Health-Related Quality of Life and Functioning of Middle-Aged and Elderly Adults With Bipolar Disorder

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Objective: Data characterizing bipolar disorder in older people are scarce, particularly on functional status. We evaluated health-related quality of life and functioning (HRQoLF) among older outpatients with bipolar disorder as well as the relationship of HRQoLF to bipolar illness characteristics.

Method: We compared community-dwelling middle-aged and older adults (age range, 45 to 85 years) with bipolar disorder (N = 54; mean age = 57.6 years), schizophrenia (N = 55; mean age = 58.5 years), or no psychiatric illnesses (N = 38; mean age = 64.7 years) on indicators of objective functioning (e.g., education, occupational attainment, medical comorbidity) and health status (e.g., Quality of Well-Being scale [QWB] and the Medical Outcomes Study-Short Form Health Survey [SF-36]). Within the group with bipolar disorder, we examined the relationship between HRQoLF and clinical variables (e.g., phase and duration of illness, psychotic symptoms, cognitive functioning).

Results: Patients with bipolar disorder were similar in educational and occupational attainment to the normal comparison group, but they obtained lower scores on the QWB and SF-36 (with large effect sizes). Compared with schizophrenia, bipolar disorder was associated with better educational and work histories but similar QWB and SF-36 scores and more medical comorbidity. Patients in remission from bipolar disorder had QWB scores that were worse than those of normal comparison subjects. Greater severity of psychotic and depressive symptoms and cognitive impairment were associated with lower HRQoLF.

Conclusions: Bipolar disorder was associated with substantial disability in this sample of older adults, similar in severity to schizophrenia. Remission of bipolar disorder was associated with significant but incomplete improvement in functioning, whereas psychotic and depressive symptoms and cognitive impairment seemed to contribute to lower HRQoLF.

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A number of studies have shown substantial functional impairment among younger adults with bipolar disorder, even among patients whose symptoms have remitted.[1–4] By the year 2020, bipolar disorder is estimated to become the sixth leading cause worldwide of time lost due to disability or death among those aged 15 to 55 years.[5] The proportion of patients with bipolar disorder who are middle-aged and elderly will increase dramatically over the next several decades,[6] and this older group may be at greater risk for disability. However, the impact of bipolar disorder on older adults, and the correlates of health-related quality of life and functioning (HRQoLF) in this group, has received little study.

Among younger adults with bipolar disorder, studies that have examined HRQoLF vary widely in the measures used (e.g., Medical Outcomes Study-Short Form Health Survey [SF-36][7]) and which phase of the illness the participants were in at the time of assessment. Despite this variability, several reviews of these studies have concluded that objective indicators of functioning (e.g., work productivity, medical comorbidity, institutionalization) and generic measures of health status indicate substantial disability compared with normal comparison subjects.[2–4] In a recent review, relatively better HRQoLF was found in 8 of 9 studies directly comparing bipolar disorder to schizophrenia on a number of indicators,[2] although lost work productivity was similar be-

tween groups. Thus, among younger adults, the severity of impairment in HRQoLF associated with bipolar disorder appears to lie on a continuum between that of patients with schizophrenia and normal comparison subjects.

Some studies have shown clinical improvement with age in bipolar disorder, including lower symptom severity[8,9] and less frequent substance abuse,[10] which may relate to improvements in HRQoLF over the life span. However, the cumulative effect of multiple episodes,[11] slower recovery from episodes,[12] age-related cognitive impairment,[13] and medical comorbidity[14] may reduce HRQoLF among older adults with bipolar disorder, closer to the level of impairment found among patients with schizophrenia. Only one study, to our knowledge, directly compared measures of HRQoLF among older patients with bipolar disorder and schizophrenia.[15] In that study, older outpatients and nursing home residents with bipolar disorder had better functioning in some areas (e.g., community living skills, social relationships, and Global Assessment of Functioning [GAF][16] scores), but not in others (e.g., ability to perform basic activities of daily living, physical disability). However, no single study has directly compared measures of HRQoLF among older patients with bipolar disorder, schizophrenia, and normal comparison subjects.

Also unclear is whether remission of symptoms accompanies improvement in HRQoLF among older patients with bipolar disorder[17] and whether psychosis and longer duration of illness remain significant correlates of HRQoLF in older age.[2] The aim of our study was to evaluate the HRQoLF of older outpatients with bipolar disorder using both objective indicators (i.e., marital status, educational and occupational attainment, medical comorbidity) and generic health status measures (i.e., Quality of Well-Being scale [QWB][18] and SF-36[7]), in comparison with older patients with schizophrenia and normal comparison subjects.

On the basis of published reports of HRQoLF among younger patients with bipolar disorder,[1–4] we hypothesized that older adults with bipolar disorder would have lower HRQoLF on objective indicators and health status measures than normal comparison subjects but better outcomes than patients with schizophrenia. Within the group with bipolar disorder, we hypothesized that patients who were judged to be in remission would have higher scores on health status measures than patients experiencing an episode (i.e., manic, mixed, or depressive). Finally, we predicted that more severe psychotic and depressive symptoms, cognitive impairment, and longer duration of illness would be associated with lower scores on health status measures and that these clinical variables would differentiate individuals with bipolar disorder with relatively unimpaired functioning versus those who reported poor functioning.

METHOD

Participants

The participants were persons aged 45 years and older studied at the National Institute of Mental Health–supported Advanced Center on Intervention and Services Research at the University of California, San Diego (UCSD). The study was approved by the UCSD Institutional Review Board, and after complete description of the study to the subjects, written informed consent was obtained. Subjects were community dwelling and were diagnosed with bipolar disorder or schizophrenia or were normal comparison subjects. Patients were evaluated in an outpatient clinic. They either resided alone, with family, or at board and care facilities. Board and care facilities in San Diego are privately run community-based group residences that provide an intermediate level of oversight (i.e., meals, lodging, and medication management) between independent living and institutionalization. Diagnoses were made with the Structured Clinical Interview for the DSM-IV[19] and confirmed in consensus meetings involving 2 board-certified or board-eligible psychiatrists and geriatric psychiatry and psychology fellows. Relevant data obtained from each subject were corroborated, whenever feasible, by information from medical records and/or family members. We excluded patients with DSM-IV diagnoses of dementia.

Fifty-four subjects with bipolar disorder had complete data on the QWB and 30 had data on the SF-36 as well. Missing data on the SF-36 occurred because that measure was introduced into study protocols later than the QWB. In order to obtain age-comparable samples, we excluded patients with schizophrenia and normal comparison subjects older than the oldest person in the bipolar disorder group (85 years). Complete data (on QWB and SF-36 scales) were available for 169 schizophrenia subjects and 38 normal comparison subjects. We randomly selected 55 patients from the larger schizophrenia sample to produce roughly equivalent group sizes. The final sample sizes were: bipolar disorder: N = 54; normal comparison subjects: N = 38; schizophrenia: N = 55.

All subjects with bipolar disorder were diagnosed with DSM-IV bipolar I disorder. At the time of the evaluation, 14 were in a depressive episode, 11 were in a hypomanic or manic episode, 13 were in a mixed episode, and 12 were in full (no symptoms for 2 months) or partial (some symptoms present but insufficient to meet full criteria, or no symptoms for less than 2 months) remission. Four had a diagnosis of bipolar I disorder, episode unspecified. Twenty-four experiencing a manic, mixed, or depressive episode had psychotic features. The normal comparison subjects were volunteers recruited from the community. Some data from the schizophrenia and normal comparison samples have been used in previous reports.[20,21]

Measures

All measures, including the QWB and SF-36, were administered in an interview by trained raters. Demographic information included age, education, gender, ethnicity, marital status, living situation, occupational attainment (Hollingshead Highest Occupation Scale[22]), presence of alcohol dependence, and number of medical diagnoses (ICD-9).[23] For the bipolar disorder and schizophrenia samples, we also obtained age at onset of illness.

Health status measures. The QWB[18] is a 27-item clinician-administered scale that combines 4 weighted subscales (symptom or problem complex, mobility, physical activity, and social activity) into a single summary scale ranging from 0 (death) to 1 (optimal functioning). The QWB has been used extensively in cost-utility analysis of the overall health status associated with various medical and psychiatric illnesses.[24]

The SF-36[7] consists of 36 items and 8 subscales (ranging from 0–100) measuring the following domains: physical functioning, role limitations due to physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional health, and emotional well-being. Summary scales include a physical composite and mental composite that are expressed as t scores (mean = 50, SD = 10). The SF-36 has shown good reliability in previous studies of bipolar disorder.[4,17]

Clinical measures. General psychiatric symptom severity was assessed with the Brief Psychiatric Rating Scale (BPRS).[25] Depression was measured with the Hamilton Rating Scale for Depression (HAM-D),[26] and positive and negative symptoms of schizophrenia were evaluated with the Positive and Negative Syndrome Scale (PANSS).[27] We also used a 4-item mania-like subscale of PANSS items (uncooperativeness, poor impulse control, excitement, and hostility) derived from a previously reported factor analysis of the PANSS in a sample of patients with bipolar disorder.[28] This subscale showed high correlations with a standardized measure of mania.[28] Cognitive functioning was assessed with Mattis' Dementia Rating Scale (DRS).[29]

Statistical Analyses

The normal comparison, bipolar disorder, and schizophrenia groups were compared using 1-way analysis of variance (ANOVA) and χ^2 tests. All tests of significance were 2-tailed, and Tukey correction was used to reduce the risk of type I errors in pairwise post hoc tests. The HRQoLF variables within the groups were log transformed whenever large values of skewness or kurtosis (values exceeding ± 3) were present. We repeated ANOVAs with age and continuous objective indicators of HRQoLF (education, number of medical conditions, and highest occupation attained) entered as covariates.

Effect sizes (Cohen d[30]) were calculated for differences between the bipolar disorder and the normal comparison and schizophrenia groups. Within the bipolar disorder group, we correlated HRQoLF summary score variables (QWB total score, SF-36 mental composite, and SF-36 physical composite) with continuous demographic and clinical variables. We also compared QWB total scores within subgroups of participants in different phases of bipolar disorder (i.e., remission, mania, mixed, depressed). Due to small sample sizes ($N < 5$) in several of the subgroups, we did not compare them on the SF-36 subscales.

Finally, we examined whether those in the bipolar disorder group who had QWB scores that were similar to those of the normal comparison subjects (not less than 1 standard deviation below the mean of the normal comparison subjects or "high functioning") differed on demographic and clinical characteristics from those whose QWB scores were well below those of the normal comparison subjects (lower than 2 standard deviations below the mean of the normal comparison subjects or "low functioning"). This procedure yielded 16 high-functioning (QWB score > 0.59) and 17 low-functioning (QWB score < 0.48) bipolar disorder patients. We compared these groups on demographic and clinical variables via t tests.

Patients in the bipolar disorder group with SF-36 data ($N = 30$) were compared with those without SF-36 data ($N = 24$) on all available demographic and clinical variables. Scores on the QWB did not differ between bipolar disorder patients with versus without SF-36 data, nor were there differences on measures of psychopathology. There were also no differences in the proportion of patients in remission between bipolar disorder subgroups with versus without SF-36 data ($\chi^2 = 2.4$, $df = 1$, $p = .183$). There was a higher number of medical conditions among patients without SF-36 than in those with SF-36 data ($F = 16.5$, $df = 1,60$; $p < .001$).

RESULTS

Objective Indicators of HRQoLF in the 3 Comparison Groups

Patients with bipolar disorder had the highest overall educational attainment of the 3 groups, did not differ from normal comparison subjects in occupational attainment, and were intermediate between schizophrenia and normal comparison subjects in the proportion of participants maintaining independent residence (Table 1). However, the bipolar disorder group had more medical conditions than the schizophrenia group and was similar to the schizophrenia group in the proportion currently married, GAF scores, presence of alcohol dependence, and duration of illness.

Health Status Measures in the 3 Comparison Groups

Patients with bipolar disorder or schizophrenia had worse scores on the QWB and almost all of the SF-36

Table 1. Sample Characteristics of Normal Comparison (NC), Bipolar Disorder (BD), and Schizophrenia (SCH) Groups

Characteristic	Normal Comparison (N = 38)	Bipolar Disorder (N = 54)	Schizophrenia (N = 55)	Statistic	p Value	Post Hoc Differences
Age, mean (SD), y	64.7 (12.7)	57.6 (9.2)	58.5 (8.8)	F = 5.7 (df = 2,145)	.004	BD = SCH < NC
Education, mean (SD), y	13.6 (2.0)	13.9 (2.7)	12.6 (2.3)	F = 5.2 (df = 2,145)	.007	SCH < BD
Female, % (N)	76.3 (29)	37.0 (20)	50.9 (28)	χ^2 = 12.7 (df = 2)	.002	BD = SCH < NC
Ethnicity, % (N)				χ^2 = 5.7 (df = 2) (white)	.056	N/A
White	76.3 (29)	90.7 (49)	74.5 (41)			
Latino	15.8 (6)	0 (0)	3.6 (2)			
African American	2.6 (1)	7.4 (4)	18.2 (10)			
Other	5.3 (2)	1.9 (1)	3.6 (2)			
Marital status, % (N)				χ^2 = 18.7 (df = 2) (ever married)	< .001	SCH < NC
Married/cohabitating	47.4 (18)	22.2 (12)	10.9 (6)			
Divorced/separated	26.3 (10)	50.0 (27)	34.5 (19)			
Widowed	23.7 (9)	9.3 (5)	16.4 (9)			
Single	2.6 (1)	18.5 (10)	38.2 (21)			
Living situation, % (N)				χ^2 = 26.0 (df = 2)	< .001	SCH < BD < NC
Independent	100 (38)	64.8 (35)	49.1 (27)			
Hollingshead highest occupation, mean (SD) score	2.2 (3.4)	3.1 (1.0)	3.8 (0.9)	F = 8.5 (df = 2,146)	.001	SCH < NC = BD
No. of medical conditions, mean (SD)	1.4 (1.5)	2.1 (1.7)	1.2 (1.4)	F = 4.6 (df = 2,146)	.012	SCH < BD
Age at onset of illness, mean (SD), y	N/A	28.5 (10.8)	30.6 (13.9)	F = 0.4 (df = 1,83)	.697	N/A
Alcohol abuse/dependence, % (N)	2.6 (1)	22.2 (12)	10.9 (6)	χ^2 = 8.1 (df = 2)	.017	NC < BD
Rating scale score, mean (SD)						
BPRS	21.9 (3.2)	30.8 (7.0)	33.8 (8.0)	F = 25.5 (df = 2,126)	< .001	NC < BD = SCH
HAM-D	3.4 (3.2)	10.1 (6.2)	9.0 (5.5)	F = 18.5 (df = 2,136)	< .001	NC < BD = SCH
PANSS positive symptoms	8.0 (1.8)	13.6 (5.5)	15.5 (5.9)	F = 25.5 (df = 2,137)	< .001	NC < BD = SCH
PANSS negative symptoms	7.8 (1.8)	11.8 (4.2)	14.9 (6.0)	F = 26.4 (df = 2,136)	< .001	NC < BD < SCH
PANSS mania scale	4.5 (1.1)	6.9 (2.6)	5.7 (2.1)	F = 15.0 (df = 2,144)	< .001	NC < SCH < BD
DRS	138.7 (4.2)	135.9 (8.1)	129.5 (8.96)	F = 13.1 (df = 2,110)	< .001	SCH < BD = NC
GAF	83.7 (5.3)	59.2 (12.0)	52.9 (11.7)	F = 97.0 (df = 2,141)	< .001	SCH = BD < NC

Abbreviations: BPRS = Brief Psychiatric Rating Scale, DRS = Mattis' Dementia Rating Scale, GAF = Global Assessment of Functioning, HAM-D = Hamilton Rating Scale for Depression, N/A = not applicable, PANSS = Positive and Negative Syndrome Scale.

subscales (except for physical functioning and pain) compared with normal comparison subjects (Table 2). The effect size for the comparison between bipolar disorder and normal comparison subjects on the QWB was large (Cohen d = 1.59). The mean effect size of the 8 subscales of the SF-36 was large (mean Cohen d = 0.77, SD = 0.15). However, on the QWB and SF-36 subscale scores, no differences between bipolar disorder and schizophrenia groups reached statistical significance.

The bipolar disorder group, but not the schizophrenia group, was lower than the normal comparison group on role limitations due to emotional health, vitality, general health, and social functioning subscales of the SF-36. Finally, when age and objective measures related to functional status (i.e., education, highest occupation, and number of medical conditions) were inserted as covariates, all F values for the HRQoLF score comparisons remained significant, except for the general health subscale score (F = 2.7, df = 2,117; p = .068). No significant interaction effects were observed with the diagnostic grouping factor (normal comparison, bipolar disorder, and schizophrenia) and the categorical objective functioning measures (i.e., independent living, current marital status, or presence of alcohol dependence).

Differences in QWB Scores Between Bipolar Disorder Diagnostic Subgroups

No differences on QWB scores were observed comparing manic (N = 11; mean = 0.53, SD = 0.11), mixed (N = 13; mean = 0.52, SD = 0.08), or depressed (N = 14; mean = 0.52, SD = 0.08) subgroups (F = 0.2, df = 2,36; p = .857). QWB scores were higher among bipolar disorder patients who were in remission from an episode (N = 12; mean = 0.59, SD = 0.10) than those experiencing current manic, mixed, or depressive episodes (N = 38; mean = 0.52, SD = 0.09) (F = 5.5, df = 1,48; p = .023). However, patients remitted from bipolar disorder had worse QWB scores than normal comparison subjects (F = 9.1, df = 1,48; p = .004). Among bipolar disorder patients in an episode, those with psychotic features (N = 24; mean = 0.49, SD = 0.07) had lower QWB scores than did the nonpsychotic patients (N = 14; mean = 0.57, SD = 0.09; F = 14.9, df = 1,36; p = .003).

Relationship of Other Variables to Health Status Measures Within the Bipolar Disorder Group

In the bipolar disorder group, QWB scores correlated with the SF-36 physical composite (r = 0.64, p < .001) but not with the SF-36 mental composite (r = 0.10, p = .594)

Table 2. Comparison of Health Status Measures Between Normal Comparison (NC), Bipolar Disorder (BD), and Schizophrenia (SCH) Groups

Measure	Normal Comparison	Bipolar Disorder	Schizophrenia	F Value[a]	p Value	Post Hoc Differences	Effect Size[b] NC-BD	Effect Size[b] SCH-BD
QWB	N = 38	N = 54	N = 55					
Score, mean (SD)	0.70 (0.11)	0.54 (0.09)	0.53 (0.11)	39.3	< .001	BD = SCH < NC	1.59	0.10 (SCH < BD)
SF-36	N = 38	N = 30	N = 55					
Score, mean (SD)								
Physical composite scale	48.9 (10.4)	43.8 (9.8)	45.8 (10.5)	2.2	.115	N/A	0.50	0.20 (BD < SCH)
Mental composite scale[c]	54.1 (10.6)	42.9 (13.7)	46.4 (12.4)	7.9	.001	BD < NC	0.91	0.27 (BD < SCH)
Physical functioning	79.7 (23.0)	66.7 (24.1)	64.5 (25.7)	4.7	.011	SCH < NC	0.55	0.09 (SCH < BD)
Role limitations due to physical health	81.6 (33.2)	53.3 (37.8)	57.4 (37.4)	6.8	.001	BD = SCH < NC	0.80	0.11 (BD < SCH)
Role limitations due to emotional health	85.1 (34.4)	54.4 (43.3)	66.1 (38.2)	5.9	.003	BD < NC	0.79	0.28 (BD < SCH)
Vitality	64.8 (20.6)	48.8 (23.8)	56.0 (24.1)	4.4	.014	BD < NC	0.72	0.30 (BD < SCH)
Emotional well-being[c]	83.4 (14.7)	62.5 (26.3)	66.8 (21.1)	9.6	< .001	BD = SCH < NC	0.98	0.04 (BD < SCH)
Social functioning[c]	89.1 (19.1)	64.6 (30.5)	75.9 (24.7)	8.3	< .001	BD < NC	0.96	0.40 (BD < SCH)
Pain	79.5 (22.2)	62.9 (28.8)	68.7 (30.0)	2.7	.074	N/A	0.64	0.20 (BD < SCH)
General health	76.5 (15.6)	62.3 (24.4)	67.1 (22.8)	4.1	.020	BD < NC	0.69	0.20 (BD < SCH)

[a]QWB score: df = 2,146; SF-36 scores: df = 2,122.
[b]Effect sizes are Cohen d (small = 0.20; medium = 0.40; large = 0.80).
[c]Variable was log transformed due to skewness in the normal comparison group.
Abbreviations: N/A = not applicable, QWB = Quality of Well-Being scale, SF-36 = Medical Outcomes Study-Short Form Health Survey.

Table 3. Pearson Correlations With Health Status Summary Scales and Demographic and Clinical Measures in Bipolar Disorder

Quality of Life Scale	Age	Duration of Illness	No. of Medical Problems	PANSS Positive	PANSS Negative	PANSS Mania	BPRS	HAM-D	GAF	DRS
QWB score (N = 54)	–.022	–.175	–.148	–.219	–.192	–.237	–.369*	–.294*	0.455**	.261
SF-36 mental composite score (N = 30)	.186	.104	.042	–.596*	–.327	–.448*	–.572**	–.562**	0.253	–.008
SF-36 physical composite score (N = 30)	–.038	–.159	–.126	.106	.000	–.187	–.290	–.504**	0.390*	.242

*p < .05.
**p < .01.
Abbreviations: BPRS = Brief Psychiatric Rating Scale, DRS = Mattis' Dementia Rating Scale, GAF = Global Assessment of Functioning, HAM-D = Hamilton Rating Scale for Depression, PANSS = Positive and Negative Syndrome Scale, QWB = Quality of Well-Being scale, SF-36 = Medical Outcomes Study-Short Form Health Survey.

scores. SF-36 physical and mental composite scale scores were not significantly correlated (r = 0.21, p = .274). Severity of depressive symptoms on the HAM-D correlated strongly with both QWB and SF-36 composite scores. The SF-36 mental composite score showed the strongest relationship with measures of psychopathology (PANSS positive; PANSS mania; BPRS; HAM-D) (Table 3).

Comparison of High- and Low-Functioning Bipolar Disorder Subgroups

The bipolar disorder group was divided into high- (N = 16; QWB > 0.59) and low-functioning (N = 17; QWB < 0.48) groups based on scores on the QWB in the normal comparison group. High-functioning patients were more likely to be residing independently (high: 88% vs. low: 29%; $\chi^2 = 11.3$, df = 1, p = .001) and in remission (high: 50% vs. low: 13%; $\chi^2 = 4.5$, df = 1, p = .050) and less likely to have psychotic features (high: 13% vs. low: 71%; $\chi^2 = 11.4$, df = 1, p = .001). On clinical measures, the high functioning group had lower scores on the BPRS (t = 7.9, df = 28, p = .004), PANSS positive symptom scale (t = 4.3, df = 29, p = .004), and the DRS (t = 4.3, df = 23, p = .049). No significant differences in gender (high: 31% vs. low: 29%), white ethnicity (high: 81% vs. low: 94%), current marital status (high: 31% vs. low: 6%), or alcohol dependence (high: 13% vs. low: 12%) were identified. High- and low-functioning groups did not differ in age, number of medical conditions, duration of illness, PANSS mania or negative symptom subscale scores, or HAM-D scores.

DISCUSSION

Community-dwelling older adults with bipolar disorder had markedly lower HRQoLF than normal comparison subjects, as indicated by worse scores on measures of health status and greater medical and alcohol use disorder comorbidity, despite having similar educational and occupational attainments. In contrast to our hypotheses that the HRQoLF of bipolar disorder patients would be intermediate between normal comparison and schizophrenia subjects, the HRQoLF on most indicators was similar to,

or worse than patients with schizophrenia. Bipolar disorder patients in remission were intermediate between symptomatic patients (manic, mixed, or depressed) and normal comparison subjects on QWB scores. Within the bipolar disorder group, HRQoLF was lower among patients with psychotic features, greater severity of depressive symptoms, and worse cognitive functioning.

The 2 measures of health status used in this study, QWB and SF-36, demonstrated similarly lower functioning among bipolar disorder patients compared with normal comparison subjects. On the QWB score, we found a 0.16 difference between normal comparison (0.70) and bipolar disorder (0.54) subjects, which can be interpreted as suggesting that for every 100 years of life, 16 "well-years" would be lost as a result of having bipolar disorder. Compared with the mean QWB score of other populations assessed with this instrument, that of bipolar disorder patients was lower than among adults with major depression (0.64; mean age = 48 years[31]) and between scores of ambulatory acquired immunodeficiency syndrome patients (0.63) and medically hospitalized patients (0.50).[32] On the SF-36, scores on 6 of 8 subscales were significantly lower than those of normal comparison subjects, with the largest effects observed on subscales measuring social and emotional functioning and limitations due to emotional and physical health. In comparison to SF-36 data from younger outpatients with bipolar disorder,[17,33] our sample had higher scores on mental/emotional subscales (e.g., emotional well-being, role limitations due to emotional health) and lower scores on physical functioning subscales (e.g., physical functioning, role limitations due to physical functioning). Disability due to emotional status may be less severe among older compared with younger adults with bipolar disorder,[8,9,34] but impairment in physical functioning may be greater.

Of note, the lack of significant differences on measures of health status between bipolar disorder and schizophrenia persisted, even when statistically controlling for education, medical morbidity, and occupational attainment. Our results are in contrast to previously reviewed studies that indicated better HRQoLF among younger patients with bipolar disorder compared with schizophrenia.[2] The failure to find differences between bipolar disorder and schizophrenia patients did not appear to be due to a preponderance of depressive symptoms in the bipolar disorder group, as the mean HAM-D scores in either group indicated only mild depression. Although speculative, it is conceivable that clinical improvements with age among relatively stable outpatients with bipolar disorder are less than those observed among similar patients with schizophrenia.[35]

On objective measures of functioning, older patients with bipolar disorder had histories of higher attainment in school and work than those with schizophrenia, although previous studies had not found differences in work productivity between these groups.[2] However, the bipolar disorder sample had the highest number of medical conditions of the 3 groups, paralleling the high rate of chronic medical illness reported among older adults with depression.[3] A total of 22% of older adults with bipolar disorder had current diagnoses of alcohol abuse or dependence, which may become an increasingly important contributor to disability as younger adults with bipolar disorder enter older age.[10]

Relative to remitted patients with bipolar disorder, those experiencing an episode, and particularly those with psychotic features, reported worse HRQoLF. However, the QWB scores among remitted patients were substantially lower than normal comparison subjects, suggesting that functional impairment is not restricted to acute episodes, and symptom resolution alone may not be an adequate measure of treatment outcome. Bipolar disorder in older adults may be seen as a chronically disabling condition, with minimal improvement in functioning between episodes.[1,3] Supplemental interventions targeting rehabilitation/functional enhancement may be helpful to enhance recovery of function among older patients with bipolar disorder.[9]

The correlates of HRQoLF and characteristics of lower functioning patients with bipolar disorder were somewhat different from those reported among younger patients.[2,4] As hypothesized, severity of depression appeared to be among the most potent predictors of low HRQoLF, showing strong negative relationships with the QWB and SF-36 mental and physical composite scores. Manic symptoms correlated only with the mental composite of the SF-36. Also as expected, the presence and severity of psychosis and lower cognitive functioning differentiated between bipolar disorder patients with low and high scores on the QWB. However, cognitive functioning did not significantly correlate with the QWB and SF-36 in the overall bipolar group. This discrepancy may be due to ceiling effects on the DRS, as only 5% of the bipolar disorder group had scores indicative of cognitive impairment (DRS score ≤ 129). Interestingly, longer duration of illness did not relate to HRQoLF, although we previously found little effect of age at onset of bipolar disorder on measures of psychopathology.[36]

Several limitations of this study deserve mention. Although the bipolar disorder and schizophrenia groups were fairly similar along some demographic characteristics, the normal comparison group was older. The older mean age of the normal comparison group may attenuate group differences in HRQoLF, as scores on health status measures tend to decline with age.[36] We attempted to mitigate the effect of these differences by repeating the ANOVAs while controlling for age, education, and occupational attainment, and observed that the results did not change. Patients in this study were relatively stable and community dwelling, and these results may not apply to

those who are acutely psychiatrically ill, chronically institutionalized, and/or unable to complete evaluations. We did not have data available on health care service use or costs,[2,3] and we lacked information on illness history, such as the number of previous manic or depressive episodes, which may better predict functioning than current symptoms.[2,4] The SF-36 was clinician administered, although national norms for the SF-36 are based on self-administered data. Our use of a trained rater to administer the SF-36 was to minimize missing data due to cognitive impairment.[20] However, the generalizability to findings from self-reported administrations of this instrument may be reduced. Finally, data from this study are cross-sectional, and future longitudinal research needs to be conducted to better estimate the effect of symptoms of bipolar disorder on functioning.

In conclusion, our findings indicated a substantial negative impact of bipolar disorder on the HRQoLF of older patients, similar to that of older patients with schizophrenia, and substantially lower than that of normal comparison subjects. We observed greater morbidity among bipolar disorder patients than normal comparison subjects on nearly all domains of functioning measured, including self-rated physical and emotional health status, medical comorbidity, and alcohol use disorders. Psychosis may particularly relate to lower HRQoLF among this group. However, even among older adults in remission from bipolar disorder, disability appears to remain, suggesting a need for a more comprehensive approach to treatment and rehabilitation.

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