Depression and Anxiety Among Partners of European-American and Latino Patients With Type 2 Diabetes

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OBJECTIVE — To assess the levels of and the independent contributors to depressive affect and anxiety among partners of patients with type 2 diabetes.

RESEARCH DESIGN AND METHODS — The partners of 75 Latino and 113 European-American patients with type 2 diabetes were assessed for level of depressive affect and anxiety and for three groups of potential stressors: demographics (age, gender, and education), patient disease status (time since diagnosis, HbA_{1c}, comorbidities, and BMI), and family stress (disease impact, spouse conflict, and family closeness). Dependent variables were partner depressive affect (Center for Epidemiological Studies–Depression scale) and anxiety (Symptom Checklist [SCL-90] anxiety). Predictors of partner depressive affect and anxiety and partner-patient concordance rates were computed.

RESULTS — Levels of depressive affect and anxiety and rates of likely depression (21.4%) were as high for partners as they were for patients. No differences were found on depressive affect or anxiety by ethnicity, but female partners scored higher than male partners on both measures. Partner-patient concordance rates were low. The family level variables accounted for the most variance in both depressive affect and anxiety, with demographics and disease status variables contributing modest or nonsignificant independent variance.

CONCLUSIONS — Partners of patients with type 2 diabetes experience levels of psychological distress as high or even higher than patients, especially if the partner is female. Low levels of concordance suggest that partners can be distressed even if patients are not. Many life stresses contribute to psychological distress among partners, not just disease-related indicators. The findings suggest the utility of evaluating both partners and patients using a life-centered rather than a disease-focused perspective.

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Several reports have documented the relatively high rates of clinical and subclinical depression found among patients with diabetes (1), with major depressive disorder (MDD) alone averaging 23% among European-American patients and even higher among ethnic minority patients (2). Depression among patients with diabetes has been associated with decreased self-management, poor metabolic control, and increased risk for diabetes-related complications (3–6).

Other studies have shown that individuals who interact with depressed individuals are themselves at risk for psychological distress (7,8). Partners and patients with chronic disease often report elevated levels of anxiety and depression, frequent psychosomatic symptoms, and decreased work performance after the diagnosis and ongoing care of a patient with a chronic disease (9). Rates of MDD among the partners of patients with end-stage renal disease, stroke, cardiovascular disease, chronic pain, cancer, and rheumatoid arthritis vary from 18 to 30%. Furthermore, their mean depressive symptom scores are higher than community samples, and they approach and often exceed those of patients (9–13). Thus, the effects of chronic disease are not limited to the individual with the diagnosed disorder; rates of MDD and depressive affect or symptoms are also elevated among partners of patients with chronic disease.

The interaction of patient and partner affect over time has implications for disease management among patients with chronic disease. Depressed affect in either partner increases or is positively correlated with marital discord, hostility, and conflict, which, in turn, decreases disease-related problem solving and marital satisfaction (14,15). Patients and their partners can generate a circular, mutually interactive pattern of interaction in which emotional negativity and conflict occur through a sequence of problematic and potentially escalating patterns of interaction (16). Female partners of patients with chronic disease tend to display more profound reactions to this sequence than male partners, since females tend to be more emotionally and physically responsive to the psychosocial aspects of the marriage than male partners (7,12,14,17–20). Furthermore, the display of high levels of negative affect, especially criticalness, among partners of depressed or otherwise chronically ill individuals has been linked to patients not following medical regimens and, ultimately, to patient relapse or complications (21,22). Thus, negative affect among partners of patients with chronic disease can affect disease management and disease progression.

Although diagnosed depression and depressive affect have been studied among partners of patients with other

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Abbreviations: CES-D, Center for Epidemiological Studies–Depression scale; MDD, major depressive disorder; SCL-90, Symptom Checklist.

A table elsewhere in this issue shows conventional and Système International (SI) units and conversion factors for many substances.

Table 1—*Characteristics of the sample*

	Latinos	European-Americans	Statistic	*P*
Partners				
N (men/women)	75 (26/49)	113 (46/67)	$\chi^2 = 0.48$	0.490
Age (years)	46.30 ± 9.31	50.83 ± 8.42	$t = 3.42$	0.001
Education (years)	3.00 ± 2.04	5.83 ± 1.45	$t = 10.48$	0.001
Income	4.25 ± 1.61	6.98 ± 1.63	$t = 11.10$	0.001
Marriage (years)	21.80 ± 10.49	24.36 ± 10.95	$t = 1.62$	0.106
BMI (kg/m^2)	29.86 ± 7.50	28.92 ± 6.39	$t = 0.90$	0.368
Offspring (*n*)	1.91 ± 1.57	0.75 ± 1.01	$t = 5.72$	0.001
CES-D	11.86 ± 3.58	9.60 ± 3.56	$t = 1.83$	0.070
SCL-90 anxiety	13.62 ± 3.86	12.59 ± 3.00	$t = 1.97$	0.051
Patients				
N (men/women)	75 (49/26)	113 (67/46)	$\chi^2 = 0.48$	0.490
Age (years)	48.41 ± 8.91	51.69 ± 7.68	$t = 2.71$	0.007
Diagnosis (years)	4.16 ± 2.31	4.31 ± 2.39	$t = 0.46$	0.640
HbA_{1c} (%)	8.96 ± 2.12	8.18 ± 1.59	$t = 2.92$	0.004
BMI (kg/m^2)	31.79 ± 5.29	31.06 ± 7.17	$t = 1.33$	0.186
CES-D	12.43 ± 4.01	9.87 ± 3.62	$t = 2.22$	0.028
SCL-90 anxiety	14.24 ± 4.61	12.73 ± 3.14	$t = 2.69$	0.008

Data are means ± SD unless otherwise indicated.

chronic diseases, there are little data to indicate the level of depressive affect and the rate of depression among the partners of patients with diabetes. Furthermore, there are little data on the concordance of depressive affect between partners and patients and the similarity of contributors to depressive affect and anxiety for both members of the couple dyad. These issues have considerable relevance for identifying valid targets for intervention as part of general diabetes care.

In an earlier report of type 2 diabetes (23), we showed that of three groups of variables included in a predictive model (demographics, disease status, and family characteristics), only disease impact and family financial stress were significant, independent contributors to both depressive affect and anxiety among both European-American and Latino patients, with family conflict resolution as a significant predictor only for European-American patients. Time since diagnosis, HbA_{1c}, BMI, and number of complications were unrelated to patient depressive affect and anxiety in these analyses. We argued that a cumulative, biopsychosocial stress model, rather than an exclusive disease-related model, best fit the data. Furthermore, we suggested that because these stresses contributed to both depressive affect and anxiety among these patients, a broader psychological distress approach might describe patients better than one focused on depressive affect alone.

With these issues in mind, and given the data on partner depression from research in other chronic diseases, we posed three hypotheses. First, mean levels of depressive affect and anxiety will be as high or higher for partners as the already documented elevated levels for patients with type 2 diabetes. Second, partner depressive affect and anxiety will be related to the same characteristics reported earlier for patients: disease impact and family level variables. Partner depressive affect and anxiety will be unrelated to demographics and to patient disease status variables. Third, partner anxiety scores will be related to partner depressive affect scores, and, furthermore, predictors of partner anxiety will be similar to predictors of partner depressive affect. This hypothesis directs attention to general psychological distress, rather than to depressive affect alone. If confirmed, all three hypotheses will advance a biopsychosocial, cumulative stress perspective. In this report we address these questions in a community sample of European-American and Latino patients with type 2 diabetes and their partners. We included both ethnic groups because of the documented differences in prevalence of depression among them and our interest in determining whether there were differences between groups in the contributions to depressive affect.

RESEARCH DESIGN AND METHODS

Patients who met the following criteria were identified by billing and clinical databases from 11 health facilities: patient diagnosed with type 2 diabetes, time since diagnosis between 1 and 9 years; patient age between 25 and 62 years; no major diabetes complications (proliferative retinopathy, any cardiovascular accident or myocardial infarction within 12 months, renal insufficiency, amputations—through ICD-9 codes and patient self-report); patient and consenting spouse or partner had been cohabiting for a minimum of 3 years (to assure relationship stability); and patient and partner identified themselves as either Latino (from Mexico or Central America) or European-American. Patients who were relatively early in their disease trajectory were targeted because of our interest in developing secondary prevention interventions.

After receiving an introductory letter, patients were screened on inclusion criteria by phone, and a home visit for eligible patients and partners was scheduled to introduce the project and review informed consent. All research staff were bilingual and bicultural. The project included a 1.5-h home visit, completion of questionnaires in the home (45 min), and a 2.5-h office visit for both patient and partner.

Screening identified 262 eligible patients, of which 187 agreed to participate (71% acceptance rate). The final sample was comprised of 113 European-American and 75 Latino patients and their partners (Table 1). Most couples that refused to participate ended the telephone call before screening was completed. Most stated lack of time as the primary reason for refusal.

All scales were translated into Spanish by one translator and were back-translated into English by a second translator. Differences were reconciled into a final Spanish translation (24). Items then were reviewed by focus groups of Latino patients, and final protocols were prepared. Latino patients elected to use either the Spanish or English version.

Partner depressive affect and anxiety
Partner depressive affect was assessed by the Center for Epidemiological Studies–Depression scale (CES-D) (25), a commonly used 20-item screening measure of depressive affect based on the number of depressive symptoms reported during the last 4 weeks (European-American α = 0.89; Latino α = 0.85). Mean CES-D scores, based on community samples, range between 7.5 and 9.5 (26). "Likely depression" is a term based on a statistically determined threshold of scores 16 or higher, suggested originally by Radloff (25). Average rates of likely depression in community samples average 16.3% (25). Unlike MDD, however, likely depression is not a DSM-IV clinical disorder and there are many patients who score 16 and above who do not meet criteria for MDD. We use this term only to refer to respondents who report notably high levels of depressive symptoms. The anxiety subscale of the Symptom Checklist (SCL-90) (26) was also included for partners. It contains nine items (one item shared with the CES-D was dropped), each rated on a 4-point scale (European-American α = 0.79; Latino α = 0.85).

Partner demographic variables included age, gender, education, number of offspring, and years of marriage. Patient disease status indicators included BMI, HbA_{1c}, number of comorbidities, time since diagnosis, and number of complications.

Predictors of partner depressive affect and anxiety
We used the same stress-related model and variables to predict anxiety and depressive affect in partners that was used in an earlier report of predictors of anxiety and depressive affect in patients (23). Using a cumulative stress approach, 12 predictors were grouped into three stress-related areas: partner demographics, patient disease indicators, and partner family level stress.

Demographic indicators included partner ethnicity, age, gender, and education, the latter as a surrogate for social class. Education was scored as years of schooling. Disease indicators included four variables: patient HbA_{1c}, BMI, time since diagnosis, and number of patient self-reported comorbidities, all of which can serve as diabetes-related stresses, were also included. Family level indicators included four variables selected to represent domains of family life with documented links to disease management (27). Diabetes impact on the family, scored by partners, was assessed by the 19-item functional impact subscale of the Diabetes Quality of Life scale developed by the Diabetes Control and Complications Trial (DCCT) (28) (European-American α = 0.79; Latino α = 0.85). It was modified to assess the degree to which diabetes places perceived limitations on the family's personal, work, and social life, e.g., Does diabetes limit your personal relationships and friendships? Do you feel restricted by your diet? High scores reflect good functioning or low impact. Family financial stress was assessed by an 8-item scale developed by Pearlin et al. (29) (European-American α = 0.92; Latino α = 0.88). Partners rated on a 4-point scale the degree to which they felt "bothered," "worried," etc., about the current financial situation of their family. Spouse conflict resolution is a 5-item, 7-point scale that assesses the degree to which the partner believed that conflicts with his/her spouse about diabetes were not effectively resolved (30) (European-American α = 0.74; Latino α = 0.64). High scores reflected poor resolution, e.g., After an argument with your spouse about diabetes do you still feel angry or find yourself arguing again? Family closeness is a 9-item subscale of a family adjective checklist (European-American α = 0.84: Latino α = 0.85). Partners are asked to rate on a 4-point scale how each adjective currently describes their family (e.g., "supportive," "sharing").

Data analysis
Associations between partner anxiety, depressive affect, and other variables were assessed by correlation, χ^2, and other univariate methods for each ethnic group. Concerning the analyses of predictors of partner depressive affect and anxiety, the independent variables were entered into the first step of a multiple regression equation, with CES-D or SCL-90 anxiety scores as the dependent variable. There was no evidence of problems with multicollinearity among the moderately correlated predictors. These analyses also included interaction terms between ethnicity and each of the other variables in a second step of the equation. This enabled us to test whether a set of group by predictor interaction terms significantly added to the explained variance in depressive affect and anxiety.

Table 2—*Multiple regression models predicting partner depression and anxiety for the combined European-American and Latino sample*

	Partner depression		Partner anxiety	
Predictors	β	*P*	β	*P*
Partner demographics				
Ethnicity (EA/Lat)	0.02	0.773	−0.09	0.322
Age (years)	0.05	0.451	0.04	0.615
Education (years)	−0.11	0.138	0.01	0.905
Sex (female/male)	−0.16	0.012	−0.18	0.013
Patient disease status				
Time since diagnosis (years)	−0.09	0.156	0.04	0.606
BMI (kg/m^2)	0.01	0.883	−0.01	0.838
Complications (*n*)	−0.01	0.927	−0.07	0.308
HbA_{1c}	0.07	0.266	0.07	0.340
Partner family variables				
Disease impact	−0.21	0.001	−0.14	0.053
Financial stress	0.41	0.000	0.33	0.000
Conflict resolution	0.16	0.012	0.01	0.935
Closeness	−0.18	0.004	−0.08	0.277
Equation	r = 0.66	r^2 = 0.44	r = 0.450	r^2 = 0.25
	F = 11.06	P = 0.000	F = 4.60	P = 0.000

EA, European-American; Lat, latino.

RESULTS

Preliminary analyses
In direct comparisons, European-American partners were older, were bet-

ter educated, and had higher incomes than Latino partners (Table 1). There were no significant differences between the two ethnic groups on patient BMI or years since diagnosis. No significant differences were found between European-American and Latino partners on years of marriage or BMI, but European-American partners reported significantly fewer offspring at home and better physical health than Latino partners. The zero-order correlation between partner depressive affect and anxiety was 0.67 and 0.71 ($P < 0.000$) for European-Americans and Latinos, respectively.

Levels of partner and patient general psychological distress

The unadjusted mean CES-D score for the entire partner sample was 10.62 (SD 8.20), and for anxiety it was 11.70 (SD 3.01). No differences in partner CES-D scores occurred between ethnic groups ($F = 1.45$, $P = 0.223$). A significant difference occurred for partner sex, however, with female partners reporting significantly higher CES-D scores than male partners (mean ± SD: women 11.75 ± 7.90 and men 8.55 ± 8.20; $F = 9.03$, $P = 0.003$). The same findings occurred for partner anxiety (women 13.53 ± 3.83 and men 12.12 ± 2.28; $F = 10.03$, $P = 0.002$). There were no significant differences between ethnic groups on partner anxiety ($F = 2.08$, $P = 0.15$).

For both ethnic groups combined, 21.4% of partners scored 16 or higher on the CES-D and were classified as likely depressed. However, significantly more Latino (28.9%) than European-American (16.4%) partners ($\chi^2 = 4.21$, $P = 0.038$) and significantly more female (28.6%) than male (9.6%) partners were in the likely depressed group ($\chi^2 = 9.70$, $P = 0.002$). A χ^2 analysis that combined likely depressed status, sex, and ethnicity was not significant, in part due to the low total number of some cells. The percentage of likely depressed partners in each subgroup by gender, however, was revealing (8.7% [4] of European-American males vs. 21.4% [15] of European-American females, and 11.1% [3] of Latino males vs. 38.8% [19] of Latino females). These data indicate relatively high rates of likely depression among female partners of patients with type 2 diabetes from both ethnic groups.

The unadjusted mean levels of depressive affect and anxiety among patients were 10.88 ± 7.66 and 13.33 ± 3.85, respectively. There were no significant differences in depressive affect or anxiety by sex of patient, but Latinos reported significantly higher scores on depression ($F = 2.22$, $P = 0.03$) and anxiety ($F = 2.69$, $P = 0.008$) than European-Americans. Of the total patient group, 22.9% were classified as likely depressed. Although there were no differences by patient sex ($\chi^2 = 0.14$, $P = 0.71$), significantly more Latino than European-American patients were in the likely depressed group (31.6 vs. 17.2%; $\chi^2 = 5.34$, $P = 0.03$).

Comparisons between partners and patients

A within-couple paired *t* test indicated no significant differences between partners and patients on depressive affect ($t = 0.50$, $P = 0.62$) or on anxiety ($t = 0.80$, $P = 0.42$). Correlations between partner and patient scores were modest for depressive affect ($r = 0.18$, $P = 0.01$) and close to nil for anxiety ($r = 0.06$, $P = 0.38$). Within-couple concordance rates of scores 16 or higher also were calculated. A nonsignificant statistic ($\chi^2 = 0.60$, $P = 0.50$) indicated that the likelihood of a partner falling into the likely depressed group was unrelated to the patient's likely depressed status. Partner ethnicity and sex did not qualify this finding. However, it is interesting to note that of the 10 couples that were concordant for likely depression (2 European-Americans and 8 Latinos), 9 contained a male patient and a female partner.

Predictors of partner distress

There were no significant differences among the predictors of anxiety ($F = 0.46$, $P = 0.920$) or depressive affect ($F = 0.80$, $P = 0.644$) between the two ethnic groups, and no predictor by ethnicity interaction term reached significance. A block of interaction terms to assess how partner sex qualified the findings was also not significant for anxiety ($F = 0.61$, $P = 0.82$) or for depressive affect ($F = 1.27$, $P = 0.24$).

The multiple regression equation for the entire sample accounted for 44% of the variance in partner CES-D scores ($F = 11.06$, $P = 0.0001$) (Table 2). High partner depressive affect was independently linked to being female, reporting high diabetes impact, and experiencing high financial stress, poor diabetes-related couple problem solving, and a lack of couple closeness. Partner depressive affect was not associated with partner age or education or patient time since diagnosis, BMI, HbA_{1c}, or number of comorbid conditions. The multiple regression equation for partner anxiety accounted for 25.0% of score variance ($F = 4.60$, $P = 0.0001$). Significant contributors to partner anxiety included being female and reporting high disease impact and family financial stress. No patient disease status or other partner demographic indicator significantly predicted partner anxiety. We also tested the effects of patient depressive affect and partner BMI to determine whether these variables might affect the results. None were significant predictors, nor did their inclusion in the equations alter the initial findings.

To identify the major categories of variables that predicted partner depressive affect and anxiety, we tested the unique variance accounted for by each of the three blocks of predictors: demographics, patient disease status, and family level stresses. Family level stress accounted for the largest amount of variance in partner CES-D scores (36.4%, $P = 0.0\ 001$), followed by demographics (3.20%, $P = 0.05$). Patient disease status (1.0%, $P = 0.59$) was unrelated to partner depression. Only family level stresses accounted for significant, independent variance in partner anxiety (15.9%, $P = 0.0001$); demographics and disease status accounted only for 3.50% ($P = 0.10$) and 1.3% ($P = 0.59$), respectively. Thus, family level stress contributed the largest amount of independent variance to both depressive affect and anxiety among partners.

Given these findings, we asked if the model that significantly predicted partner depressive affect and anxiety operated along the entire continuum of scores or just at the high end of each of the two distributions. This issue has implications for intervention, since it may direct clinicians to address partner psychological distress along the entire range of scores or only above specific cut points. Because the criterion for likely depression yielded a relatively small number of patients who reported high numbers of depressive symptoms, we split the distributions of depressive affect and anxiety at the median and conducted a hierarchical multiple regression equation. These analyses enabled us to determine whether there were significant differences among the

predictors between the high and low depressive affect or anxiety groups on each of the unstandardized coefficients in the model. The block of tests reached statistical significance for depressive affect ($F = 1.82$, $P = 0.05$) but not for anxiety ($F = 0.43$, $P = 0.95$). However, only partner sex was significant in the depressive affect analysis. This indicated that women scored significantly higher on depressive affect across the entire range of CES-D scores, but these differences were even greater among the subgroup of partners with high depressive affect. We conclude that the contributors to partner depressive affect and anxiety reported above operate along the entire continuum of psychological distress, with gender playing a special role in the subgroup with high depressive affect.

CONCLUSIONS — Regarding our first hypothesis, we found elevated levels of partner depressive affect and anxiety, relative to published community-based levels—10.62 CES-D for the partner sample as a whole compared with 7.5–9.5 in community samples (25). These levels are similar to those reported in studies of partners of patients with other chronic conditions: 10.47 for partners of patients with rheumatoid arthritis (9) and 9.3 for partners of patients with end-stage renal disease (31). We also found no significant differences in the level of depressive affect and anxiety between partners and patients, suggesting that, as a group, the elevated levels of psychological distress found among patients with type 2 diabetes can be found among their partners as well. The point-prevalence of likely depression in our sample is also elevated for partners as a group (21.4%) and is even higher than for patients if the partner is female (28.6%), relative to average rates for community samples (16.3%) (25). As a group, female partners display significantly higher levels of psychological distress than male partners. These results parallel the common sex differences in depressive affect found in community samples. Among partners of patients with diabetes, however, the mean levels for men and women are shifted upward. Unlike our findings for patients (23), we found no differences in any of the partner data for ethnicity. The sample of female Latino partners may have been too small to permit detection of ethnicity by gender interactions, an area in which we suspect differences may occur.

The zero-order correlation between partner and patient depressive affect is modest and falls within the range of other studies of partner and patient distress (32–34). The within-couple concordance rate for likely depression is also very low and is likewise similar to the results of other studies (7,35).

The notable sex differences in affective status among partners of patients with diabetes is similar to findings from studies of other chronic diseases (7,12,17–19,31,35,36) and the population in general (37,38). Benazon and Coyne (7) proposed three hypotheses to explain these differences that have particular relevance to type 2 diabetes. The first suggests that female partners are more involved in the instrumental aspects of disease management, such as in food preparation and health monitoring, than male partners, and they therefore are more burdened by the repetitive demands of disease management than male partners. Partner burden has been linked in other studies to partner distress (8). A second hypothesis suggests that female partners may be more attuned to the instrumental and emotional needs of their patient spouses and feel a greater responsibility to address these needs than male partners (39). Thus, they may experience a greater emotional burden that is expressed in the form of subjective distress. In a related way, female partners may have a lower social and biological threshold for experiencing and reporting disease-related psychological distress than male partners. A third hypothesis suggests that female partners may report higher levels of psychological distress than male partners because female partners live with more severely distressed, more physically burdened and ill, or more demanding spouses than male partners. Although we found no differences in disease status or disease impact between male and female patients in our data, it may be the case that male patients expect their female partners to assume more responsibilities with respect to the instrumental and emotional aspects of disease management than female patients.

Notwithstanding the biological explanations of sex differences in depressive affect (36) as well as sex differences in everyday distress among community samples (40), we suspect that all three of Benazon and Coyne's hypotheses play complementary roles in explaining our findings, since all three view these differences within the context of the partner-patient relationship. Couple relationships are composed in part of sex-based emotional and behavioral roles and role behaviors that conform to a combination of broad cultural norms and unique relationship preferences (41). We suggest that these role expectations and behaviors, usually supported by both members of the couple dyad, have a profound influence on affective status within the context of chronic disease because they identify which spouses accept responsibilities for which sets of instrumental and emotional tasks that are related to and affected by disease management. Seen in this light, disease management is rarely the sole result of actions taken by the patient alone; rather, it is more frequently a combination of patient, partner, and joint patient-partner behaviors (27). From this perspective, female partners stereotypically assume greater responsibility for some of the instrumental burdens of disease management, such as food preparation and care taking, and for the sensitivity and responsiveness to the emotional needs of their spouse with chronic disease than male partners. Thus, they display greater instrumental and emotional involvement and experience greater burden than male partners in the form of psychological distress.

Regarding our second hypothesis, we found that the factors that are linked cross-sectionally to general psychological distress among partners are similar to those that are linked to general psychological distress among patients. For both groups, family level variables display the strongest linkages, with patient disease status variables and demographics contributing modest or nonsignificant independent variance. These findings occur for partners and patients of both sexes, although there are some differences by ethnicity for patients only. Hence, a broad range of similar general life circumstances are linked to distress among both partners and patients and not just to diabetes-related problems alone. Diabetes, therefore, cannot be extracted from the broader context of personal life for both partners and patients. Furthermore, the model operates across the entire range of psychological distress and not only among those partners displaying high lev-

els of depressive affect (scores 16 and above on the CES-D), with sex differences operating to a greater extent among those partners in the high depressive affect subgroup.

Regarding our third hypothesis, we find that anxiety and depressive affect among partners are highly correlated and that they have similar relationships with other variables, such as ethnicity, sex, and the independent variables included in the multiple regression equations. This suggests that general psychological distress, rather than depressive affect or anxiety alone, may best describe the data. Likewise, the similar multiple sources of stress that contribute to general psychological distress for both partners and patients reinforce the cumulative stress, biopsychosocial approach suggested earlier.

Although drawn from cross-sectional data, these findings have several implications for intervention. First, it may be helpful to broaden the lens of clinical evaluation and treatment to address the health status of the partner, along with the patient, as part of comprehensive diabetes care (27). This study adds documentation to the frequent finding that the effects of chronic disease are not limited to patients alone. Second, because the patient appears not to be emotionally distressed does not necessarily mean that the partner is equally nondistressed, especially if the partner is female. Female partners of patients with type 2 diabetes display levels of psychological distress that are as elevated as those of patients. Third, the finding that family relationship indicators are substantive correlates of both partner and patient distress suggests that the assessment of family and couple relationship issues should be included as part of diabetes care (42). High spouse conflict and low spouse closeness may place both partners and patients at risk for general psychological distress, which, for patients, has been linked to poor self-management and poor metabolic control (42,43). Given that the strongest correlates of distress among both partners and patients are family based, interventions that move beyond disease-related issues to issues that address the family social context of disease management may provide additional leverage for clinical intervention. For example, reducing distress caused by related life difficulties, helping couples resolve diabetes-related conflicts, and enhancing spousal collaboration, closeness, support, and joint problem solving may lead to a reduction in distress and an improvement in disease management. Fourth, the correlates of both partner and patient distress operate along the entire continuum of anxiety and depression and not just for those individuals above a statistical criterion. This suggests the need for clinicians to be sensitive to contextual issues for all partners and not only those with observable clinical symptoms of distress.

Several limitations of the research should be considered. First, this was a cross-sectional study, and causal relationships between the predictors and partner distress cannot be assumed. For example, it is most likely the case that the relationship between the family variables and partner distress is complex and reciprocal. Regardless of the direction of influence, however, the data suggest that spouse depressive affect is as high among partners as among patients and that assessing partner affective status be clinically useful. Second, although the sample sizes were adequate for all tests when the sample was considered as a whole, splitting the sample simultaneously by partner ethnicity and sex led to some relatively small cells. Replication with a larger sample of ethnic minority male and female partners is called for. Third, although the disease status variables we included generally were not predictive of partner distress, their role in this regard may change as disease severity increases. Fourth, we assessed distress among partners and patients with self-report screening measures and not with clinical interviews that can diagnose MDD. Rates of major depression and other affective disorders vary as a function of method of assessment (1), and corroboration of the findings with nonscreening well-defined clinical approaches is necessary. In addition to method of assessment, the length of time being considered (at time of assessment, 1–12 months, or lifetime), type of affective disorder (MDD, minor depression, or dysthymia), and type of sample (age, gender, community versus patients, etc.) need to be considered (37). Fifth, it is unclear at what point along the distribution of depressive symptoms a critical threshold is reached whereby depressive affect affects diabetes care. Although our findings suggest that family and non–family-related diabetes stresses are linked to depressive affect across the full range of CES-D scores, it remains unclear at what point these influences become manifested behaviorally and warrant clinical attention.

The elevated levels of psychological distress found among partners of patients with type 2 diabetes focuses attention on the broad effects of this disease on close family members. It also suggests that a life-centered, cumulative stress, biopsychosocial approach to intervention that addresses the social context of disease management may be more helpful in developing programs of intervention than a disease-centered perspective that focuses exclusively on the patient.

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