



Emotional Distress in the Partners of Type 1 Diabetes Adults: Worries About Hypoglycemia and Other Key Concerns

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Abstract

Background: Although the widespread prevalence of diabetes-related distress (DD) in adults with type 1 diabetes (T1D) has been well established, there has been little inquiry into the experiences of their spouse/partners. Therefore the goal of this study was to investigate the prevalence and sources of DD in the spouses and partners of adults with T1D (“T1D partner”) and to examine the associations of DD in this population with key demographic and contextual factors.

Materials and Methods: Qualitative interviews with 11 T1D partners led to the development of 44 DD survey items, which were examined by exploratory factor analysis (EFA). Regression models examined associations of the resulting DD scales with four groups of variables: partner demographics and contextual variables, as well as person with diabetes (PWD) demographics, diabetes status, and behavioral factors.

Results: EFA with 317 T1D partners yielded a 22-item scale with four factors: Hypoglycemia Distress, Emotional Distress, Management Distress, and Role Distress. All scales were significantly correlated with the three criterion variables (depression, general life stress, and diabetes-related relationship satisfaction), suggesting satisfactory concurrent validity. High DD was most common for Hypoglycemic Distress (64.4% of the sample) and least common for Management Distress (28.4%). Greater DD was significantly and independently linked with being younger, female, greater involvement in the PWD’s diabetes management, lower levels of relationship satisfaction, less trusting of the PWD’s physician, poorer PWD glycemic control, and more frequent hypoglycemic episodes. T1D partners also reported low levels of diabetes-related support from all sources.

Conclusions: Four sources of partner DD were identified. Results suggest that DD in T1D partners is common, especially distress associated with hypoglycemia. Predictors of T1D partner DD come from multiple sources: demographic, disease-related, and contextual arenas, all pointing to opportunities for acknowledging and addressing DD directly in this population.

Introduction

LIVING WITH TYPE 1 DIABETES (T1D) can be difficult and stressful, for the person with diabetes (PWD) as well as their spouse or partner. Although several studies have documented the widespread prevalence of diabetes-related distress (DD) in T1D adults,^{1,2} there has been little inquiry into the experiences of their spouse/partners. (For clarity, we will henceforth use “PWD” to identify the person with T1D

and the term “T1D partner” to describe their spouse or partner.) Gonder-Frederick et al.³ found that T1D partners reported levels of hypoglycemic fear that were, on average, greater than those of their PWD. A recent qualitative investigation showed that many T1D partners expressed a sense of exhaustion or burnout as they coped with worries about hypoglycemia, fear of long-term complications, battles with their PWD over blood glucose monitoring, and other self-care behaviors.⁴

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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.⁵ Low levels of concordance suggest that partners can be distressed even if PWDs are not.⁵ Furthermore, higher PWD-reported marital quality has been linked to greater adherence to self-care behaviors and better glycemic control in type 2 diabetes.^{6,7} We suspect that these linkages also occur between T1D PWDs and partners. In sum, there is growing evidence that partners of T1Ds display significant DD, which can affect not only their own quality of life, but also their relationship and partners' diabetes management. It is not yet known, however, which specific areas of DD are most critical or what might be the critical contributors to their emotional concerns.

In the current report we address these omissions by addressing the following questions: how common is DD among T1D partners, what are the specific sources of T1D partner distress, and how is T1D partner distress associated with key PWD and T1D partner demographic and contextual factors. Toward these ends, this report describes the development of the Diabetes Distress Scale for Spouses and Partners (DDS-SP), a self-report measure designed to assess the full range and intensity of T1D-related stressors.^{4,8} Through this investigation, we aim to better understand the broad context of T1D partners' DD and to determine possible strategies for intervention.

Research Design and Methods

Eleven T1D partners, varying in age and gender, were recruited from three diabetes clinics serving diverse communities. Structured interviews were then conducted focusing on their experiences with T1D, with special attention to how these experiences may have impacted their quality of life and their relationships with their PWD. Saturation was reached after these 11 interviews. Respondent statements were recorded, and then key descriptive phrases were transformed into 44 survey items, which were then reviewed by the original respondents for completeness and clarity. The draft scale was formatted such that the degree to which each item was perceived as problematic could be rated on a 5-point scale, where 1 = "not at all," 2 = "a little," 3 = "somewhat," 4 = "a lot," and 5 = "a great deal." The 44 survey items were included as part of a larger online assessment that contained other instruments for documenting the construct validity of the new scale.

Project announcements were sent to all families on the mailing lists of several major diabetes centers nationally. In addition, announcements were placed on diabetes websites known to be popular among T1D partners. T1D partner inclusion criteria were as follows: ≥ 21 years old, read and write English, living with their PWD in the same household ≥ 1 year, and PWD had been diagnosed with T1D at least 1 year previously. T1D partners who responded to the announcement were invited to complete an online survey that included the 44 distress items as well as three groups of other measures to assess both partners' demographics, PWD clinical and behavioral factors, and contextual variables. The online survey was anonymous, and participation was completely voluntary. Questionnaire data were entered into a central database using a Health Insurance Portability and Accountability Act–protected server. The research protocol was approved by Ethical and Independent Review Services, a community-based, institutional review board, and data were collected in 2014.

Measures

Demographic measures. These included PWD's and T1D partner's age, gender, ethnicity (non-Hispanic white vs. not non-Hispanic white), length of relationship, marital status (not married vs. married), and PWD use of an insulin pump or real-time continuous glucose monitor (RT-CGM).

PWD clinical and behavioral factors. These included T1D partners' report of their PWD's hemoglobin A1c (HbA1c), frequency of daily self-monitoring blood glucose, total number of severe hypoglycemic events in the past 6 months, and whether a severe hypoglycemic event required the T1D partner's assistance in the past 6 months. Additional items probed the T1D partner's perception of PWD's level of concern and his or her own level of concern regarding future hypoglycemic events (on a 4-point scale ranging from 1 = "not worried at all" to 4 = "extremely worried") and the T1D partner's appraisal of the adequacy of his or her PWD's overall diabetes self-care (on a 5-point scale ranging from 1 = "very poorly" to 5 = "very well").

T1D partner contextual factors. Three measures were used to demonstrate the construct validity of the DDS-SP. The Patient Health Questionnaire-8⁹ is an eight-item scale that assesses symptoms linked to Diagnostic and Statistical Manual of Mental Disorders, 5th edition criteria for Major Depressive Disorder (Cronbach's $\alpha = 0.92$). The suicide item was omitted. General life stress is a five-item scale, adapted from Pearlin et al.¹⁰ (Cronbach's $\alpha = 0.70$), that assesses the degree of stress in five areas (finance, work, romantic relationships, family, and other health problems). Response options range from 1 ("none") to 5 ("a great deal"). Diabetes-related relationship conflict is a three-item, 5-point scale (ranging from 1 = "never" to 5 = "always") that assesses the degree to which the T1D partner believes that conflicts with the PWD are not effectively resolved (Cronbach's $\alpha = 0.88$).¹¹ High scores reflected poor resolution (e.g., "When you have a disagreement with your partner about diabetes, how often do you remain angry or bothered with your partner for a long time?").

In addition, emotional support was assessed via a five-item scale examining the perceived level of support received from family and friends, healthcare professionals, other T1D partners, support groups, and professional organizations.¹² Response options for each ranged from 1 ("none") to 5 ("a great deal") (Cronbach's $\alpha = 0.76$). A three-item scale assessed general relationship satisfaction, with response options range from 1 = "strongly disagree" to 5 = "strongly agree," with higher scores reflecting overall greater relationship satisfaction (e.g., "We spend most of our free time together") (Cronbach's $\alpha = 0.88$).¹¹ Three items assessed the quality of T1D partners' relationships with the PWD's healthcare provider (Cronbach's $\alpha = 0.89$). Response options range from 1 = "strongly disagree" to 5 = "strongly agree," with higher scores reflecting a more positive relationship (e.g., "I trust my partner's diabetes doctor"). Finally, one item assessed the level of the T1D partner's satisfaction with his or her own diabetes knowledge (from 1 = "not at all" to 4 = "very satisfied"), and one item examined how much involvement he or she had in helping the partner with daily diabetes management (from 1 = "not involved at all" to 4 = "very involved").

Data analysis

An exploratory factor analysis (EFA) with Promax rotation was conducted to determine whether the DDS-SP items could be reduced and grouped into meaningful subscales to identify specific sources of distress. Total and specific distress scales were then created by averaging item responses within each subscale. Internal consistency of the subscales and the total scale was determined by Cronbach's α statistic. Construct validity was examined by Pearson correlations between subscale and total T1D partner distress scores with general life stress, depression symptoms, and diabetes-related relationship conflict. Univariate and multivariate linear regression models examined associations of the scale with four groups of partner-reported variables: partner demographics, PWD demographics and diabetes status, PWD clinical and behavioral factors, and partner contextual factors.

TABLE 1. SAMPLE CHARACTERISTICS

	Total n = 317
T1D partner characteristics	
Age (years)	43.4 (13.7)
Gender (female)	156 (49.2%)
Ethnicity (non-Hispanic white)	287 (90.5%)
Length of relationship (years)	13.6 (9.0)
Married	254 (80.1%)
PHQ-8 (total scale)	4.1 (5.2)
General life stress	2.2 (0.8)
PWD characteristics	
Age (years)	43.2 (13.3)
Gender (female)	165 (52.1%)
Ethnicity (non-Hispanic white)	295 (93.1%)
Age (years) at diagnosis	19.1 (13.3)
Years since diagnosis	24.1 (15.0)
Insulin delivery method	
MDI	105 (33.1%)
Pump	212 (66.9%)
RT-CGM	139 (44.0%)
PWD clinical and behavioral factors	
Hypoglycemic episodes requiring assistance in the past 6 months	
0	124 (40.4%)
1	79 (25.7%)
2	104 (33.9%)
Hypoglycemic episode in the past 6 months requiring partner assistance	176 (55.5%)
HbA1c (%)	7.12 (1.12)
(mmol/mol)	54.0 (12.0)
Frequency of blood glucose monitoring	5.77 (2.57)
T1D partner contextual factors	
General relationship satisfaction	3.91 (0.77)
Support from family and friends	1.79 (1.02)
Satisfaction with diabetes knowledge	2.94 (.78)
Involvement in diabetes care	2.52 (0.94)
Satisfaction with PWD's healthcare provider	3.89 (0.97)

Data are mean (SD) values or *n* (%) as indicated.

HbA1c, hemoglobin A1c; MDI, multiple daily insulin injections; PHQ-8, Patient Health Questionnaire-8; PWD, person with diabetes; RT-CGM, real-time continuous glucose monitor; T1D, type 1 diabetes.

Results

Informed consent was completed by 343 T1D partners, and 317 (92%) completed the entire survey. Mean age was 43.4 (± 13.8) years, and the sample was evenly divided between the sexes (49.2% female) (Table 1). Most were non-Hispanic white (90.5%) and legally married (80.1%). PWD characteristics, as described by T1D partners, were as follows: mean age, 43.2 (± 13.3) years; ethnicity, 93.1% non-Hispanic white; duration of partnership, 13.6 (± 9.0) years; and duration of T1D, 24.1 (± 15.0) years. Partner-estimated HbA1c was 7.1 \pm 1.1% (54 \pm 12.0 mmol/mol). Of note is that more than half of T1D partners (55.5%) reported that they had personally helped their PWDs recover from at least one severe hypoglycemic episode within the past 6 months.

About 40% of T1D partners reported that their PWDs were moderately or extremely worried about future hypoglycemic events. In contrast, 64.7% of T1D partners reported that they themselves were moderately or extremely worried about such a possibility. Despite these prevalent concerns, 81.1% of the T1D partners felt that their PWDs were managing their diabetes moderately or very well. The majority of T1D partners (71.3%) reported being at least "somewhat" satisfied with their own level of diabetes knowledge, and most (59.3%) were comfortable (i.e., scoring at or above scale midpoint) with their PWDs' healthcare provider. However, T1D partners' involvement in day-to-day T1D management varied considerably, with only 47.7% reporting moderate to high involvement. Mean and SD values are presented in Table 1.

T1D partners reported levels of general life stress, depressive symptoms, diabetes-related couple conflict, and general relationship satisfaction that fell within expected average ranges (Table 1). However, T1D partners reported strikingly low levels of emotional support received from others. The most frequently cited form of support came from family and friends, with only 20.5% reported feeling at least "somewhat" supported. Reported levels of support from other areas were far less common (ranging from 2.8% to 12.4%).

Assessing the sources of partner distress

An EFA of the 44 distress items yielded a six-factor solution (eigenvalues ≥ 1.00) that accounted for 68.9% of the common item variance. Inspection of the scree plot of successive eigenvalues indicated that four factors provided a good description of the data. Items that loaded less than 0.50 on all factors or were cross-loaded on multiple factors (i.e., 0.30 or greater) were dropped, and the remaining items were subjected to a second EFA. This analysis, with 22 items, yielded four coherent and meaningful factors that accounted for 71.4% of the score variance. Factor loadings ranged from 0.63 to 0.98 (Table 2).

Based on the item content, the four DDS-SP subscales were labeled as follows: Hypoglycemia Distress (e.g., "Worrying about my partner's low blood sugars when he or she is sleeping") (four items) (Cronbach's $\alpha = 0.85$); Emotional Distress (e.g., "Feeling overwhelmed by the constant demands of my partner's diabetes") (five items, Cronbach's $\alpha = 0.91$); Management Distress (e.g., "Feeling that my partner doesn't try hard enough to manage his or her diabetes") (seven items) (Cronbach's $\alpha = 0.93$); and Role Distress (e.g., "Feeling unclear about exactly how much I should be involved in managing my partner's diabetes") (five items) (Cronbach's

TABLE 2. FACTOR ANALYSIS OF DIABETES DISTRESS SCALE FOR SPOUSES AND PARTNERS (DDS-SP) ITEMS

	<i>Subscale</i>			
	<i>MD</i>	<i>RD</i>	<i>ED</i>	<i>HD</i>
Frustrated that my partner shuts me out of his or her diabetes.	0.671	0.205	-0.138	0.051
Feeling that my partner doesn't try hard enough to manage his or her diabetes.	0.982	-0.122	-0.1	0.007
Frustrated that the more I try to help my partner manage his or her diabetes, the worse things get between us.	0.809	-0.004	0.127	-0.018
Frustrated that I can't get my partner to improve his or her attitude about diabetes.	0.831	0.134	-0.091	-0.047
Feeling that trying to help my partner with his or her diabetes is always a battle.	0.734	0.015	0.182	0.01
Frustrated because my partner ignores my suggestions about diabetes.	0.817	-0.026	0.095	-0.032
Concerned that my partner and I are not working well together when it comes to diabetes.	0.782	0.038	0.099	-0.031
Feeling unclear about exactly how much I should be involved in managing my partner's diabetes.	0.219	0.636	-0.193	0.201
Worrying that I don't know how to best help my partner manage diabetes.	0.039	0.784	0.048	0.068
Feeling that I stay silent about my partner's diabetes more than I really should.	0.156	0.703	0.036	-0.079
Feeling guilty about not doing enough to help my partner with diabetes.	-0.194	0.983	0.099	-0.128
Worrying that I am failing to help my partner manage his or her diabetes more successfully.	0.189	0.676	0.016	0.021
Feeling overwhelmed by the constant demands of my partner's diabetes.	0.053	0.089	0.783	0.037
Feeling that diabetes is taking up too much of my mental and physical energy every day.	0.032	-0.011	0.856	0.012
Feeling that no one notices that diabetes is hard on me, not just on my partner.	0.176	0.045	0.710	-0.045
Frustrated that diabetes often interrupts our plans.	-0.189	0.081	0.887	-0.005
Feeling that I never get a break from worrying about my partner's diabetes.	0.114	-0.137	0.784	0.143
Worrying about my partner's low blood sugars.	-0.07	0.134	0.020	0.815
Worrying about my partner's low blood sugars when he or she is sleeping.	-0.145	0.087	0.041	0.855
Worrying about my partner's driving because of possible low blood sugars.	0.15	-0.137	-0.053	0.837
Worrying about leaving my partner alone because of the possible danger of low blood sugars.	0.002	-0.104	0.106	0.776

Items that load most highly on the individual factor are given in bold type.

ED, Emotional Distress; HD, Hypoglycemia Distress; MD, Management Distress; RD, Role Distress.

$\alpha=0.88$). The total DDS-SP score, including all 22 items, also demonstrated good internal consistency (Cronbach's $\alpha=0.95$).

Intercorrelations among subscales ranged from $r=0.44$ to $r=0.73$, suggesting related, but distinct, areas of distress. Each DDS-SP score was calculated as the mean of the contributing items, with scores ranging from 1 to 5. The average total scale DDS-SP score was 1.97 (± 0.81), and the mean score per subscale was as follows: Hypoglycemia Distress, 2.39 (± 1.02); Emotional Distress, 1.89 (± 1.00); Management Distress, 1.76 (± 0.97); and Role Distress, 2.00 (± 0.92). Thus, T1D partners reported the most distress concerning their PWD's hypoglycemia and the least distress about their PWD's management. We constructed a cutpoint for moderate distress of 2.00, equivalent to feeling, on average, "a little" distressed or greater. Previous research has demonstrated that even a moderately elevated level of DD, assessed in this same manner, is significantly related to HbA1c level, management, and other diabetes-related variables.^{1,13} Elevated distress scores (i.e., "moderate" or higher) were reported for 64.4% of the sample for Hypoglycemia Distress, 37.5% for Emotional Distress, 28.4% for Management Distress, and 44% for Role Distress. Overall, 38.8% of the sample reported elevated distress on the total scale.

The DDS-SP total scale and all four subscales were significantly correlated with the criterion variables, suggesting satisfactory concurrent validity: depressive symptoms (Patient Health Questionnaire-8) ($r=0.35$ to $r=0.57$, all $P<0.001$), general life stress ($r=0.25$ to $r=0.42$, all $P<0.005$), and

diabetes-related relationship conflict ($r=0.46$ to $r=0.79$, all $P<0.001$).

Associations between contextual variables and the DDS-SP

Demographics. In univariate analyses, T1D partners who were younger or women reported significantly higher levels of distress (DDS-SP total score) than those who were older or male (Table 3). T1D partners of PWDs using an insulin pump or RT-CGM reported significantly lower distress than those using multiple daily insulin injections or not using an RT-CGM. In multivariate analyses, only age and gender of T1D partners and their PWDs were significant independent predictors of T1D partner distress.

Clinical and behavioral factors. In univariate analyses, higher HbA1c level, lower frequency of blood glucose monitoring, and number of severe hypoglycemic episodes with and without the assistance of the T1D partner were each significantly associated with greater DDS-SP total scores (Table 3). In the multivariate model, HbA1c and number of severe hypoglycemic episodes remained significant independent predictors of T1D partner diabetes distress in the same direction.

T1D partner contextual factors. In univariate analyses, lower satisfaction with their overall relationship with their partner, less satisfaction with their diabetes knowledge, and

TABLE 3. ASSOCIATIONS BETWEEN CONTEXTUAL VARIABLES WITH THE DIABETES DISTRESS SCALE FOR SPOUSES AND PARTNERS (DDS-SP)

	<i>Total distress</i>			
	<i>Univariate analyses</i>		<i>Multivariate analyses</i>	
	β	P	β	P
T1D partner characteristics				
Age	-0.18	0.002	-0.20	0.02
Gender (male = 1, female = 2)	0.20	<0.001	0.19	0.001
Ethnicity (white = 1, nonwhite = 2)	0.01	0.97	0.01	0.86
Length of relationship	0.01	0.81	0.06	0.47
Married	0.05	0.38	-0.01	0.90
PWD characteristics				
Age	-0.14	0.01	-0.15	0.007
Gender (male = 1, female = 2)	-0.25	<0.001	-0.23	<0.001
Ethnicity (white = 1, nonwhite = 2)	-0.05	0.40	-0.04	0.50
Insulin device (MDI = 1, pump = 2)	-0.16	0.006	0.08	0.17
RT-CGM	-0.11	0.05	-0.07	0.22
PWD clinical and behavioral factors				
Hypoglycemic episodes requiring assistance in the last 6 months	0.40	<0.001	0.38	<0.001
Hypoglycemic episode in the past 6 months requiring partner assistance	0.29	<0.001	-0.04	0.65
HbA1c level	0.24	< 0.001	0.20	0.004
Frequency of blood glucose monitoring	-0.22	<0.001	-0.11	0.11
T1D partner contextual factors				
General relationship satisfaction	-0.31	<0.001	-0.33	<0.001
Support from family and friends	0.03	0.66	-0.06	0.27
Satisfaction with diabetes knowledge	-0.15	0.008	-0.13	0.02
Involvement in diabetes care	0.17	0.001	0.20	0.001
Satisfaction with PWD's healthcare provider	-0.16	0.004	-0.15	0.004

Univariate analyses include a single predictor in each analysis. Multivariate analyses included a block of predictors from each of the four variable groups: type 1 diabetes (T1D) partner characteristics, person with diabetes (PWD) characteristics, PWD clinical and behavioral factors, and T1D partner contextual factors.

HbA1c, hemoglobin A1c; MDI, multiple daily insulin injections; RT-CGM, real-time continuous glucose monitor.

less comfort and satisfaction with their PWDs' healthcare provider were significantly associated with higher DDS-SP total scores. Furthermore, greater involvement in the day-to-day care of their PWDs' diabetes was associated with greater DDS-SP total scores (Table 3). In the multivariate model, the same pattern of effects occurred, with each variable remaining a significant, independent predictor of T1D partner distress.

Discussion

These findings suggest that DD in T1D partners is relatively common, occurring in over 30% of T1D partners. Four major sources of DD were identified: hypoglycemia distress (concerns about the threat and danger of severe hypoglycemia in their PWD); emotional distress (the sense of being overwhelmed by the demands of T1D); management distress (concerns and aggravations that their PWD is not managing T1D as needed); and role distress (uncertainty regarding how to be involved in their PWD's disease management). However, DD level varied across the four domains. Hypoglycemia distress was the most common source (64.4% of T1D partners), whereas the least prevalent source was management distress (28.4%).

It is not surprising that concerns about hypoglycemia would stand out as the most common area of DD among T1D

partners. Although partners may have other diabetes-related stresses and strains, none is typically as immediate, demanding, or frightening as observing a severe hypoglycemic event. Once a severe episode occurs, partners may be traumatized, leading to ongoing worries and fears that do not recede.^{4,8} Interestingly, similar to other reports,^{1,3} we found that T1D partners appear to be even more distressed about hypoglycemia than PWDs: 64.7% versus 40%, respectively.

Several disease-related and broader contextual variables emerge as independent predictors of overall DD in T1D partners. Greater distress is significantly associated with more frequent episodes of recent severe hypoglycemia and poorer PWD glycemic control (as perceived and reported by the T1D partner), greater involvement in their PWD's diabetes management, lower levels of overall relationship satisfaction, and with the T1D partner feeling less trusting and confident about his or her PWD's physician. In total, this suggests that elevated DD is more likely when the T1D partner is less comfortable, secure, and confident in a T1D-influenced world. Although causality cannot be assumed, these specific partner and PWD characteristics may be key targets for intervention. Of note is that the level of support for T1D partners from family and friends was not associated with T1D partner distress, perhaps because mean levels of support were strikingly low and with little variability in the sample, or

perhaps because the type of support being provided was not helpful.

The findings add to recent qualitative reports highlighting the unrecognized plight of many T1D partners^{4,8} and their needs for education and support. DD in this population is far from rare, especially when it concerns hypoglycemia, yet little attention is ever paid to T1D partners. Lawton et al.⁸ found that the majority of the T1D family members they interviewed indicated a lack of understanding and support from friends, family, and healthcare professionals. Our findings are consistent with this report, as only 20.5% of T1D partners indicated that they felt supported by family and friends, and only 12.4% felt so by healthcare professionals.

The four sources of DD identified here, as well as the new instrument developed for their assessment (the DDS-SP), may provide a starting point for addressing these issues, especially because it is relatively brief and takes only about 8 min to complete. By reviewing the individual item responses as well as the subscale scores with a T1D partner, a trusted healthcare professional can help acknowledge and normalize DD, gain perspective on his or her concerns, and collaborate to develop solutions. It is possible that a consequent reduction in the T1D partner's distress may positively influence the PWD's diabetes management; for example, a T1D partner who is able to become more trusting in his or her PWD's ability to safely manage hypoglycemia may lead the T1D partner to no longer have to repeatedly remind the PWD to check blood glucose levels, which, in turn, may result in the PWD then taking more responsibility to monitor his or her own blood glucose levels.

A major strength of this study is the relatively large sample of T1D partners surveyed and the development of a reliable and valid DD assessment instrument. However, several cautions should be noted. First, the study sample was mostly non-Hispanic white and were more technologically sophisticated than the general population of T1D subjects, given that the majority of PWDs were using insulin pumps and almost half using RT-CGM. We speculate that this population of T1D partners may have lower levels of DD than T1D partners who do not have easy online access and whose PWDs do not use insulin pumps and/or RT-CGM, since their PWDs are using the most sophisticated and engaging management tools. Second, all information about the PWD, including HbA1c level, was provided by the T1D partner and should therefore be treated with significant caution; confirmation by PWDs and/or medical chart records should be addressed in future studies.

In sum, DD in T1D partners is relatively common, especially regarding worries and concerns about hypoglycemia, and partners report very low levels of support. Predictors of DD come from multiple sources: demographic, disease-related, and contextual arenas, all pointing to opportunities for acknowledging and addressing DD directly in this population.

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Author Disclosure Statement

No competing financial interests exist.

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