

ARTICLE

**Peer Support for Persons with
Co-Occurring Disorders and
Community Tenure:
A Survival Analysis**



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Individuals with co-occurring mental health and substance abuse diagnoses experience high rehospitalization rates. Consumer-delivered services are recognized as an important intervention for this population, but no studies have examined the extent to which such services are associated with enhanced community tenure and prevention of rehospitalizations. This longitudinal, comparison group study examines the effect of participation in The Friends Connection, a peer support program for individuals with co-occurring disorders, on 3-year rehospitalization patterns. Results from a survival analysis suggest that program participants have longer community tenure (i.e., periods of living in the community without rehospitalization) than a comparison group. Chi-square tests also indicate that significantly more people in the comparison group (73%) are rehospitalized in a 3-year period versus those in the Friends Connection group (62%). These results suggest that Friends Connection may facilitate community tenure and prevent rehospitalizations for a group that is at high-risk for rehospitalizations. The findings lend additional support of the potential effectiveness of peer support programs as part of a service delivery system that facilitates recovery of individuals with co-occurring disorders.

Keywords: *peer support, hospitalizations, community integration, prevention*

Consumer-delivered services have been touted as a best practice based on strong theoretical underpinnings, consistently positive empirical findings, and policy support (Salzer & MHASP Best Practices Team, 2002). Peer support programs have recently gained attention as a potential adjunct to more traditional mental health serv-

ices for people with severe mental illnesses and co-occurring substance use disorders (Galanter, 2000; Trainor, Shepherd, Boydell, Leff, & Crawford, 1997). However, research on peer services for individuals with co-occurring disorders has been relatively limited, with the exception of a series of studies suggesting that “Double-Trouble”

mutual-aid groups for persons with co-occurring disorders may have wide-ranging positive impacts (Laudet et al., 2000; 2003; Magura et al., 2002; 2003a; 2003b; Vogel et al., 1998).

The presence of co-occurring disorders is consistently found to adversely impact illness course, treatment response, psychosocial functioning, and is a key predictor of rehospitalizations, a major contributor to higher costs of care (Drake et al., 1998; Gonzalez & Rosenheck, 2002; RachBeisel, Scott, & Dixon, 1999). Peer support programs hold promise for significantly reducing rehospitalizations. These programs may enhance social support environments that facilitate the development of prosocial behaviors, empowerment, and recovery (Trainor et al, 1997; Lane, 1998), enhance social networks, and increase involvement in healthier leisure activities that do not involve drugs and alcohol. The aforementioned psychosocial benefits and utilization of coping skills may reduce the intensity and frequency of acute episodes that lead to rehospitalizations. A few studies have found that peer support programs are associated with reduced hospital days (e.g., Humphreys & Moos, 2001; Jerrell & Hu, 1996; Kennedy, 1989). Peer support may reduce hospital days by supporting people's ability to remain in the community longer between hospital episodes, and possibly preventing rehospitalizations over long periods of time. We have found no studies that have examined these issues.

This study uses longitudinal administrative data for a group of persons with co-occurring serious mental illnesses and substance use disorders who participated in The Friends Connection (FC) program, a consumer-delivered peer support program in Philadelphia, who had also been hospitalized in a 2-year period prior to entering the program.

This is a group that is at a particularly high-risk for rehospitalization. This group's hospitalization records were compared to a similar group of individuals with co-occurring disorders who did not participate in FC to test the following hypotheses:

1. Participation in The Friends Connection program is associated with longer community tenure (i.e., number of days in the community without being rehospitalized).
2. Participation in The Friends Connection program is associated with a decreased probability of being rehospitalized over a 3-year period.

Method

The Friends Connection Program

The Friends Connection (FC) program was established in 1989 by the Mental Health Association of Southeastern Pennsylvania to support people with co-occurring serious mental illnesses and substance use disorders. All FC participants also received intensive case management (ICM) services that, in the City of Philadelphia, indicates that they have a history of frequent, long-term hospitalizations. The primary goal of the program is to assist persons in developing skills necessary for living a satisfying and fulfilling life in the community without drugs and alcohol. Each program participant is paired with a peer who is successfully coping with their mental health issues and has abstained from using drugs and alcohol for at least 3 years. They meet approximately once a week for an average of 2 to 5 hours and engage in a variety of community-based activities, including leisure and recreational activities, attend self-help groups, or just spend time talking.

Paid peer staff are encouraged to share their experience and show how they

have addressed the challenges of addiction and mental illness and discuss the coping strategies they have devised to pursue recovery. The FC program also attempts to enhance the social network and social support of the client with new people who do not use drugs or alcohol. This is partly achieved through increased community participation in events that do not involve drugs and encouragement to attend 12-step groups. A small-scale study conducted in the mid-1990s (Klein, Cnaan, & Whitecraft, 1998) found that individuals involved in the program experienced fewer crisis events and hospitalizations and improved social functioning and quality of life. A comprehensive description of the program can be found in Whitecraft et al. (2005). All individuals who received ICM services and had a co-occurring serious mental illness and substance use disorder were eligible to participate in the FC program. ICM staff makes referrals to FC. There are no additional requirements for participation in the FC program. One unique feature of the program is that it meets the person "where they are at" in terms of their recovery and does not require promises to remain abstinent in order to enter the program or remain in the program. FC staff work with individuals who are still using, even though they will not meet with them when they are "high" and under the influence of drugs and alcohol. No formal study of referral patterns has been made, but it appears that case manager familiarity with the program and their positive orientation toward peer support may be the best predictors of referrals.

Data Sources

Administrative data files from the county mental health and the state Medicaid programs were used to document program affiliation and service use. Three datasets were employed in these analyses:

1. The Community Reporting System (CRS) accessed through the Philadelphia Office of Mental Health that contains demographic information, admission, discharge and service records on all clients who obtain publicly financed behavioral health services;
2. The Medical Assistance Eligibility File, used to determine eligibility status and tenure in the Medicaid program (Rothbard et al., 1996, 2003); and
3. The Medicaid claims files, used to track psychiatric inpatient service use.

The Medicaid claims data came from the Pennsylvania Department of Public Welfare's fee for service (FFS) program and from the managed care organization that began providing behavioral health services in Philadelphia to Medicaid clients in February 1997. Data are obtained under a memorandum of agreement that includes strict confidentiality procedures that are tightly adhered to and meets HIPPA regulations. Both the University of Pennsylvania and the City of Philadelphia Institutional Review Boards approved this study.

Participant Selection

Friends Connection Group. Participants were identified using the CRS administrative database. CRS data files document admission to the public mental health system, service type, service program and contacts or visits to specialty mental health services. All persons who had their first contact with the FC program between 1993 and 1998 were identified using a provider number variable, social security number, and/or individualized unique ID allowing for the matching of records within and between the CRS and Medicaid data files. A total of 211 unique people were found to have had a first contact with the program between 1993 and

1998. Medicaid matches were made for 178 people out of the original 211 (84% retention) with the remaining 33 people not eligible for Medical Assistance during the study period. Hospitalization records were obtained for study participants from the Medicaid claims files. The final FC group used in this study consisted of 106 individuals out of the 178 individuals who had been hospitalized at least once in the 2-year period prior to their entering the program. The hospitalized FC group is used in this study because a hospital discharge diagnosis was used to develop our study comparison group, and in particular, to identify the presence of co-occurring substance abuse problems. We have found that substance use diagnoses are more likely to be found in a hospital discharge diagnosis record than in other administrative records that are oftentimes not updated and generally only include diagnostic information regarding the mental illness. A secondary advantage of focusing on the hospitalized sample is that it allows us to examine the effectiveness of Friends Connection for a population that is at a particularly high risk of being rehospitalized. Dates of hospitalizations following the indexed FC admission were examined for a 3-year period after the individual entered the program.

The FC participants were enrolled in the program (length of time between first and last contact) for an average of 2.25 years ($SD = 1.13$) with a range from 1 month to 7 years. Twenty-five participants (23.6%) were in the program less than 1 year, 50 individuals (47.2%) were in the program from 1 to 2 years, 19 people (17.9%) were in the program for 2 to 3 years, and the remaining 12 participants (11.2%) were in the program from 4 to 7 years. The average number of contacts was 80.91 ($SD = 84.71$) over the course of their participation in the program with an average

of 4.81 ($SD = 2.18$) contacts per month of involvement.

Comparison Group. The FC sample consists of those who participated in the program, had received ICM services, had been hospitalized in a previous 2-year period, and have co-occurring serious mental illnesses and substance use disorders. The comparison group consists of the complete *population* of individuals in our comprehensive administrative database who meet the following criteria:

1. No participation in the Friends Connection program during the study period;
2. Received ICM services during Fiscal Year 1996 (from July 1995 to June 1996);
3. Had been hospitalized in a previous 2-year period which was needed to obtain a current diagnosis during the study period; and
4. A discharge diagnosis from the hospitalization that indicated the presence of a co-occurring serious mental illness (i.e., 295.XX and 296.XX) and a substance use disorder.

Medicaid claim files were used to identify 4,227 people who had received ICM services and who did not participate in the Friends Connection program. The first contact the individual had with ICM services during that fiscal year was used as the Index date. One thousand five hundred and ten individuals out of the 4,227 had been hospitalized at least once during a 2-year period prior to the Index date, and 378 of these individuals, our final comparison group population, had received a substance abuse diagnosis in addition to their psychiatric diagnosis. Demographic characteristics for the FC and the comparison groups are presented in Table 1. Based on how the two groups were

TABLE 1—SAMPLE CHARACTERISTICS FOR FRIENDS CONNECTION AND COMPARISON GROUPS

	Friends Connection Hospitalized Sample (N=106)	Comparison Group (N=378)	χ^2 or t-value (p-value)
	N (%) or mean (SD)	N (%) or mean	
Male	69 (65.1%)	248 (65.6%)	$\chi^2 = .010$ ($p=.92$)
Race ¹			$\chi^2 = 2.58$ ($p=.46$)
White	32 (30.1%)	115 (30.4%)	
Black	70 (67.3%)	242 (64.0%)	
Age	36.83±7.7	37.90±9.6	$t = 1.19$ ($p=.23$)
Diagnosis ²			$\chi^2 = 4.13$ ($p=.12$)
Schizophrenia-Spectrum (295.XX)	71 (67.0%)	245 (64.8%)	
Affective Disorder (296.XX)	25 (23.6%)	69 (18.3%)	
Mixed Diagnosis (295.XX and 296.XX)	10 (9.4%)	64 (16.9%)	
Previous 2-Year Total Hospital Days	52.31 (29.9)	47.79 (46.0)	F-value=2.11 ($p=.15$)

¹ Race information missing for 25 individuals.

² The primary diagnosis given for the first hospitalization during the 2-year pre-FC or pre-index date period for the FC and Comparison groups respectively.

identified, we know that persons in both groups received ICM services, had been hospitalized in a previous 2-year period, and had a co-occurring substance use diagnosis. No significant differences were found between the groups on the observed demographic characteristics or number of hospital days in the previous 2-year period.

Results

Rehospitalization Tree

Number and percentage of individuals rehospitalized in each post-index year are presented in Figure 1 based on whether or not they were hospitalized in the previous year. The percent in each cell indicates the percentage of the total group who had that particular rehospitalization pattern during each year time period. For example, 41% of those in the FC group were rehospitalized in the first year after entering the

program, 26% of the total FC sample were rehospitalized at least once in both the first and second years, and 17% were rehospitalized at least once in all 3 years versus 50%, 33%, and 22% respectively in the comparison group.

Community Tenure Survival Analysis

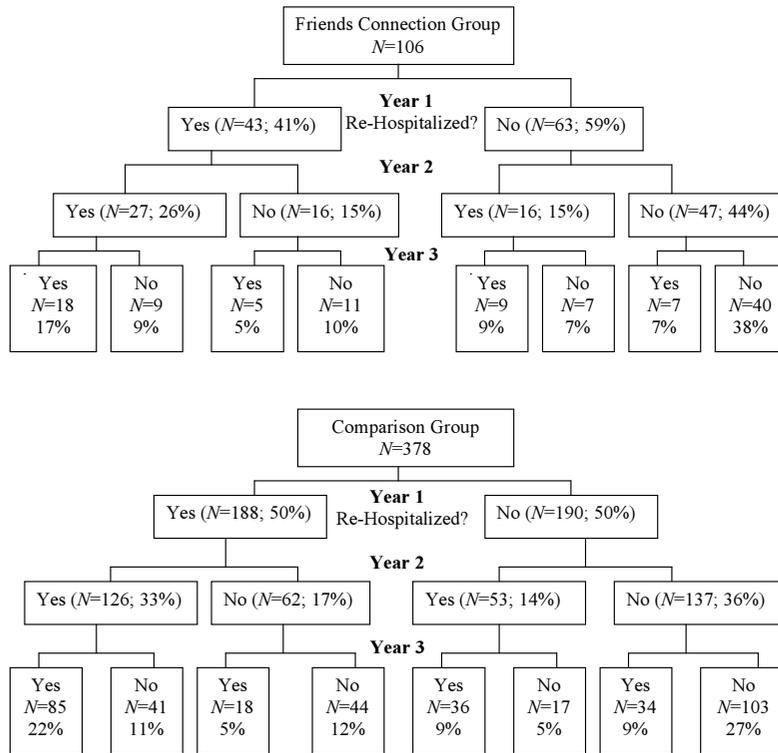
The survival curve examines days to first rehospitalization within the 3-year post-index period (see Figure 2). A significantly different pattern of hospital readmission was found between the FC group and the comparison group. The Wilcoxon statistic and the log-rank statistic indicated that the pattern difference between the two groups was significant at the .05 level (Log-Rank chi-square = 5.780, Wilcoxon chi-square = 7.395, $df = 1$). The slope for those in the FC group declined more gradually (more community days before rehospitalization) than those in the comparison group. These differ-

ences are evident in the data presented in Figure 1. Forty-one percent (43 out of 106) of those in the FC group were rehospitalized in the first year, an additional 25% (16 out of the remaining 63) were rehospitalized in the second year, and 15% (7 out of the remaining 47) were rehospitalized in the third year versus 50%, 28% (53 out of 190), and 25% (34 out of 137), respectively, for the comparison group.

Prevention of Rehospitalization over 3-Year Period

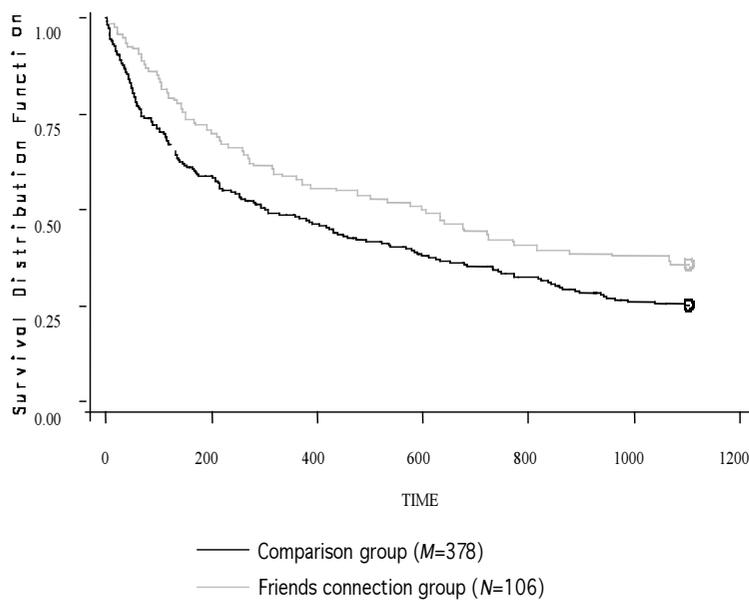
Hypothesis #2 pertains to the percentage of individuals who did not experience any rehospitalizations over the 3-year post period. Forty individuals (37.7%) in the FC group remained in the community throughout the full 3-year period versus 103 (27.3%) of those in the comparison group. A chi-square test indicated that those in the FC group had a significantly greater probability of remaining in the community

FIGURE 1—HOSPITALIZATION TREE BY YEAR AND GROUP ¹



¹ Percent represents percentage of total sample in cell by year.

FIGURE 2—SURVIVAL CURVE TO HOSPITAL READMISSION DURING 3-YEAR POST-PERIOD



after entering the FC program compared to those in the comparison group ($\chi^2 = 4.374, p=.04$).

Discussion

The survival analysis results indicate that the FC group remained in the community significantly longer than those in the comparison group without being rehospitalized. In addition, significantly fewer people in the FC group were rehospitalized over a 3-year period (62%) than the comparison group (73%). This finding extends and provides a potential mechanism for a previous finding that participation in FC was associated with fewer hospital days on average per person over a three-year period (Salzer, Min, Rothbard, & Whitcraft, under review). The results from this study suggest that the reduction in average days per person might be partially explained by some combination of increased time to first rehospitalization for those in FC, which reduces the number of potential hospital days that someone might experience, and a smaller percentage of persons being rehospitalized at all over the three-year period. One next step is to identify potential factors that might explain how FC, and other peer support programs, may support persons in crises and prevent or hold off rehospitalizations, thereby reducing overall hospital days experienced by this group.

This study is the first to provide evidence that peer support programs may have an effect in this regard for individuals with co-occurring disorders. It also has some methodological and design strengths that represent advances in this research area. It uses longitudinal administrative databases that enable us to capture the nearly complete populations of individuals meeting our study criteria (both the FC and comparison groups) and reliably complete Medicaid hospitalization records.

While quasi-experimental designs involving non-randomized groups can never fully discount selection bias as a threat to validity, we can say that these groups were similar on numerous observed demographic characteristics. These strengths offer some heightened confidence that group differences, at least on our observed characteristics, do not confound our results and that the differences in rehospitalization rates may be due to the FC program.

Limitations

Despite the many strengths of this study, it has features that limit, but do not eliminate our confidence in the results. For example, hospitalizations that take place outside of Philadelphia or non-Medicaid-reimbursed hospitalizations are not captured in this study, although we have no reason to suspect that the groups in this study differ in this regard. Furthermore, while those who joined the FC program and those who did not (i.e., the comparison group) were similar in gender, age, race, diagnosis, and previous hospital days, and all persons in the comparison group were eligible for the FC program regardless of their motivation or stage of recovery, the groups may still have differed in some fundamental way. For example, case managers may have selected certain individuals for referral to the program and those individuals who agreed to participate may have been more motivated to make changes in their lives. However, FC does not require motivation to stop using substances as a criterion for participation and, in fact, actively seeks referrals of anyone with a co-occurring disorder regardless of their level of motivation. In fact, it is equally plausible that case managers are more likely to refer persons who are less motivated in their recovery in an effort to obtain additional supports for those who they perceive as most in need and who require more of their assistance and re-

sources. The bottom line is that this non-randomized study cannot definitively account for these unmeasured characteristics that might account for the group differences in hospitalizations that were found.

Implications

The research questions and methods of this study, and findings, add new information to what is known about the potential impact of peer support programs on rehospitalizations among high-risk individuals. A robust set of theories exist for why consumer-delivered peer support programs produce positive outcomes, including social comparison theory, social learning theory, social support theories, experiential knowledge, and the helper-therapy principle (see Salzer & MHASP Best Practices Team, 2002). It is not completely understood why the FC program or other similar programs might specifically reduce hospitalizations, although we proposed that the psychosocial benefits and increased utilization of coping skills might reduce the intensity and frequency of acute episodes that lead to rehospitalizations. While the specific mechanisms of action are currently unknown, and require future study, it is important to point out that the inclusion of consumer-delivered peer support services in a system of care for individuals with co-occurring disorders is consistent with proposed evidence-based practices for individuals with co-occurring disorders (Drake et al., 2001).

More rigorous research designs are needed to address the limitations of this quasi-experimental study, especially studies involving randomized designs. Studies of the Friends Connection program, and other peer support programs, also need to take steps toward identifying the specific program features that produce positive effects. Peer support programs involve a rich blend of potentially powerful fac-

tors that would make them effective, such as a peer-developed program design that may be more sensitive to participant needs and desires, peer modeling, mutual aid, trusting and collaborative relationships, and enhanced skills in the areas specifically targeted by the program. Identifying the critical ingredients of these programs would greatly increase our knowledge about their specific attributes that lead to effectiveness.

These findings, while not definitive, add to the growing, positive findings for peer support programs and lend support to interest in promoting consumer-delivered rehabilitation programs as a strategy for potentially reducing utilization of expensive inpatient services. The results from this study suggest that an investment in intensive, paid peer support programs may offer some financial as well as enhanced quality of life dividends. Consumer-delivered services are also one potential strategy, along with increasing opportunities for inclusion of individuals with personal experiences as part of policy and program development efforts, for achieving the goal of the New Freedom Commission on Mental Health (2003) to create a more consumer and family-oriented system.

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