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Suicidal ideation and depressive symptoms among bipolar patients as predictors of the health and well-being of caregivers

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Abstract

Objectives—Few studies have addressed the physical and mental health effects of caring for a family member with bipolar disorder. This study examined whether caregivers' health is associated with changes in suicidal ideation and depressive symptoms among bipolar patients observed over one year.

Methods—Patients (N = 500) participating in the Systematic Treatment Enhancement Program for Bipolar Disorder and their primary caregivers (N = 500, including 188 parental and 182 spousal caregivers) were evaluated for up to one year as part of a naturalistic observational study.

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Caregivers' perceptions of their own physical health were evaluated using the general health scale from the Medical Outcomes Study 36-item Short-Form Health Survey. Caregivers' depression was evaluated using the Center for Epidemiological Studies of Depression Scale.

Results—Caregivers of patients who had increasing suicidal ideation over time reported worsening health over time compared to caregivers of patients whose suicidal ideation decreased or stayed the same. Caregivers of patients who had more suicidal ideation and depressive symptoms reported more depressed mood over a one-year reporting period than caregivers of patients with less suicidal ideation or depression. The pattern of findings was consistent across parent caregivers and spousal caregivers.

Conclusions—Caregivers, rightly concerned about patients becoming suicidal or depressed, may try to care for the patient at the expense of their own health and well-being. Treatments that focus on the health of caregivers must be developed and tested.

Keywords

bipolar disorders; caregivers; mental disorders; mood disorders; suicide

The longitudinal course of bipolar disorder is characterized by a high risk for attempted or completed suicides (1–3). On average, 30% to 40% of patients with bipolar disorder experience suicidal ideation (SI) and/or attempt suicide at some point in their lives (1–12). Suicidal thoughts and behaviors are closely linked with episodes of bipolar depression (5,13). Patients may suffer for extended periods from episodes of depression; Judd et al. (13) found in a 12.8-year follow-up study that bipolar patients spent 32% of their time in states of depression, in contrast to 9% in mania. By extension, suicidal risk can be chronic and persistent (14). Suicidal thoughts and behaviors, therefore, are a significant health problem within the bipolar population (15).

Caregivers of patients with bipolar disorder, similar to caregivers of patients with other major affective or chronic psychiatric disorders, report high levels of stress and poorer general health, increased visits to their primary care physicians, and higher numbers of symptoms of physiological and psychological conditions, including depressed mood, when compared to caregivers who report less stress (16–20). Cross-sectional studies report that caregivers feel especially distressed by patients' depression and/or suicidal thoughts or behaviors (18,21–24). A prospective study found that caregivers feel more strain secondary to patients' depressive symptoms than to patients' manic symptoms (24). Our own cross-sectional data indicated that caregivers of patients with current SI or a history of suicide attempts reported lower general health scores and higher levels of depressed mood than caregivers of patients without SI or an attempt history (25). However, these cross-sectional associations do not allow us to make inferences about directions of effects.

The present study aimed to evaluate whether caregivers' health and depression varied over time in relation to changes in patients' SI and depressive symptoms. We hypothesized that caregivers associated with patients who endorsed more SI and depression at baseline and over one year would have a worse course of self-reported general health and more depressed mood compared to caregivers of patients with less SI and depression. We also hypothesized that caregivers of patients whose SI and depression increased over one year would report worse health and more depressed mood than caregivers of patients whose SI and depression stayed the same or decreased.

A secondary objective of this study was to evaluate the unique contribution of SI to caregivers' health and mood variables, above and beyond the effect of patients' depressive

symptoms. We hypothesized that SI would have a contribution to caregiver health independent of the effects of patients' depression.

Patients and methods

Overview of study design

Patients' and caregivers' data were drawn from the Family Experience Study (FES) (17). FES investigated caregivers' strain associated with caring for a relative with bipolar illness over a broader range of outcomes than previous studies. Outcomes in the FES included caregivers' physical and mental health, health behavior, health service use, and the value of caregivers' contributions to the patient in time and money. FES was an ancillary study to Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD), a multicenter study to evaluate the course and outcome of patients with bipolar disorder (26).

Participants

Patients were 15 years of age and older who met DSM-IV criteria for bipolar I disorder, bipolar II disorder, cyclothymia, bipolar disorder not otherwise specified, or schizoaffective disorder—manic or bipolar subtypes. Patients unwilling or unable to comply with study assessments or to give informed consent were excluded (26). Patients entered the FES study in fully symptomatic to recovered phases of the illness. A more complete description of the STEP-BD participants was reported by Kogan et al. (27). All patients recruited during the period from 1 August 2002 through 31 December 2003 were invited to participate in FES.

Of the first 778 patients consecutively admitted into STEP-BD after August 1, 2002, 676 (87.4%) gave written permission to be in FES and for research staff to contact a qualifying primary caregiver. To be a qualifying caregiver, a family member had to meet three of the following criteria, and a non-family member two of the criteria: spouse, parent, or spouse equivalent; had the most frequent contact with the patient; helped to support the patient financially; had frequently been a collateral in the patient's treatment; or was the relative who was contacted by staff in case of an emergency (17). Of the 676 caregivers who agreed to participate, 500 (74%) were recruited into the study and completed a series of baseline assessments and measures of burden and health status; details of selection criteria are described elsewhere (17). The eight participating sites obtained IRB approval from their respective institutions. All patients and caregivers signed an approved consent form.

Patient measures

At study entry assessments, trained psychiatrists used the Affective Disorders Evaluation (ADE), an assessment tool that utilizes versions of the mood and psychosis modules from the Structured Clinical Interview for DSM-IV Axis I Disorders, Patient Edition, modified for routine use by practicing clinicians (15,28,29). Each ADE captures a Global Assessment of Functioning Scale (GAF) score as well as an assessment of current alcohol and substance abuse. At each subsequent clinical visit, trained psychiatrists used a Clinical Monitoring Form (CMF), a one-page, standardized record-keeping form designed for use as a routine progress note (29). Each ADE and CMF includes a rating of SI with absolute, anchored values of 0.25, 0.5, 1.0, 1.5, and 2.0; higher scores indicate more severe SI. The intraclass correlation coefficients for inter-rater reliability for the CMF SI rating was 0.99 (28). A score of 1 was defined as *moderate* SI, indicating frequency and intensity sufficient to meet DSM-IV criteria (15). FES caregiver baseline assessments were scheduled to coincide closely with clinical assessment of current SI (mean $\pm$ SD = 6.0 $\pm$ 25.5 days, median = 3.0). The SI item was used as a continuous variable for analyses. The ADE captured baseline information regarding past suicide events (attempts) (15).

During the initial face-to-face and subsequent psychiatric assessments, STEP-BD clinicians assessed depression using a continuous symptom subscale for depression (SUM-D) (30). SUM-D scores range from 0 to 22; higher scores indicate more severe symptoms. The SUM-D subscale is well correlated with formal scales for depression, including the Montgomery-Åsberg Depression Rating Scale ($r = 0.88$) (29). Intraclass correlations of physicians' inter-rater reliability with gold standard ratings for depression (SUM-D) and mania [continuous symptom subscale for mood elevation (SUM-ME) (30)] ranged from 0.83 to 0.99 (31). Treating psychiatrists were periodically monitored to ensure that the standards for rating were maintained (26).

Caregiver health and mental health measures

FES study personnel administered a semistructured interview to caregivers at study entry and at 6- and 12-month assessment visits; assessments were timed to coincide within 30 days of a patient's assessment. The Center for Epidemiological Studies of Depression Scale (CES-D) (32) was used to assess depressed mood over the last week. The CES-D correlates highly with other self-report depression measures such as the Symptom Checklist-90 (SCL-90) depression subscale scores (range 0.73 to 0.89) (33). In addition, it showed excellent internal consistency reliability in the FES study (Cronbach's $\alpha = 0.90$) (17). The CES-D has been commonly used to evaluate the presence of depressed mood in studies of caregiving strain. It has a standard cutoff score of 16, indicative of clinically significant depressive symptomatology in adults (34,35).

The General Health Scale from the Medical Outcomes Study (MOS) 36-item Short-Form-Health Survey (SF-36) (36) was used to assess caregivers' perceptions of their overall health status. This instrument correlates highly with self-report health measures such as the General Health Rating Index ($r = 0.96$). Caregivers were asked to rate their overall current health as 4 (excellent), 3 (good), 2 (fair), or 1 (poor).

Data analysis

Statistical analyses were performed using SAS, Version 9.1 (37). Descriptive statistics and frequency distributions were generated for patients' and caregivers' characteristics. Kendall's tau was used to determine whether there were significant associations between patients' and/or caregivers' sociodemographic and clinical characteristics and dropout prior to the 12-month endpoint (38,39). The two primary outcome variables were caregivers' general health scores (at baseline, 6 months, and 12 months) and caregivers' CES-D scores (at baseline, 6 months, and 12 months). Two sets of analyses were carried out for each outcome variable. First, to determine whether patients' symptoms at baseline and at 6 and 12 months were associated with caregivers' outcomes, respectively, at baseline and at 6 and 12 months, patients' SI scores at baseline and at 6 and 12 months and patients' SUM-D scores (excluding SI) at baseline and 6 and 12 months were included as time-varying covariates. An additional model was tested in which both patients' SI and SUM-D scores were included simultaneously.

Next, to determine whether change in patients' symptoms was associated with caregivers' outcomes, caregivers' scores at 6 and 12 months were modeled as a function of baseline caregivers' scores, baseline patients' scores (SI and SUM-D), and change from baseline patients' scores at 6 and 12 months (Δ SI coded as worse versus same or better; and Δ SUM-D coded as difference in SUM-D scores) as time-varying covariates. Mixed-effects general linear models with all available data were used for analysis. Since the data suggested that missingness was ignorable (i.e., data were 'missing at random'), longitudinal analyses using maximum likelihood methods and adjusting for covariates associated with dropout were

used to obtain unbiased estimates of the effects of patients' characteristics on caregivers' outcomes.

Means $\pm$ SD or percentages for patients' SI and depression and caregivers' health and depression over time are shown in Table 1. Patients' and caregivers' characteristics associated with either outcome or with patients' dropout at $p < 0.2$ were included in all analyses. Using these criteria, covariates included in every model were gender, patient age, patient education, whether the patients lived with the caregivers, baseline functioning (GAF scores), current alcohol or substance abuse, and patients' suicide attempt history. Number of hours of monthly contact between the relatives and patients was not a significant predictor of caregivers' variables when included in the same model as living situation (i.e., whether the patients and relatives lived together); thus, it was eliminated from the final models. The caregivers' relationship to the patients (i.e., whether parents, spouses, or other) and SUM-ME were not significantly associated with caregivers' health or mood state in preliminary analysis ($p > 0.20$) and therefore were not included in the final models. The level of statistical significance for all tests was set at $p < 0.05$ (two-tailed).

Results

Sample characteristics

The mean $\pm$ SD age of the 500 caregivers was 50.2 ± 13.1 years; females represented 65.3% ($n = 345$), and those of Caucasian heritage represented 87.8% ($n = 439$) of the sample. There were 188 (37.6%) parental caregivers and 182 (36.4%) spousal caregivers. The mean $\pm$ SD age of the 500 patients was 39.9 ± 13.5 years; females represented 56.2% ($n = 281$), and age of onset of illness was 16.02 ± 3.7 years. Patients' mean $\pm$ SD GAF scores were 66.3 ± 11.5 . Additional caregiver and patient characteristics are shown in Table 1.

Sample sizes for caregiver/patient pairs for the longitudinal analyses are given in Table 2. Although more than 80% ($n = 400$) of caregivers had follow-up data for general health and CES-D scores, only 60% and 67% ($n = 300$ and 335 , respectively) of patients had 6- and 12-month SI and SUM-D scores, respectively. Since both patients' and caregivers' scores were needed for these analyses, we explored characteristics that were associated with caregivers' and patients' dropout. Lower patient education and the presence of prior suicide attempts both predicted patients' dropout ($p < 0.05$). Higher baseline patients' SI and depression ($p < 0.05$), as well as higher baseline caregivers' depressed mood ($p < 0.05$), were significantly associated with caregivers' dropout.

Caregiver health

Consistent with our hypotheses, mixed-effects linear modeling of patients' SI as a time-varying covariate with caregivers' health scores demonstrated that patients with higher SI at baseline and 6 and 12 months were associated with poorer caregivers' health (lower scores) at baseline and 6 and 12 months, respectively, compared to patients with lower SI at each time point (Table 2, Model 1) [$F(1,764) = 5.28$, $p = 0.02$]. This relationship was significant even after controlling for patients' history of suicide attempts [$F(1,456) = 5.39$, $p = 0.02$], education [$F(1,456) = 7.74$, $p < 0.01$], baseline GAF scores [$F(1,456) = 7.85$, $p < 0.01$], current alcohol or substance abuse [$F(1,764) = 0.13$, $p = 0.72$], and whether the patients lived with the caregivers [$F(1,456) = 5.96$, $p = 0.02$].

Moreover, mixed-effects linear modeling showed that patients whose SI increased from baseline at 6 and/or 12 months were associated with caregivers reporting poorer health at 6 and 12 months, compared to caregivers of patients with no increase in SI [$F(1,335) = 11.56$, $p < 0.01$], after controlling for baseline caregivers' health [$F(1,415) = 374.75$, $p < 0.01$] and baseline patients' SI [$F(1,415) = 0.00$, $p = 0.99$] (Table 2, Model 1a). This relationship was

significant even after controlling for patients' education [$F(1,415) = 12.06, p < 0.01$], living situation [$F(1,415) = 6.93, p < 0.01$], baseline GAF scores [$F(1,415) = 3.48, p = 0.06$], and current alcohol or substance abuse [$F(1,335) = 0.10, p = 0.75$]. Thus, caregiver self-reported health was consistently correlated with patients' SI over time.

In contrast to the results for patients' SI, separate analyses found that patients' depression (SUM-D) scores at baseline, 6 months, and 12 months were not significantly related to caregivers' self-reported health at baseline, 6 months, and 12 months, respectively [$F(1,572) = 0.14, p = 0.71$] (Table 2, Model 2), nor were changes in patients' depression scores related to caregivers' health at 6 and 12 months, after adjusting for baseline caregivers' health and baseline patients' depression [$F(1,221) = 0.53, p = 0.47$] (Table 2, Model 2a). Thus, SI appears to have contributed to caregivers' health, whereas depression in the absence of SI did not.

Caregiver depression scores

Consistent with our hypothesis, a mixed-effects longitudinal model with patients' SI as a time-varying covariate revealed that patients with greater SI at baseline and 6 and 12 months were associated with caregivers with higher CES-D depression scores at baseline, 6 months, and 12 months, respectively (Table 2, Model 3) [$F(1,722) = 4.91, p = 0.03$], even after controlling for previous patients' suicide attempts [$F(1,452) = 0.62, p = 0.43$], patients' education [$F(1,452) = 2.88, p = 0.09$], GAF scores [$F(1,452) = 7.44, p < 0.01$], current alcohol or substance abuse [$F(1,722) = 0.66, p = 0.42$], and patients' living situation [$F(1,452) = 4.91, p = 0.03$]. However, increase in patients' SI from baseline was not significantly associated with caregivers' CES-D depressive scores at 6 and 12 months [$F(1,301) = 1.35, p = 0.25$] after controlling for baseline caregivers' depression [$F(1,389) = 391.84, p < 0.01$] and baseline patients' SI [$F(1,389) = 0.78, p = 0.38$] (Model 3a).

Consistent with our hypothesis, higher patient depression (SUM-D) scores at baseline, 6 months, and 12 months were associated with higher caregivers' depression at baseline, 6 months, and 12 months, respectively [$F(1,542) = 5.31, p = 0.02$] (Table 2, Model 4), even after controlling for patients' previous suicide attempts [$F(1,453) = 0.59, p = 0.44$], patients' education [$F(1,453) = 1.31, p = 0.25$], GAF scores [$F(1,453) = 6.53, p = 0.01$], current alcohol or substance abuse [$F(1,542) = 1.28, p = 0.26$], and patients' living situation [$F(1,453) = 4.52, p = 0.03$]. Change in patients' depression from baseline was marginally associated with caregivers' depression at 6 and 12 months [$F(1,302) = 3.29, p = 0.07$] after controlling for baseline caregivers' depression [$F(1,390) = 419.6, p < 0.01$], baseline patients' depression [$F(1,390) = 2.03, p = 0.15$], previous suicide attempts [$F(1,390) = 2.09, p = 0.15$], patients' education [$F(1,390) = 0.27, p = 0.60$], GAF scores [$F(1,390) = 0.00, p = 0.96$], current alcohol or substance abuse [$F(1,302) = 0.21, p = 0.65$], and patients' living situation [$F(1,390) = 1.07, p = 0.30$] (Model 4a).

Discussion

This study examined the relationship between bipolar patients' SI and depression and caregivers' perceived health and depressed mood over the course of one year. We had two major findings. First, caregivers of patients whose SI increased from baseline to 6 and 12 months reported worse general health compared to caregivers of patients whose SI stayed stable or decreased from baseline. This finding was independent of levels of patients' depression, as caregivers of patients with more depressive symptoms did not report worse health compared to caregivers of patients who were not experiencing high levels of depression. These relationships were evident among parent caregivers as well as spouses.

Most patients in the study did not have clinically significant SI (12% at baseline). SI, if present, was either fleeting or only during parts of the day. Even so, caregivers may understandably overextend themselves in the hope of ‘saving the patient,’ by taking on more responsibility for the patient than is sustainable for long periods of time (20). He/she may also feel that taking care of his or her own health is not as important as taking care of the patient and discontinue ordinary activities such as exercising that maintain the caregiver’s own health (40). This may be particularly likely for those caregivers who live with the patient. Subsequently, caregivers may experience exacerbations of previous health issues or feel run-down by caring for their loved one.

Our second major result was that caregivers of patients with more SI and more depressed mood at baseline and follow-up points reported more depressed mood at each time interval than caregivers of patients with less SI and depression at each time interval. Most patients studied were experiencing only subsyndromal symptoms at study entry, with less than one-third (29%) meeting criteria for a major depressive episode. Even so, prior research has found that patients with subsyndromal and postepisode residual symptoms have significant psychosocial impairment, which in itself can be quite stressful for the caregiver (24,41,42). Caregivers may become frustrated and distressed over the extended period of time before patients are able to return to their prior work, education, and other everyday functions once they have been treated and are no longer in a major depressive episode (30).

In addition, the spouses of depressed persons are often genetically predisposed to depression through the avenue of ‘assortative mating’ (43,44). One study showed that bipolar patients paired with spouses who themselves had depression had poorer psychosocial outcomes than bipolar patients whose spouses were not depressed (45).

Our results of this study may help to prospectively identify caregivers at risk for adverse health outcomes who may benefit from prevention-focused intervention. Caregivers endorsing poorer health should be counseled to follow through on routine medical checkups. Caregivers endorsing a depressed mood may benefit from an individual mental health referral. Caregivers can be offered a peer or clinician-administered intervention for family caregivers of patients with bipolar disorder such as The Family to Family program developed by the National Alliance for the Mentally Ill (20). Family psychoeducation interventions for bipolar disorder such as family focused therapy (FFT), which includes instructional material on caregiver self-care, may also be of benefit (46). FFT may be particularly beneficial for those caregivers who are living with the patients or for caregivers associated with patients who have more psychosocial dysfunction.

FFT has also been adapted to treat suicidal symptoms in the bipolar patient (14). Once engaged in family treatment, the caregivers and patients can be assisted to have open discussions of the patient’s SI or previous attempts. Such discussions may help to identify prodromal symptoms (such as depression and hopelessness) or psychosocial stressors (such as a job or relationship loss) that have been associated with the prior attempts. Developing a plan of how to address the patients’ future suicidal feelings or behaviors may help to relieve caregivers’ strain as well as decrease the likelihood of the patients’ future suicide attempts (40).

The generalizability of the results may be limited for several reasons. First, STEP-BD was based at academic, specialty, and tertiary-care sites across the United States, which may have attracted a more select population than might be found in the general population. The population of STEP-BD was of limited diversity in both race and socioeconomic status. Minority populations tend to have less access to health care and experience a lower overall quality of health care (47). Future studies are needed to examine minority caregivers and

mechanisms of association between patients' symptoms and caregivers' health status. Second, our results may have underestimated the impact of patient SI/attempts history as well as depression on caregivers, since patients who were more depressed and suicidal were more likely to drop out of the study. Third, this study included only the general health scale of the SF-36. Consequently, we are not able to make statements about other areas of physical health, and this would be an important area for further study.

Future research may be able to clarify why some caregivers are resilient even in the face of patients' depression and SI. Factors that predict better mental and physical health in the general population and predict less strain in caregivers of patients with bipolar disorder may be worth emphasizing in treatment. These factors may include being involved in positive relationships (48) or expanding the size of social networks (49).

In conclusion, studies of bipolar disorder have demonstrated the clinical significance of bipolar patients' depression and particularly SI and behaviors. This study demonstrates a longitudinal association between patients' SI and caregivers' self-reported general health as well as the association between caregiver depressed mood and patient depression over time. Studies of unipolar depressed patients have recommended treating patients until they are fully in remission (50,51). Thus, improving caregivers' health may depend in some cases on fully stabilizing patients. In other cases, adjunctive psychosocial treatment to support the caregivers may ultimately have a positive impact on the course of the patients' illness.

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Table 1

Baseline demographic characteristics for caregivers and patients

Characteristic	Caregiver (n = 500)	Patient (n = 500)
Gender (%)		
Female	65.3	43.8
Male	34.7	56.2
Age (years), mean $\pm$ SD	50.2 $\pm$ 13.1	39.9 $\pm$ 13.5
Minimum, maximum	19, 88	18, 84
Ethnicity, % Caucasian	87.8	87.5
Marital status (%)		
Married/cohabitating	74.0	43.0
Divorced/widowed/separated	18.0	15.8
Never married	8.0	41.2
Relation to patient (%)		
Parent	37.6	
Spouse	36.4	
Other	26.0	
Living with patient (%)	64.8	
Employment (%)		
Full-time	55.2	31.7
Part-time	12.2	14.5
Retired	15.3	5.5
Unemployed/student	17.3	48.4
Education (years), mean $\pm$ SD	14.5 $\pm$ 2.3	14.1 $\pm$ 2.3
Age of onset (years), mean $\pm$ SD		16.0 $\pm$ 3.7
Minimum, maximum		0, 20
Global Assessment of Functioning scale score (mean $\pm$ SD)		66.3 $\pm$ 11.5
Alcohol/substance abuse (%)		7.4
Caregiver general health, mean $\pm$ SD		
Baseline (n = 495)	3.1 $\pm$ 0.8	
6 months (n = 404)	3.0 $\pm$ 0.8	
12 months (n = 423)	3.1 $\pm$ 0.8	
Caregiver depression (CES-D), mean $\pm$ SD		
Baseline (n = 466)	10.0 $\pm$ 10.0	
6 months (n = 400)	9.5 $\pm$ 10.3	

Characteristic	Caregiver (n = 500)	Patient (n = 500)
12 months (n = 401)	8.8 ± 10.0	
Patient clinically significant SI (%)		
Baseline (n = 493)		12.4
6 months (n = 331)		10.6
12 months (n = 296)		5.6
Patient depression (SUM-D), mean ± SD		
Baseline (n = 487)		2.9 ± 2.7
6 months (n = 327)		2.7 ± 2.5
12 months (n = 293)		2.5 ± 2.6
Patient history of suicide attempt (%)		37.0
Current clinical status		
Major depression (%)		29.0

CES-D = Center for Epidemiological Studies of Depression Scale; SI = suicidal ideation; SUM-D = continuous symptom subscale for depression.

Table 2
Longitudinal analysis of caregiver health and depression: patient symptoms as time-varying covariate

	Model 1	Model 1a	Model 2	Model 2a	Model 3	Model 3a	Model 4	Model 4a
Independent variables	Outcome: Caregiver health n = 474 Coefficient	Outcome: Caregiver health n = 434 Coefficient	Outcome: Caregiver health n = 468 Coefficient	Outcome: Caregiver health n = 469 Coefficient	Outcome: Caregiver depression n = 446 Coefficient	Outcome: Caregiver depression n = 402 Coefficient	Outcome: Caregiver depression n = 440 Coefficient	Outcome: Caregiver depression n = 404 Coefficient
Intercept	3.2226 ^a	1.2095 ^b	3.2234 ^a	1.1478	7.7951 ^b	2.7169	7.1736 ^a	6.1448
Time	0.0001	0.0112 ^b	-0.0021	0.0108	-0.0832	-0.1317	-0.0841	-0.1267
Male gender	0.0531	0.0473	0.0419	0.0480	1.3661	1.0084	1.3368	1.0286
Patient age	-0.0010	-0.0006	-0.0009	-0.0004	-0.0567	-0.0715 ^a	-0.0568	-0.0747 ^a
History of suicide attempt	-0.1536 ^b	0.0141	-0.1753 ^b	-0.0018	0.7054	1.0036	0.7062	0.9177
Patient education	0.0381 ^a	0.0340 ^a	0.0367 ^b	0.0352 ^a	-0.3146	-0.0697	-0.2211	-0.0688
Patient lives with caregiver	-0.1594 ^b	-0.1240 ^a	-0.1594 ^b	-0.1146	1.7306 ^b	0.7300	1.9313 ^b	0.6468
Baseline GAF	0.0076 ^a	0.0038	0.0079 ^a	0.0030	-0.1001 ^b	-0.0133	-0.0985 ^b	-0.0016
Current alcohol/substance abuse	0.0292	-0.0347	0.0357	0.0013	0.8502	-0.4931	1.2916	-0.6813
Patient SI score	-0.1432 ^b				1.7775 ^b			
Patient SUM-D score			-0.0033				0.2554 ^b	
Baseline caregiver health		0.5933 ^a		0.6054 ^a				
Baseline patient SI score		-0.0010				-1.2170		
Increase from baseline SI		-0.2870 ^a				1.3088		
Baseline caregiver CES-D score						0.6354 ^a		0.6440 ^a
Baseline patient SUM-D score				-0.0074				0.2255
Change from baseline SUM-D score				0.0081				0.2240

GAF = Global Assessment of Functioning; SI = suicidal ideation; SUM-D = continuous symptom subscale for depression; CES-D = Center for Epidemiological Studies of Depression.

^a p < 0.01;

^b p < 0.05.