

Effects of “Dual Focus” Mutual Aid on Self-Efficacy for Recovery and Quality of Life

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Abstract Four million adults in the U.S. have co-occurring serious mental illness and a substance use disorder. Mutual aid can usefully complement treatment, but people with co-occurring disorders often encounter a lack of empathy and acceptance in traditional mutual aid groups. Double Trouble in Recovery (DTR) is a dual focus fellowship whose mission is to bring the benefits of mutual aid to persons with dual diagnoses. Three hundred and ten persons attending 24 DTR groups in New York City during 1998 were interviewed and followed-up for two years. A mediational model was specified and results across time were summarized with generalized estimating equations (GEE). Degree of DTR Affiliation (attendance and involvement) was significantly associated with Self-efficacy for Recovery and three quality of life measures: Leisure Time Activities, Feelings of Well-Being and Social Relationships. Self-efficacy fully mediated the effects of DTR Affiliation on Leisure Time and Feelings and partially mediated DTR's effect on Social Relationships. The association of DTR involvement with self-efficacy is consistent with the processes inherent in mutual aid, although the observational nature of these data preclude causal inference. To

improve outcomes, clinicians should facilitate affiliation with dual focus groups among persons with dual diagnoses as part of a comprehensive treatment approach.

Keywords Co-occurring disorders · Mutual aid · Quality of life · Self-efficacy · Mental health · Outcome evaluation

Introduction

Four million adults in the U.S. have co-occurring serious mental illness and a substance use disorder, according to the latest National Survey of Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2004). This is one of the most stigmatized and poorly served populations in all of mental health care. One-half of this population (two million) received neither substance use treatment nor mental health care during the past year, and specialty treatment for co-morbid disorders is only starting to become available. Dually diagnosed persons face more challenges in recovery than do individuals with a single disorder (Laudet, Magura, Vogel, & Knight, 2000), typically have poorer treatment outcomes (e.g., Gonzalez & Rosenheck, 2002; Ritsher, McKellar, Finney, Otilingam, & Moos, 2002), and more difficulties in multiple life domains including physical health, social relations, and housing (Bartels et al., 1993; Clark, 1994).

With the advent of managed care and resulting decreases in both the duration and intensity of formal treatment, researchers and service providers have been increasingly interested in community-based resources

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to augment support for recovery both during and after treatment (Lazarus, 1996). This is particularly important for persons with dual diagnoses who are likely to need more support for a longer time than persons with single disorders.

An increasing research base indicates that, as a complement to treatment, traditional single-focus mutual aid groups (e.g., 12 Step groups such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) and support groups such as Recovery, Inc.) have contributed to helping people recover from addiction or mental illness, as reviewed below. (Note, however, that all these studies have used designs that are susceptible to subject self-selection factors, among other limitations.)

Galanter's (1988) national study of Recovery, Inc., a self-help program for people with mental illness, reports various comparisons among randomly selected group leaders ($N = 201$), recent members selected by the group leaders ($N = 155$), and a normative community sample ($N = 195$). Neurotic distress, psychotherapy and medication treatment declined for both the leaders and recent members since first joining the program, although significantly more so for the leaders, who had longer periods of participation. Leaders and the normative sample scored equally on psychological well-being, with both scoring significantly higher than the recent members. (The selection of the recent members by the group leaders had an unknown influence on the results, although often choice may have been lacking, given that about one-quarter of the leaders lacked even one member who met the recency criterion.)

Moos, Finney, Ouimette, and Suchinsky (1999) examined the effectiveness of outpatient treatment and 12 Step group participation after an index episode of inpatient treatment for substance abuse in the Veteran's Administration ($N = 3,018$ in 15 programs). Patients who participated in 12 Step-oriented outpatient treatment and those who participated more in 12 Step groups during any kind of outpatient treatment were more likely to be abstinent and free of substance use problems at a one-year follow-up.

Timko, Moos, Finney, and Lesar (2000) conducted a naturalistic follow-up of previously untreated problem drinkers ($N = 466$) to examine how self-selected interventions affected outcomes over eight years. At one and three years, the formal treatment plus AA group had better drinking outcomes than the formal treatment only group. However, at eight years, individuals who received some type of help—AA, formal treatment or both—were more likely to be abstinent than were untreated individuals, with no significant differences between the groups.

Fiorentine and Hillhouse (2000) conducted an eight-month follow-up of a cohort of clients ($N = 417$) admitted to 25 outpatient substance abuse treatment programs in Los Angeles. Treatment participants with concurrent 12 Step group involvement stayed in treatment longer and those who attended 12 Step meetings at least weekly during and after treatment had higher rates of abstinence from drugs and alcohol than those who participated in treatment or in 12 Step groups alone.

Toumbourou, Hamilton, U'Ren, Stevens-Jones, and Storey (2002) recruited all new members (3–12 months) of NA in the Australian state of Victoria ($N = 91$) and successfully followed-up 68% of them after one year. In multivariate analyses, consistent weekly meeting attendance and more Step work during the follow-up period were associated with less hazardous alcohol use and higher emotional support at reinterview.

A national survey of over 2,000 participants in peer-led mood disorder support groups indicated that the longer participants had attended a group, the less likely they were to have stopped medication against medical advice, and hospitalization rates were significantly lower for those who had attended a group for more than one year vs. less than one year (Sheffield, 2003).

Unfortunately, persons with dual diagnoses in traditional 12-Step meetings often find a lack of acceptance and empathy (Noordsy, Schwab, Fox, & Drake, 1996; Vogel, 1993). Some people with dual diagnoses report receiving misguided advice about psychiatric illness and the use of medications, which are viewed as “drugs” (Hazelden, 1993). Although this is not the official view of AA or NA World Services (e.g., AA, 1984), many members of local 12 Step chapters still reject the use of medications for either psychiatric or substance use disorders. Studies have also indicated that clinicians are less likely to refer persons with dual diagnoses than those with a single diagnosis to mutual aid groups (Humphreys, 1997; Villano et al., in press). These factors have led to an underutilization of mutual aid among persons with co-occurring disorders (Minkoff & Drake, 1991; Noordsy et al., 1996; Zaslav 1993).

The American Psychiatric Association (1995) has recommended that persons with dual diagnoses who are prescribed psychoactive medications be referred to support groups where such therapy is recognized and encouraged as useful, rather than labeled. Several “dual focus” groups have emerged specifically to address the recovery needs of persons with co-occurring disorders. One such organization, Double Trouble in Recovery (DTR), is a 12 Step-based fellowship of men and women who share their experience, strength and hope to help

solve their common problems and assist others to recover from addiction(s) and manage their mental disorder(s). DTR adapts the original 12 Steps of AA to dual diagnosis in Step one (“We admitted we were powerless *over our mental disorders and substance abuse* and that lives had become unmanageable”) and in Step Twelve (“Having had a spiritual awakening as a result of these steps, we tried to carry this message to other *dually diagnosed* people and to practice these principles in all our affairs”). DTR emphasizes active personalized outreach to severely affected people with co-morbid disorders in settings (e.g., institutions, day treatment) where they ordinarily lack opportunities to participate in consumer-led mutual aid groups that are non-judgmental about medication issues (<http://www.doubletroubleinrecovery.org>; Vogel, Knight, Laudet, & Magura, 1998).

DTR has been studied through unique community-based participatory research, consisting of a team co-led by both researchers and consumers with dual diagnoses. The present paper examines the effects of DTR participation on two mental health-related outcomes, self-efficacy for recovery and quality of life (QoL). These choices of outcome reflect key goals of the DTR fellowship: “Together, we will find the *hope and strength* that lead to *serenity and a meaningful life*” (author’s italics; <http://www.doubletroubleinrecovery.org>).

Previous papers from this study have examined DTR’s substance use-related outcomes, indicating that greater DTR participation is associated with higher rates of abstinence from drug/alcohol use (Laudet et al., 2004) and that several self-help processes during DTR participation are associated with better abstinence outcomes (Magura et al., 2003).

Conceptual Framework of the Study

Self-Efficacy for Recovery

From a mental health perspective, self-efficacy for recovery may be broadly defined as “having the confidence that the adversities associated with mental disorders (e.g. symptoms, social isolation) can be overcome” (Carpinello, Knight, Markowitz, & Pease, 2000). Increased self-efficacy or sense of mastery has been identified as a primary process associated with recovery from mental disorders (Anthony, 1993; Coursey, Farrell, & Zahniser, 1991; Davidson & Strauss, 1992; Rosenfield, 1987; Shaffer & Gambino, 1978). Persons with serious mental disorders are variously described as having low self-efficacy or feelings

of powerlessness and hopelessness (Hays & Buckle, 1992; Rosenfield, 1992). The promotion of self-efficacy is a major construct underlying mutual aid. Carpinello et al. (2000) found significant correlations between four elements of mutual aid (length of involvement, extent of activity, frequency of contact with other members and helpfulness of contacts) and self-efficacy for mental health recovery.

Bandura (1995) identifies three main sources of self-efficacy information: vicarious experiences, verbal persuasion and enactive attainments. All three processes occur in mutual aid groups in general and DTR in particular.

In DTR, sharing of information and personal experiences in the group meeting, the presence of role models and one-on-one guidance provided by members outside of meetings, constitute learning through vicarious experiences and verbal persuasion. The meetings are opportunities to share information about coping behaviors, including what has been experienced as effective and ineffective. This includes information on coping with negative emotions (e.g., anger, boredom); basic survival needs; temptations to use substances; medication adherence; and to how to interact productively with other people and relevant institutions. Members listen to other members with similar challenges and learn what has worked for them. In accord with 12 Step tradition, direct advice is not given from one member to another at meetings, but may be provided outside meetings. The groups include a peer facilitator (chairperson) and senior members relatively advanced in their recovery who serve as examples of successful (though not perfect) coping with life challenges. Similarly, there may be invited speakers who bring new and varied perspectives on coping with the consequences of dual disorders.

DTR participation also provides opportunities for enactive attainments. The member has opportunities to take responsibility and complete small tasks within the group; this is intended to foster perceptions of self-efficacy and to prepare him/her for more adaptive behaviors in other settings. Members usually begin by attending meetings, perhaps giving a salutation to other members in the sharing portion, but little else. Later members will say something about themselves and as time goes on, the contributions become more elaborate. As the group develops, the membership takes increasing responsibility for its governance, such as making decisions about meeting places and times, obtaining speakers, nominating facilitators, and assessing the group’s progress.

Members also participate in social activities outside meetings arranged by facilitators or senior members, or

interact informally with each other outside meetings. Members are encouraged to create a phone list and call each other. Members are asked to call each other about any difficulties, such as starting to experience negative emotions or thoughts, or craving for substances. Senior members may start training as DTR facilitators, assist in facilitation, and eventually take on a leadership role.

Quality of Life

Health is defined in the World Health Organization's Constitution as a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." The mental health field has increasingly recognized the need to measure patients' QoL as a criterion of successful treatment outcome. The control of symptoms is no longer viewed as an end in itself, but as a means to attaining or restoring adequate social functioning and satisfaction with life (Basu, 2004; Gladis, Gosch, Dishuk, & Crits-Christoph, 1999; Van Nieuwenhuizen, Schene, Boevink, & Wolf, 1997).

QoL is an especially pertinent outcome for a mutual aid fellowship such as DTR, because mutual aid is not a mental health treatment and does not target symptom reduction *per se*. Instead, a primary goal of DTR is to assist members in coping with and managing their mental disorders to achieve "serenity and a meaningful life." Thus, participation in Recovery Inc., a mutual aid group for mental health recovery, resulted in increases in general well-being and less distress (Galanter, 1988).

Moreover, theory and research also indicate that self-efficacy for recovery is a key determinant of QoL for persons with mental disorders (Barry 1997). Self-efficacy, also termed "perceived autonomy" or "sense of mastery," was the strongest or second strongest predictor of QoL in several studies involving mental health patients (Arns & Linney, 1993; Mercier & King, 1994; Ritsner et al., 2003; Rosenfield, 1992; Zissi, Barry, & Cochrane, 1998). Persons recovering from mental disorders indicate a desire to regain their "self-confidence" (Coursey et al., 1991) and a "functional sense of self" (Davidson & Strauss, 1992), concepts similar to self-efficacy. In a related line of research, the construct of optimism, which has a component of personal agency, has been strongly linked to psychological well-being (Scheier & Carver, 1992; Wrosch & Scheier, 2003).

The present paper tests two hypotheses derived from the above literature: (1) greater DTR affiliation (e.g., frequency of attendance, interacting with members) will predict greater self-efficacy for recovery and

better QoL; (2) self-efficacy for recovery will mediate the effects of DTR affiliation on QoL.

The study design is a prospective longitudinal, single cohort design; a cohort of current DTR members was recruited and followed-up for two years. The study was intended to describe the characteristics of the DTR membership, track changes in measures of recovery over time, and identify predictors of recovery. The limitations of this design are discussed in the Discussion section. The study was restricted to existing DTR groups and members because funding constraints did not allow for new groups to be established and evaluated or for a comparison sample of non-DTR-affiliated persons with dual diagnoses to be included.

Methods

Setting

Study participants were recruited from persons attending DTR meetings throughout New York City. DTR was started in New York State in 1989 and currently has over 200 groups meeting in the U.S., with the most currently in New York, Georgia, Colorado, New Mexico and Florida. Groups meet in community-based organizations; psychosocial clubs; outpatient treatment programs for mental health, substance abuse or dual-diagnosis; and inpatient psychiatric hospital units. All DTR groups, including those initiated by professionals, are led by persons with dual diagnoses in recovery.

Participants

Potential study participants were recruited at DTR meetings held in community-based organizations, outpatient programs and supported residences for persons diagnosed with mental disorders throughout New York City. All DTR participants who had been attending meetings for one month or more were eligible. The researchers counted 360 attendees at 24 DTR meetings and, with the assent of each group, asked the attendees individually and privately whether they were interested in participating in the study. Sixteen were ineligible due to less than one month of attendance, and 34 declined participation, either immediately or when they were subsequently contacted for an interview. Thus, 310 out of 360 attendees (86%) at the meetings participated in the study. Racial/ethnic self-identification of the sample was as follows: African-American (58%), White (25%), Hispanic (14%) and other categories (3%).

Participation was voluntary based on informed consent; the NDRI Institutional Review Board approved the study. The study employed as interviewers senior members of the DTR fellowship who received training in interviewing skills and were closely supervised in their research activities. Study intake interviews ($N = 310$) were conducted between January and December of 1998; one-year follow-up interviews ($N = 276$) were conducted between January and December of 1999, representing a re-contact rate of 90% (276/306) of those remaining alive. Subjects were re-interviewed ($N = 233$) at a two-year follow-up between January and December 2000, representing a two-year re-contact rate of 76% (233/306). The interviews required about 2 h; participants received \$35 for their time at study entry and \$40 for each of the follow-up interviews.

Attrition Analysis

Participants followed-up and lost to follow-up were compared on age, gender, ethnicity, primary substance of abuse, primary psychiatric diagnosis, DTR attendance and number of psychiatric symptoms prior to study entry. When compared with those interviewed at the one-year follow-up, participants not interviewed were younger ($r = .11, P < .05$) and were more likely to report cocaine/crack as their primary problem substance ($r = .16, P < .05$). When compared with those interviewed at the two-year follow-up, participants not interviewed had shorter DTR attendance before study intake ($r = .13, P < .05$) and were more likely to report cocaine/crack as their primary problem substance ($r = .14, P < .05$).

Study Measures

The interview was a semi-structured instrument administered at study entry, one year later and two years later. In addition to sociodemographics, living arrangements, self-reported psychiatric diagnoses, primary substance of abuse and treatment history, the study included the following measures:

Psychiatric Symptoms were measured by the 13-item Colorado Symptoms Index (CSI), developed specifically for assessment of symptoms experienced by people diagnosed with severe and persistent mental illness (Shern et al., 1994). E.g., in the past month, how often have you: felt depressed? forgot important things? felt like seriously hurting someone? The score is the mean of the 13 symptoms, coded as 0 = not at all to 4 = at least every day, with a potential range 0–4. (Cronbach's α at study entry = .85).

DTR Affiliation measured participants' degree of affiliation (frequency of attendance and types of involvement) with the DTR fellowship during the past year before each interview, based on five items: How frequently are (or were) you attending? (less than once a month to six or seven times a week). How often do you share at DTR meetings? (never to always). How many times have you qualified at a DTR meeting? (i.e., being the main speaker and sharing one's story of addiction and recovery). Have you chaired a DTR group for any period of time? Did you speak to other DTR members about your issues? The individual item scores were standardized, their mean was computed for each subject, and the resulting index was linearly re-scored to yield a "percentage of maximum possible" (POMP) score (Cohen, Cohen, Aiken, & West, 1999) to aid interpretability. The frequency distribution of DTR Affiliation is shown in Table 1. The distribution on the index suggests that this sample is fairly highly affiliated—63% attained 50% or more of the highest possible score—although there was also a wide range of scores. (Because the index is based on a count of affiliative behaviors, Cronbach's α is not computed.)

Self-efficacy for Recovery was measured with 16 items from the Mental Health Confidence Scale, originally developed for a study of mental health mutual aid groups (Carpinello et al., 2000). Respondents were asked to rate their level of confidence in their ability to deal with potentially difficult or stressful situations, e.g., How confident are you right now that you can: Deal with symptoms related to your mental illness? Face a bad day? Stay out of the hospital? The score is the sum of the items, coded 1 = not at all confident to 4 = very confident. (Cronbach's α averaged over the three interview administrations was .90).

QoL was measured by three scales from the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q), developed for use with patients with mental and other medical conditions as well as with non-patients (Endicott, Nee, Harrison, & Blumenthal, 1993), that has been independently validated (Bishop, Walling, Dott, Folkes, & Bucy, 1999). The scales administered were: Subjective Feelings of Well-Being (14 items), Social Relationships (11 items) and Leisure Time Activities (5 items); on the latter, one of the original six items whose direction was reversed by the present study's authors was excluded. Typical items were: During the past week, how often have you: Felt satisfied with your life? Enjoyed talking with or being with friends or relatives? (never = 1 to all the time = 5). The respective scale scores are obtained by adding the constituent item scores. Cronbach's α s in the present study averaged over the three interview

Table 1 Sample characteristics ($N = 310$)

Gender (%)	
Female	28
Male	72
Race/Ethnicity (%)	
African-American	58
White	25
Hispanic	14
Other	3
Age (mean years, standard deviation)	40.5 (8.5)
Marital status (%)	
Single	63
Separated/Divorced/Widowed	30
Married/Common law	7
High school graduate/GED (%)	60
Living arrangement	
Community residence/Apartment Program	53
Own apartment or house	21
With friends/Relatives	11
Single room occupancy (SRO)	10
Homeless	5
Primary diagnosis (%)	
Schizophrenia	39
Major depression	21
Bipolar disorder	20
Other	20
Mental health hospitalizations (%)	
Less than 5	52
5 or more	48
Psychiatric symptoms, No. in past year (mean, standard deviation) ^a	8.7 (3.5)
Primary substance of abuse (%)	
Cocaine/Crack	42
Alcohol	34
Heroin	11
Marijuana	10
Other	3
Substance use inpatient episodes (%)	
Less than 5	74
5 or More	29
DTR affiliation at study entry (%)	
0–24	6
25–49	31
50–74	45
75–100	18

administrations were .94 for Feelings of Well-Being, .80 for Social Relationships and .83 for Leisure Time. Q-LES-Q scales of work/school adjustment and physical activities were not included because symptom severity in the study sample often precluded participation in such activities. The Q-LES-Q has been shown to measure differences in the functioning of mental health patients that are not redundant with the results of common psychiatric symptom and severity scales (Endicott et al., 1993).

Analytical Techniques

Generalized estimating equations (GEEs), which are generalized linear models that have been extended to

situations in which observations are correlated due to repeated measurement of individuals, is the selected analytical technique (Zeger & Liang, 1986). When using GEE for longitudinal analysis, it is necessary to specify how the different assessments of the dependent variable are related over time. Since the study involves two follow-up periods, the *exchangeable* correlation structure was chosen for the analyses presented below. This form of GEE analysis allows all of the available observations to be used and summarizes the unique effects of time, DTR affiliation and eligible covariates on the outcome variables—self-efficacy for recovery and the three QoL scales. To avoid potential confounding, covariates which were significantly related to both DTR affiliation and one of the outcome variables at any interview were eligible to be included in the GEE analysis. The GEE analyses were performed using PROC GENMOD in the Statistical Analysis System (SAS) package.

The logic of testing for mediation follows Baron and Kenny (1986). First, a GEE is constructed with DTR affiliation as the independent variable and a QoL measure as the dependent variable. Then the hypothesized mediator, self-efficacy for recovery, is added as a second independent variable. If the initially significant effect of DTR affiliation on QoL becomes non-significant, full mediation is indicated, whereas if the effect becomes weaker but still significant, partial mediation is indicated.

Effect size is given by a pseudo-partial correlation r , which is derived from converting the z -tests in the GEE analysis (Rosenthal, 1991). Statistical significance was indicated by two-tailed tests at the $P < .05$ level.

Results

Table 1 indicates that the sample was about three-quarters male and had a mean age of 40 years, ranging from 20 to 63 years. Almost two-thirds were single; a majority held a high school or high school equivalency degree; and about one-half lived in supported housing (community residence or apartment program). Self-reported primary psychiatric diagnoses were, in order of frequency, schizophrenia, major depression, bipolar, and various others. The participants reported experiencing an average of nearly nine psychiatric symptoms in the previous year. Primary substances of abuse were, in order of frequency, cocaine/crack, alcohol, heroin, marijuana and other substances. About one-half of the sample had five or more lifetime mental health hospitalizations and about one-quarter had five or more substance use-related inpatient episodes. Nearly

two-thirds had been attending DTR meetings for a year or longer at study entry (not shown in table).

All variables in Table 1 (except for DTR Affiliation) were considered for entry as covariates by determining the bivariate relations between each variable and DTR Affiliation, Self-efficacy for Recovery and the three QoL scales. If a potential covariate was related to both DTR affiliation and one of the outcome variables at any of the three time points, it was included as a covariate. Males were more affiliated and had higher QoL/Leisure Time scores. Older subjects were more affiliated and had higher self-efficacy for recovery scores. Participants with more psychiatric symptoms at study entry were more affiliated (two-year follow-up only) and had lower Self-efficacy for Recovery, QoL/Feelings, QoL/Relationships and QoL/Leisure Time scores. Thus, gender, age, and psychiatric symptoms at study entry were used as covariates in subsequent multivariate analyses.

Separate GEE analyses for each outcome variable are presented in Table 2. Greater DTR affiliation was significantly associated with increased Self-efficacy for Recovery ($r = .23$, $P < .01$), QoL/Leisure Time ($r = .15$, $P < .01$), QoL/Feelings ($r = .18$, $P < .01$) and QoL/Relationships ($r = .20$, $P < .01$) across the study time period. There were significant increases in Self-efficacy for Recovery, QoL/Leisure Time and QoL/Feelings scores between study entry and the two year follow-up, as indicated by the significant negative B -values for those time contrasts, independent of the effects of changes in DTR Affiliation and the covariates. Finally, the more psychiatric symptoms reported at study entry, the lower were the participants' scores on all the outcome variables across the study period.

Table 3 presents the results of the analysis testing whether self-efficacy mediates the effects of DTR on QoL. Self-efficacy for Recovery was significantly associated with all three QoL measures across the study period. Further, Self-efficacy fully mediated the effect of DTR Affiliation on QoL/Leisure Time and QoL/Feelings—DTR Affiliation became non-significant—and partially mediated DTR's effects on QoL/Relationships. DTR's effect coefficient r for QoL/Relationships was reduced from .20 in Table 2 to .13 in Table 3, but remained significant ($P < .05$). In this analysis, when the effects of Self-efficacy, DTR Affiliation and the covariates are controlled, there were no significant changes in QoL/Leisure Time and QoL/Relationships between study entry and the two-year follow-up, as indicated by inspecting those contrasts. However, a significant increase remained for QoL/Feelings between study entry and the two-year follow-up. In two comparisons, when self-efficacy was introduced as a control, significant

deterioration in QoL occurred, i.e., in QoL/Leisure Time ($r = .12$, $P < .05$) and QoL/Relationships ($r = .14$, $P < .05$), between study entry and the one-year follow-up. (Positive effect coefficients indicate decrease in scores over time.) Psychiatric symptoms at study entry continued to depress all three QoL measures across the study period.

The main results of the mediation tests are represented as a schematic in Fig. 1.

Discussion

Self-efficacy for recovery and QoL are important outcomes for mental health services. The present study shows that affiliation with a mutual aid fellowship designed for people with co-occurring mental and substance use disorders is associated with increases in self-efficacy for recovery and in several QoL domains—leisure time activities, feelings of well-being and social relationships. As discussed above, these changes can be expected as the results of the interactions that occur in the dual focus fellowship studied. In particular, DTR affiliation provides opportunities for increasing members' confidence in being able to cope with life challenges, i.e., self-efficacy for recovery. Theory and prior research with people receiving mental health services also suggest that self-efficacy for recovery is a proximate factor in improving subjective QoL. Analysis over multiple waves of data supported the hypothesis that self-efficacy mediates between the degree of DTR affiliation and QoL, for two of the three QoL measures. However, one or more factors in addition to DTR affiliation must be intervening to explain changes in social relationships for this sample of DTR members; but none of the available study variables could assist further in that regard.

Affiliation with dual focus mutual aid groups appears to be an important element in improving outcomes among persons with dual diagnoses. The risk of poor outcome is suggested by the deterioration of the QoL relationships and leisure time over a one-year period when the countervailing effects of changes in DTR affiliation and self-efficacy for recovery are controlled. Specialized mutual aid can reinforce and maintain the positive effects of comprehensive, integrated treatment for individuals with co-occurring disorders (Minkoff & Cline, 2004). Where specialized groups for people with dual diagnoses are available, clinicians should emphasize the need for consistent participation over time. Where such groups are not available, at a minimum clinicians should educate patients about this potential resource and support the

Table 2 Relation of DTR affiliation to self-efficacy for recovery and quality of life

	df	χ^2	<i>B</i>	Robust SE	Robust <i>z</i>	<i>r</i>
<i>Self-efficacy for recovery</i>						
Time period	2	33.66**	–	–	–	–
Study entry vs. one year	1	–	– 2.88	0.5037	– 5.72**	– 0.33
Study entry vs. two years	1	–	– 2.66	0.5804	– 4.58**	– 0.26
One year vs. two years	1	–	0.23	0.5571	0.41	0.02
Male gender	1	4.89*	1.66	0.7439	2.23*	0.13
Age at study entry	1	0.65	0.03	0.0408	0.81	0.05
Psychiatric symptoms at study entry	1	8.21**	– 0.30	0.1018	– 2.97**	– 0.17
DTR affiliation	1	13.91**	1.77	0.4466	3.96**	0.23
<i>Quality of life: Leisure time</i>						
Time period	2	6.16*	–	–	–	–
Study entry vs. one year	1	–	– 0.00	0.2356	– 0.01	– 0.00
Study entry vs. two years	1	–	– 0.62	0.2785	– 2.24*	– 0.13
One year vs. two years	1	–	– 0.62	0.2716	– 2.29*	– 0.13
Male gender	1	2.99	0.59	0.3391	1.74	0.10
Age at study entry	1	0.45	0.01	0.0194	0.67	0.04
Psychiatric symptoms at study entry	1	22.69**	– 0.23	0.0422	– 5.52**	– 0.32
DTR affiliation	1	6.60*	0.53	0.2008	2.64**	0.15
<i>Quality of life: Feelings</i>						
Time period	2	22.12**	–	–	–	–
Study entry vs. one year	1	–	– 2.42	0.5879	– 4.11**	– 0.24
Study entry vs. two years	1	–	– 3.24	0.7707	– 4.21**	– 0.24
One year vs. two years	1	–	– 0.83	0.7198	– 1.15	– 0.07
Male gender	1	0.34	– 0.56	0.9526	– 0.59	– 0.03
Age at study entry	1	0.13	– 0.02	0.0535	– 0.35	– 0.02
Psychiatric symptoms at study entry	1	28.37**	– 0.74	0.1218	– 6.10**	– 0.35
DTR affiliation	1	8.74**	1.67	0.5418	3.09**	0.18
<i>Quality of life: Relationships</i>						
Time period	2	0.06	–	–	–	–
Study entry vs. one year	1	–	– 0.00	0.4061	– 0.00	– 0.00
Study entry vs. two years	1	–	– 0.11	0.4857	– 0.22	– 0.01
One year vs. two years	1	–	– 0.10	0.4817	– 0.22	– 0.01
Male gender	1	0.12	0.24	0.7096	0.34	0.02
Age at study entry	1	0.02	– 0.01	0.0376	– 0.15	– 0.01
Psychiatric symptoms at study entry	1	20.64**	– 0.43	0.0850	– 5.05**	– 0.29
DTR affiliation	1	10.43**	1.35	0.3955	3.41**	0.20

Notes: * $P < .05$; ** $P < .01$. These analyses used 787 observations on 302 individuals. All three pairwise comparisons of time periods are shown to facilitate the interpretation of time effects, but GEE analyses included only two of these comparisons in each model. *B* is the unstandardized regression coefficient

initiation of such groups at their facilities; assistance for this is available from the DTR fellowship.

An innovative strategy for increasing participation in dual focus mutual aid, a modified 12 Step facilitation (TSF) therapy for persons with dual diagnoses, is described by Bogenschutz (2005). This specialized 12 session TSF protocol, based on the manual used in Project MATCH (Nowinski, Baker, & Carroll, 1994), emphasizes the facilitation of engagement in DTR or other dual focus mutual aid groups. A pilot study of the therapy with ten patients indicated that 8/10 remained engaged until the end of the therapy, and that 12 Step meeting attendance increased significantly and substance use severity decreased significantly during the therapy as compared with baseline (Bogenschutz, 2005). (Of course, implementing this TSF also requires establishing a dual focus group if none exists.) If the

efficacy of this model is supported by further research, it would be an important addition to the treatment options for persons with dual diagnoses.

Self-efficacy for recovery emerged as the strongest predictor of QoL in this study; a targeted approach to increasing self-efficacy would be useful for mental health agencies, including those serving patients with dual diagnoses. Encouraging patient self-efficacy is a key aspect of patient empowerment, which despite having achieved greater acceptance in the mental health field, remains inconsistently applied in day to day practice (Finfgeld, 2004; Honey 1999; Linhorst, Hamilton, Young, & Eckert, 2002). Mental health agencies should consider providing specialized training to increase clinician competency in patient empowerment. One option is a recently developed Staff Supportive Skills curriculum that includes training in

Table 3 Relation of DTR affiliation and self-efficacy for recovery to quality of life

	df	χ^2	<i>B</i>	Robust SE	Robust <i>z</i>	<i>r</i>
<i>Quality of life: Leisure time</i>						
Time period	2	8.33*	–	–	–	
Study entry vs. one year	1	–	0.50	0.2354	2.14*	0.12
Study entry vs. two years	1	–	–0.16	0.2732	–0.58	–0.03
One year vs. two years	1	–	–0.66	0.2511	–2.64**	–0.15
Male gender	1	1.02	0.30	0.2970	1.10	0.06
Age at study entry	1	0.16	0.01	0.0169	0.39	0.02
Psychiatric symptoms at study entry	1	17.90**	–0.18	0.0378	–4.77**	–0.27
Self-efficacy for recovery	1	51.91**	0.17	0.0182	9.54**	0.55
DTR affiliation	1	1.48	0.22	0.1810	1.22	0.07
<i>Quality of life: Feelings</i>						
Time period	2	5.22	–	–	–	
Study entry vs. one year	1	–	–0.75	0.5682	–1.33	–0.08
Study entry vs. two years	1	–	–1.70	0.7357	–2.32*	–0.13
One year vs. two years	1	–	–0.95	0.6489	–1.47	–0.08
Male gender	1	3.54	–1.50	0.7862	–1.90	–0.11
Age at study entry	1	0.75	–0.04	0.0440	–0.87	–0.05
Psychiatric symptoms at study entry	1	22.93**	–0.56	0.1044	–5.34**	–0.31
Self-efficacy for recovery	1	62.16**	0.59	0.0516	11.37**	0.65
DTR affiliation	1	1.76	0.64	0.4758	1.34	0.02
<i>Quality of life: Relationships</i>						
Time period	2	6.00*	–	–	–	
Study entry vs. one year	1	–	0.96	0.4012	2.40*	0.14
Study entry vs. two years	1	–	0.75	0.4563	1.65	0.09
One year vs. two years	1	–	–0.21	0.4423	–0.47	–0.03
Male gender	1	0.25	–0.33	0.6566	–0.50	–0.03
Age at study entry	1	0.29	–0.02	0.0328	–0.54	–0.03
Psychiatric symptoms at study entry	1	16.99**	–0.33	0.0731	–4.47**	–0.26
Self-efficacy for recovery	1	63.19**	0.34	0.0303	11.12**	0.64
DTR affiliation	1	5.08*	0.82	0.3556	2.31*	0.13

Notes: * $P < .05$; ** $P < .01$. These analyses used 787 observations on 302 individuals. All three pairwise comparisons of time periods are shown to facilitate the interpretation of time effects, but GEE analyses included only two of these comparisons in each model. *B* is the unstandardized regression coefficient

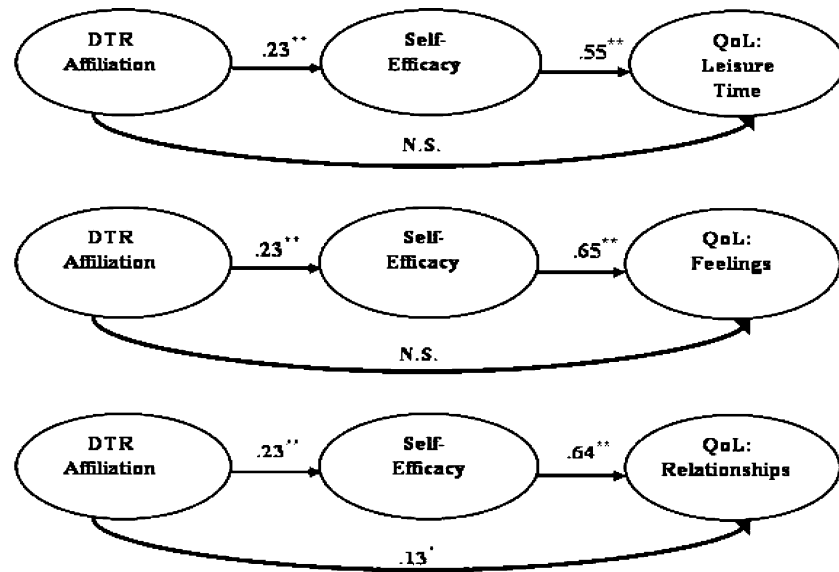
Rehabilitation Readiness, Support Skills for Self-Help and Strategies for Independence; the latter focuses on techniques to promote patient autonomy in decision-making about their lives. An evaluation of this curriculum using a comparative design indicated significant improvement in provider competencies for patient empowerment in the agencies receiving the training vs. the agencies that did not. Moreover, eight new consumer-led self-help groups were started in the agencies receiving the training (Knight et al., 2003). The impact of such training on outcomes specifically for patients with dual diagnoses was not reported, but is an important question for future research.

The present study has several limitations. The main limitation is the non-experimental, observational design that requires caution in making causal inferences from the findings. Specifically, there is no control group of individuals who were not exposed to DTR and study participants essentially self-selected themselves into different degrees of affiliation with DTR. Although the study attempted to identify and statistically control for certain potential confounders, i.e., subject characteris-

tics that might be correlated with both degree of DTR affiliation and the outcome variables, there remains the possibility that unmeasured confounders could account for the relationships observed in this study. Consequently, additional research with DTR should evaluate the effects of establishing new DTR groups within a comparative design. Although randomized experiments are difficult to conduct with mutual aid interventions, within-subject designs (using subjects as their own controls) or non-random parallel group designs may be feasible. This would allow stronger conclusions to be drawn about the contributions of dual focus mutual aid to recovery outcomes.

A second limitation is the fact that the study participants had varying amounts of exposure to DTR at study intake and could only be followed-up for two years due to funding constraints. This could lead to biased conclusions about DTR's level of effectiveness, because the recruitment method may under-represent individuals who dropped out after short periods of attendance. To avoid this limitation, future research with DTR should attempt to establish new groups with

Fig. 1 Schematic for tests of mediation (r -values). * $P < .05$; ** $P < .01$. Note: The analyses control for time period, gender, age, and psychiatric symptoms at baseline



new members and follow them up for longer than two years, since 12 Step programs are intended to be long-term sources of peer support. Moreover, this would enable research to determine the “holding power” of the fellowship, the reasons for dropout, and the circumstances of re-engagement with the fellowship, if that should occur.

A third limitation is that the DTR attendance and affiliation data are based on self-reports. This could lead to several alternative interpretations of the results, for instance, individuals feeling better about their lives might have exaggerated perceptions of their DTR affiliation.

The final limitation is that the effect sizes for DTR affiliation on the mental health outcome measures were relatively small. These effect sizes ranged between $r = .23$ for self-efficacy and $r = .15$ for QoL/Leisure time, which translate into pseudo-percents of variance explained (r^2) of 5% and 2%, respectively. Taken literally, these results suggest that other factors or their combinations must be more important than DTR affiliation in explaining these mental health outcomes. On the other hand, psychosocial research of all types often yields similar effect sizes; in interpreting their clinical significance, the difficulty of measuring complex psychosocial constructs must be taken into account. The true relationships between the study constructs may be higher than indicated by the observed relationships, which are presumably subject to considerable measurement error. Thus, unless much stronger and clinically malleable alternative predictors of these mental health outcomes can be identified, encouraging dual focus mutual aid for persons

with dual diagnoses as part of a comprehensive treatment approach appears to be a reasonable recommendation.

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