

STRESS GENERATION IN DEPRESSED PATIENTS AND COMMUNITY CONTROLS

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This study examined the relationship between depression and stressors in depressed patients and community controls using data from a 10-year longitudinal study. The first aim was to examine the role of unipolar depression as an antecedent to various stressors over varying durations of time. The results provide support for the hypothesis that depression generates future stressors. Moreover, baseline depression had a more enduring effect that lasted 10 years on interpersonal stressors than on noninterpersonal stressors. The second aim was to understand the nature of the association between depression and subsequent stressors. The results revealed an overall positive linear trend in patients and controls. However, stress generation was more pervasive and complex in patients, suggesting a threshold effect of depression on certain stressors. Overall, the findings illuminate the complexity of the dynamic interplay of depression and stressors.

Clinical researchers have long been interested in the mental health outcomes of the stress process. What was once conceptualized as a unidirectional and rather static process is now regarded as a complex, multidimensional, and dynamic phenomenon. One of the complexities of the stress process has to do with the proposed reciprocal interplay be-

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tween stressors and health outcomes (Holahan, Moos, & Bonin, 1999; Lazarus & Folkman, 1984; Moos & Scheafer, 1993). Stressors are thought to contribute to deterioration in mental health, which, in turn, may contribute to the occurrence of future stressors. In general, researchers have focused more heavily on the link from stressors to mental health, and much less is known about the role of mental health as an antecedent to stressors. In this article, we use data from a 10-year longitudinal study to examine the role of depression as an antecedent to stressors among depressed patients and community controls.

Prior research has emphasized the etiological role of stressors in depression. Stressors contribute to the onset and relapse of unipolar depression (e.g., Billings & Moos, 1984a; Swindle, Cronkite, & Moos, 1989), as well as to increases in depressive symptoms in community residents (e.g., Aneshensel & Stone, 1982; O'Hara, Schlechte, Lewis, & Varner, 1991; Vinokur, Price, & Caplan, 1996). However, recent studies suggest that the relationship between stressors and depression may be reciprocal. Unipolar depression was found to contribute to the generation of stressors in adult and adolescent women (Daley et al., 1997; Hammen, 1991; Rudolph et al., 2000). Depressive symptomatology has also been linked to greater subsequent stressors in nonclinical samples (Cui & Vaillant, 1997; Davila, Bradbury, Cohan, & Tochluk, 1997; Potthoff, Holahan, & Joiner, 1995; Russell & Cutrona, 1991). An association between depression and subsequent stressors has been identified for acute events (e.g., Cui & Vaillant, 1997; Hammen, 1991; Potthoff et al., 1995) and chronic strain (Davila et al., 1997; Russell & Cutrona, 1991). This link between depression and stressors has been referred to as the *stress generation* process (Hammen, 1991).

The relationship between depression and stressors, however, is more complex. Hammen (1991) made a distinction between independent and dependent stressors. *Independent* stressors, such as an illness or death of a family member and natural disasters, are essentially unrelated to the individuals' actions. In contrast, *dependent* stressors occur at least in part as a result of the individuals' actions; some examples are interpersonal conflicts, separation, divorce, and financial difficulties. Depression is associated with dependent but not independent negative life events (Cui & Vaillant, 1997; Daley et al., 1997; Hammen, 1991).

Within the dependent stressor category, the stress-generative effects of depression are especially strong in the *interpersonal* domain (Hammen, 1991), involving such stressors as marital problems (Davila et al., 1997) and conflict with family, friends, and significant others (Potthoff et al., 1995). Indeed, unipolar depression is often associated with a distressed interpersonal context (e.g., Barnett & Gotlib, 1988; Coyne, Kessler, Tal, et al., 1987; Holahan, Moos, & Bonin, 1999; Moos,

Cronkite, & Moos, 1998a). Depressed individuals tend to lack adequate interpersonal and coping skills (Hammen, 1991), and people tend to respond negatively to their depressive symptoms (Coyne et al., 1987). Consequently, current interpersonal theories of depression acknowledge, at least conceptually, the reciprocal nature of the relationship between depression and interpersonal stressors (e.g., Coyne et al., 1987; Dill & Anderson, 1999; Hammen, 1991; Sacco, 1999).

Although these studies provide important evidence for an association between depression and subsequent stressors, they are not without methodological and theoretical shortcomings. Methodologically, these studies typically did not control for the contribution of stressors at baseline (Cui & Vaillant, 1997; Hammen, 1991; Potthoff et al., 1995; Russell & Cutrona, 1991) with the exception of Davila et al. (1997). It is possible that the association between depression and subsequent stressors is a spurious one generated by their common link to stressors at baseline. Depressed individuals may report more stressors at follow-up compared to nondepressed individuals, not because their depression created more stressors, but because they experienced more stressors at baseline. This might be particularly true for chronic stressors that persist over time (e.g., marital tension). Controlling for stressors at baseline can help reveal the unique contribution of depression at baseline to subsequent stressors.

Theoretically, several key issues remain to be examined. First, stress generation in *noninterpersonal* domains has not been systematically investigated. Hammen and other theorists emphasized the role of interpersonal stressors in the stress generation process; however, other domains of stressors also appear to be involved (Cui & Vaillant, 1997; Hammen, 1991; Russell & Cutrona, 1991). For example, depression often results in impairment in cognitive functioning, psychomotor retardation or agitation, and fatigue and lack of interest in normal social activities, all of which can seriously impede occupational functioning and cause job loss. The somatic symptoms of depression, such as insomnia/hypersomnia, loss of appetite and/or weight, and fatigue, coupled with the cognitive symptoms, may reduce one's ability to take care of oneself and place one at greater health risk. Through poor self-care, depression may exacerbate preexisting medical conditions or even contribute to the occurrence of new conditions. In fact, past studies have found high rates of co-occurrence of medical illnesses and depression (Katon & Sullivan, 1990; Patten, 1999; Steffens et al., 1999; Swindle et al., 1989), and depression often has been found to be secondary to medical conditions (Clayton & Lewis, 1981; Winokur, Morrison, Clancy, & Crowe, 1972; Zung, 1980). However, few studies have examined the link between

depression and subsequent medical conditions (see Joiner, Vohs, & Schmidt, 2000, for an exception).

Research also has not addressed the endurance of stress-generative effects. The stress generation hypothesis proposes that individuals with unipolar depression have personality traits or skills deficiencies that make them prone to experiencing more stressors than nondepressed individuals (Hammen, 1991). Adult personality traits tend to be stable up to 9 years (Costa, Herbst, McCrae, & Siegler, 2000; McCrae et al., 2000; Robins, Caspi, & Moffitt, 2002). Also, research on sociocognitive biases against depressed individuals shows that the biases can persevere for a long time. Sacco (1999) proposes that people develop a negative schema of the depressed person, which will result in "often biased perceptions, interpretations, and judgments about the depressed person" (p. 334), that may persist or be easily reactivated even after the depressive symptoms remit (Higgins & Bargh, 1987; Hooley & Teasdale, 1989). All of this points to the possibility that the impact of depression on stressors may be enduring. So far, significant associations have been observed over 6 to 12 months (Daley et al., 1997; Davila et al., 1997; Hammen, 1991; Potthoff et al., 1995), but associations over longer periods of time have not been examined. Studies on the long-term course of depression have shown that psychosocial characteristics of depressed patients can predict depression *10-years later* (e.g., Cronkite, Moos, Twohey, Cohen, & Swindle, 1998; Holahan, Moos, Holahan, & Cronkite, 1999; Moos et al., 1998a). Thus, it is plausible that the stress generation effect could also endure up to 10 years.

Finally, we do not know whether stress generation is comparable between clinically depressed and nondepressed people. Hammen (1991) originally proposed and found that stress generation was unique to women with unipolar depression. However, the findings of community studies (e.g., Cui & Vaillant, 1997; Davila et al., 1997) suggest that the stress generation process may be a positive linear function of the severity of depression such that, across depressed and control groups, the number of events generated increases as the severity of depression increases. Furthermore, studies of nonclinical populations assume that stress generation for depressed and nondepressed individuals is comparable. According to a linear model of stress generation, any differences between the patients and controls on number of events would be a function of differences in the severity of depressive symptoms.

On the other hand, researchers such as Coyne (1999) warn against the use of nonclinical populations to infer processes that occur in clinical disorders. They argue that the phenomenon of unipolar depression is qualitatively different from that of moderate levels of depressive symptomatology because there are distinct episodes in the course of unipolar depression and the difference between unipolar depression and

subclinical depression is not just a matter of the number and intensity of symptoms. Such a threshold model would in fact be in line with Hammen's original hypothesis (1991), predicting that the stress generation process in clinically depressed people is qualitatively different from that in community controls. The qualitative differences can be expressed in terms of the severity of stressors. Given the qualitative differences between patients and controls in the nature of depression, the severity of depression may be associated with the severity of the stressors it generates. In the domain of interpersonal stressors, moderate or subclinical depression may engender interpersonal strains such as conflicts with family or coworkers, whereas clinical depression may result in serious disruptions in relationships, such as separation and divorce, in addition to the interpersonal strains. One could also expect a positive association of initial depression with subsequent financial and medical stressors only in depressed patients, given that both are severe stressors that reflect deterioration in occupational functioning and health.

Another possibility is that the nature of the association between depression and subsequent stressors is more complex in patients than in controls. Research on family interactions of depressed women found that, in the short run, depressive behaviors *suppressed* displays of hostility from other family members, but over the long term, depressive behaviors served to reduce nurturing behavior and to increase the likelihood of subsequent hostility (Biglan, Hops, & Sherman, 1988). Thus, the nature of the relationship between depressive symptoms and subsequent interpersonal stressors may change over time in clinically depressed individuals.

THE PRESENT STUDY

The present study builds upon and extends the literature on stress generation using data from a 10-year longitudinal study on depressed patients and community controls. The primary aims of this study are twofold. The first aim is to obtain an expanded understanding about the relationship between unipolar depression and subsequent stressors by answering the following question: Do clinically depressed patients experience more subsequent stressors 1 year and 10 years later than the community controls after controlling for prior levels of stressors? On the basis of past findings and theories, we expected prior depression to influence only subsequent levels of dependent stressors, and not independent stressors. In addition, we categorized dependent stressors into interpersonal and noninterpersonal domains and expected evidence for stress generation to be observed in both domains. Lastly, we expected to observe a stress-generative effect of depression that endures for as long as 10 years.

The second aim of the study is to clarify the nature of the relationship between depression and subsequent stressors. Two alternative (competing) hypotheses were proposed: a linear model and a threshold model. The linear model predicts that the stress generation processes are comparable in depressed patients and community controls and that there is an overall positive relationship between depression and subsequent stressors. Thus, observations of parallel positive linear associations between baseline depression and subsequent stressors in both patients and controls would support the linear model. The threshold model predicts that the stress generation process is qualitatively different for patients and controls in the following two ways. First, initial depression would be associated with subsequent interpersonal strains in both patients and controls. However, given that depression is more severe in patients, initial depression may be associated with subsequent disruptions in interpersonal relationships only in patients. Second, the nature of the relationship between initial depressive symptoms and subsequent interpersonal stressors may change over time in depressed patients. That is, initial severity of depression among the patients may foreshadow fewer interpersonal strains in the short run, but more interpersonal strains in the long run in enduring relationships such as those with family.

METHODS

PARTICIPANTS

Our sample consisted of 313 treated depressed patients and 332 demographically matched community controls, who were followed 1 year and 10 years after a baseline assessment. The initial sample of 424 depressed patients entered treatment at one of five representative treatment facilities: two community mental health centers, a health maintenance organization, a university hospital, and a VA medical center. All patients were age 18 or older and were diagnosed with a unipolar depressive disorder according to the Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978). Diagnoses were made by clinician judgment, followed by a structured symptom form used to confirm a diagnosis of depression and to apply exclusion criteria (Billings, Cronkite, & Moos, 1983). A demographically matched sample of 424 case controls was also recruited at baseline. A control household was randomly selected from each patient's census tract. Further details of the data collection procedures are presented elsewhere (Billings, Cronkite, & Moos, 1983; Swindle et al., 1989).

The two groups were demographically matched. Mean ages at baseline were 39.9 years for patients and 39.4 years for controls. In both

groups, slightly more than half were women (55.4% for patients and 54.5% for controls), not married (56.6% for both patients and controls), and college-educated (59.4% for patients and 58.3% for controls). Both groups were predominantly white (84.6% for patients and 88.4% for controls).

MEASURES

Participants completed the Health and Daily Living (HDL) Form at baseline and at the 1-year and 10-year follow-ups (Moos, Cronkite, & Finney, 1990). All the measures described below are based on responses to items on the HDL.

Depressive Symptomatology. The global depressed mood of respondents was assessed in terms of the frequency with which they experienced 18 symptoms covering depressive mood and ideation, endogenous depressive symptoms, and associated depressive features within the previous month. These symptoms correspond to the RDC's criteria of depression and were weighted by their frequency of occurrence on a 5-point Likert scale ranging from "never" to "often." This index ranges from 0 to 72, is highly reliable with a Cronbach alpha of .92 (Moos, Cronkite, Billings, & Finney, 1990), and is strongly correlated with other measures of depression such as the Beck Depression Inventory ($r = .90$; Mitchell & Moos, 1984).

Independent Stressors. Independent stressors consist of the total number of 15 negative life events experienced over the past year over which individuals had little or no control, such as death of a spouse, a close friend, or an immediate family member; serious illness or injury of a family member; and experience of assault or robbery.

Interpersonal Dependent Stressors. Respondents were asked whether they had experienced a separation or divorce during the past year, and the total number of such stressors was used as an index of *exit/loss events*. Interpersonal strains that are not as serious and disruptive as exit/loss events were measured separately for kin and non-kin relationships. *Family conflict* was measured by asking respondents whether their family had frequent disagreements about each of 14 areas, including friends, driving habits, money, and sex. The number of areas of disagreement endorsed was used as an index of family conflict. *Non-kin conflict* was measured as the number of relationship troubles with individuals outside of the immediate family, such as in-laws, friends, and supervisors at work, that occurred in the past year.

Financial Dependent Stressors. Financial stressors were measured as the total number of four negative life events experienced during the past

year: having been laid off or fired, unemployed for a month or more, significant decrease in income, and going deeply into debt.

Medical Dependent Stressors. Respondents were asked whether they had any of 14 chronic medical conditions (diagnosed by a physician) during the past 12 months, such as asthma, arthritis, bronchitis, cancer, diabetes, and heart trouble. The number of medical conditions endorsed was used as an index of medical dependent stressors.

ANALYSIS PLAN

The analyses consist of three parts. Using *t*-tests, we first compared the level of independent and dependent stressors between depressed patients and controls at baseline, 1-year follow-up, and 10-year follow-up. This part replicates the analysis of previous studies on stress generation (Cui & Vaillant, 1997; Daley et al., 1997; Hammen, 1991). Next, we examined whether having unipolar depression at baseline predicts increases in stressors at the 1-year and 10-year follow-ups after controlling for sociodemographic characteristics and stressors at baseline. Each hierarchical multiple regression model consisted of three steps. In the first step, sociodemographic control variables assessed at baseline were entered: age, gender (female = 1, male = 0), marital status (married = 1, not married = 0), race (white = 1, nonwhite = 0), and years of education. In step 2, baseline stressors were entered, and, in step 3, diagnosis of unipolar depression at baseline (diagnosis = 1, no diagnosis = 0) was entered. This regression model was tested separately for each of the six stressor domains and for the 1-year and 10-year follow-ups.

Finally, we examined whether prior depressive symptoms at baseline predict higher levels of subsequent stressors. Again, hierarchical multiple regression analyses were performed, with the same sociodemographic control variables entered first, followed by stressors at baseline, then by level of depressive symptomatology. Regression models were conducted separately for patients and controls for each stressor domain.

RESULTS

GROUP DIFFERENCES IN DEPRESSIVE SYMPTOMATOLOGY AT BASELINE AND AT 1-YEAR AND 10-YEAR FOLLOW-UPS

Depressed patients and community controls differed significantly on the level of depressive symptoms. As would be expected, patients were significantly more depressed than controls at all three time points (43.95 ± 14.83 , 32.66 ± 15.97 , and 27.31 ± 14.31 for patients and 19.22 ± 11.79 ,

18.92 ± 12.55, and 19.2 ± 11.79 for controls at baseline and 1-year and 10-year follow ups, respectively). Over time, the level of depressive symptoms decreased among patients, but it remained stable among controls.

GROUP DIFFERENCES IN STRESSORS AT BASELINE AND AT 1-YEAR AND 10-YEAR FOLLOW-UPS

Table 1 shows the mean level of independent and dependent stressors of patients and controls. As expected, patients and controls did not differ in independent negative life events at any of the three time points. However, patients showed a general pattern of more dependent interpersonal stressors than the controls at all three waves. This was significant at all three waves for family conflict, financial stressors, and medical conditions, and at the first two waves for non-kin conflict and exit/loss events.

DIAGNOSIS AS A PREDICTOR OF SUBSEQUENT STRESSORS

The results of the t-tests show that patients who were depressed at baseline tended to experience more dependent stressors at any given time point than did the controls. The next question is whether experiencing a depressive episode at baseline is associated with more future stressors than expected or whether the group differences observed in stressors at 1-year and 10-year follow-ups are due to differences in stressors at baseline. A series of hierarchical multiple regression analyses were conducted to examine the relationship between the diagnosis of unipolar depression and subsequent stressors, after controlling for stressors at baseline.

There were only a few scattered associations between the demographic factors and the stressor criteria. Older individuals tended to experience fewer stressors (except for medical conditions); more educated individuals also tended to experience fewer stressors. Table 2 shows that in each of the six areas, more stressors of a specific type at baseline predicted more stressors of the corresponding type at follow-up. Although a diagnosis of depression at baseline was not a significant predictor of independent negative life events at either the 1-year or 10-year follow-up, it did predict several dependent stressors at the 1-year follow-up. Specifically, being clinically depressed at baseline was associated with more family conflict ($\beta = .07, p \leq .05$), more exit/loss events ($\beta = .09, p \leq .01$), and more financial stressors ($\beta = .13, p \leq .001$) at the 1-year follow-up, after controlling for baseline levels of corresponding stressors. In addition, being clinically depressed at baseline was marginally associated with more family conflict at the 10-year follow-up ($\beta = .07, p = .08$).

TABLE 1. Means and Standard Deviations of Independent and Dependent Stressors at Baseline and 1-Year and 10-year Follow-Ups

	Patients	Controls
Independent Stressors^a		
Baseline	.44 (.71)	.42 (.68)
1-year follow-up	.44 (.71)	.45 (.68)
10-year follow-up	.55 (.82)	.51 (.75)
Family Conflict		
Baseline	3.45 (2.88)***	2.58 (2.58)
1-year follow-up	3.22 (2.75)***	2.43 (2.46)
10-year follow-up	2.79 (2.68)***	2.14 (2.17)
Nonkin Conflict		
Baseline	.60 (.75)***	.38 (.63)
1-year follow-up	.54 (.70)*	.43 (.68)
10-year follow-up	.42 (.64)	.35 (.60)
Exit/Loss Events		
Baseline	.27 (.50)***	.07 (.31)
1-year follow-up	.21 (.45)***	.06 (.29)
10-year follow-up	.11 (.34)	.07 (.24)
Financial Stressors		
Baseline	.87 (1.05)***	.38 (.73)
1-year follow-up	.82 (1.03)***	.44 (.80)
10-year follow-up	.72 (1.02)***	.48 (.84)
Medical Conditions		
Baseline	.97 (1.23)***	.46 (.84)
1-year follow-up	.99 (1.24)***	.53 (.93)
10-year follow-up	1.05 (1.28)***	.63 (.97)

Note. ^aIndependent stressors were measured as the number of the following negative life events experienced: Death of a spouse, a close friend, and an immediate family member, serious illness or injury of a family member, and experience of assault or robbery. + $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

DEPRESSIVE SYMPTOMS AS A PREDICTOR OF SUBSEQUENT STRESSORS

To compare the stress generation process between patients and controls, a comparable series of hierarchical multiple regression analyses were performed separately for patients and controls for each stressor. Table 3 summarizes the results. Among the patients and controls, age was most consistently associated with stressors. Overall, being older was associated with fewer stressors except for medical conditions, which rose with age. With one exception (i.e., independent negative life events at 10

TABLE 2. Diagnosis of Unipolar Depression as a Predictor of Subsequent Stressors, Controlling for Stressors at Baseline

Predictors	Stressors					
	Independent Stressors	Family Conflict	Nonkin Conflict	Exit/Loss Events	Financial Stressors	Medical Conditions
1-year follow-up						
Stressors at baseline	.16***	.50***	.34***	.41***	.27***	.69***
Diagnosis	-.01	.07*	.02	.09**	.13***	.02
Adjusted R^2	.03***	.31***	.18***	.17***	.11***	.56***
10-year follow-up						
Stressors at baseline	.07+	.32***	.23***	.13***	.19***	.49***
Diagnosis	.01	.07+	.02	.02	.08	.03
Adjusted R^2	.00	.18***	.11***	.03***	.07***	.37***

Note. Betas of sociodemographic variables (age, sex, years of education, marital status, and race) are not reported in the table. + $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

TABLE 3. Depressive Symptoms at Baseline as a Predictor of Subsequent Stressors in Patients and Controls

	Stressors					
	Independent Stressors	Family Conflict	Nonkin Conflict	Exit/ Loss Events	Financial Stressors	Medical Conditions
Patients						
1-year follow-up						
Stressors at baseline	.22***	.51***	.28***	.40***	.22***	.65***
Depressive Symptoms	.06	-.12*	.02	.10*	.10*	.07*
Adjusted R^2	.06***	.32***	.14***	.16***	.06***	.50***
10-year follow-up						
Stressors at baseline	.07	.28***	.18**	.14**	.19***	.51***
Depressive Symptoms	.06	-.01	.13**	.03	.05	.00
Adjusted R^2	-.01	.14***	.11***	.03**	.05**	.34***
Controls						
1-year follow-up						
Stressors at baseline	.10*	.47***	.39***	.37***	.24***	.73***
Depressive Symptoms	-.01	.09*	.17***	.06	-.02	.08**
Adjusted R^2	.00	.28***	.25***	.15***	.10***	.64***
10-year follow-up						
Stressors at baseline	.08	.35***	.26***	.09	.13**	.39***
Depressive Symptoms	-.02	.10+	.11*	.08	.05	-.01
Adjusted R^2	.00	.20***	.13***	.02*	.04*	.33***

Note. Betas of control variables (age, sex, total family income, marital status, and race) are not reported in the table. + $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

years), stressors at baseline predicted stressors at follow-up. As predicted, depressive symptoms at baseline were not associated with changes in independent negative life events over 1 year or 10 years.

Among the patients, depressive symptoms at baseline were associated with most of the interpersonal and noninterpersonal dependent stressors at the 1-year follow-up and with one interpersonal stressor at the 10-year follow-up, after controlling for the comparable stressor at baseline. More specifically, at the 1-year follow-up, baseline depressive symptoms were associated with more exit and loss events ($\beta = .10, p \leq .05$), financial stressors ($\beta = .10, p \leq .05$), and medical conditions ($\beta = .07, p \leq .05$), but with less family conflict ($\beta = -.12, p \leq .05$). This seemingly counterintuitive negative association is further examined below because it warrants further explanation. At the 10-year follow-up, baseline depressive symptoms were associated only with increases in non-kin conflict ($\beta = .13, p \leq .01$).

Among the controls, depressive symptoms at baseline were associated with more interpersonal and noninterpersonal stressors, such as non-kin conflict over 1 year ($\beta = .17, p \leq .001$) and 10 years ($\beta = .11, p \leq .05$) and family conflict over 1 year ($\beta = .09, p \leq .05$) and marginally over 10 years ($\beta = .10, p = .07$). Depressive symptoms at baseline were also associated with more serious medical conditions over 12 months ($\beta = .08, p \leq .01$).¹

Experience of Exit/loss Events as a Moderator of the Relationship between Depressive Symptoms and Family Conflict at the 1-Year Follow-up. In the previous analyses for patients, we found a negative association between initial depressive symptoms and family conflict at the 1-year follow-up.

1. Overall, depressive symptoms at baseline appeared to be differentially associated with five stressors—family conflict at the 1-year and 10-year follow-ups, and non-kin conflict, exit/loss events, and financial stressors at the 1-year follow-ups—for patients and controls. To test whether the suggested interaction between group status and initial depressive symptoms is statistically significant, we combined the patient and control samples and conducted additional hierarchical regression analyses, in which we entered the baseline value of the relevant stressor, group status (patient or controls), baseline depression, and the interaction between group status and baseline depression. A significant interaction would indicate that the association between depressive symptoms and subsequent stressors differs by group status (Aiken, 1991). Because of problems with multicollinearity between the main effect variables and the interaction term, the interaction was tested only for this purpose.

Of the five regression models tested, the interaction term was significant in two—family conflict ($\beta = -.34, p < .01$) and non-kin conflict ($\beta = -.36, p < .01$) at the 1-year follow-up. Both significant interactions of baseline depression and diagnosis were plotted. The graphs revealed that higher baseline depression is associated with a decline in family conflict among patients but with a rise in family conflict among controls. In contrast, higher baseline depression predicts more non-kin conflict at the 1-year follow-up for controls, but there is no association between initial depressive symptoms and subsequent non-kin conflict for patients.

In light of the fact that patients reported more exit/loss events than the controls, serious family conflicts might have been resolved when problematic relationships ended. That, in turn, might have provided temporary relief for the patients. We conducted additional analyses to examine this possibility by testing the association between initial depressive symptoms and subsequent family conflict separately in those patients who experienced loss and/or exit events by the 1-year follow-up assessment and those who did not. A total of 71 patients (18.6%), compared to 21 controls (5.2%), experienced one or more loss and/or exit events during the first year after the initial assessment. The results revealed that initial depressive symptoms were associated with a decline in family conflict *only* among those who were separated or divorced during the year after the initial assessment ($\beta = -.32, p \leq .01$, for the separated/divorced patients, and $\beta = -.06$, ns, for other patients).

DISCUSSION

The present study examined the role of depression as an antecedent to various types of stressors in a 10-year longitudinal study of depression. Overall, the results support the idea that individuals with unipolar depression experience more dependent stressors in both interpersonal and noninterpersonal domains than those without depression. Although initial unipolar depression was not associated with any subsequent independent stressors, it was associated with more dependent interpersonal stressors 1 year and 10 years later and with more dependent noninterpersonal stressors 1 year later.

The present study also investigated whether stress generation is comparable in depressed patients and community controls. There is more support for the threshold model than the linear model. Stress generation in patients appeared to be more pervasive because the initial depression was significantly associated with more different types of dependent stressors at follow-ups among the patients than among the controls. Furthermore, the associations between initial depression and various interpersonal stressors at follow-ups suggest that stress generation in patients may also be more complex. One exception was the association between initial depression and subsequent medical conditions, which was significant and positive for both patients and controls at the 1-year follow-up. This was the only evidence supporting the linear model.

The present study refined the test of the stress generation hypothesis by controlling for the contribution by stressors at baseline. Consistent with previous findings on stress generation of unipolar depression (Cui & Vaillant, 1997; Daley et al., 1997; Hammen, 1991), the results of simple

group comparisons (not controlling for baseline stressors) revealed group differences in most dependent stressors at the 1-year and 10-year follow-ups. When the prior level of the corresponding stressors at baseline was controlled for, many of the group differences remained statistically significant at the 1-year follow-up and one was even sustained marginally at the 10-year follow-up. Thus, as a group, depressed patients appear to be more likely to experience interpersonal and financial difficulties later in their lives than do individuals who are not clinically depressed. These findings assure us that the associations previously observed between unipolar depression and future dependent stressors are not spurious correlations generated by their common link to the initial dependent stressors.

Our findings also help refine our understanding of stress generation by systematically examining the association between depression and noninterpersonal stressors. Previous findings (Cui & Vaillant, 1997; Hammen, 1991) showed that depression might have ramifications for a wide range of life domains. The present study demonstrated positive associations between initial depression and subsequent noninterpersonal stressors, revealing the extent of disruptions that unipolar depression might cause in one's financial and occupational domains. More specifically, depressed patients reported more financial stressors than community controls. In addition, among the clinically depressed patients, those with more severe symptomatology subsequently reported more financial stressors than expected, whereas the controls with mild or moderate depressive symptomatology did not. These findings are consistent with the findings on bipolar patients whose spouses indicate financial difficulties and unemployment as part of the most troubling consequences of prolonged affective disturbance (Targum, Dibble, Davenport, & Gershon, 1981). It may be that depression needs to be in the clinical range in order for it to contribute to subsequent financial stressors. If so, this would provide support for the threshold hypothesis for this stressor domain.

Our results also revealed a possible stress generation effect of depression on medical conditions. Although depressed patients as a group did not report more medical conditions at either follow-up than controls (after controlling for their baseline medical conditions), depressive symptoms at baseline did predict a greater number of medical conditions in both depressed patients and controls over the short term. These findings are somewhat consistent with those of Joiner et al. (2000), who found a bidirectional relationship between depressive symptoms and physical illnesses in college students. Thus, a dynamic interplay between mental and physical health may be present in both depressed patients and controls.

The present study investigated the long-term consequences of depression. As expected, the findings showed that depression was associated with long-term decline in interpersonal relationships, whereas its associations with financial stressors and medical conditions were short-lived. In light of the fact that a large majority of the patients' depression improved over the 10 years after the baseline assessment (see Cronkite et al., 1998, for details), it is striking to observe such a long-term association between unipolar depression and the quality of patients' social life. The patients' improvement in their depression makes it less likely that the effects of initial depression on stressors at follow-up are primarily due to the chronicity of depression. In fact, according to Hammen (1991), it is not depressed mood per se, but some stable characteristics of depressed individuals that contribute to occurrences of chronic and episodic stress. Thus, the 10-year associations between baseline depression and subsequent interpersonal stressors are probably better explained by factors other than depressive symptoms, such as personality traits or deficits of depressed patients, including their negative biases towards others (Coyne, 1987; Hammen, 1991), and possibly negative biases of others toward the depressed individuals (Sacco, 1999). Research on personality and depression has revealed that certain personality traits of depressed individuals such as neuroticism and sociotropy remain stable despite the alleviation of depression (Bagby et al., 2001; Santor, Halifax, Bagby, & Joffe, 1997). Hostile and angry depressed patients were more interpersonally sensitive, less interpersonally agreeable, and less conscientious than patients who were not (Bagby, Kennedy, Dickens, Minifie, & Schuller, 1997), traits that could easily strain any interpersonal relationship. Identifying stable personality traits of depressed individuals that lead to interpersonal stressors might shed light on the mechanisms of stress generation in the interpersonal domain as well as help to identify risk factors for interpersonal problems. On the other hand, the relatively short-term associations with noninterpersonal stressors suggest that such effects may reflect a general deterioration in functioning, rather than maladaptive personality traits. Thus, different mechanisms may underlie stress generation in interpersonal and noninterpersonal domains.

The present study also extends earlier research by comparing and contrasting the stress generation processes in depressed patients and community controls. First, the results revealed comparable processes of stress generation in the two groups. In both patients and controls, being symptomatic contributed to subsequent interpersonal stressors. In other words, depression of any severity seems to contribute to future occurrences of interpersonal stressors. The groups did differ in terms of the severity of stressors that initial depressive symptoms generated. Consis-

tent with the predictions of the linear model, subclinical symptoms of the controls contributed to the presence of conflict with family and others, but not to the occurrence of exit and loss events. Thus, moderate depressive symptomatology does not appear to contribute to serious disruptions in relationships with significant others at a later time.

The positive association between unipolar depression and subsequent exit and loss events, even though expected, is of special concern because it suggests that separation and divorce, which have been found to contribute to the development of clinical depression (Bruce, 1998; Menaghan & Lieberman, 1986), may also be a consequence of clinical depression. Not only were depressed patients more likely to be separated or divorced than controls by the 1-year follow-up, but also the severity of patients' depression contributed to the occurrence of those loss and exit events, as illustrated by the positive association between initial depressive symptoms and subsequent loss and exit events in patients. Such association was not found among the controls. Our findings suggest that depression may need to reach the clinical threshold in order to contribute to the occurrence of exit and loss events. These findings are consistent with studies in community samples, which found that even minor depression was associated with separation and divorce (See Beck & Koenig, 1996) and underscore the strain that unipolar depression can place on intimate relationships. We can further speculate that the experience of exit/loss events may contribute to future relapse of a depressive episode in these patients (see Bruce, 1998, for more complete discussion).

The findings also reveal the complexity of the stress generation process, again in the interpersonal domain. Consistent with our hypotheses, depressed patients had a complex pattern of interpersonal dynamics, quite in contrast to the uniform positive associations observed between depression and subsequent interpersonal stressors in controls. Among patients, severe symptomatology at baseline, which contributed to short-term increases in exit and loss events and to long-term increases in non-kin conflict, also contributed to initial decreases in family conflict. These results are consistent with past findings that showed an initial decline in family conflict due to family members' suppression of hostility in response to the patient's displays of depressive behaviors, which was then followed by an increase in family conflict over time (Biglan, Hops, & Sherman, 1988; Biglan, Rothlind, Hops, & Sherman, 1989; Hops et al., 1987). Unfortunately, our data do not allow investigations into specific family interactions.

Our results, however, also offer an alternative explanation for the observed negative association between depressive symptoms and subsequent family conflict. Exploratory post hoc analysis revealed that the negative association between initial depressive symptoms and family

conflict at the 1-year follow-up was significant only among patients who experienced some type of exit or loss events during that year. Consequently, the negative association may be a reflection of the reduction in family conflict that results from ending a highly conflictual relationship. The reduction remained stable because baseline depression was not associated with family conflict even 10 years later. Thus, a generation of one type of stressor (exit/loss event) can lead to a relatively stable relief of a related stress (family conflict). Interestingly, patients who were severely depressed at baseline eventually reported more than expected non-kin conflict 10 years later. These results illustrate that our interpersonal environment is indeed an open and dynamic system, which is capable of containing and managing conflict and tension up to a certain threshold, at which point the tension spills over and the system makes necessary adjustments. Our findings were able to capture the dynamic qualities of interpersonal systems because various dimensions of interpersonal stressors were assessed. Our findings also illustrate that stress generation should not be conceptualized as a simply positive association between initial depression and subsequent stressors but rather as a dynamic and complex phenomenon.

In conclusion, this study offers some indirect evidence for the reciprocal interplay between depression and dependent stressors. Other studies on our sample have found stressors, particularly interpersonal ones, to be important predictors of the onset and recurrence of depressive episodes (Billings & Moos, 1984b; Billings & Moos, 1985; Cronkite et al., 1998; Moos et al., 1998a; 1998b). Thus, stressors and mental health appear to be engaged in a delicate balance in various life domains. This study demonstrates the enduring relationships between depression and qualities of interpersonal relationships over a 10-year period of time. The qualitative differences in the stress generation processes between patients and controls provide supportive evidence for the threshold model and underscore the concerns expressed by Coyne (1999) of conducting analogue studies of depression using community samples.

Future research should focus on investigating the underlying mechanisms of stress generation. One promising direction of future research is in identifying potential mediators of the stress-generative effects of depression. Studies on community samples found that seeking reassurance and husbands' negative social support were mediators between initial depressive symptoms and subsequent interpersonal stressors (Davila et al., 1997; Potthoff et al., 1995). Mediators in clinically depressed individuals may be different and have not been yet identified. Another important area to pursue would be to uncover the mechanisms of stress generation in noninterpersonal domains. Our overall findings suggest that stress generation in interpersonal and noninterpersonal do-

mains may involve different mechanisms. Different factors or symptom clusters may be involved in the stress generation process in the financial or physical health domains. Investigations into these areas will bring greater understanding of the dynamic interplay between stress and depression.

Lastly, future research should examine the influence of patient status on interpersonal relationships by, for example, comparing the stress generation process in clinically depressed individuals in treatment and those not in treatment. Our study included only patients who had entered treatment for depression. Thus, our findings reveal more about how family members might respond to a person entering treatment for psychiatric disorders, which may include behaviors such as avoiding and/or withholding hostile and conflictual interactions with an identified patient, as suggested by the work of Biglan and his colleagues (Biglan et al., 1988; Biglan et al., 1989). A family's responses may be more negative to a depressed person not yet identified as a patient. On the other hand, the responses of non-kin may be more negative to identified patients because of the stigma associated with mental disorders.

There are some limitations of the present study that must be noted. One limitation is that the conceptualization of independent and dependent stressors was not based on detailed structured interviews aimed at assessing the extent to which participants contributed to occurrences of new stressors in their lives. In fact, the HDL measure does not measure contextual factors. Thus, our operational definitions of dependent and independent stressors were crude. Furthermore, our measures of stressors do not make the distinction between acute events and chronic difficulties. Difficulties may persist for many reasons that have nothing to do with depression. This would be particularly true for financial and medical stressors. It was in fact precisely out of concern for chronic stress contributing to future difficulties that we controlled for baseline levels of stress.

Another limitation is the potential restricted range of depressive symptomatology. By definition, depressed patients consisted of individuals who reported more severe symptoms than the controls. Restricted range can undermine the interpretability of the nonsignificant results of the regression analyses of depressive symptoms in patients and controls. Given that we have a reasonable range of depression in controls, as shown in the standard deviations of the number of depressive symptoms for patients and controls, it appears that there is not a serious problem of restricted range of depression in our control sample, and restricted range would not adequately explain the lack of significance observed in several regression models for the controls.

Lastly, the relatively low ethnic diversity of our sample limits the

generalizability of our findings. Although some other studies that had somewhat ethnically diverse samples (Daley et al., 1997; Davila et al., 1997) found significant associations between depression and subsequent stressors, our findings may still have limited generalizability to other ethnic groups. For example, African Americans, Asian Americans, and Hispanic individuals' tendency to exhibit primarily somatic symptoms (Brown, Schulberg, & Madonia, 1996; Chun, Enomoto & Sue, 1996; Farooq, Gahir, Okyere, Sheikh, & Oyebode, 1995; Oltjenbruns, 1998) may have implications for how depression and interpersonal relationships interact with each other. More research is needed to determine to what extent our findings can be generalized to individuals of different cultural and ethnic backgrounds.

REFERENCES

- Aiken, L. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications.
- Aneshensel, C. S., & Stone, J. D. (1982). Stress and depression: A test of the buffering model of social support. *Archives of General Psychiatry*, *39*, 1392-1396.
- Bagby, R. M., Gilchrist, E. J., Rector, N. A., Dickens, S. E., Joffe, R. T., Levitt, A., Levitan, R. D., & Kennedy, S. H. (2001). The stability and validity of the sociotropy and autonomy personality dimensions as measured by the Revised Personal Style Inventory. *Cognitive Therapy & Research*, *25*, 765-779.
- Bagby, R. M., Kennedy, S. H., Dickens, S. E., Minifie, C. E., & Schuller, D. R. (1997). Personality and symptom profiles of the angry hostile depressed patients. *Journal of Affective Disorders*, *45*(3), 155-160.
- Barnett, P. A., & Gotlib, I. H. (1988). Psychosocial functioning and depression: Distinguishing among antecedents, concomitants, and consequences. *Psychological Bulletin*, *104*, 97-126.
- Beck, D. A., & Koenig, H. G. (1996). Minor depression: A review of the literature. *International Journal of Psychiatry in Medicine*, *26*, 177-209.
- Biglan, A., Hops, H., & Sherman, L. (1988). Coercive family processes and maternal depression. In R. D. Peters & R. J. McMahon (Eds.), *Social learning and systems approaches to marriage and the family* (pp. 72-103). New York: Brunner/Mazel.
- Biglan, A., Rothlind, J., Hops, H., & Sherman, L. (1989). Impact of distressed and aggressive behavior. *Journal of Abnormal Psychology*, *98*, 218-228.
- Billings, A., Cronkite, R., & Moos, R. (1983). Social-environmental factors in unipolar depression: Comparisons of depressed patients and nondepressed controls. *Journal of Abnormal Psychology*, *92*, 119-133.
- Billings, A. G., & Moos, R. H. (1984a). Coping, stress, and social resources among adults with unipolar depression. *Journal of Personality & Social Psychology*, *46*, 877-891.
- Billings, A. G., & Moos, R. H. (1984b). Treatment experiences of adults with unipolar depression: The influence of patient and life context factors. *Journal of Consulting and Clinical Psychology*, *52*, 119-131.
- Billings, A. G., & Moos, R. H. (1985). Life stressors and social resources affect posttreatment outcomes among depressed patients. *Journal of Abnormal Psychology*, *94*, 140-153.
- Brown, C., Schulberg, H. C., & Madonia, M. J. (1996). Clinical presentations of major de-

- pression by African Americans and whites in primary medical care practice. *Journal of Affective Disorders*, 41, 181-191.
- Bruce, M. L. (1998). Divorce and psychopathology. In B. P. Dohrenwend (Ed.), *Adversity, stress, and psychopathology* (pp. 219-232). New York: Oxford University Press.
- Costa, P. T., Herbst, J. H., McCrae, R. R., & Siegler, I. C. (2000). Personality at midlife: Stability, intrinsic maturation, and responses to life events. *Assessment*, 7, 365-378.
- Chun, C.-A., Enomoto, K., & Sue, S. (1996). Health care issues among Asian Americans. In P. M. Kato & T. Mann (Eds.), *Handbook of diversity issues in health psychology* (pp. 347-365). New York: Plenum Press.
- Clayton, P. J., & Lewis, C. E. (1981). The significance of secondary depression. *Journal of Affective Disorders*, 3(1), 25-35.
- Coyne, J. C. (1999). Thinking interactionally about depression: A radical restatement. In T. Joiner & J. C. Coyne (Eds.), *The interactional nature of depression* (pp. 365-392). Washington, DC: American Psychological Association.
- Coyne, J. C., Kessler, R. C., Tal, M., Turnbull, J., Wortman, C., & Greden, J. F. (1987). Living with a depressed person. *Journal of Consulting & Clinical Psychology*, 55, 347-353.
- Cronkite, R. C., Moos, R. H., Twohey, J., Cohen, C., & Swindle, R., Jr. (1998). Life circumstances and personal resources as predictors of the ten-year course of depression. *American Journal of Community Psychology*, 26, 255-280.
- Cui, X.-J., & Vaillant, G. (1997). Does depression generate negative life events? *Journal of Nervous and Mental Disorders*, 185, 145-150.
- Daley, S. E., Hammen, C., Burge, D., Davila, J., Paley, B., Lindberg, N., & Herzberg, D. S. (1997). Predictors of the generation of episodic stress: A longitudinal study of late adolescent women. *Journal of Abnormal Psychology*, 106, 251-259.
- Davila, J., Bradbury, T. N., Cohan, C. L., & Tochluk, S. (1997). Marital functioning and depressive symptoms: Evidence for a stress generation model. *Journal of Personality & Social Psychology*, 73, 849-861.
- Dill, J. C., & Anderson, C. A. (1999). Loneliness, shyness, and depression. In T. Joiner & J. C. Coyne (Eds.), *The interactional nature of depression* (pp. 93-126). Washington, DC: American Psychological Association.
- Farooq, S., Gahir, M. S., Okyere, E., Sheikh, A. J., & Oyeboode, F. (1995). Somatization: a transcultural study. *Journal of Psychosomatic Research*, 39, 883-888.
- Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology*, 100, 555-561.
- Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology*, 38, 369-425.
- Holahan, C. J., Moos, R. H., & Bonin, L. A. (1999). Social context and depression: An integrative stress and coping framework. In T. Joiner & J. C. Coyne (Eds.), *The interactional nature of depression* (pp. 39-63). Washington, DC: American Psychological Association.
- Holahan, C. J., Moos, R. H., Holahan, C. K., & Cronkite, R. C. (1999). Resource loss, resource gain, and depressive symptoms: A 10-year model. *Journal of Personality & Social Psychology*, 77, 620-629.
- Hooley, J. M., Orley, J., & Teasdale, J. D. (1986). Levels of expressed emotion and relapse in depressed patients. *British Journal of Psychiatry*, 148, 642-647.
- Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: Expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology*, 98, 229-235.
- Hops, H., Biglan, A., Sherman, L., Arthur, J., Friedman, L., & Osteen, V. (1987). Home observations of family interactions of depressed women. *Journal of Consulting & Clinical Psychology*, 55, 341-346.

- Joiner, T. E., Jr., Vohs, K. D., & Schmidt, N. B. (2000). Social appraisal as correlate, antecedent, and consequence of mental and physical health outcomes. *Journal of Social and Clinical Psychology, 19*, 336-351.
- Katon, W., & Sullivan, M. D. (1990). Depression and chronic medical illness. *Journal of Clinical Psychiatry, 5*, 3-11.
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Publishing.
- McCrae, R. R., Costa, P. T., Jr., Ostendorf, F., Angleitner, A., Hrebickova, M., Avia, M. D., Sanz, J., Sanchez-Bernardos, M. L., Kusdil, M. E., Woodfield, R., Saunders, P. R., & Smith, P. B. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology, 78*, 173-186.
- Menaghan, E. G., & Lieberman, M. A. (1986). Changes in depression following divorce: A panel study. *Journal of Marriage & the Family, 48*, 319-328.
- Mitchell, R., & Moos, R. (1984). Deficiencies in social support among depressed patients: Antecedents or consequences of stress? *Journal of Health & Social Behavior, 25*, 438-452.
- Moos, R., & Scheafer, J. (1993). Coping resources and processes: Current concepts and measures. In L. Goldberger & S. Breznitz (Eds.), *Handbook of stress: Theoretical and clinical aspects* (pp. 234-257). New York: Free Press.
- Moos, R. H., Cronkite, R. C., Billings, A. G., & Finney, J. W. (1990). *The Health and Daily Living Form Manual*. Palo Alto, CA: Social Ecology Laboratory, Department of Psychiatry and Behavioral Sciences, Stanford University and Veterans Administration Medical Center.
- Moos, R. H., Cronkite, R. C., & Finney, J. W. (1990). *The Health and Daily Living Form Manual, Second Edition*. Palo Alto, CA: Center for Health Care Evaluation, Department of Veterans Affairs and Stanford University Medical Centers.
- Moos, R. H., Cronkite, R. C., & Moos, B. S. (1998a). Family and extrafamily resources and the 10-year course of treated depression. *Journal of Abnormal Psychology, 107*, 450-460.
- Moos, R. H., Cronkite, R. C., & Moos, B. S. (1998b). The long-term interplay between family and extrafamily resources and depression. *Journal of Family Psychology, 12*, 326-343.
- O'Hara, M. W., Schlechte, J. A., Lewis, D. A., & Varner, M. W. (1991). Controlled prospective study of postpartum mood disorders: Psychological, environmental, and hormonal variables. *Journal of Abnormal Psychology, 100*, 63-73.
- Oltjenbruns, K. A. (1998). Ethnicity and the grief response: Mexican American versus Anglo American college students. *Death Studies, 22*, 141-155.
- Patten, S. B. (1999). Long-term medical conditions and major depression in the Canadian population. *Canadian Journal of Psychiatry, 44*, 151-157.
- Potthoff, J. G., Holahan, C. J., & Joiner, T. E., Jr. (1995). Reassurance seeking, stress generation, and depressive symptoms: An integrative model. *Journal of Personality & Social Psychology, 68*, 664-670.
- Robins, R. W., Caspi, A., & Moffitt, T. E. (2002). It's not just who you're with, it's who you are: Personality and relationship experiences across multiple relationships. *Journal of Personality, 70*, 925-964.
- Rudolph, K.D., Hammen, C., Burge, D., Lindberg, N., Herzberg, D., & Daley, S.E. (2000). Toward an interpersonal life-stress model of depression: The developmental context of stress generation. *Development & Psychopathology, 12*, 215-234.
- Russell, D. W., & Cutrona, C. E. (1991). Social support, stress, and depressive symptoms among the elderly: Test of a process model. *Psychology & Aging, 6*, 190-201.
- Sacco, W. P. (1999). A social-cognitive model of interpersonal processes in depression. In T.

- Joiner & J. C. Coyne (Eds.), *The interactional nature of depression* (pp. 329-362). Washington, DC: American Psychological Association.
- Santor, D. A., Halifax, N. S., Bagby, R. M., & Joffe, R. T. (1997). Evaluating stability and change in personality and depression. *Journal of Personality & Social Psychology, 73*, 1354-1362.
- Spitzer, R., Endicott, J., & Robins, E. (1978). Research diagnostic criteria: Rationale and reliability. *Archives of General Psychiatry, 35*, 773-782.
- Steffens, D. C., O'Connor, C. M., Jiang, W. J., Pieper, C. F., Kuchibhatla, M. N., Arias, R. M., Look, A., Davenport, C., Gonzalez, M. B., & Krishnan, K. R. (1999). The effect of major depression on functional status in patients with coronary artery disease. *Journal of the American Geriatric Society, 47*, 319-322.
- Swindle, R., Cronkite, R., & Moos, R. (1989). Life stressors, social resources, coping, and the 4-year course of unipolar depression. *Journal of Abnormal Psychology, 98*, 468-477.
- Targum, S. D., Dibble, E. D., Davenport, Y. B., & Gershon, E. S. (1981). The Family Attitudes Questionnaire. Patients' and spouses' views of bipolar illness. *Archives of General Psychiatry, 38*, 562-568.
- Vinokur, A. D., Price, R. H., & Caplan, R. D. (1996). Hard times and hurtful partners: How financial strain affects depression and relationship satisfaction of unemployed persons and their spouses. *Journal of Personality & Social Psychology, 71*, 166-179.
- Winokur, G., Morrison, J., Clancy, J., & Crowe, R. (1972). The Iowa 500. II. A blind family history comparison of mania, depression, and schizophrenia. *Archives of General Psychiatry, 27*, 462-464.
- Zung, W. W. (1980). The clinical course of undiagnosed depressions. *Journal of Clinical Psychiatry, 41*, 186-190.

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