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Impact of Close Family Members on Older Adults' Early Response to Depression Treatment

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Abstract

This study of 130 depressed older adults and their spouses or adult children examined the impact of caregiver burden specific to patients' depressive symptoms on patients' response to antidepressant treatment. Primary care patients completed medical, psychiatric, and neuropsychological assessments prior to treatment, and interviews were conducted with their identified family member. As hypothesized, caregivers' depression-specific burden predicted greater depression severity for the patient at the 6th week of treatment after accounting for patients' pretreatment characteristics, caregivers' depressive symptoms, and caregivers' relationship satisfaction. Future research may identify family attitudes and behaviors that stem from burden and compromise older adults' ability to recover from depression.

Keywords

depression; family; caregivers; burden; treatment response

Depression in later life takes a significant toll on patients and families alike. Family members of depressed older adults experience the moderate to high levels of general caregiver burden that dementia caregivers often report (e.g., Hinrichsen, 1991; Scazufca, Menezes, & Almeida, 2002; Sewitch, McCusker, Dendukuri, & Yaffe, 2004). In turn, family members may play a significant role in an older relative's response to treatment for depression. In this study, we examined the impact of caregiver burden specific to the patients' depressive symptoms on patients' early response to antidepressant treatment.

Depressive symptoms are common among older patients seen in primary care, and the majority of older adults who receive treatment for depression are prescribed antidepressant medication by their primary care physician (Charney et al., 2003; Lyness, Caine, King, Cox, & Yoediono, 1999; Schulberg et al., 1998). There are compelling reasons to believe that family caregivers may have an impact on their relatives' recovery from depression. Family members' hostile or critical behaviors, as well as their well-intended actions that backfire, are associated with greater depressive symptomatology in healthy and ill older adults (e.g., George, Blazer, Hughes, & Fowler, 1989; Martire, Schulz, Wrosch, & Newsom, 2003; Thompson & Sobolew-Shubin, 1993). In the case of depression in later life, caregivers who feel more burdened by patients' depressive symptoms may be less able to be supportive with regard to the setbacks that patients encounter (e.g., medication side effects) and the difficulty of adhering to prescribed treatment (Hinrichsen & Hernandez, 1993; Perlick et al., 2004). This lack of support may subsequently compromise patients' ability to experience improvements in mood and to adhere to a medication regimen. Consistent with this line of reasoning, social-cognitive models posit that close relationships play a role in maintaining depression because partners' behavioral reactions (e.g., criticism, lack of genuine support) adversely affect patients' self-concept, affect, and health behaviors (e.g., Gotlib & Hammen, 1992; Sacco, 1999).

Previous research regarding the impact of family on response to antidepressant treatment has been limited in two ways. First, much of the existing literature in this area has focused on midlife patients, despite the fact that the quality of intimate relationships becomes increasingly important in later life (Carstensen, Isaacowitz, & Charles, 1999). The small number of studies of older adults have focused on patients' perceptions of support from their social network as a predictor of their treatment response (e.g., Bosworth, Hays, George, & Steffens, 2002; Dew et al., 1997). Second, many prior studies of both midlife and older adults have focused on relatively long-term treatment outcomes such as remission of symptoms at 3–6 months or 1 year. However, emerging research indicates that older adults' response to antidepressant medication after 4–6 weeks of treatment is an important predictor of long-term outcomes (Mulsant et al., 2006). Evidence for the early impact of caregiver burden on treatment response would suggest that some patients might benefit from additional treatment with a caregiver-focused or family-focused psychosocial intervention.

Our aim in the current study was to test the hypothesis that a higher level of caregiver burden specific to patients' depression prior to antidepressant treatment would be associated with greater depression severity for patients in the 6th week of treatment. We used a sample of older primary care patients with depression who were receiving standardized antidepressant treatment through a research study, and we assessed caregiver burden in terms of the level of bother or upset due to patients' depressive symptoms in the past week. The effect of caregiver burden on patient depression was expected to be independent of patient correlates of early treatment response as well as caregivers' own depressive symptoms and relationship satisfaction prior to initiation of patient antidepressant treatment in primary care.

Method

Participants

Participants in this study were 130 depressed older adults and their spouses or adult children (i.e., 130 dyads). The older adults in this study are a subsample of primary care patients enrolled in an ongoing treatment study for major depressive disorder (MDD) who also enrolled in an ancillary family assessment study. The purpose of the treatment study is to assess the efficacy of adding interpersonal psychotherapy to antidepressant medication to manage partial or nonresponse to medication. Patients receive an open trial of antidepressant medication (i.e., daily doses of escitalopram 10 mg) without psychotherapy for 6 weeks as the initial step of a treatment algorithm. This treatment is delivered through a supportive medication clinic where

frequent contact is maintained with patients via telephone, issues regarding adherence to medication regimens and clinic appointments are dealt with proactively, and side effects are closely monitored. Patients are reassessed for depression severity at Week 6 of treatment using the 17-item Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960), and partial or nonresponders are randomized to receive a higher dose of escitalopram either with or without interpersonal psychotherapy. A previous report from the treatment study focused on categorical treatment response at Week 6 (i.e., non-, partial, and full response) in the full sample of patients enrolled in the treatment study (Saghafi et al., 2007).

All patients were 60 years of age or older. They also met criteria for current nonpsychotic MDD as established by the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID for *DSM-IV*; First, Gibbon, Spitzer, & Williams, 1997), had a baseline score of 15 or higher on the HRSD, and scored at least 17 on the Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975).

The caregiver was identified by the patient as the family member or friend who currently provides the most support or assistance, consistent with previous research (e.g., Hinrichsen, 1991; Perlick et al., 2004). All caregivers were required to be 18 years of age or older, living independently in their own homes, and cognitively intact (i.e., no more than three errors on the 10-item Short Portable Mental Status Questionnaire; Pfeiffer, 1975). All caregivers had face-to-face or telephone contact with the patient at least twice per week. Recruitment proceeded in two phases. Patients who were interested in participating provided consent to contact their identified caregiver. This individual was then contacted for screening. Structured, in-person interviews were conducted with caregivers within 1–2 weeks of patient assessment and initiation of treatment.

This report focuses on 130 patient–caregiver dyads recruited from a sample of 194 patients. A total of 192 of these patients were contacted for participation in this study, with 3 patients determined to be ineligible because they had no close family member or friend, they were in a potentially abusive relationship with their caregiver, or their caregiver was a participant in the treatment study. A total of 23 patients refused to participate primarily because of a desire to not involve family or friends, and 5 patients consented but their caregivers refused. An additional 10 patients agreed to participate but either the 2-week time window for the caregiver interview had passed or the patient dropped out of the treatment study before the caregiver could be interviewed. A total of 151 patient–caregiver dyads were assessed, and the caregiving individuals included adult children ($n = 64$), spouses ($n = 66$), and other friends or family members (e.g., siblings; $n = 21$). In this article, we focused on the 130 dyads consisting of a patient and an adult child or spouse because these relationships are especially important in patients' daily lives (Hinrichsen, 1991).

The 130 patients were compared with the 43 patients who did not participate in the family study on all patient variables examined in this report. The only difference was that patients included in this report had less depression severity at the Week 6 follow-up as indicated by HRSD score than did patients who did not participate in the family study ($M = 11.8$ and $SD = 4.8$ vs. $M = 14.0$ and $SD = 6.4$, respectively), $F(1, 171) = 5.82$, $p = .02$. Patients included in this report did not differ from those who did not participate in the family study in terms of pretreatment depression severity ($M = 18.5$ and $SD = 2.9$ vs. $M = 19.6$ and $SD = 3.8$, respectively), $F(1, 171) = 2.84$, $p = .09$.

Table 1 provides demographic information for the sample. The majority of patients were women (68%) and in their 70s ($M = 73.5$ years; $SD = 8.0$). Most of the patients were White (88%) and the remainder were African American. The majority of caregivers were women

(62%) in their late 50s ($M = 58.2$ years; $SD = 14.6$). The caregiver sample consisted of 66 spouses (35 husbands, 31 wives) and 64 adult children (57 daughters, 7 sons).

Patient Measures

We used pretreatment data collected with regard to patients' depression; physical illness, disability, and receipt of caregiver assistance with instrumental activities of daily living (IADLs) and personal activities of daily living (PADLs); and cognitive function. Severity of the patients' current depressive episode was assessed using the 17-item HRSD, and episode duration in weeks was reported by patients during the SCID. The Cumulative Illness Rating Scale for Geriatrics (CIRS-G; Miller et al., 1992) was used to assess the presence and severity of 13 illness conditions (e.g., heart disease, respiratory problems) as reported by the patient, and scores can range from 0 to 52. Disability was assessed with the 16-item disability component of the Late-Life Function and Disability Instrument (Jette et al., 2002). These items measure patients' perceived limitations in carrying out activities related to IADLs (e.g., transportation) and PADLs (e.g., dressing) on a 5-point scale ranging from 5 (*not at all*) to 1 (*completely*). Caregivers also indicated whether they assisted the patient with each of seven IADLs and PADLs during the past month (Lawton & Brody, 1969).

Pretreatment assessments of patient cognitive function included the MMSE and the scaled score of the Dementia Rating Scale (DRS; Mattis, 1988). The MMSE is a widely used 13-item measure of overall cognitive status, and the possible range of scores is 0 to 30. The 36-item DRS is an extensive, task-oriented measure that assesses cognitive function in the domains of attention, conceptualization, construction, initiation and perseveration, and memory. Scores are corrected for age and education level and can range from 0 to 16.

Caregiver Measures

Depression-specific caregiver burden—Burden specific to patients' recent depressive symptoms was assessed with items from the Depression Burden subscale of the Revised Memory and Behavior Problems Checklist (Teri et al., 1992). Caregivers who indicated that their relative exhibited any of nine symptoms in the past week (e.g., sadness, crying) then rated whether they were bothered or upset by that symptom on a scale from 0 (*not at all*) to 4 (*extremely*). Symptoms that did not occur were scored as 0. The average score for this measure was 7.9 ($SD = 7.1$; actual range = 0–32, possible range = 0–36). Spousal and adult child caregivers did not differ significantly in terms of depression-specific caregiver burden ($M = 7.7$ vs. 8.1, respectively), $F(1, 128) = 0.14$, $p = .71$.

Depressive symptomatology—Caregivers' depressive symptoms during the past week were assessed with the 20-item Center for Epidemiologic Studies—Depression Scale (Radloff, 1977), using a scale from 0 (*rarely or none of the time*) to 3 (*most of the time*). The average score was 10.4 ($SD = 9.6$; range = 0–49).

Relationship satisfaction—Caregivers' satisfaction in the relationship with the patient was assessed using an item from the Dyadic Adjustment Scale (Spanier, 1976) that correlates highly with the full measure (Sharpley & Cross, 1982). Caregivers rated their current satisfaction on a scale of 1 (*perfectly unhappy*) to 7 (*perfectly happy*), and the average satisfaction score was 4.2 ($SD = 1.4$; range = 1–7).

Analysis Plan

Our hypothesis was tested using hierarchical regression analysis. To conduct a conservative test of this hypothesis, we included 8 patients who dropped out of treatment prior to Week 6 in the analysis, and their depression score at Week 6 was imputed from their baseline depression score. Patients' baseline depression severity was included as a covariate in this analysis, as

well as caregivers' depressive symptoms and relationship satisfaction. Caregivers' depressive symptoms were included as a covariate on the basis of the evidence for emotional contagion in spouses (e.g., Hippiusley-Cox, Coupland, Pringle, Crown, & Hammersley, 2002; Tower & Kasl, 1995) and the heritability of depression (e.g., Kendler, Gardner, Neale, & Prescott, 2001). Caregivers' relationship satisfaction was included as a covariate on the basis of evidence that this factor predicts relapse in midlife depression (Hooley & Teasdale, 1989).

To identify additional patient control variables, we examined zero-order correlations between depression severity at Week 6 and 16 pretreatment characteristics, including 5 patient background variables (age, ethnicity, gender, years of education, patient-caregiver relationship type), 6 psychiatric characteristics (age at onset of first MDD symptom, age at onset of first MDD episode, single-episode vs. recurrent MDD, duration of current episode, number of Axis I psychiatric comorbidities, comorbid generalized anxiety disorder [GAD]), 3 indicators of physical health and functioning (CIRS-G, physical disability, IADL or PADL assistance), and 2 indicators of cognitive function (MMSE, DRS). The following five characteristics were significantly related to greater depression severity at Week 6 ($p < .05$) and were entered along with pretreatment depression severity, caregiver depressive symptoms, and caregiver relationship satisfaction in the first block of the regression analysis: African American ethnicity ($r = .19, p < .05$), less education ($r = -.23, p < .01$), younger age at onset of first symptom ($r = -.18, p < .05$), diagnosis of comorbid GAD ($r = .20, p < .05$), and more physical disability ($r = -.20, p < .05$). Depression-specific caregiver burden was entered in the second block of this analysis.

Results

As shown in Table 1, patients' baseline depression severity was mild to moderate, with scores ranging from 15 to 27 ($M = 18.6, SD = 3.0$; possible range = 0–52). There was much variability in the duration of patients' current episode, with a range of 3 weeks to 65 years; a natural log transformation was used for this variable prior to analysis. Half of the patients had recurrent MDD and half also met criteria for one or more comorbid Axis I disorders, with the most common being GAD.

Patients exhibited the levels of physical and cognitive impairment typically seen in later life depression (Butters et al., 2004; Lenze et al., 2001; see Table 1). The average score of 10 on the CIRS-G indicates a moderate level of chronic medical illness, and virtually all (98%) of the patients reported at least two comorbid chronic illness conditions. Patients' average score of approximately 60 on the physical disability measure indicates moderate functional limitation, and individual scores ranged from 19–79, indicating high to low levels of disability (Jette et al., 2002). Caregivers provided assistance with an average of three IADL and/or PADLs, and 88% reported assisting with at least one of these activities, consistent with previous research on depressed older adults (Langa, Valenstein, Fendrick, Kabeto, & Vijan, 2004). The average MMSE score was normal, but overall scores ranged from 18 to 30; the average DRS score was on the low end of the range considered normal (i.e., 7–13), with the full range of scores (2–15) indicating some impairment.

Patient adherence to an antidepressant medication regimen during the 6 weeks was high. Only 25% of patients reported any missed daily doses, and most of these individuals missed only one or two doses during the 6-week time period. Average depression severity at Week 6 was 11.8 ($SD = 4.8$; range = 1–27). Table 2 presents our findings from the last step of the analysis examining depression-specific caregiver burden as a unique predictor of early treatment response. As hypothesized, depression-specific burden was associated with greater depression severity for the patient at Week 6 ($\beta = .18, p < .05$) beyond the effects of patients' pretreatment characteristics, caregivers' depressive symptoms, and caregivers' relationship satisfaction.

Discussion

Reflecting the public health significance of later life depression, one of the top 10 priorities identified by delegates at the 2005 White House Conference on Aging was improved treatment of depression in older Americans. There is tremendous variability in the extent to which older adults respond to depression treatment, with only approximately one third of patients fully responding to antidepressant medication within the first 6 weeks. In this study, we showed that caregiver burden explains a small yet significant proportion of this variability. This study sets the stage for future research aimed at identifying specific family attitudes and behaviors that are likely to stem from burden.

In this study, we found that older patients have a poorer early response to psychiatric treatment when their closest family member is more burdened by the patient's depressive symptoms, independent of the effects of caregivers' own depressive symptomatology and relationship satisfaction as well as a set of pretreatment characteristics of the patient. Our finding extends previous research by showing that the influence of family emerges early in treatment, is specific to dealing with patients' depressive symptoms, and occurs in primary care patients. There is clearly a need for greater attention to caregiver burden in the development of new treatments for later life depression. Because older patients' early response to antidepressant treatment is an important predictor of eventual remission of their symptoms, psychosocial interventions aimed at reducing caregiver burden may provide additional patient benefits beyond medication (Schulz, Martire, & Klinger, 2005). Reduced burden is also likely to benefit caregivers' own emotional well-being and physical health, in that caregiver burden or strain has been shown to put family members at risk for compromised immune, cardiovascular, and endocrine functioning, and at increased risk for mortality (Schulz & Beach, 1999; Vitaliano, Zhang, & Scanlan, 2003).

Our findings raise the question of how greater burden in a spouse or adult child translates into patients' poorer response to treatment over the first 6 weeks. Although we showed that this association was independent of caregivers' relationship satisfaction, negative aspects of patient-caregiver relationship functioning are likely to influence treatment response as well (Hooley & Teasdale, 1989). Family caregivers reporting greater burden are less supportive of their older relatives with regard to their symptoms and management of chronic illness (e.g., Williamson, Shaffer, & the Family Relationships in Late Life Project, 2001). Burden may lead to specific family behaviors such as expressed emotion (i.e., criticism, hostility, and overinvolvement), which is associated with greater likelihood of depression relapse in treated individuals (Butzlaff & Hooley, 1998), including older patients (Hinrichsen & Pollack, 1997). Unfortunately, caregiver social support and negative behaviors toward the patient were not assessed in the current study and should be examined in future research.

Another mechanism to examine in future research is the effect of negative family behaviors such as criticism on patient adherence to an antidepressant medication regimen. In the current study, we focused on a brief treatment period during which medication regimen adherence was high, precluding the examination of adherence as a potential mediator. However, outside of treatment studies that provide supportive clinical management, up to half of depressed older adults fail to take a significant proportion of prescribed antidepressant medication, and recent research indicates that greater perceived emotional support from family and friends is a critical predictor of adherence (Voils, Steffens, Flint, & Bosworth, 2005). Thus, an examination of nonadherence as a mediator of the effects of caregiver burden or negative patient-caregiver interactions on patient treatment response is an interesting direction for future research.

Our findings may be limited in terms of generalizability. Many of the caregivers in this study likely played a role in the patients' decision to seek treatment. In addition, patients included

in this article had less severe depression at the Week 6 follow-up than did patients who did not participate in the family study. Patients who participated in this study may have had less problematic relationships with family or have been more likely to have a family member in whom they felt comfortable confiding with regard to depression. Therefore, the current sample may not be representative in terms of family supportiveness or endorsement of depression treatment.

Despite the limitations of this study, it fills an important gap. Much of the previous work exploring the role of family in recovery from depression has focused on midlife patients and their spouses. Our findings are consistent with the clinical intuition that close family members such as spouses and adult sons or daughters are critical influences in the process of recovering from later life depression. Future research in this area may lead to the development of interventions that help older adults to recover from depression and stay well.

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References

- Bosworth HB, Hays JC, George LK, Steffens DC. Psychosocial and clinical predictors of unipolar depression outcome in older adults. *International Journal of Geriatric Psychiatry* 2002;17:238–246. [PubMed: 11921152]
- Butters MA, Whyte EM, Nebes RD, Begley AE, Dew MA, Mulsant BH, et al. The nature and determinants of neuropsychological functioning in late-life depression. *Archives of General Psychiatry* 2004;61:587–595. [PubMed: 15184238]
- Butzlaff RL, Hooley JM. Expressed emotion and psychiatric relapse. *Archives of General Psychiatry* 1998;55:547–552. [PubMed: 9633674]
- Carstensen LL, Isaacowitz DM, Charles ST. Taking time seriously: A theory of socioemotional selectivity. *American Psychologist* 1999;54:165–181. [PubMed: 10199217]
- Charney DS, Reynolds CF III, Lewis L, Lebowitz BD, Sunderland T, Alexopoulos GS, et al. Depression and bipolar support alliance consensus statement on the unmet needs in diagnosis and treatment of mood disorders in late life. *Archives of General Psychiatry* 2003;60:664–672. [PubMed: 12860770]
- Dew MA, Reynolds CF, Houck PR, Hall M, Buysse DJ, Frank E, Kupfer DJ. Temporal profiles of the course of depression during treatment: Predictors of pathways toward recovery in the elderly. *Archives of General Psychiatry* 1997;54:1016–1024. [PubMed: 9366658]
- First, MB.; Gibbon, M.; Spitzer, RL.; Williams, JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders, SCID I: Clinical version, administration booklet*. Washington, DC: American Psychiatric Press; 1997.
- Folstein MF, Folstein SE, McHugh PR. Mini-Mental State: A practical method for grading the state of patients for the clinician. *Journal of Psychiatric Research* 1975;12:189–198. [PubMed: 1202204]
- George LK, Blazer DG, Hughes DC, Fowler N. Social support and the outcome of major depression. *British Journal of Psychiatry* 1989;154:478–485. [PubMed: 2590779]
- Gotlib, IH.; Hammen, CL. *Psychological aspects of depression: Toward a cognitive-interpersonal integration*. Chichester, England: Wiley; 1992.
- Hamilton M. A rating scale for depression. *Journal of Neurology, Neurosurgery and Psychiatry* 1960;23:56–62.
- Hinrichsen GA. Adjustment of caregivers to depressed older adults. *Psychology and Aging* 1991;6:631–639. [PubMed: 1777152]
- Hinrichsen GA, Hernandez NA. Factors associated with recovery from and relapse into major depressive disorder in the elderly. *American Journal of Psychiatry* 1993;150:1820–1825. [PubMed: 8238636]

- Hinrichsen GA, Pollack S. Expressed emotion and the course of late-life depression. *Journal of Abnormal Psychology* 1997;106:336–340. [PubMed: 9131854]
- Hippisley-Cox J, Coupland C, Pringle M, Crown N, Hammersley V. Married couples' risk of same disease: Cross-sectional study. *British Medical Journal* 2002;325:636–640. [PubMed: 12242177]
- Hooley JM, Teasdale JD. Predictors of relapse in unipolar depressives: Expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology* 1989;98:229–235. [PubMed: 2768657]
- Jette AM, Haley SM, Coster WJ, Kooyoomijian JT, Levenson S, Heeren T, et al. Late life function and disability instrument: I. Development and evaluation of the disability component. *Journals of Gerontology, Series A: Biological Sciences and Medical Sciences* 2002;57:M209–M216.
- Kendler KS, Gardner CO, Neale MC, Prescott CA. Genetic risk factors for major depression in men and women: Similar or different heritabilities and same or partly distinct genes? *Psychological Medicine* 2001;31:605–615. [PubMed: 11352363]
- Langa KM, Valenstein MA, Fendrick AM, Kabeto MU, Vijan S. Extent and cost of informal caregiving for older Americans with symptoms of depression. *American Journal of Psychiatry* 2004;161:857–863. [PubMed: 15121651]
- Lawton MP, Brody EM. Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist* 1969;9:179–186. [PubMed: 5349366]
- Lenze EJ, Rogers JC, Martire LM, Mulsant BH, Rollman BL, Dew MA, et al. The association of late-life depression and anxiety with physical disability: A review of the literature and prospectus for future research. *American Journal of Geriatric Psychiatry* 2001;9:113–135. [PubMed: 11316616]
- Lyness JM, Caine ED, King DA, Cox C, Yoediono Z. Psychiatric disorders in older primary care patients. *Journal of General Internal Medicine* 1999;14:249–254. [PubMed: 10203638]
- Martire LM, Schulz R, Wrosch C, Newsom JT. Perceptions and implications of received spousal care: Evidence from the Caregiver Health Effects Study. *Psychology and Aging* 2003;18:593–601. [PubMed: 14518818]
- Mattis, S. *Dementia Rating Scale (DRS)*. Odessa, FL: Psychological Assessment Resources; 1988.
- Miller MD, Paradis CF, Houck PR, Mazumdar S, Stack JA, Rifai AH, et al. Rating chronic medical illness burden in geropsychiatric practice and research: Application of the Cumulative Illness Rating Scale. *Psychiatry Research* 1992;41:237–248. [PubMed: 1594710]
- Mulsant BH, Houck PR, Gildengers AG, Andreescu C, Dew MA, Pollock BG, et al. What is the optimal duration of a short-term antidepressant trial when treating geriatric depression? *Journal of Clinical Psychopharmacology* 2006;26:113–120. [PubMed: 16633138]
- Perlick DA, Rosenheck RR, Clarkin JF, Maciejewski PK, Sirey J, Struening E, Link BG. Impact of family burden and affective response on clinical outcome among patients with bipolar disorder. *Psychiatric Services* 2004;55:1029–1035. [PubMed: 15345763]
- Pfeiffer E. A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients. *Journal of the American Geriatrics Society* 1975;23:433–441. [PubMed: 1159263]
- Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement* 1977;1:385–401.
- Sacco, WP. A social–cognitive model of interpersonal processes in depression. In: Joiner, T.; Coyne, JC., editors. *The interactional nature of depression*. Washington, DC: American Psychological Association; 1999. p. 329–362.
- Saghafi R, Brown C, Butters MA, Cyranowski J, Dew MA, Frank E, et al. Predicting six-week treatment response to escitalopram pharmacotherapy in late-life major depressive disorder. *International Journal of Geriatric Psychiatry* 2007;22:1141–1146. [PubMed: 17486678]
- Scazufca M, Menezes PR, Almeida OP. Caregiver burden in an elderly population with depression in Sao Paulo, Brazil. *Social Psychiatry and Psychiatric Epidemiology* 2002;27:416–422. [PubMed: 12242617]
- Schulberg HC, Mulsant B, Schulz R, Rollman BL, Houck PR, Reynolds CF III. Characteristics and course of major depression in older primary care patients. *International Journal of Psychiatry in Medicine* 1998;28:421–436. [PubMed: 10207741]
- Schulz R, Beach SR. Caregiving as a risk factor for mortality: The Caregiver Health Effects Study. *JAMA* 1999;282:2215–2219. [PubMed: 10605972]

- Schulz R, Martire LM, Klinger JN. Caregiver interventions in geriatric psychiatry. *Psychiatric Clinics of North America* 2005;28:1007–1038. [PubMed: 16325738]
- Sewitch MJ, McCusker J, Dendukuri N, Yaffe MJ. Depression in frail elders: Impact on family caregivers. *International Journal of Geriatric Psychiatry* 2004;19:655–665. [PubMed: 15254922]
- Sharpley CF, Cross DG. A psychometric evaluation of the Spanier Dyadic Adjustment Scale. *Journal of Marriage and the Family* 1982;44:739–741.
- Spanier GB. Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family* 1976;38:15–28.
- Teri L, Truax P, Logsdon R, Uomoto J, Zarit S, Vitaliano P. Assessment of behavioral problems in dementia: The Revised Memory and Behavior Problems Checklist. *Psychology and Aging* 1992;7:622–631. [PubMed: 1466831]
- Thompson SC, Sobolew-Shubin A. Overprotective relationships: A nonsupportive side of social networks. *Basic and Applied Social Psychology* 1993;14:363–383.
- Tower RB, Kasl SV. Depressive symptoms across older spouses and the moderating effect of marital closeness. *Psychology and Aging* 1995;10:625–638. [PubMed: 8749590]
- Vitaliano PP, Zhang J, Scanlan J. Is caregiving hazardous to one's physical health? A meta-analysis. *Psychological Bulletin* 2003;129:946–972. [PubMed: 14599289]
- Voils CI, Steffens DC, Flint EP, Bosworth HB. Social support and locus of control as predictors of adherence to antidepressant medication in an elderly population. *American Journal of Geriatric Psychiatry* 2005;13:157–165. [PubMed: 15703325]
- Williamson GM, Shaffer DR. the Family Relationships in Late Life Project. Relationship quality and potentially harmful behaviors by spousal caregivers: How we were then, how we are now. *Psychology and Aging* 2001;16:217–226. [PubMed: 11405310]

Table 1

Sample Characteristics of Patients and Caregivers

Characteristic	<i>M</i>	<i>SD</i>	%	<i>N</i>
Patients				
Age	73.5	8.0		
Women			68	88
White			88	114
Years of education (in years)	13.7	2.9		
Age at onset of MDD	39.0	24.1		
Severity of current MDD episode	18.6	3.0		
Duration of current MDD episode (weeks) ^a	204.4	395.7		
Comorbid generalized anxiety disorder			50	65
Medical illness (CIRS-G)	10.4	3.9		
Physical disability ^b (LLFDI)	59.7	12.5		
Assistance with IADL/PADLs (# of activities)	3.0	1.9		
Cognitive function (MMSE)	28.1	2.1		
Cognitive function (DRS)	8.6	2.7		
Caregivers				
Age	58.2	14.6		
Women			62	81
White			85	111
Years of education	14.8	1.9		
Spouse			51	66

Note. MDD = major depressive disorder; CIRS-G = Cumulative Illness Rating Scale for Geriatrics; LLFDI = Late-Life Function and Disability Instrument; IADL/PADLs = instrumental and personal activities of daily living; MMSE = Mini-Mental Status Examination; DRS = Dementia Rating Scale.

^a A natural log transformation was used with this variable prior to analysis.

^b Higher scores indicate less disability.

Table 2

Effect of Depression-Specific Caregiver Burden on Patients' Early Treatment Response

Predictor	Patient depression severity at Week 6 (HRSD)		R^2
	β	SE	
Block 1, patient and caregiver control variables			.29***
Pretreatment depression severity (HRSD)	.23**	.09	
Age at onset of first depressive symptom	-.08	.09	
African American	.25**	.08	
Years of education	-.12	.08	
Comorbid generalized anxiety disorder	.17*	.09	
Physical disability ^a (LLFDI)	-.07	.09	
Caregiver depressive symptoms (CES-D)	.04	.09	
Caregiver relationship satisfaction (DAS)	-.11	.09	
Block 2			.03*
Depression-specific caregiver burden (RMBPC subscale)	.18*	.09	

Note. HRSD = Hamilton Rating Scale for Depression; LLFDI = Late-Life Function and Disability Instrument; CES-D = Center for Epidemiologic Studies—Depression Scale; DAS = Dyadic Adjustment Scale, 1 item rating of satisfaction; RMBPC = Revised Memory and Behavior Problems Checklist.

^aHigher scores indicate less disability.

*
 $p < .05$.

**
 $p < .01$.

***
 $p < .001$.