transtheoretical model, intervention strategies should be tailored to the various stages of change (14). For example, training to develop drug refusal skills may be well received by persons who are ready for active change, but cognitive and motivational strategies—such as consciousness raising—may be more appropriate for persons who are only contemplating change. The effectiveness of treatment can be increased through strategies to motivate patients to make active efforts to change.

Outcome data on the efficacy of interventions to improve motivation among patients with dual diagnoses are lacking. However, several interventions have incorporated motivational principles. In two separate studies, a single motivational interview before inpatient discharge resulted in significant increases in attendance at the first outpatient appointment (15,16). The interviews were based on the principles of motivational interviewing (17) and included discussions of previous treatment experiences and potential barriers to

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compliance with outpatient treatment. Other programs have incorporated motivational principles within multidimensional treatments (18,19). However, the feasibility of a motivational intervention as an adjunct to outpatient treatment has not been assessed, and the effects of such interventions on problem recognition have not been evaluated.

The purpose of this study was to develop and evaluate a brief motivational intervention for persons with dual diagnoses who are not participating in drug abuse treatment—that is, those who are in the precontemplation, contemplation, or preparation stages of change. The intervention was designed specifically to engage the patient in a discussion of substance use, enhance recognition of a substance use problem, increase involvement in substance abuse treatment, and supplement ongoing outpatient mental health treatment. This stage I therapy development study aimed to evaluate the feasibility and acceptability of the intervention, as determined by attendance patterns and patient satisfaction, and to report preliminary indicators of outcome.

## Methods

### *Participants and procedures*

Patients from two hospitals were recruited through referrals from hospital staff. The recruitment criteria were a diagnosis of either a schizophrenia spectrum disorder or bipolar disorder, a current substance use disorder or lifetime substance abuse or dependence as well as problematic substance use during the previous six months, and lack of active engagement in treatment for a substance use disorder. Patients who were judged to be too disorganized or symptomatic to engage in meaningful dialogue were not recruited. A research assistant approached patients at a regularly scheduled appointment, described the project, and invited them to participate. All procedures were reviewed and approved by the institutional review boards of the two hospitals and Syracuse University.

Eligibility was determined on the basis of an interview conducted by a doctoral-level psychologist. The Mini Mental State Examination (MMSE)

(20) was used to screen for gross cognitive dysfunction. Possible scores on the MMSE range from 0 to 30, with higher scores indicating better functioning. Patients with scores below 24 were excluded, except for one person for whom a lower score was due to a documented learning disability that affects spelling. The Structured Clinical Interview for DSM-IV (SCID) (21) was used to confirm the diagnoses of patients who were eligible to participate. Of the 31 eligible patients identified, 30 agreed to participate. Data collection took place between March 1999 and July 2000.

Several descriptive measures were also used during the screening ses-

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sion: the Global Assessment of Functioning (GAF) (22), the Positive and Negative Symptom Scale (PANSS) (23), the Alcohol Use Disorders Identification Test (AUDIT) (24), and the short (ten-item) version of the Drug Abuse Screening Test (DAST-10) (25). Possible scores on the GAF range from 1 to 100, with higher scores indicating better functioning. Possible scores on the PANSS range from 30 to 210, with higher scores indicating more severe pathology. Possible scores on the AUDIT range from 0 to 40, with higher scores indicating more harmful or hazardous al-

cohol consumption. Possible scores on the DAST-10 range from 1 to 10, with higher scores indicating greater risk of drug abuse. All of these instruments have demonstrated strong psychometric properties in previous research with this population (26,27). Patients were paid \$10 to participate in this screening session.

Substance use, treatment involvement, and attitudes toward substance use and cessation were assessed before and after the intervention and at three-month follow-up. A research assistant administered all the instruments orally to maximize the quality of the data (28). During all assessments, patients' breath was analyzed with an AlcoSensor IV (Intoximeters, Inc., St. Louis, Missouri) to maximize the accuracy of reporting. The assessment was rescheduled if the patient's blood alcohol level was above .02. The participant's primary problem substance was the reference point for all attitudinal measures, because readiness to change may vary by substance. Nicotine and caffeine were not considered primary substances, because of their pervasive use in this population (29). Participants were paid \$10 for each of the pre- and postintervention assessments and \$15 at the follow-up session.

**Preintervention assessment.** The contemplation ladder (30) was used as a representation of participants' readiness to change; higher rungs on the ladder represent greater readiness to change. Four expectancy scales were used to assess participants' perceived importance of quitting substance use and of cutting down and their confidence that they could quit or cut down if they decided to (31).

A stage-of-change algorithm was used to assign patients to one of six stages: precontemplation, during which the person has current substance dependence or abuse and expresses no intention to quit or cut down within six months; contemplation, during which the person intends to change within six months but not within the next month; preparation 1, during which the person intends to change within the month; preparation 2, during which a person in preparation 1 also reports an attempt to quit

or cut down in the previous month; action, during which the person says that he or she has quit or cut down within the past six months; and maintenance, during which the person reports change that has been sustained for at least six months. Separate stages were assigned for quitting and cutting down, with the expectation that the latter may be more sensitive to differences among persons with low readiness to change.

Participants then completed a series of self-report scales that measure motivation to change. All the scales have demonstrated reliability and validity with this population (28). The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) (32) assesses the participant's recognition of a substance use problem and whether he or she is taking steps to resolve the problem. The Decisional Balance Scale (DBS) (unpublished data, King TK, DiClemente CC, 1993) assesses perceived pros and cons of continued substance use. The Alcohol and Drug Consequences Questionnaire (ADCQ) (33) measures perceived costs and benefits of quitting or cutting down.

Participation in available treatments was also assessed. We adapted the Treatment Services Review (TSR) (34) to evaluate, for each participant, the number of professional contacts, services provided, and significant discussions that occurred in seven areas: psychiatric problems, alcohol problems, drug problems, medical problems, legal problems, employment problems, and family or social problems. We used a two-week time frame and excluded participation in the research-related intervention sessions from calculations of contacts related to drug or alcohol use.

Substance use was assessed with a 90-day Timeline Followback (TLFB) (35). Alcohol use was recorded in standard drink units for each of the previous 90 days. Drug use was documented by type of drug. Thus we obtained frequency data for a wide range of substances. Temporal reliability and convergent evidence for the validity of TLFB data are strong (36,37).

Three clinician rating scales were completed by primary therapists before the intervention and at the follow-up session, with reference to use

of the primary problem substance over the previous 90 days. The Stages of Substance Abuse Treatment Scale (SATS) (38) is used to categorize a patient's involvement in substance abuse treatment as preengagement, engagement, early persuasion, late persuasion, early active treatment, late active treatment, relapse prevention, or full recovery. The SATS is reliable across raters and over time (38). Primary therapists also completed the Alcohol Use Scale (AUS) and the Drug Use Scale (DUS) (39) to indicate the level of a patient's alcohol or drug use over the previous three months on a 5-point scale. The AUS and the DUS are reliable (39) and valid (40).

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**Intervention.** The four individual sessions were conducted according to a detailed treatment manual (4). The intervention was designed to increase recognition of a problem and dissatisfaction with using drugs, interest in quitting, and confidence in the ability to change. Sessions were structured with specific activities and work sheets to help focus participants' attention and record their ideas for later reference. We maintained flexibility in session goals and adjusted the pace when necessary. Catch-up sessions were added when lapses in treatment occurred.

The development of the intervention was guided by three treatment approaches or philosophies. First, the intervention incorporated the five therapeutic principles of motivational interventions (20): expressing empathy, developing discrepancy, avoiding arguments, "rolling with the resistance," and supporting self-efficacy. Central to the motivational approach is a respect for and support of goals that are important to the patient. These principles promote a client-centered yet directive interventional style that can improve recognition of a problem and motivation to change (41).

Second, consistent with a harm-reduction philosophy (42), reductions in substance use that fell short of abstinence were accepted by the therapist. Reduced use is a more proximal goal and may appear more attainable to some patients, especially those who are less ready to change. Third, the transtheoretical model of change (3) was influential in that more action-oriented procedures—for example, developing an action plan—were emphasized only among participants who were judged to be farther along in the change process, whereas consciousness-raising techniques were emphasized among participants who did not recognize their substance use as problematic.

All sessions were conducted by a clinical psychologist with training in motivational interventions (the fourth author). The first session included feedback on substance use patterns identified by the TLFB, comparison with national patterns, and discussion of the consequences and associated risks. The second session involved a decisional balance activity. Reasons for and against change—for example, "good things about using" and "not-so-good things about using"—were elicited from the patient and discussed. Participants were encouraged to elaborate on change-promoting factors. Change-inhibiting factors presented opportunities for problem solving.

In the third session, one to three personal goals—for example, "to live in a better place"—were discussed in light of the potential impact that cutting down or quitting—as opposed to continuing current use patterns—

would have on achieving the goals. In session 3 or 4, expectancies about the importance of and confidence in changing were revisited, which provided an opportunity to reinforce improvements and to address reasons for lack of improvement. In the fourth session, realistic substance-related goals were identified and an action plan was developed that included specific steps, how others may help, and ways to address specific barriers that might arise. The therapist also highlighted themes that emerged during the intervention and reinforced change-oriented talk. All participants continued to receive usual medications and supportive counseling but were paid \$5 for expenses associated with attending each 30- to 60-minute session.

**Postintervention assessment.** Treatment acceptability ratings were obtained about a week after the last intervention session. For these ratings, seven adjectives were used to describe the intervention—for example, “valuable” or “worthless”—and seven adjectives were used to describe the therapist—for example, “caring” or “uncaring”—on a 7-point Likert scale. Scores for each item were averaged to form summary scores. At that time, all self-report measures that had been administered before the intervention were readministered. The average weekly use from pre- to postintervention assessments was calculated on the basis of participants’ TLFB data.

**Follow-up assessment.** All the preintervention measures were readministered at the three-month follow-up session. Average weekly use between postintervention and follow-up assessments was determined from TLFB data. In addition, a measure of retention of ideas introduced in the intervention was administered. Participants indicated whether each of 20 topics had been discussed in the intervention—for example, “We discussed reasons I might want to quit or cut down.” Foils were included to minimize demand characteristics—for example, “We discussed each of the 12 steps.”

### Analysis

Analyses were conducted to gather empirical evidence relevant to treat-

*Table 1*

Psychiatric and substance use variables among 30 psychiatric outpatients who participated in a study of readiness to change substance use

Variable	Mean	SD
Psychiatric variables		
Number of hospitalizations	9.40	11.82
Score on Global Assessment of Functioning	44.07	8.68
Score on Positive and Negative Symptoms Scale		
Total	61.60	11.98
Positive symptoms	13.37	3.88
Negative symptoms	18.73	5.08
Score on Mini Mental State Examination	26.83	2.44
Substance use variables		
Score on Alcohol Use Disorder Identification Test	13.27	7.81
Score on ten-item Drug Abuse Screening Test	3.13	2.86

ment feasibility and acceptability and within-subject change. First, descriptive statistics were calculated for three sets of variables: consent rates and attrition; client satisfaction variables, including comfort with the intervention and the therapist; and recall of the content of the intervention. Taken together, these data can provide support for the feasibility and acceptability of a newly developed intervention.

Second, we calculated means and effect sizes reflecting change over time on continuous measures of motivation, treatment utilization, and substance use. Effect sizes can be used to estimate the sample size needed to achieve sufficient statistical power in future investigations. Change on categorical measures was evaluated with Wilcoxon signed-rank tests. Evidence of change was derived from both self-report and clinician ratings.

### Results

The 30 participants were predominantly male (25 patients, or 83 percent) and either white (16 patients, or 53 percent) or African American (12 patients, or 40 percent). Their mean  $\pm$  SD age was  $39 \pm 7.2$  years, and their mean number of years of education was  $12 \pm 2.3$ . Primary psychiatric diagnoses were schizophrenia or schizoaffective disorder (22 patients, or 73 percent), psychotic disorder not otherwise specified (six patients, or 20 percent), and bipolar disorder (two patients, or 7 percent). The primary problem substances were alcohol (20 patients, or 67 percent), cannabis (five patients, or 17 percent), and cocaine

(five patients, or 17 percent). Continuous psychiatric and substance use variables for the study sample are listed in Table 1. Mean AUDIT and DAST-10 scores exceeded the recommended cutoff points for identifying substance use disorders among psychiatric outpatients (26).

Of the 30 patients who consented to participate, six did not begin the intervention—two missed at least three scheduled appointments, two lost contact, one had worsening symptoms, and one had transportation problems. One patient withdrew from the intervention after two sessions, and one was hospitalized after the third session. Thus 22 patients completed the intervention and the postintervention assessment, reflecting a completion rate of 73 percent of eligible participants and 92 percent of those who began the intervention. These 22 patients were not significantly different from the eight patients who did not complete the assessment on any demographic, psychiatric, or substance use variables. Follow-up data were obtained for 19 of these 22 patients. Two participants could not be found, and another participant was too disorganized to provide reliable data.

The median time to complete four intervention sessions was 28 days. Participants missed a median of two appointments during the course of attending the seven scheduled meetings. The patients had favorable perceptions of the therapeutic experience; median ratings across the seven dimensions that we assessed ranged

Table 2

Therapeutic outcomes among 30 psychiatric outpatients at preintervention, postintervention, and three-month follow-up

Variable and scale range	Preintervention		Postintervention		Follow-up		Effect size <sup>a</sup>		
							Pre- to post-intervention	Preintervention to follow-up	Postintervention to follow-up
	Mean	SD	Mean	SD	Mean	SD			
Contemplation ladder, 0 to 10	6.14	3.45	7.09	2.58	6.60	2.84	.31	.16	-.16
Importance of quitting, 0 to 10	5.36	3.90	5.41	3.22	6.00	3.36	.01	.21	.26
Confidence in quitting, 0 to 10	5.45	2.99	6.68	3.06	6.35	2.52	.37	.28	-.1
Importance of cutting down, 0 to 10	5.55	3.45	6.41	2.61	4.80	2.86	.31	-.19	-.46
Confidence in cutting down, 0 to 10	6.18	3.35	7.73	2.23	4.70	2.99	.46	-.53	-1.32
Problem recognition, 7 to 35	23.68	6.24	25.18	5.89	24.60	5.21	.28	.21	-.21
Taking steps to resolve problematic use, 8 to 40	28.09	5.97	31.09	5.61	29.85	6.22	.63	.24	-.22
Pros of using, 10 to 50	31.41	5.65	31.82	5.55	33.15	5.38	-.08	-.50	-.26
Cons of using, 10 to 50	31.73	7.03	33.32	5.38	31.60	6.69	.29	-.02	-.3
Benefits of quitting, 0 to 75	46.23	21.46	47.59	17.46	46.40	18.57	.1	.01	-.13
Costs of quitting, 0 to 75	25.95	14.30	24.86	13.91	20.75	15.05	.11	.54	.49
Drug or alcohol treatment use	1.86	2.47	3.73	6.71	3.40	6.06	.3	.28	-.1
Overall service use	10.77	10.50	10.73	14.87	9.20	8.91	0	-.17	-.17
Days of primary substance use per week	2.29	2.17	1.89	2.23	2.24	2.46	.23	.03	-.22
Days of total substance use per week	2.56	2.13	2.21	2.28	2.70	2.41	.21	-.09	-.44
Total number of drinks per week <sup>b</sup>	21.74	35.98	15.51	22.39	18.31	27.13	.16	.18	-.16
Days of heavy drinking per week <sup>b</sup>	1.76	2.16	1.57	2.41	1.79	2.38	.06	-.14	-.19

<sup>a</sup> Difference between means, divided by SD of change in scores. Positive values reflect improvement, and negative values reflect deterioration.<sup>b</sup> Includes available data only for participants whose primary problem substance was alcohol (N=15)

from 5 to 6.5. Perceptions of the therapist were also positive, with a median rating of 6.1. At the three-month follow-up session, 18 participants completed the measure of therapy idea retention. However, three of these said they recalled content that was not in fact covered in the therapy sessions and endorsed all items that were actually covered by the intervention, so their responses on this measure may

not have been reliable. The remaining 15 participants recalled 69 percent of the topics that were actually included in the intervention.

Although this study was designed as a stage I therapy development study, some indicators of outcome can be reported. At baseline, the sample exhibited low levels of readiness to change; in terms of quitting substance use, most (73 percent) were in the

precontemplation stage of change. In terms of cutting down, four participants were in the precontemplation stage, three were in the contemplation stage, two were preparing to change in the next month, five had made an effort to change during the previous month, one was in the action stage, and one was in the maintenance stage. The results of the Wilcoxon signed-rank test indicated that at the postintervention assessment, participants had not moved forward in terms of cutting down. However, in terms of quitting substance use, participants tended to be in more advanced stages of change.

Mean±SD values of continuous variables at the three assessment times are presented in Table 2, along with effect sizes. The table lists effect sizes rather than inferential statistics as a means of presenting the magnitude of change observed, a practice consistent with the recommendations of leading data analysts (43,44). Effect sizes can be interpreted as follows: .2 is small, .5 is medium, and .8

Table 3

Changes in key substance use variables between preintervention and postintervention for 22 patients with severe and persistent mental illness and drug use problems<sup>a</sup>

Variable	Improved		Unchanged		Worsened	
	N	%	N	%	N	%
Number of days of primary substance use per week	11	50	2	9	8	36
Use of drug or alcohol treatment	8	36	10	45	4	18
Recognition	10	45	4	18	8	36

<sup>a</sup> Seventeen patients (77 percent) had fewer days of substance use, used more services, or had greater recognition of their problem.

is large (.45). From pre- to postintervention assessments, taking steps to resolve problematic substance use increased the most (effect size, .63), followed by confidence in cutting down (.46), reflecting medium-sized effects. The items with the next largest effect sizes were confidence in quitting (effect size, .37), readiness to change as represented on the contemplation ladder (.31), alcohol or drug-related treatment involvement (.30), perceived cons of substance use (.29), and recognition of problematic use (.28), reflecting small to medium-sized effects. The reductions in substance use observed between preintervention and postintervention assessments all reflect small effects.

Table 3 shows the pattern of change in a subset of variables that represent primary intervention goals, illustrating the pattern and variability of responses to the intervention. After the intervention, a majority of the participants (17 patients, or 77 percent) used their primary problem substance less frequently, used more treatment services, or had greater recognition of their problem.

As can be seen in Table 2, only a few of the postintervention gains were maintained over the three-month follow-up period. Scores for the contemplation ladder, confidence in quitting, recognition, and taking steps to resolve problematic substance use all decreased relative to the postintervention scores, although these motivational indexes remained elevated relative to preintervention levels. Participation in alcohol and drug treatment remained elevated at follow-up, but most gains in substance use variables were not maintained.

Clinicians' reports were consistent with the changes reported by the patients. Before the intervention, both the mode and the median of the SATS ratings reflected the early persuasion stage, indicating that most participants were not actively involved in substance-related treatment. However, by the follow-up session, eight participants received higher ratings of treatment involvement, whereas only two received lower ratings ( $p < .04$ ). These independent clinicians' ratings support the idea that participation in the intervention

helped to increase the treatment engagement of many of the participants in this study.

Clinicians' ratings on the AUS and the DUS also indicated that patients reduced their use of substances between preintervention and the follow-up session; the median rating decreased from 3 (indicating abuse) at preintervention to 2 (indicating nonproblematic use) at follow-up. More participants received lower ratings than received higher ratings for severity of substance use (eight participants and two participants, respectively;  $p = .05$ ).

### Discussion and conclusions

The results of this study support the feasibility and acceptability of a four-session motivational intervention for use with persons who have serious and persistent mental illness and a substance use disorder. The study provided preliminary evidence that the intervention had the intended effects on attitudes and behaviors. Patients became engaged in discussion about their substance use, improved their recognition of their substance use problems, and demonstrated greater involvement in substance-related treatment.

The feasibility of this intervention was demonstrated in several ways. First, only one patient discontinued the intervention voluntarily, and the 22 patients who completed the intervention rated the intervention and the therapist positively. Thus although these participants were identified as not being actively engaged in treatment for their substance use problems, they became engaged in the brief motivational intervention. Only six patients did not attend any sessions. An attrition rate of 20 percent is encouraging given that patients with dual diagnoses often find it difficult to follow through on structured commitments.

Our results compare favorably with the rate of 33 percent (19 of 58 consenters) who failed to begin a substance abuse treatment program in a study of persons with serious mental illness (18). In that study 62 percent of the outpatients who started the six-month intervention also completed it. Thus our ability to conduct a three-

month follow-up session with 79 percent of the patients who started the intervention appears to be consistent with the results of others who have worked with this treatment-resistant population.

As with any study that uses a small sample, we observed substantial variability in participants' responses to the intervention. In addition, most gains dissipated after patients finished the intervention. In the absence of more intensive, action-oriented treatment options for patients dual diagnoses, the patients in our study could not maintain changes. This finding is not surprising; most providers recognize that treatment for patients with dual diagnoses should be ongoing and multidimensional (19,46,47). Future efforts might enhance the integration of a motivational intervention with ongoing treatment to facilitate maintenance or might supplement the initial intervention with booster sessions to maintain motivational gains.

Our findings suggest that moving to the next stage of therapy development is warranted. To enhance confidence in these findings, treatment effects should be demonstrated with a comparison group in a study using a randomized design and a larger sample. It may be productive to use this intervention as an initial component of therapy (15,16,48) that leads to more extensive treatment for persons with dual diagnoses, one that addresses skills training (18) and environmental supports and incentives for abstinence. ♦

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