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Caregiver burden as a predictor of depression among family and friends who provide care for
persons with bipolar disorder

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Abstract

Objectives: Over one-third of caregivers of people with bipolar disorder report clinically significant levels of depressive symptoms. This study examined the causal relationship between depression and caregiver burden in a large sample of caregivers of adult patients with bipolar disorder.

Methods: Participants were 500 primary caregivers of persons with bipolar disorder enrolled in the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD). This study evaluates the strength and direction of the associations between caregiver burden and depressive symptoms at baseline and at six- and 12-month follow-up using cross-lagged panel analyses, controlling for the clinical status of patients and sociodemographic variables.

Results: Higher levels of overall caregiver burden at baseline were associated with increased levels of depressive symptoms among caregivers at follow-up ($F = 8.70$, $df = 1,290$, $p < 0.001$), after controlling for baseline caregiver depression, gender, race, age, social support, and patients' clinical status. By contrast, caregiver depression at baseline was not significantly associated with caregiver burden at follow-up ($F = 1.65$, $p = 0.20$).

Conclusions: Caregiver burden is a stronger predictor of caregiver depressive symptoms over time than the reverse. Interventions that help alleviate caregiver burden may decrease depressive symptoms.

Key words: bipolar disorder – burden – depression – family

Close family members or friends are often a source of primary support for a person with bipolar disorder (1). These individuals take on considerable responsibility for the care of an ill person in the community,

including coping with fluctuating, often unpredictable, symptoms of depression and mania and high suicide risk (2). Studies of the impact of assuming such responsibilities, traditionally referred to as *caregiving* (3) have found that caregivers of patients with bipolar disorder report high levels of physical health problems (1,4) and psychological distress or depression (4-8).

Depression among caregivers of persons with bipolar disorder may represent a particularly serious concern. Studies of the relatives of non-biological as well as biological caregivers of people with bipolar disorder have found that 43% meet SCID-P criteria for a mood disorder (9), and between 33% and 46% meet criteria for major depression (6). Caregivers of people with mental illness report more depressive symptoms than are reported by the general population (4, 10, 11). Depression erodes quality of life, social and occupational functioning, and close relationships and increases the risk of physical illness and mortality (12, 13). Furthermore, depression may undermine the caregiver's attempts to carry out their vital supportive role, with serious health implications for their relatives with bipolar disorder (14).

Although the risk of depression in caregivers of people with mental illness is high and connected with multiple costs, including the cost of the caregivers' own depression-related days out of work (15), relatively little attention has been directed to understanding factors that contribute to depression in caregivers (16).

To increase our understanding of risk factors for caregiver depression, this study focuses on one factor that has often been linked to caregiver depression: the perceived level of stress or burden associated with caregiving (17). Traditionally, caregiver burden has been defined as encompassing both objective burden, which refers to the practical difficulties and observable costs related to the illness and its consequences (18), and subjective burden which refers to the extent of emotional distress or strain experienced by the caregiver (3). A number of studies have demonstrated a link between caregiver stress or burden and depression in caregivers of people with severe mental illness [e.g., (1, 19-21)]. However, as these findings were based on cross-sectional studies, the question of whether caregiver burden increases the longitudinal risk of depression among caregivers of persons with bipolar disorder remains unanswered.

While it has been argued that the burdens of caring for a relative with mental illness place caregivers at risk for depression (4, 22, 23), an alternate explanation for the association between burden and

depression is that caregivers who report experiencing high levels of burden are those who already suffer from depression due to increased familial and/or other risk factors such as a history of trauma or loss. This explanation implies that their burden emanates from depleted coping resources related to pre-existing depression.

This study aims to disentangle these two competing explanations for the association observed between caregiver burden and depression among caregivers of patients with bipolar disorder, using cross-lagged panel analysis. We examined whether caregiver burden is a better predictor of caregiver depression or the reverse in six- and 12-month outcome assessments. This distinction is important in terms of resource allocation in an economy where mental health resources are scarce. A demonstration that higher levels of caregiver burden lead to increases in levels of caregiver depression over time would make a more compelling case for early intervention with caregivers to prevent such increases than if levels of caregiver burden appear to be secondary to pre-existing caregiver depression. Based on studies demonstrating that higher burden levels were associated with higher depression scores over time among dementia and cancer caregivers (22, 23), we hypothesized that caregiver burden at baseline would be a strong and positive predictor of caregiver depression at six- and 12-month follow-up, controlling for baseline patient clinical status, but that caregiver depression at baseline would not be significantly associated with caregiver burden at six and 12 months. We also sought to examine in an exploratory fashion whether the hypothesized effect of caregiver burden on depression was equally strong for different areas in which caregivers have reported burden, specifically, patient problem behaviours (e.g., violence, unpredictability); adverse impact on the caregiver's work, social and leisure time; and the patient's role dysfunction at work and at home.

Methods

Study design

This study employs longitudinal data from the Family Experience Study (FES) to test the above hypotheses. FES is a national, multi-site study of 500 caregivers that evaluated the health and mental health costs and consequences of caring for a relative or friend with bipolar disorder enrolled in the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) (1). STEP-BD is a longitudinal treatment effectiveness study for individuals with bipolar disorder that enrolled patients

between November 1999 and January 2004 (24). The identified primary caregivers of consenting STEP-BD patients were evaluated within one month after patient entry and were re-interviewed six and 12 months after the initial assessment, in conjunction with STEP-BD patient interviews. Additional details of the STEP-BD design are reported in Sachs et al. (24).

Participants

Patients and caregivers for the present study were recruited in outpatient clinics from eight STEP-BD sites participating in FES. Enrolment for FES began in July of 2002, with follow-up caregiver interviews at six and 12 months after a baseline interview. Consenting patients identified the friend or family member most involved in their care (i.e., the person who responds in an emergency, attends appointments, provides financial assistance or interacts on a daily basis). All patients provided informed written consent, reviewed and approved by their respective university Human Research Committees. Caregivers were then invited to participate during patient visits or by phone. Those providing written informed consent were assessed on baseline measures of stress, coping, health and service use by phone or in person, for about 90 minutes. Caregiver interviews were coordinated with the patient visit schedule so as to be administered within 30 days of the psychiatric clinical/data collection visit. The present study reports longitudinal data from this study. Additional details are available in Perlick et al. (1).

Assessments

Patient diagnosis. The bipolar disorder diagnosis (I, II, not otherwise specified or schizoaffective, bipolar type) was made through a standardized affective disorder evaluation (ADE) (24). The ADE included a modified version of the mood and psychosis modules from the Structured Clinical Interview for DSM-IV diagnosis (SCID) (25). The ADE was completed at STEP-BD entry by STEP-BD trained clinicians.

Clinical status. Patient clinical status was assessed by the Clinical Monitoring Form, a semi-structured interview administered by the treating psychiatrist at the time of each visit (24). Ratings were made according to DSM-IV criteria (25) for major depressive episode, manic episode, hypomanic episode, mixed episode or recovered at the time of the clinical visit for symptoms present for the prior week. The status of 'recovered' was defined as having two or fewer symptoms of depression or mood elevation for

eight consecutive weeks after an index mood episode, so patients rated as recovered had had a prolonged period of wellness.

Caregiver burden. The Social Behaviour Assessment Schedule (SBAS) (26) assesses caregiver burden in relation to three domains: patient problem behaviours (PB) (e.g., violence, unpredictability), patient role dysfunction (RD) at work and at home, and adverse effects on others (AE) (the impact of the illness on the caregiver's work, social, and leisure time). Four items were added to the problem behaviour scale to typify manic-phase behaviours and symptoms. Each item includes both an assessment of the degree to which the problem is present (*objective burden-OB*) and rating of the degree of distress the caregiver experiences in relation to the problem (*subjective burden-SB*), both rated on three-point, anchored scales. For example, the caregiver is asked to what degree the patient was withdrawn in the last six months (*objective burden*) and then to what degree the caregiver was distressed by the withdrawal (*subjective burden*). Inter-correlation (Pearson r) coefficients between subscales were as follows: PB with RD 0.51 (OB) and 0.50 (SB); PB with AE 0.30 (OB) and 0.44 (SB); RD with AE 0.25 (OB) and 0.39 (SB), demonstrating the importance of examining burden within different domains. Adequate internal consistency reliability has been reported for objective and subjective burden subscales, respectively, with Cronbach's alpha's of 0.86 and 0.88 for problem behaviour, 0.84 and 0.76 for role dysfunction and 0.79 and 0.81 for adverse effects (16). Due to a high degree of correspondence between objective and subjective ratings (1), these scales were summed for a total burden score in each domain, and across all three domains, yielding alpha's of 0.87 for problem behaviours, 0.80 for role dysfunction, 0.84 for adverse effects (16), and 0.88 for the overall scale.

Caregiver depression. The 20-item Center for Epidemiological Studies of Depression Scale (CES-D) (27) was used to assess depressive symptomatology. The CES-D has demonstrated good construct validity cross-culturally with internal consistency reliability (Cronbach's alpha) coefficients ranging from 0.7 to 0.8 (28, 29).

Caregiver social support. Social support was assessed with an 11-item brief form (30) of the Duke Social Support Index (DSSI) (31). The DSSI asks about both the frequency of social interactions in the previous week, and the person's subjective experience of social support, ranked on a three-point scale of *almost always* feeling supported to *never* feeling supported.

Statistical analysis

Cross-sectional and lagged correlations were calculated using the Pearson correlation coefficient. A series of panel analyses were estimated to examine the hypotheses that caregiver burden at baseline would be positively and significantly associated with caregiver depression at follow-up and that caregiver depression at baseline would not be significantly associated with caregiver burden at follow-up. These analyses used mixed effect regression models to account for repeated observations on the same subject, and included baseline values of depression and burden to control for initial differences in these key variables. In addition, these models controlled for clinical, demographic and psychosocial variables known to be related to the experience of caregiver depression and/or burden, and that were also correlated with outcomes of interest: patient clinical status (1, 16, 32), and caregiver's race, age, social support and gender (1, 5, 33). In the first panel analysis, we examined whether caregiver level of burden at baseline predicted caregiver depression during the follow-up period. Next, we examined whether caregiver depression at baseline was associated with levels of caregiver burden during follow up (1). Finally, in order to better understand what aspects of caregiving strain are associated with greater CES-D over time, we explored whether the three burden subscales differed in their associations with future depressive symptoms.

Results

Demographics and clinical characteristics

Nearly two-thirds of the caregivers in this study were female ($n = 327$; 65%) with a mean age of 50 years [standard deviation (SD) = 13.1 years]. Most were married or cohabiting (74%), employed full-time (55%), and living with the person with bipolar disorder (65%) (Table 1). Patients were 56% female ($n = 281$) with a mean age of 40 years (SD = 13.5 years). Almost one-half were employed at least part-time (Table 2). Their mean illness onset was at age 26 years, 71% had been hospitalized at least once, and 41% met criteria for an illness episode at study entry (Table 2).

Caregiver depression and burden scores over time

Caregiver CES-D scores at study entry, six and 12 months were 10.0 ± 10.0 , 9.5 ± 10.2 and 8.7 ± 10.0 , respectively, indicating a mild, subclinical level of depressive symptoms with little change over the study for the group as a whole, but with substantial variability in scores between caregivers. The overall level of caregiver burden was 32.5 ± 23.1 at study entry, 27.4 ± 21.4 at 6 months, and 24.4 ± 20.4 at 12 months, showing a decrease in burden of nearly eight points, again with substantial inter-caregiver variability. Whereas the Adverse Effects and Role Dysfunction burden subscales decreased by no more than one point over 12 months, the Problem Behaviour subscale decreased by nearly seven points, from 24.5 ± 16.8 to 17.7 ± 15.2 over 12 months, accounting for most of the decrease in burden.

Cross-sectional and lagged correlations between burden and caregiver depression

Caregiver depression at baseline correlated with burden both cross-sectionally ($r = 0.39$, $p < 0.001$) as well as at the six month ($r = 0.39$, $p < 0.001$) and one year ($r = 0.24$, $p < 0.001$) follow-up (Table 3). Similarly, burden at baseline also correlated significantly over time with depression at both the six month ($r = 0.39$, $p < 0.001$) and one year ($r = 0.36$, $p < 0.001$) assessments. Similar significant longitudinal associations were also observed with baseline clinical status and social support. Autocorrelations for depression and burden ranged from $r = 0.52$ to 0.67 ($p < 0.001$). Given the significant inter-correlations observed both cross-sectionally and longitudinally, the unique long-term effects of burden and depression on each other could not be evaluated using this method. Therefore, panel analysis was used to clarify the contemporaneous and longitudinal effects of both variables while also controlling for relevant baseline characteristics.

Panel analysis

Panel analysis revealed that level of burden among caregivers at baseline predicted their depression scores during the follow-up period ($F = 8.70$, $df = 1, 290$, $p < 0.001$), even after adjusting for baseline caregiver depression, gender, race, age, level of social support, and patient clinical status (see Table 4).

By contrast, level of depression among caregivers at baseline was not associated with their burden scores during follow up ($F = 1.65$, $df = 1, 290$, $p = 0.20$) after controlling for baseline caregiver burden, gender, race, age, social support, and patient clinical status. Exploratory analyses using the three burden subscales found a similar pattern of results for the 'caregiver problem behaviors' and '*adverse effects on*

others' scales as for the total burden scale (Table 4). That is, high levels of patient problem behaviours and high reports of adverse effects on others were associated with higher levels of caregiver-reported depression at follow-up. Consistent with results for the total burden scale, levels of caregiver-reported depression were not significantly associated with burden regarding patients' problem behaviours or adverse effects on others over time (Table 4).

One analysis demonstrated a different causal pattern. Baseline caregiver burden regarding patient role dysfunction was not significantly associated with caregiver depression over time, whereas caregiver depression at baseline was significantly associated with caregiver burden regarding patient role dysfunction over time (Table 4).

Discussion

This study examined the causal association between caregiver burden and caregiver depression among caregivers of adults with bipolar disorder. We found support for our hypothesis that higher levels of caregiver burden at baseline predicted increased levels of caregiver depression at follow-up, independently of the patient's clinical status during these intervals. By contrast, level of caregiver depression at baseline was not associated with caregiver burden over time.

Overall, these data suggest that expressions of caregiver depression are not merely the result of an underlying genetic vulnerability to mood disorders but, importantly, are influenced by the level of objective and subjective burden associated with caregiving. As noted earlier, one-third to one-half of caregivers of people with bipolar disorder met diagnostic criteria for or reported symptoms of depression (5). The high prevalence of depression among caregivers coupled with evidence that depression increases the risk of chronic disease and mortality (12, 34-36) underscore the public health significance of reducing the risk of depression among caregivers.

Our findings suggest that interventions which target both caregiver burden and depressogenic cognitions (e.g., internal attribution for negative events) and behaviours (e.g., poor self-care) will help to reduce the risk of development or recurrence of caregiver depression. It is noteworthy that few family-based interventions for persons with mood or other serious mental disorders specifically target either caregiver burden or depression. The National Alliance on Mental Illness's widely-disseminated Family-

to-Family program offers education, social support and practical advice for family members and family psychoeducation (FPE) programs such as family-focused treatment for bipolar disorder (FFT) (37) and behavioural family therapy for serious mental illness (BFT) (38) provide illness education and communication and problem-solving skills for persons with mental disorders and their families to reduce caregivers' negative affective responses to patients' problem behaviours. While NAMI's program has been found to increase family illness knowledge and empowerment (39), and FFT and BFT have been found to reduce the risk of or delay patient relapse and/or re-hospitalization (40-43), neither has been shown to reduce caregiver depression.

The pattern of results observed for the overall burden, problem behavior and adverse effects subscales, where baseline burden predicted six and 12-month depression but baseline depression did not significantly predict burden at follow-up, did not extend to the role dysfunction subscale. This anomalous finding illustrates the importance of examining caregiver burden in relation to different caregiver domains separately. While we cannot account for the disparity in results for subscales, prior studies of burden among caregivers of patients with bipolar disorder found that they reported the most distress in relation to patients' problem behaviors and the least distress in relation to patients' role dysfunction (44, 45). For the majority of caregivers who are employed while living with their family member, it is not surprising that patient behaviors that disrupt daily routines are perceived to be more burdensome and may increase the caregiver's risk for depression over time. Consistent with this explanation, an earlier study using the FES/STEP-BD dataset found that increases in patient suicidal ideation and depressive symptoms were associated with concomitant increases in caregiver depression over time (46). By contrast, patients' role dysfunction, defined by such behaviors as participation in household tasks, 'everyday conversation', and 'spare time activities' may be less disruptive and more readily accommodated by caregivers.

Strengths of this study include the large sample size and that the analyses controlled for the patient's baseline clinical status, and the caregiver's race, age, gender and support network, factors that could have affected changes in caregiver depression. However it did not evaluate the impact of longer-term changes in patient treatment participation, response or symptom stability on caregiver depression or burden over periods exceeding 12 months. Ostacher and colleagues (32) previously reported that episodes of patient depression, but not mood elevation in this study sample were associated with greater caregiver burden over the previous year.

A limitation of this study is the mostly Caucasian sample; associations for burden and depression may vary in other ethnic and racial groups. In addition, our measure of depression, while widely used including studies of caregivers [e.g., (47-49)], is a symptom scale and not an interview for clinical depression based on diagnostic criteria. Finally, while the SBAS has good psychometric properties, it should be noted that role dysfunction is defined based on the caregiver's report of the patient's behaviour, without external validation and thus may not accurately reflect the patient's functioning.

Conclusions

Our findings highlight the importance of incorporating systematic protocols to evaluate and treat caregiver depression into treatment programs for persons with bipolar disorder. As noted above, in addition to reduced quality of life and increased risk of medical morbidity for caregivers, themselves, their depressive symptoms may impact their ability to provide optimal support for the patient.

Results from a randomized trial combining psychoeducation with use of cognitive-behavioural strategies to target caregiver depressogenic beliefs and self-care support this statement (50). This study found that reductions in caregiver depression during treatment were associated with significant reductions in patients' bipolar illness symptoms in the treatment but not control condition, even though the patients did not participate in the treatment (50). Similarly, a randomized trial of 12-session caregiver-only group psychoeducation focusing on caregiver stress reduction, problem-solving and communication as well as illness management skills found a reduction of the percent of patients with any mood recurrence and longer relapse-free intervals for the treatment vs. control group (51, 52). Lower levels of burden among caregivers of patients with bipolar disorder have also been associated with a decreased risk of recurrences 15 months later, controlling for baseline mood symptoms (53, 54).

Early identification and provision of cost-effective relief to burdened caregivers at elevated risk for development of clinical depression could potentially help prevent adverse outcomes for both patients with bipolar disorder and their caregivers. Providers treating persons with a relative with mental illness should inquire about caregiving stress and screen for early signs of depression. Zauszniewsk and Bekhet (55) developed and validated an 8-item screen for early detection of cognitive symptoms of depression in caregivers of persons with bipolar and other serious mental disorders for this purpose. In addition to

group and/or time-limited interventions targeting caregiver burden and depression, there is a growing evidence-base for self-help, internet-based interventions to provide education and reduce symptomatic distress for people with neuropsychiatric disorders and their families (2, 56-59). The high costs of depression, both for caregivers, and for those they care for, argue for additional research in this area, in addition to continued research for effective interventions for persons with bipolar disorder, themselves.

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Disclosures

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Table 1. Patient demographic and clinical characteristics (N = 500)	
Characteristics	
Age, years, mean $\pm$ SD	39.9 $\pm$ 13.5
Gender, female, n (%)	281 (56.2)
Marital status, n (%)	
Married/cohabitating	215 (43.0)
Disrupted marriage	79 (15.8)
Never married	206 (41.2)
Ethnicity, n (%)	
White	437 (87.5)
Asian	13 (2.6)
Black	16 (3.2)
Hispanic	14 (2.8)
Other	19 (3.8)
Employment status, (%)	

Full time	158 (31.7)
Part time	72 (14.5)
Retired	27 (5.5)
Unemployed/student	242 (48.4)
Current clinical status, %	
Major depressive episode	29.0
Manic episode	1.8
Mixed episode	6.1
Hypomanic episode	2.8
Partial remission	32.5
Full remission	23.7
No. of bipolar hospitalizations lifetime, mean $\pm$ SD	2.34 $\pm$ 3.39
Age of onset, years, mean $\pm$ SD	16.02 $\pm$ 3.39
GAF score, mean $\pm$ SD	59.44 $\pm$ 13.46

SD = standard deviation; GAF = Global Assessment of Functioning.

Table 2. Caregiver demographic characteristics (N = 500)	
Characteristics	
Age, years, mean $\pm$ SD	50.2 $\pm$ 13.1
Gender, female, n (%)	327 (65.3)
Marital status, n (%)	
Married/cohabitating	370 (74.0)
Disrupted marriage	90 (18.0)
Never married	40 (8.0)
Ethnicity, n (%)	
White	439 (87.8)
Asian	10 (2.0)
Black	20 (4.0)

Hispanic	18 (3.6)
Other	13 (2.6)
Employment status, n (%)	
Full time	276 (55.2)
Part time	61 (12.2)
Retired	77 (15.3)
Unemployed/student	86 (17.3)
Relationship to patient, n (%)	
Parent	188 (37.6)
Spouse	182 (36.4)
Sibling/adult child	50 (10.0)
Other	80 (16.0)
Lives with person with bipolar disorder, n (%)	324 (64.8)

Table 3. Lagged correlations between depression, burden, and selected baseline variables in the Family Experience Study dataset

	Depression (CES-D)			Overall burden (SBAS)		
Baseline characteristics	Baseline	6 months	12 months	Baseline	6 months	12 months
Caregiver depression (CES-D)	–	0.65 ^c	0.62 ^c	0.39 ^c	0.39 ^c	0.24 ^c
Caregiver burden (SBAS)	0.39 ^c	0.39 ^c	0.36 ^c	–	0.67 ^c	0.52 ^c
Patient clinical status ^a	0.12 ^d	0.16 ^d	0.10	0.17 ^c	0.24 ^c	0.07
Caregiver social support ^b	0.13 ^d	0.12 ^e	0.15 ^d	0.04	0.10	0.08

CES-D = Center for Epidemiological Studies of Depression Scale (CES-D) (28); SBAS = Social Behavior Assessment Schedule (SBAS) (27).

^aAssessed via the Clinical Monitoring Form (25).

^bAssessed via Duke Social Support Index (31).

^c $p < 0.001$.

^d $p < 0.01$.

^e $p < 0.05$.

Table 4. Panel analyses: baseline burden versus depression as predictors of depression and burden over time

	Outcome: Depression (n = 438) ^a			Outcome: Burden (n = 408) ^a		
	Parameter	F	p-value	Parameter	F	p-value
Overall burden at baseline						
Baseline burden ^b	0.06	8.70	<0.001	0.51	134.70	<0.001
Baseline CES-D	0.52	90.21	<0.001	0.17	1.65	0.20
Baseline patient clinical status ^c	0.88	0.81	0.37	4.02	4.17	0.04
Gender (≥ male)	-0.42	0.23	0.63	-3.66	3.87	0.05
Race (≤ non-white)	-1.56	1.31	0.25	-1.61	0.29	0.59
Age, years	0.04	1.51	0.22	-0.02	0.11	0.74

Baseline social support ^d	-0.69	9.82	<0.01	-0.15	0.10	0.76
Adverse effects burden						
Baseline adverse effects ^b	0.36	9.42	<0.01	0.36	57.59	<0.001
Baseline CES-D	0.50	78.43	<0.001	0.05	3.03	0.08
Baseline patient clinical status ^c	1.24	1.66	0.20	0.21	0.28	0.60
Gender	-0.64	0.55	0.46	-0.68	3.50	0.06
Race	-1.60	1.38	0.24	0.14	0.07	0.80
Age, years	-0.04	1.54	0.22	-0.04	6.97	<0.01
Baseline social support ^d	-0.64	8.49	<0.01	-0.14	2.39	0.12
Problem behaviors burden						
Baseline problem behaviors ^b	0.08	9.52	<0.01	0.49	137.26	<0.001
Baseline CES-D	0.53	106.1	<0.001	0.05	0.34	0.56
Baseline patient clinical status ^c	1.40	2.20	0.14	3.26	5.23	0.02
Gender	-0.58	0.46	0.50	-1.20	0.78	0.38
Race	-1.39	1.13	0.29	-2.70	1.76	0.19
Age, years	-0.03	0.81	0.37	-0.05	0.85	0.36
Baseline social support ^d	-0.77	14.13	<0.001	-0.23	0.53	0.47
Role dysfunction burden						
Baseline role burden ^b	0.12	1.76	0.19	0.52	193.41	<0.001
Baseline CES-D	0.56	117.9	<0.001	0.04	4.41	0.04
Baseline patient clinical status ^c	1.69	3.16	0.08	0.66	3.15	0.08
Gender	-0.65	0.56	0.45	-1.06	9.37	<0.01
Race	-1.11	0.71	0.40	0.05	0.01	0.93
Age, years	-0.04	1.53	0.22	0.00	0.05	0.83
Baseline social support ^d	-0.80	14.93	<0.001	0.03	0.11	0.74

CES-D = Center for Epidemiological Studies of Depression Scale (28).

^aValues represent the maximum 'n' of unique caregivers who had data on the DV at six or 12 months or both.

^bSocial Behaviour Assessment Schedule (SBAS) (27).

^cAssessed via the Clinical Monitoring Form (25).

^dAssessed via the Duke Social Support Index (31).

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