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2020

Parenting with Type 1 Diabetes: The Relationship between Parenting Support and Stress

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PARENTING WITH TYPE 1 DIABETES: THE RELATIONSHIP BETWEEN PARENTING SUPPORT AND STRESS

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DOI:
<http://dx.doi.org/10.17125/plaid.2017.99>



People Living with And Inspired by Diabetes

ABSTRACT

Objective: The present study examines the relationship between parenting self-efficacy, social support in parenting tasks, and parenting-related stress for parents with and without type 1 diabetes (T1D).

Research Design and Method: Parents with and without T1D completed self-report measures addressing demographic, parenting (e.g., parental stress, support, and self-efficacy), and diabetes-related variables. One-way analyses of variance (ANOVAs) examined the effect of parent T1D diagnosis on parent demographic and parenting-related data. In addition, regression analyses examined main and interactive effects of parent T1D diagnosis and perceived parenting support in accounting for parenting stress.

Results: Parents with a T1D diagnosis self-reported more parenting-related stress than parents without a T1D diagnosis. In addition, for parents with T1D, parenting stress was significantly positively correlated with parent age at diagnosis and significantly negatively correlated with most recent HbA1c, parenting self-efficacy, and perceived parenting support; however, among parents without a T1D diagnosis, the relationship between parenting stress and support was null. A regression analysis examining main and interactive effects of parent T1D diagnosis and perceived parenting support on parenting stress was significant, yielding a significant two-way interaction.

Conclusions: Results suggest that parents with T1D may experience more parenting-related stress than parents without a chronic illness. Furthermore, higher levels of social support are associated with lower levels of parenting stress for this group of parents with T1D. Thus, results underscore the importance of parenting support for parents with T1D and further emphasize the importance of continued research in the area of parenting with T1D.



BACKGROUND

Approximately 1.25 million Americans are living with type 1 diabetes (T1D), a chronic illness that requires a complicated daily self-management regimen [1]. The burden of this chronic illness has been shown to increase distress levels in people with T1D compared to the general population [2, 3]. Many adults with T1D are also parents. The parenting role, while often desired and rewarding, can be a very demanding and emotionally stressful one [4]. This stress may be compounded by the presence of a chronic illness that requires constant vigilance for appropriate management, as is the case with T1D. Successful T1D management involves close monitoring of blood glucose levels and regular insulin dose adjustments with close consideration of numerous factors (e.g., carbohydrate consumption, blood glucose levels, physical activity, stress, illness). These consistent and intensive demands impose a significant burden that may, at times, interfere with parenting tasks and, at other times, be surpassed in priority by parenting tasks. In this way, the relationship between parenting and chronic illness may be bidirectional, as the presence of a chronic illness may decrease a parent's perception of his or her ability to appropriately parent and increase general and parenting-specific distress. Further, the requirements of parenthood may impact a parent's confidence in their ability to balance the demands of parenting while adequately attending to the management of their chronic illness [5].

In a review of the experience of parenting when ill, the authors discuss several recurring themes for parents with illness, including fears about parenting ability in light of illness and concerns about balancing self-care with caring for others [6]. Illness and illness-related sequelae may negatively impact a parent's perception of their ability to competently provide care and security to their children [6]. Confidence in the ability to parent is an important concept for overall well-being in parents, regardless of health status. Previous research has demonstrated parental self-efficacy to be negatively associated with distress and mood disturbance in parents without chronic illness, and there may be a reciprocal relationship between parenting self-efficacy and mood during the transition into parenthood [7]. In parents with chronic illness, extant research has demonstrated decreased parenting self-efficacy and increased distress levels in parents with chronic illnesses such as cancer and HIV [5, 8], compared to those without chronic illness. Furthermore, parenting-self efficacy may be directly related to distress about the parenting role [7]. To date, however, the rela-

tionship between distress and self-efficacy in parents with T1D has not been determined.

Of the little research available on parenting with T1D, the majority of the focus is on new mothers or the transition into the role of motherhood. A 2013 review of literature on women with T1D transitioning into motherhood suggested new mothers with T1D tend to experience increased levels of psychosocial distress including higher anxiety, diabetes-related distress, and guilt [9]. In addition, women with T1D reported an increase in depressive symptoms after delivery, whereas participants without diabetes experienced a decrease in depressive symptoms [10]. Awareness of the importance of successfully managing a chronic disease and worry about the ability to cope with both T1D and motherhood could potentially engender the increases in post-delivery depressive symptoms. While the literature on early motherhood and role-transition provide a helpful foundation, no known research to date explores how the parenting experience changes for parents with T1D as their children grow older and as parents advance beyond the parenthood-transitioning phase.

Social support has been identified as a factor for parenting-related distress [4], as well as diabetes management, medical outcomes, and distress [11]. Social support has been found to be a protective buffer against distress globally [12] and specific to child caregiver role-stress [13]. In addition to distress levels, social support has been shown to be related to parental self-efficacy and may protect parents from distress through the mediational pathway of increasing parental confidence [14]. The social environment is an important factor that can influence stress and perceptions of control for women in T1D regarding their diabetes management as well as the transition into the role of motherhood [15]; however, these phenomena have not been explored beyond early parenthood in people with T1D.

In sum, parenting self-efficacy and distress levels may be impacted by the presence of parental chronic illness, but social support may serve as a buffer that enhances confidence and protects against distress. Further, the stress and demands associated with the parenting role may detrimentally impact behavioral self-management and emotional experiences related to a parent's own chronic illness. However, these phenomena have not been investigated in the population of parents with T1D, a chronic illness that requires a complex daily regimen for adequate control and prevention of complications. The current study seeks to fill this gap in the literature by exploring these phenomena in parents

with T1D through quantitative data, and by comparing the experiences of parents with T1D to parents without chronic illness.

METHODS

Participants

As part of a larger study examining the relationships of parent health, support, and stress, 301 adults (ages 18 to 60) were recruited from ambulatory clinics at a large university hospital in Florida and online through groups for parents and/or individuals with diabetes. The current study examines data available from 235 parents. The remaining participants were excluded from analysis due to missing data (i.e., failure to fill out study measures) and/or lack of parenting status (i.e., reported having no children). Average age of participants included in analyses was 34.3 years (range=19-55, SD=5.45) and 204 (86.6%) were female. Ethnic and racial composition was 87.7% Caucasian, 13.2% Hispanic or Latino, 3.4% African-American, 3.0% American Indian or Alaskan Native, and 2.9% mixed or other race.

Procedures

Participants were recruited primarily from the University of South Florida (USF) Health ambulatory clinics and online through groups for parents and/or people with diabetes and shared via community social media pages. Participants were recruited for two separate groups, parents with T1D, and a control group of parents without a diagnosis of T1D. USF adult clinics were utilized for recruitment of parents with T1D via flyers, announcements, and online groups included the Southwest Florida Division of the American Diabetes Association, Diabetes Support, and Students with Diabetes organization group pages. The USF Health pediatric clinic was primarily utilized to recruit parents without T1D, and parents in the non-T1D control group were recruited online via the Tampa Bay Parenting Magazine organization group page. All procedures were approved by the USF Institutional Review Board. After consent procedures, participants completed an online survey with a battery of validated questionnaires measuring parental self-efficacy, social support, and stress. Questionnaires also requested demographic data for all participants and self-reported T1D data for those who reported a T1D diagnosis. Survey respondents were offered a \$10 electronic gift card. To be

eligible for the study, participants were 18 to 60 years old, able to read and speak English, and a parent to at least one child under the age of 18.

Measures

Demographic measures include age, gender, race, and marital or relationship status. For participants in the T1D population, clinical characteristics were assessed via self-report including disease duration and most recent HbA1c.

Parental Stress

Parenting stress, defined as subjective levels of stress specifically associated with the parenting role, was measured using the Parental Stress Scale (PSS), an 18-item instrument with documented evidence of reliability and validity [16]. The measure assessed negative parenting outcomes (e.g., “having child(ren) leaves little time and flexibility in my life”), as well as positive parenting outcomes (e.g., my child(ren) is an important source of affection for me). The 5-point Likert response scale ranged from strongly disagree (1) to strongly agree (5). Items with a positive valence were recoded, such that higher scores reflected higher stress. Total scores captured overall stress related to the parenting role, ranging from 18 – 69 in this sample. The PSS has internal consistency of $\alpha=.83$ [16]. In our sample, the PSS has internal consistency of $\alpha=.89$.

Parenting Support

The perceived amount of social support received for the parenting role was measured using the Parenting Support subscale of the Parenting Ladder [17]. The Parenting Ladder is divided into two sections: perceptions of competence as a parent, and perceptions of amount of parenting support received. The Parenting Support subscale is a 6-item, self-report measure that assesses the level of perceived social support related to parenting (e.g., “someone to help you in an emergency?”), utilizing a 7-point Likert response scale ranging from none (0) to high (6). Total scores capture overall perceived parenting support, ranging from 1 – 36 in this sample, with higher scores suggesting the receipt of more support. The PL-PS has internal consistency of $\alpha=.86$ [17]. In our sample, the PL-PS has internal consistency of $\alpha=.84$.

Parental Self-Agency

Parenting self-efficacy, defined as parental confidence in the ability to function as a successful parent, was measured using the Parent Self-Agency Measure (PSAM). The PSAM is a 10-item, self-report instrument with documented evidence of reliability and validity [18]. The measure assesses negative parenting outcomes (e.g., “no matter what I try, my child will not do what I want”), as well as positive parenting outcomes (e.g., I feel sure of myself as a mother). The 6-point Likert response scale ranged from never (0) to always (5). Items with a negative valence were recoded, such that higher scores reflect a greater sense of parental confidence. Total scores capture overall self-agency or self-efficacy in the domain of parenting, ranging from 21 – 46 in this sample. The PSAM has internal consistency of $\alpha=.70$ [18]. In our sample, the PSAM has internal consistency of $\alpha=.71$.

STATISTICAL METHODS

Descriptive Data and Potential Confounds

All analyses were conducted using SPSS 20.0 software (IBM, Inc., Armonk, NY). One-way ANOVAs examined the effect of parent T1D diagnosis on parent demographic, parenting-related, and diabetes-related data. In addition, bivariate correlations examined relations among continuous study variables for both parents with a T1D diagnosis and for those without.

Regression Analysis: Parent T1D, Parenting Support, and Parenting Stress

A regression analysis examined main and interactive effects of parent T1D diagnosis and perceived parenting support in accounting for parenting stress. We probed significant interactions, according to procedures described by Aiken and West [19], to facilitate interpretation. The regression analysis controlled for parent gender and parent relationship status, due to existing literature suggesting the importance of these demographic variables in accounting for parenting stress and support. In addition, the regression analysis controlled for self-reported parenting self-agency, due to significant associations between self-agency and other regression variables (see Table 2).

RESULTS

Descriptive Information

Descriptive data for all demographic, parenting, and diabetes-related variables appear in Table 1. One-way group by T1D status ANOVAs yielded a significant main effect of T1D diagnosis on self-reported parent stress, such that in this sample individuals with T1D reported higher levels of parenting stress, $F(1,233) = 22.90, p < .001$. There were no other significant main effects.

	<i>T1D (n=133)</i>	<i>No T1D (n=102)</i>	<i>F (T1D)</i>
<i>Demographic Variables</i>			
Age M (SD)	34.07(6.17)	34.63 (4.35)	.607
Race—Caucasian n (%)	113 (85)	93 (91.2)	1.04
Gender—Female n (%)	114 (85.7)	90 (88.2)	.318
Relationship Status—Married n (%)	116 (87.2)	95 (93.1)	3.42
Other Adult(s) Living in Household—No n (%)	4 (3.0)	3 (2.9)	.000
<i>Parenting-Related Variables</i>			
Number of Children M (SD)	1.63 (0.81)	1.81 (0.98)	2.33
Parenting Self-Agency M (SD)	34.87 (6.05)	35.65 (4.76)	1.12
Parental Support –Parenting Ladder M (SD)	24.39 (7.06)	25.36 (6.99)	1.10
Parenting Stress Scale M (SD)	42.71 (11.65)	36.38 (7.47)	22.90***
<i>Diabetes-Related Variables</i>			
Age at T1D Diagnosis M (SD)	16.61 (9.82)	-	-
Most Recent HbA1c M (SD)	6.57 (1.48)	-	-

Table 2: Correlations of Continuous Study Variables

	1	2	3	4	5	6
1. Age at T1D Diagnosis	-	-	-	-	-	-
2. Most Recent HbA1c	-.308***	-	-	-	-	-
3. Number of Children	-.089	.093	-	.156	-.119	-.014
4. Parenting Self-Agency	-.251**	.348***	.285**	-	.378***	-.525***
5. Parental Support –Parenting Ladder	-.103	.032	-.017	.215*	-	-.088
6. Parenting Stress Scale	.331***	-.267**	-.077	-.726***	-.277**	-

*Notes. Correlations for individuals with T1D appear below the diagonal. Correlations for individuals with no T1D diagnosis appear above the diagonal; T1D= Type 1 Diabetes; **p<.01, ***p<.001*

Correlations Among Diabetes and Parenting Variables

Among parents with T1D, bivariate correlations revealed that parents’ age at diabetes diagnosis was significantly positively correlated with parenting stress and significantly negatively correlated with parenting self-agency. Parents’ most recent HbA1c was significantly positively correlated with parenting self-agency and significantly negatively correlated with parenting stress and parent age at diagnosis. Among both parents with and without T1D, parenting self-agency was significantly positively associated with parenting support and significantly negatively correlated with parenting stress. Finally, among parents with T1D, parenting stress was significantly negatively correlated with parenting support; however, this relationship was null among parents without T1D (See Table 2).

Regression Analyses Accounting for Self-reported Parenting Stress

Regression analysis examining main and interactive effects of parent T1D diagnosis and perceived parenting support was significant, accounting for 8.4% of the variability in self-reported parenting stress (Table 3). The two-way interaction between T1D diagnostic status and perceived parenting support was significant. Follow-up probes of this interaction, according to procedures described by Aiken and West [19] (Figure 1), reveal that at values of T1D status 1 SD above the mean (i.e., parent diagnosed with T1D), the relationship between parenting stress and perceived parenting support was significant and negative (B=-0.46, t= -3.78, p<.001). At values of T1D status 1 SD below the mean (i.e., parent not diagnosed with T1D) the relationship between parenting stress and perceived parenting support was null (B=-0.01, t= -0.70, p=0.486).

Table 3: Regression analysis of self-reported parenting stress on parent T1D and perceived parenting support

	β^a	t	F ^b	R ²
Overall Equation			13.57***	.084
Parent T1D	0.77***	4.61		
Parent Support Scale Score	0.01	0.15		
Parent T1D x Parent Support Scale	-0.54***	-3.23		

*Notes. Covaried by parent sex, relationship status, and self-agency; ***p<.001; a Standardized β , bFor F-tests, df= 6,221*

DISCUSSION

By assessing parental stress, parental support, and parental self-agency, we attempt to assess how living with T1D may impact parenting.

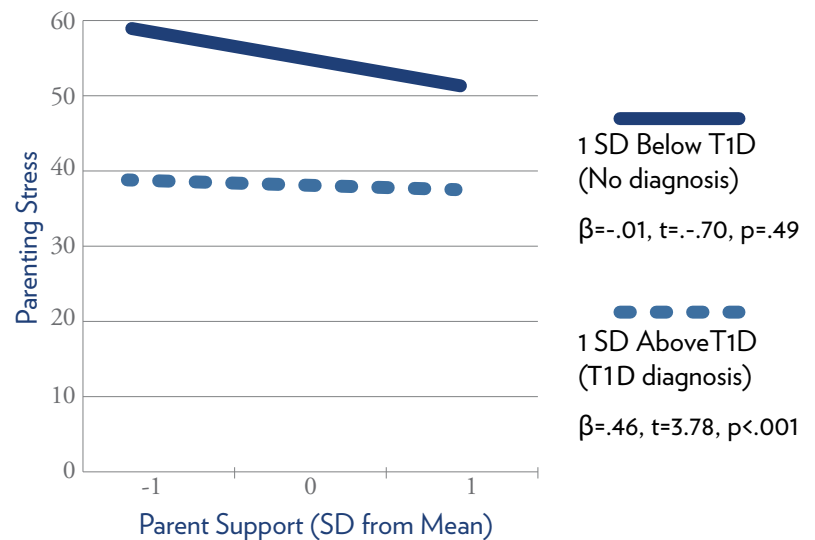
Duration of Diabetes and Parenting

We found that those who were diagnosed at younger ages reported less parenting stress and more parenting self-agency compared to those diagnosed at older ages. The average age at diagnosis for this sample was 16.6 years. When duration of T1D is categorized by decade, we found that reported stress decreased over time. Perhaps those subjects diagnosed at younger ages had more time to adjust to living with diabetes and may have benefited from adjusting to diabetes while living with their own parents. Additionally, having more diabetes experience and more opportunities to develop coping skills over time may provide a residual benefit that filters into parenting.

Parenting Variables and Glycemic Control

Among parents with T1D in this sample, higher levels of parenting stress was associated with a lower HbA1c measure. The additional effort in monitoring and daily self-care necessary to effectively manage diabetes and maintain better blood glycemic control may create more stress for parents. Self-care behaviors take time, effort, and resources that may compete with family needs and contribute to role conflict for parents. Additionally, parenting self-agency is positively associated with HbA1c. Higher levels of self-agency were associated with poorer glycemic control. It is possible that parents who devote more time and energy to the needs of their children both experience an increase in confidence related to parenting and potentially a decrease in resources available to manage T1D. This finding points to possible effects of role conflict parents with T1D may experience as they attempt to balance self-care needs with the needs of their family; however, data from this study do not establish a causal relationship and further research is required to determine the direction of this significant relationship.

Figure 1: Probing two-way interaction of parent T1D status and parenting support on self-reported parenting stress



Parenting Stress and Social Support

T1D status moderated the relationship between parenting stress and parenting support, such that perceived parenting support was negatively associated with parenting stress for individuals with T1D; however, this relationship was not significant for individuals without T1D. This suggests that social support, specifically support with parenting duties, may have added benefit for parents with T1D. As this analysis does not determine causality, it is important to note that individuals who experience less parenting stress may be more likely to access social support. Nevertheless, it is clear that, for individuals with T1D, those who experience more parenting support also experience less parenting stress. The same is not true for individuals in our sample without a chronic illness, underscoring the particular importance of social support for parents with T1D. Future research should further explore causal explanations for this relationship, as well as the impacts of parenting support on diabetes self-care.

Strengths and Limitations

This study used a convenience sampling of an online survey. While online forums and surveys allow for a broad sampling reach, the limitations of convenience sampling and the use of self-report data limit the generalizability of this study. This study sought to capture parents' experiences at a single point in time and does not reflect adequately the changing nature of diabetes self-management or parenting

experiences. Further, there are many extraneous factors that impact one's parenting experience.

Nevertheless, this study raises key issues that need further inquiry to better understand the context of parental stress and its effects on diabetes management. This study highlights the need for additional support for parents living with T1D, especially parents diagnosed with T1D as adults who may face the need to adapt to diabetes management and parenting roles in tandem. Peer support groups, child care coordination, and education on coping strategies may be especially relevant for adults with diabetes who become parents, as well as those parents diagnosed with diabetes during adulthood. As the medical system has succeeded to increase the numbers of young people who grow up to become adults fulfilling their life and family goals, future studies should continue exploring the psychosocial and practical needs of adults balancing self-care and parenthood.

CONFLICT OF INTEREST DISCLOSURES

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. The authors report no potential conflicts of interest relevant to this article.

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