

Integrated Care, Recovery-Consistent Care Features, and Quality of Life for Patients With Serious Mental Illness

Nicholas W. Bowersox, Ph.D.

Zongshan Lai, M.S.

Amy M. Kilbourne, Ph.D., M.P.H.

Objective: The goal of this study was to evaluate relationships between recovery-supportive and integrated care features with health-related quality of life for veterans with serious mental illness. **Methods:** Data were utilized from several national Veterans Affairs (VA) databases for 2,394 patients with serious mental illness from 107 VA sites. Regressions evaluated relationships between health-related quality of life and care features. **Results:** Higher quality of life in regard to general health was associated with sites that offered peer support ($\beta=1.79$, $p<.01$) and with patients' increased understanding of their treatment ($\beta=.80$, $p<.01$), whereas lower quality of life was associated with sites with colocated general medical and mental health care providers ($\beta=-1.37$, $p<.05$) and family psychoeducation ($\beta=-1.41$, $p<.05$). Care at sites with vocational rehabilitation ($\beta=1.38$, $p<.05$), peer support ($\beta=1.85$, $p<.05$), and colocated providers ($\beta=1.60$, $p<.05$) and patients' increased understanding of care ($\beta=.82$, $p<.01$) were all associated with increased mental health

quality of life, whereas reduced mental health quality of life was associated with care at sites with social skills training ($\beta=-1.48$, $p<.05$) or increased levels of care collaboration between primary care and mental health providers ($\beta=-.27$, $p<.01$). **Conclusions:** Recovery-oriented care might be associated with increased health-related quality of life among patients with serious mental illness. (*Psychiatric Services* 63:1142–1145, 2012; doi: 10.1176/appi.ps.201100505)

Integrated general medical and psychiatric care is important for persons with serious mental illness because they experience increased medical comorbidity and early mortality (1). Therefore, integrated care within mental health programs has been proposed in the effort to reduce health disparities in this group (2–4). At the same time, community reintegration and greater personal independence are increasingly recognized as important goals among patients with serious mental illness. The delivery of recovery-consistent care has been promoted as “the single most important goal for the mental health services system” (5), and there have been strong recommendations to overhaul the health care system to be more responsive to patients' needs (6). Despite the call for such systems redesign, minimal attention has been paid to features of mental health services (4). The purpose of this study was to identify mental health

care features that support integrated care and recovery and determine their association with health-related quality of life for a national sample of veterans with serious mental illness.

Methods

We conducted a cross-sectional study of Veterans Health Administration (VHA) patients with serious mental illness identified from the U.S. Department of Veterans Affairs National Psychosis Registry (NPR) who had at least two treatment contacts in fiscal year (FY) 2007, completed the Survey of Healthcare Experiences of Patients (SHEP) in FY 2007, and were treated at VHA facilities with complete Mental Health Program Survey (MHPS) information. This study was approved by local and national institutional review board committees.

The NPR is an administrative database of patients with diagnoses of schizophrenia, schizoaffective disorder, bipolar disorder, or other psychotic disorder (*ICD-9-CM* codes 295.0–295.4, 295.6–295.9, 296.0–296.1, 296.4–296.8, 297–297.9, and 298–298.9). The NPR contains information related to diagnosis, treatment participation, and functioning. The MHPS (7) assessed organizational factors of the VHA mental health program for treatment. The MHPS is based on established organizational assessments of VHA care (8) and was completed by mental health directors at 107 VHA sites (81% of VHA facilities) in late FY 2006. MHPS data were linked to VHA patient data based

The authors are affiliated with Health Services Research and Development, the Serious Mental Illness Treatment Resource and Evaluation Center, Department of Veterans Affairs, North Campus Research Complex, Building 10, 2800 Plymouth Rd., Ann Arbor, MI 48109 (e-mail:nickbowe@med.umich.edu).

on veterans' most frequently visited facility in FY 2007. The SHEP (9) is an annual survey that collects information on VHA patients' care experiences and functional outcomes. The SHEP was mailed to 107,849 veterans who received VHA outpatient care in FY 2007, of whom 59,378 (55.1%) returned the survey.

Health-related quality of life was assessed with the Veterans RAND 12-Item Health Survey (VR-12) (10). The VR-12 comprises two subscales—the mental component score (MCS), which assesses patient mental health quality of life, and the physical component score (PCS), which assesses patient physical health quality of life. The MCS and PCS (10) have good internal validity and have been used in previous population-based studies of health care quality (11). Scores for the MCS and PCS can range from 0 to 100, with population norms at 50 and higher scores representing greater health functioning.

Several site-level measures were constructed from the MHPS and the SHEP to represent recovery-consistent care features. Dichotomous measures were created to assess the availability of vocational rehabilitation, social skills training, peer support, and family psychoeducation services at each site. Patients' responses to survey questions were used to construct measures reflecting the extent to which they felt involved in the process of making decisions about their care (range 0–5), understood their care (range 0–7), and felt that their care was consistent (range 0–6). For all measures of recovery-supportive care features, higher numbers represent increased care participation.

Site-level measures of integrated care features were created from the MHPS. A measure of colocation of general medical services was created in a manner consistent with previous research (12), whereas additional measures were created to capture medical care collaboration (range 0–15) and timeliness of care feedback (range 0–20) between general medical and psychiatric staff. For measures of integrated care, higher numbers represent increased levels of integration.

Several variables thought to covary with features of care and with

outcome variables were created from NPR data: marital status, age, gender, race, substance use disorder diagnosis, posttraumatic stress disorder diagnosis, Charlson Comorbidity Index medical comorbidity score (13), distance between patient household and care center, and service connection disability status ($\geq 70\%$ disability rating level connected with military service). We also created a measure of the number of patients with serious mental illness per 1,000 patients at each site.

Descriptive analyses were used to describe sample demographic characteristics. Two multivariate regressions investigated relationships between care features and outcomes. Within each regression, patient and institutional variables were treated as covariates, and quasi-likelihood under the independence model criterion was used to evaluate model goodness of fit. To adjust for the clustering effects of patients seen in the same facilities, generalized estimating equations were used for model estimations. SAS version 9.2 statistical software was used for all analyses.

Results

A minority (10%; 11 of 107) of sites had colocated general medical and mental health services, and most sites had recovery-consistent programs (81% [$N=87$] with vocational rehabilitation, 63% [$N=67$] with social skills training, and 65% [$N=69$] with family psychoeducation). Collaboration between general medical care and psychiatric care providers (mean \pm SD = 4.07 ± 2.76) and timeliness of medical feedback from medical to mental health providers (5.84 ± 5.36) varied across sites.

Overall, 2,394 patients met study inclusion criteria. Most were between the ages of 45 and 64 (69%, $N=1,645$), male (90%, $N=2,145$), and Caucasian (85%, $N=2,040$) and had a service-connected disability (57%, $N=1,362$) and lived within 50 miles of their primary treatment center (65%, $N=1,556$). Patients indicated moderate levels of involvement in treatment decisions (2.95 ± 1.50), understanding of treatment (4.54 ± 2.58), and perceived treatment consistency (2.62 ± 1.25). The sample self-rated their quality of

life as low (MCS, 38.60 ± 12.24 ; PCS, 37.10 ± 12.49).

Patients at sites that offered family psychoeducation ($\beta = -1.41$, $p < .05$) or colocated medical and mental health services ($\beta = -1.37$, $p < .05$) had lower PCS scores, and patients reporting greater understanding of treatment ($\beta = .80$, $p < .01$) or receiving care at sites offering peer support ($\beta = 1.79$, $p < .01$) had higher PCS scores (Table 1). Higher MCS scores were associated with care at sites with colocated care ($\beta = 1.60$, $p < .05$), peer support ($\beta = 1.85$, $p < .05$), and vocational rehabilitation ($\beta = 1.38$, $p < .05$), whereas lower MCS scores were reported by patients who received care at sites with social skills training ($\beta = -1.48$, $p < .05$). Increased care collaboration ($\beta = -.27$, $p < .01$) was associated with lower MCS scores, and patients' better understanding of treatment was associated with higher MCS scores ($\beta = .82$, $p < .01$).

Discussion

A majority of sites reported available recovery-based treatments, but most sites indicated limited care integration. Only a small minority reported colocation of general medical and mental health care providers in the same clinic, and scores on provider collaboration and timeliness of information sharing were low. A finding perhaps related to the limited availability of integrated care was that patients indicated only moderate levels of involvement in and understanding of their treatment and moderate levels of perceived continuity of care. Patients indicated general health-related quality-of-life scores below population averages, consistent with previous work concerning patients with serious mental illness (14). This finding may reflect the elevated incidence of chronic general medical and psychiatric concerns in this population.

This is one of the first national surveys of the availability of recovery-consistent care in the VHA or elsewhere. Few previous studies have investigated the effects of variations in care organization on persons with serious mental illness, and none have evaluated the effects of these variations on patients' quality of life in regard to their general health. As

Table 1

Care-related and other variables for 2,394 veterans with serious mental illness and associations with general health- and mental health-related quality of life

Variable	Quality of life ^a			
	Physical component scores ^b		Mental component scores ^c	
	β	SE β	β	SE β
Recovery-supportive care features				
Vocational rehabilitation available at site	.02	.77	1.38	.64*
Social skills training available at site	.45	.59	-1.48	.71*
Peer support available at site	1.79	.57**	1.85	.65*
Family psychoeducation available at site	-1.41	.58*	.14	.57
Patient involvement in care processes	-1.22	1.37	.99	1.27
Patient understanding of treatment decisions	.80	.16**	.82	.14**
Patient perception that care is consistent	-.34	.24	.25	.27
Integrated care features				
Colocation of medical and psychiatric care providers	-1.37	.67*	1.60	.67*
Level of general medical and psychiatric care collaboration	-.07	2.12	-.27	.10**
Timeliness of general medical and psychiatric care feedback	-.04	.06	-.01	.05
Patient and institutional factors				
Serious mental illness density per 1,000 patients seen at site	.65	.50	.29	.60
Marital status	-3.69	.58**	-2.23	.69**
Age	-.11	.03**	.19	.02**
Female	.61	1.25	1.25	1.06
African American	-1.19	.94	1.25	.71
Substance use disorder diagnosis	-.42	.69	-1.41	.64*
Posttraumatic stress disorder diagnosis	-1.31	.78	-6.65	.58**
Service-connected disability status (≥70%)	.58	.58	-.89	.69
Level of general medical comorbidity	-1.71	.57**	-.52	.52
Distance to hospital (≥50 miles)	-2.74	.65**	-.75	.63

^a As measured with the Veterans RAND 12-Item Health Survey

^b Goodness-of-fit index (GFI), measured with the quasi-likelihood independence model criterion. Lower GFIs indicate a better fit to the data. GFI=1,521.63

^c GFI=1,525.01

*p<.05

**p<.01

health care systems continue to implement integrated recovery principles into treatment, such evaluations will be crucial in informing the creation of care environments in which patients with serious mental illness experience holistic, integrated, and self-driven care.

We found that the presence of recovery-supportive care was associated with differences in patients' health-related quality of life. Patients receiving care at sites with peer support programs reported better quality of life in terms of both general

health and mental health, whereas patients from sites with vocational rehabilitation reported better mental health-related quality of life. In addition, the availability of social skills training was associated with lower mental health-related quality of life, and the availability of family psychoeducation was associated with lower general health-related quality of life. It is noteworthy that the treatments linked to increased mental health-related quality of life were those that operate outside of traditional care settings and

focus on skill development (such as obtaining a job). In contrast, interventions associated with decreased general and mental health-related quality of life focus on deficit areas (improving social skills and assisting family members with managing care) within traditional settings by bringing others to assist the patient in addressing these areas.

Patients' increased understanding of care was related to better quality of life. This finding suggests the importance of keeping patients involved in care and the positive effects of such involvement. It is noteworthy that something as abstracted from care as treatment understanding had a greater effect on patient self-rated functioning than some interventions specifically designed to address these areas directly.

Patients from sites with colocated providers reported better quality of life in regard to mental health but not general health. The positive effects of colocation may result from increased ease of access for patients who treat the mental health clinic as their treatment home (15), yet these sites may treat a more medically ill population not fully accounted for in the covariate adjustment. This possibility also may have been reflected in the finding that site-level collaboration was associated with lower quality of life in regard to mental health. Alternatively, the presence of colocated services may reflect organizational responses to the perceived needs of disabled patients rather than care approaches that impair physical functioning.

This study had limitations. Underrepresentation of some groups (women, for example) may restrict generalizability. Biases may have resulted from data collection methods (including self-serving bias by mental health coordinators and response bias by veterans). Veterans were not directly engaged in regard to their care experiences or their perception of the extent to which VHA care conformed to recovery-consistent or integrated care standards. Information related to measures of interaction between patient and provider, patient functioning, and patient perception of treatment came from the same measure (SHEP), potentially contributing to the associations

between these variables. Patients receiving care at a particular site may not have received care that involved the specific integrated care or recovery-supportive care features investigated within this study. Site-level differences in both health-related quality of life and the presence of particular care features may be due to factors (such as sites specializing in working with more disabled patients) not accounted for by the study design. The MHPS was conducted in late 2006, and since then the VHA has implemented more comprehensive recovery-oriented care services. As such, the results of this study may not accurately reflect current VHA practices.

Conclusions

Overall, site-level differences in the level of recovery-supportive and integrated care features were associated with differences in patient-rated quality of life in regard to general health. Recovery-supportive features that encourage skill development over deficit remediation or that increase patients' understanding of the care process may support increased perceived mental and physical functioning among patients. The presence of integrated care features may represent an organizational response to a more physically disabled patient population but appears to support better patient self-rated mental functioning.

Acknowledgments and disclosures

This report is based in part on research resulting from U.S. Department of Veterans Affairs funding (Health Services Research and Development grant IIR 07-115).

The authors report no competing interests.

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