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Perceptions of Parental Differential Treatment: Correlates in Chronically Ill and Non-Ill Samples of Children

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by

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ABSTRACT

We studied perceptions parental differential treatment as reported by parents and children in two different settings. Perceptions of differential affection and control were examined in healthy families and in families that include a child diagnosed with Type 1 diabetes. Parental differential treatment was assessed using questionnaires that measured perceptions of absolute parenting for children and their siblings. Difference scores were subsequently utilized to generate perceived parental differential treatment scores. Participants were 61 parents (half with healthy children, half with one child who has diabetes) and 62 children (half comprising sibling pairs unaffected by any medical problems, half including one child with Type 1 diabetes). Children within the sibling pairs were between 11 and 18 years of age and approximately two years apart, on average. Parents were also asked about their children's emotional/behavioral adjustment and adherence to prescribed medical regimen (in the diabetes group), and their levels of parenting stress. Children were also administered measures regarding their emotional/behavioral adjustment, average adherence (in the diabetes group), and perceptions of deservedness of parental treatment perceived. No differences in strength of correlations between ratings of parental differential treatment and child adjustment

were detected across groups. Significant differences, however, emerged with regard to type of perceived parental differential treatment that related to child adjustment scores across groups. Relationships were also detected between perceived parental differential treatment and ratings of adherence and measures of glycemic control in the diabetes group. Perceived deservedness as rated by children, ratings of absolute parenting, and parenting stress were observed to moderate the relationship between ratings of parental differential treatment and child adjustment. Parental differential treatment scores predicted unique variance in reported child behavior problems above and beyond that predicted by absolute parenting measures. Differences in relationships across groups, the role of gender, and the importance of context and family in studying perceptions of parental differential treatment and child adjustment are discussed.

Introduction

Nonshared environment has been found to be an important aspect of a child's life, and siblings' differential experiences have been researched in terms of their relationship to childhood functioning (Wolf, Fisman, Ellison & Freeman, 1998). Differential parental treatment has been found to be associated with emotional and behavioral adjustment (Dunn, Stocker, & Plomin 1990; McHale & Pawletko, 1992) and with the quality of sibling relationships (Dunn & Stocker, 1989; Stocker, Dunn, & Plomin, 1989). In some studies, reports of differential parenting have been found to be more predictive than those of absolute levels of parenting (e.g., Barrett Singer & Weinstein, 2000; McGuire, Dunn & Plomin, 1995). Differential parenting was found to be more strongly linked to adjustment when a child was treated poorly (i.e., given a low amount of warmth or high amount of negativity; Feinberg & Hetherington, 2001).

Differential parental treatment and its correlates, however, have mostly been investigated in families of children who are healthy. Families of children who have chronic illness provide a "high risk" group for differential parental treatment because children who have a chronic illness often require more time from their caregiver, elicit feelings of guilt or responsibility from the parent, and bring forth the need for "compensation" from parents due to their fewer opportunities in life (Quittner & Opipari, 1994). The siblings in these families have more differences than siblings who do not have health issues, and these heightened differences have been found to be related to

more differential parental treatment (e.g., McHale & Pawletko, 1992; Quittner & Opipari, 1994). In studies of this sort, it is the non-ill or non-disabled sibling who has lower adjustment scores or is rated more negatively by a parent, as compared to siblings in "control" families. These results have clinical implications for parenting in families that are and are not affected by chronic illness.

Although differential parenting and its relationship to child adjustment has been studied in families of disabled and terminally ill children, it has yet to be examined in a population of children who live with chronic, non life-threatening illness that requires intensive, multi-faceted, daily, parent-aided treatment. Studying parenting, differential parenting, and child adjustment in a "normal" and a diabetic sample would allow for similarities and/or differences in relationships among the variables to be discovered and would provide some evidence as to how the behaviors of parents of diabetic children relate to the mental and physical health of their ill child and to the adjustment of the non-ill sibling. Such study is important because anecdotal, clinical, and research findings suggest that parents of chronically ill children especially struggle how they treat each of their children.

An aspect of the nonshared environment that has been found to affect child functioning is differential parental treatment, or differing treatment of siblings; this is a fairly recent topic of empirical study (Wolf, Fisman, Ellison, & Freeman, 1998). Differential parental treatment has been found to relate to child emotional and behavioral adjustment and with the quality of sibling relationships (Dunn & Stocker, 1989; Stocker, Dunn, & Plomin, 1989). Although researchers have found that receiving more discipline and less warmth than a sibling is associated with more behavior problems and lower self-

esteem (McHale & Pawletko, 1992), McGuire and colleagues (McGuire, Dunn, & Plomin, 1995) were the first to examine the longitudinal influence of differential maternal treatment. They looked at the relationship between differential maternal treatment and child adjustment across middle childhood. They found significant stability in mothers' self-reported differential treatment (with many mothers reporting more affection toward their younger child). In addition, they found that more discipline and less attention were significantly related to older siblings' externalizing problems over time, as reported by mothers and teachers. The fact that differential treatment measures were related to adjustment, yet measures of absolute parenting were not, provides support for the importance of examining differential parental treatment in families.

Moderators of Differential Treatment

Age. Most often, differential treatment studies have yielded reports of more attention, control, and affection being given to younger siblings than older siblings (Stocker, Dunn, & Plomin, 1989). McHale, Crouter, McGuire, and Updegraff (1995) conducted a family-level analysis and administered interviews and paper-pencil measures (including the Sibling Inventory of Differential Experience, or SIDE, to parents; Daniels & Plomin, 1984) to parents and children in 110 families. They found that older (mean age 10.52 years) and younger (mean age 7.98 years) children in families did not react to similar patterns of (reported) differential parental treatment in similar ways. For instance, younger school-age siblings who received more affection than did their older sibling reported more positives (i.e., greater self-worth and more satisfaction with the relationship with parents) and more negatives (i.e., more anxiety and sibling hostility, and

less satisfaction in relations with parents) when they (per parent report) received more overall discipline from both parents as compared to the older sibling. In contrast, equal affection given to siblings (as reported by parents) was related to more self-worth in older siblings, and older siblings reported warmer sibling relations when they received more discipline by both parents than their younger counterparts. Both younger and older siblings were rated more negatively (by parents) when interacting with their sibling when they were the one who was (per parent report) disciplined more than when siblings were treated equitably by both parents. This study allowed for a closer look at older and younger children's reactions to differential parental treatment.

Results of another study conducted by Volling and Elins (1998) provided more information on this subject. These researchers collected questionnaire data (also utilizing the SIDE; Daniels & Plomin, 1984) from 60 intact families that included toddler and preschool siblings. In their preschool sample, more enjoyment, favoritism, or discipline toward younger siblings was not found, in contrast with prior research on older samples. Equal enjoyment and favoritism were directed toward older and younger siblings, with more discipline being reported by both parents toward the older sibling. The authors suggested that parents were acting appropriately by disciplining and controlling the child who was more developmentally mature, and that findings from one developmental stage must not be used for generalizing to other periods of development. An interesting result was that more discipline from the father toward the older sibling was related to parental report of more positive involvement and less conflict from the older toward the younger sibling. However, when both parents disciplined the older child more, these children showed the highest behavior problems (both internalizing and externalizing) and the

worst sibling behavior toward younger siblings. Thus, it is not always true that the sibling who is the recipient of more discipline has more behavior problems or more sibling conflict. In addition, less marital conflict was found in families in which fathers disciplined the older child more often, with mothers disciplining the children equally. For the older child's developmental period, it seems as if the disciplinarian role for fathers is important for both child and marital functioning.

Perceived fairness. Kowal & Kramer (1997) suggested that evaluations of fairness are important pieces of information to obtain from children when examining parental differential treatment. Most studies' authors assume that more affection and less control of one sibling by a parent is equal to favoritism, and that the differential treatment contributes to poor sibling relations and psychosocial outcomes. However, parents have reported that although they discipline their older sibling more, they do not equate this with favoritism toward the older sibling (Volling, 1997; Volling & Elins, 1998).

McHale and colleagues (McHale, , 2000) examined intact families that consisted of both a child in middle school (fourth or fifth grade) and a child in adolescence (eighth through tenth grade) for differential parental treatment and child functioning (self-esteem and sibling relationship). They found that siblings' fairness ratings were more consistently related to outcome than parental differential treatment per se, differential warmth was more related to outcome than differential involvement or chores, and adolescents were more sensitive to differential treatment than younger children.

Stress. Family stress has been found to exacerbate different treatment of children, but results have been mixed due to differing operationalizations of parental differential treatment. Most often this has to do with either using just one parent's behavior or

examining a combination of both parents' patterns of differential treatment. Crouter, McHale, and Tucker (1999) found evidence of more differential treatment of siblings under conditions of family stress, as reported by mothers, fathers, and siblings. They also found that high levels of stress interfered with mothers' abilities to recognize their own behavior because mothers' reports were discrepant from all other family members' reports of differential treatment in a subsample of the study. Parenting stress has been found to be a predictor of behavior problems in children, regardless of whether children are ill (e.g., Goldberg et al., 1997).

Gender. Volling and Elins (1998) found that family structure variables (i.e., age of older sibling, number of years between the children, birth order, and gender) did not relate to differential treatment. Similarly, Daniels, Dunn, Furstenberg, & Plomin (1985) found that variables such as age, birth order, and sex only accounted for 1% to 4% of the variance of differential experience within a family as reported by siblings ages 11 to 17. Several other researchers, however, have found gender to be an important factor in examining PDT. McHale and colleagues (2000) found that girls appeared more vulnerable to disfavored status than boys when they examined PDT and perceptions of fairness . Siblings from same sex dyads reported lower fairness for chores and warmth categories than mixed sex dyads, whereas firstborns from mixed sex dyads reported parental involvement from both parents to be less fair than did same sex dyads. Several findings regarding the value of perceptions of PDT in predicting achievement and self-perception scores for college students were moderated by ethnicity or gender in a study conducted by Barrett Singer & Weinstein (2000). Gender also matters at the other end of the developmental spectrum, as Konstantareas & Desbois (2001) noted. They examined

perceptions of fairness regarding mothers' discipline in preschoolers. When presented with discipline vignettes, girls were more likely than boys to deem differential treatment unfair. Given the presence of positive findings with regard to gender's role in studying PDT, gender's role was examined in this study.

Differential treatment with a chronically ill child

Only a few studies have focused on differential treatment in families with a disabled or chronically ill child as compared to families with children without disability or chronic illness. Although most research on differential parental treatment utilizes siblings who are not diagnosed with any medical condition, the home environment may be more disparate for children with chronic illness and their siblings (e.g., Wolf, Fisman, Ellison, & Freeman, 1998, who examined PDT in families affected by pervasive developmental disorder or Down's syndrome). Wolf and colleagues mention that some areas that may differ for the sibling of a disabled versus nondisabled child include receipt of less parental attention, more chores and responsibilities, less participation in outside activities, and decreased companionship. More differential treatment has indeed been found in families with children who have known mental or physical disabilities (e.g., McHale & Pawletko, 1992, in which PDT was examined in a sample of families that included a child with some form of mental retardation). These researchers point out that it has been demonstrated that lack of favoritism by the parents and lack of sense of "normal" sibling hyperresponsibility is related to positive sibling relationships. Additionally, they reported that no significant differences in self-concept are found despite siblings' perceptions that mothers are partial. No studies, however, had looked at

self-concept and social support as moderators of the relationship between differential treatment and adjustment until the study was conducted by McHale & Pawletko. Siblings who perceived that they were preferred over their sibling with Pervasive Developmental Disorder had adjustment problems, whereas the perceptions of siblings that their sibling with Down's Syndrome was preferred predicted internalizing problems. Higher levels of social support (as reported by teachers and parents) buffered the effects of differential treatment on adjustment for all siblings. These results speak to the importance of preventive interventions for siblings of disabled children.

The following study is a good example of how a context effect (whether sibling has a disability or not) and a child effect (birth order) can interact. McHale and Pawletko (1992) interviewed 62 siblings (half with younger disabled, half with younger non-disabled brothers or sisters) and their mothers. The siblings were, on average, approximately 4 years apart. The researchers examined reports of differential maternal involvement, discipline, and chores in siblings of children with some form of mental retardation versus siblings of non-disabled children. Older children with disabled siblings spent more time in play with their mothers than did older children with nondisabled siblings. Children with disabled siblings were found to spend the most time on chores, with siblings of nondisabled children spending the least amount of time on chores (in an analysis including all four groups). Also, disabled children, according to difference scores calculated from mothers' reports, received less positive love, more negative love, and more power assertive techniques than any other of the groups. Older siblings in the families unaffected by disability received the lowest number of these strategies. Overall, there was generally more differential treatment in the families with a

disabled child. In most cases, although mean well-being scores were not significantly different for the two types of families, children with disabled siblings reported adjustment scores that were lower. The take home message is that "the same level of differential treatment had different correlates for children from different family contexts reporting on different domains of functioning (i.e., adjustment or sibling relationships)," (McHale & Pawletko, 1992) and that less favorable differential treatment does not necessarily translate into childhood suffering, at least as measured in this study. One point that the authors mention is that children may view different types of differential treatment in varying ways, and that their perceptions of the differential treatment and its fairness in various domains would be valuable pieces of information to obtain.

McHale and Pawletko (1992) also observed that the children who reported the best sibling relations (those with disabled siblings who received relatively greater amounts of positive love) had the worst adjustment, whereas those who had the worst sibling relations (those with nondisabled siblings who experienced relatively greater amounts of positive love) actually reported the best adjustment. Both of these findings make sense in the broader perspective. For the nondisabled sibling group, consistent with prior research is the fact that preferential treatment can bring about good feelings in the self but negativity toward a sibling. Furthermore, more anxiety and depression in those with a disabled sibling coincides with the notion that guilt may result from more favorable treatment than a child who is already limited by his or her handicap.

The McHale and Pawletko (1992) study was the first to demonstrate that there may be more differential treatment experienced for children with disabled siblings versus those without a disabled sibling. This was not a result of neglect of the sibling relative to

other children the same age, but rather, is present because younger disabled siblings are given much different treatment than nondisabled peers. It may be that mothers "compensate" through spending additional time with older siblings in the disabled group versus "normal" group. However, differential treatment was related to more positives for the older siblings, which may be because the older children viewed less maternal involvement at their age as normal, because they felt more care for a disabled sibling was legitimate, or that differential treatment produces many different emotional reactions at once. For instance, the same type of differential treatment experienced by older siblings (e.g., more involvement in conversations, greater amounts of power assertive discipline, and more positive love) was related to the best sibling relations reported by those with disabled siblings, whereas they related to the worst reports by those without.

Quittner and Opipari (1994) conducted home interviews, telephone interviews, and daily diaries of activities with 40 mothers of toddlers and preschoolers (half of whom had healthy children, half of whom had younger children diagnosed with cystic fibrosis). These researchers examined perceptions of parental differential treatment in families with a child who has cystic fibrosis (CF) and in families in which both children are healthy. Cystic fibrosis is similar to diabetes in that most children do not have an obvious physical handicap, and daily medical routines are involved. A dissimilarity between the two conditions is that median life expectancy for a child with cystic fibrosis is before the third decade, whereas most children with diabetes are expected to live well into adulthood. The researchers found that greater levels of differential treatment were found in the CF group. More time was spent with the younger versus older child, and mothers in the CF group rated the time spent as significantly more positive with their younger (ill) children.

Mothers in the CF group spent less total time with the older children in the CF group than did mothers in the comparison group, especially at play and mealtime. In terms of time spent alone with mothers, the higher amount of differential treatment in the CF group was due to the ill children having significantly more individual time with mothers compared to younger children in the "normal" group. Of note is the fact that even when time spent in medical care was parsed out, these differences still remained. Another interesting finding was that although time with both children in the comparison group and time with the child with CF were rated for the most part as positive, mothers rated time with the older sibling in the CF group as about equal in terms of negative and positive, with negative being the favored type. The authors posit that it may be a combination of feeling torn by thinking about who to tend to (with the CF child having more needs) and feeling "burned out" from doing so much in terms of medical routines with the younger siblings that contributes to maternal negative ratings of time spent with the older sibling.

How Does Chronic Illness, Particularly Diabetes, Affect Families?

Although some studies have shown that children with chronic illness are at increased risk for mental health problems, response to chronic illness is quite variable (e.g., Wallander & Thompson, 1995). Also, some research indicated that it was those children with an obvious physical handicap who had increased problems, and that those chronically ill without handicap did not significantly differ in overall adjustment from children without medical problems (Cadman, Szatmari, & Offord, 1987). Wertlieb, Hauser, and Jacobson (1986) found that when social class is controlled, no differences were found between children ages 9 to 16 years with recently diagnosed Type I diabetes

(also referred to as insulin-dependent diabetes mellitus, or IDDM) and children with a recent acute illness in terms of behavior symptoms. In addition, children with Type I diabetes have been found to have similar overall adjustment scores as compared to healthy controls on most measures (Johnson, 1980). With regard to age of participants and their time since diagnosis, however, a couple of caveats were offered. First, it has been found that adolescents with Type I diabetes, especially females, may be at increased risk for developing depression and eating disorders (e.g., Jacobson, 1993; Rodin & Daneman, 1992). In addition, mild depression and anxiety in children with Type I diabetes is not uncommon post-diagnosis, and has been found to dissipate within six months (Kovacs et al., 1986).

Rationale for the Present Study

Differential parental treatment of children often occurs in families, and some forms of differential treatment have been found to be related to negative adjustment for children (e.g., McGuire, Dunn & Plomin, 1995; McHale & Pawletko, 1992). Given that parents may treat their children more differently if one of them has a special need (e.g., a chronic illness such as diabetes), it was deemed important to study the correlates of differential treatment for both children in families with an ill child and those without an ill child.

Several complex relationships exist between child and context variables for children with chronic illness. The ill child, siblings, and parents all affect and are affected by chronic illness. All of these variables and their interactions need to be better understood in order for effective prevention and intervention programs to be

implemented. Given the complex interactions between family members in the case of childhood diabetes in the family, and the antecedents, concomitants, and sequellae of those interactions, the concept of differential parental treatment and its relation to important variables such as adherence, glycemic control, and parent, child, and sibling adjustment was thought to be important to study.

Hypotheses

Primary goals relate to examining the construct of parental differential treatment (PDT), its moderators, and relationship with various child adjustment variables. Exploring absolute parenting measures and their relation to reports of child adjustment was also a focus of this study. Lastly, determining how characteristics of this sample compared to prior research findings was desired. The aforementioned research areas were especially focused on identifying similarities and differences in findings across groups comprised of families who were and were not affected by diabetes.

Diabetes vs. control group differences.

1. No differences in adjustment were expected between children with and without diabetes, barring elevations in depression and eating disturbance for adolescent females and elevations in internalizing problems for persons diagnosed within the past six months.
2. Parents were not expected to differ in terms of how reportedly affectionate or controlling they were overall across groups.

3. It was hypothesized that parents in the diabetes group would report more parenting stress than parents in the comparison group, particularly in the domain focusing on child-related stress.

PDT and child adjustment.

4. It was predicted that perceptions of PDT would be positively correlated with reports of child behavior problems in both groups.

4a. Measures of PDT were predicted to be more strongly related to reported child adjustment in the diabetes than in the comparison group.

4b. For the diabetes group, PDT was expected to correlate positively with HbA1c levels and to correlate negatively with reported adherence to prescribed medical regimen.

5. It was expected that child deservedness ratings would moderate the relationship between reports of PDT and child adjustment.
6. Perceptions of PDT were expected to predict unique variance in child adjustment measures above and beyond reported levels of absolute parenting.

Parenting and child outcome.

7. It was predicted that reported levels of absolute parental affection would be inversely related to behavior problem (and HbA1c in the diabetic group) scores. A positive relationship between perceived parental affection and adherence (for the diabetes group) was expected.
8. It was posited that positive relationships would exist between perceived absolute parental control and child behavior problems and between control and HbA1c (in

the diabetes group). A negative relationship was expected to be found between perceived parental control and adherence (in the diabetes group).

9. It was predicted that more perceived affection and control would be rated for the younger child versus the older child in both the diabetes and comparison groups.

Parenting and PDT

10. It was posited that positive relationships would exist between reported parenting stress and PDT in both groups.
11. Reports of parenting stress were expected to moderate the relationship between PDT and child behavior problems.
12. It was hypothesized that perceived parental affection and control would moderate the relationship between PDT and child behavior problems.

Method

Participants

Data were collected from families of children with Type I diabetes and families of children who are healthy (i.e., not affected by chronic illness), each with at least two children between the ages of 11 and 18. Members of sibling dyads were, on average, 2.32 years apart (SD = 1.29) with the greatest difference being 5 years apart. Families recruited for the diabetic group had to include a child with diabetes who had an older sibling who met the aforementioned criteria. Families in both groups were recruited for the study through various medical clinics, camps, and seminars (see Procedure section for complete recruitment summary). Overall, both parents returned completed packets for 48 of the participating families (28 in the diabetes group and 20 in the comparison group). No significant differences across groups were detected with regard to intactness of families or rate at which both parents returned completed packets. Completed child packets were returned by 58 dyads (30 in the diabetes group and 28 in the comparison group). In the diabetes group, completed packets were returned by 61 adults (comprised of 54.1% mothers and 45.9% fathers) and 62 children (comprised of 51.6% younger and 48.4% older children; 37.1% of children in this group were male, 62.9% were female). In the comparison group, 50 adults (58% of whom were mothers, 42% of whom were fathers) and 57 children (with 50.9% younger, 49.1% older children returning packets; 49.1% of whom were male, 50.9% of whom were female) returned completed

questionnaire packets. Although initially only families including children who were same-sex dyads were recruited, 6 children in the diabetic group and 8 children in the comparison group who were part of opposite-sex dyads were permitted to participate in an effort to increase sample size. Family configuration of this type did not differ significantly from the former with respect to any variables of interest.

Return rates were respectable, with family members in the diabetes group consenting to participate and returning data at a higher rate, most probably due to group identification. Families in the diabetes group consented to participate at a rate of 96% and returned completed packets at a rate of 87% before families were recruited via various electronic communications. When additional families in the diabetes group were recruited through this method (involving the families contacting the principal investigator if they qualified and were interested), the return rate was 88.89%. Efforts to recruit participants by way of electronic mail were fruitful, almost doubling the sample size in the diabetes group. The families recruited via the latter method were also told they would be paid $20 upon returning completed packets. Families in the comparison group had 76% consent and 71% return rates.

Mothers had a mean age of 41.44 (SD = 4.33) and fathers' mean age was 43.83 (SD = 4.90). Most participating parents were married (91.9%), Caucasian (85.6%, with 5.4% African American, 5.4% Latino, and 3.6% "other"), and had at least a high school diploma (77%, with 47% of the parent sample having graduated college or received even more years of education). While 91% of parents reported annual household earnings of at least $40,000 per year, median family income was reported at $60,000 to $100,000 for both groups. Parents did not significantly differ across groups on any of the

aforementioned demographic variables. Chi-square analyses revealed that gender and group were not confounded.

When families contained more than two children who met criteria for participation in the study, the two youngest children were recruited to participate. The difference in age between siblings did not significantly differ across diabetes and comparison groups, and the years between siblings was not significantly related to any PDT or child adjustment variable. In the diabetes group, the younger child with diabetes (child A) had a mean age of 12.81 (SD = 2.49), and the older child's (child B) mean age was 15.3 (SD = 2.26). In the comparison group, the younger child (child A) had a mean age of 12.66 (SD = 1.80), with the older child (child B) averaging 14.79 years of age (SD = 1.87).

Demographic data specifically relevant to children with diabetes were also examined. In terms of time since diagnosis, children ranged from being diagnosed less than one year ago (one child) to approximately 15 years ago (one child). The majority of children, however, were diagnosed with Type I diabetes between four and five years prior to participation in this study. In terms of glycemic control levels (as measured by a blood test known as the HbA1c), subjects ranged from being in excellent control (with one child's most recent HbA1c being 5.0) to being in poor control (with one child's most recent HbA1c reading being 13.4). The mean HbA1c level was 8.40% (SD = 1.79). According to the American Diabetes Association (ADA) Standards of Medical Care for Patients with Diabetes Mellitus, an HbA1c reading of less than 6% is normal, less than 7% is the "goal," and additional action is suggested when persons obtain an average blood glucose level of greater than 8%. With regard to reported levels of adherence to

prescribed medical regimen (on a scale of 1 to 5 with 5 being the most adherent), children reported a mean adherence level of 4.09 (SD = 0.74), whereas parents reported an average level of adherence at 3.83 (SD = 0.88). Reports indicate that only five participants had been hospitalized at any time for diabetes-related complications. Ten of the participants with diabetes were prescribed an insulin pump, while the rest of the participants were on regular insulin injection regimens.

Materials

Brief screening instrument (Appendices A and B). This form was administered to all mothers (for the sake of consistency in reporting) either in person (if the parent was approached at a clinic, camp, or Education Day) or over the telephone (if recruited via any sign-up sheet, introductory letter, or electronic advertisement). The form aided in screening for eligibility criteria. Potential participating parents in both groups were asked whether they had 2 children who fell within the age parameters and met the age difference criterion, and whether either of these children had any chronic medical conditions (besides diabetes in the case of the diabetic child), diagnosed psychological, developmental, or behavioral problems, speech/language, or hearing problems. For the diabetes group, parents were asked whether their child with diabetes had an older sibling within 3 years of him or her.

Demographic questionnaire (Appendices C and D). Parents were asked questions regarding their date of birth, gender, marital status, years of education, annual income, race, age of children and whether each are biological, adoptive, or step-children, and each child's approximate grade point average. Parents of children with diabetes were also

asked to provide the weight and height of their younger child in order to examine this data's relationship with other diabetes-related measures. Children were asked to provide their date of birth, gender, grade in school, race, and approximate grade point average. Inquiries were made about grades earned in school in order to obtain an objective measure of child adjustment, which was then compared to more subjective reports of child adjustment (i.e., reported child behavior problems).

Measures of parenting and differential parenting (Appendices E and F). All children and parents were administered the Sibling Inventory of Differential Experience, revised format (SIDE-R; Daniels & Plomin, 1984). There were different versions for the parents and the children, each with 9 questions regarding perceived parental affection and control. Differential Parental Affection (items included parental pride, enjoyment, sensitivity, favoritism, and interest in siblings) and Control (items included punishment, parental strictness, disciplining of siblings, and blaming) subscales of the SIDE-R were used, with separate forms for children's ratings of mother's and father's treatment. A 4-point Likert scale was used for item responses, with 1 meaning "almost never," and 4 corresponding with "almost always." The revised version of the SIDE allowed for items that refer to parent/child and parent/sibling interactions (with each parent) to be on independent scales (i.e., children rated their relations with each parent and SEPARATELY rated their sibling's relations with each parent, as opposed to directly comparing how self and sibling are treated as done on the original SIDE measure; also, parents rated their relationship with one child and then later rated their relations with the second child as opposed to making direct comparisons). The SIDE-R subscales, when used independently, provided estimates of perceptions of absolute or direct levels of

parenting (i.e., affection and control), without reference to perceived amounts of these variables given to the sibling. Such independent scale rating is reflected in a child's or parent's *perceptions of absolute maternal/paternal affection or control* score (e.g., a child's mean rating of how affectionate his or her mother is toward himself would be represented by the absolute maternal affection score). In addition, scales regarding parent/child interactions were separated by other questionnaires from those regarding parent/sibling interactions in terms of the order of administration. The SIDE-R provided estimates of *perceptions of differential maternal/paternal affection or control* for each child and parent. There were two types of parental differential treatment scores obtained from the SIDE-R, in that the instrument was scored for both direction (whether the child is favored or disfavored, deemed *"relative differential treatment"*) and absolute amount of difference in treatment (referred to as *"absolute differential treatment"*). For example, a child's perception of maternal relative differential affection would be obtained by subtracting his or her mean rating of affection given to sibling from his or her mean rating of affection given to self from mother. A positive score would mean that the child doing the rating perceived more affection given to him/her than to the sibling. A negative score indicates the rater's perception that the sibling received more affection than the rater. The same child's perception of maternal absolute differential affection would be obtained simply by taking the absolute value of the aforementioned difference score.

Deservedness measure. Direct parenting was rated by each child in terms of perceived deservedness. Each of the 9 items on the SIDE-R were followed by a five-point deservedness rating scale (1=very unfair to 5=very fair). These responses were then compared for children and siblings. Siblings' ratings of parental differential

treatment were obtained in a similar manner in other studies, but with rating scales that were more restricted in terms of range of responses (Kowal & Kramer, 1997; McHale et al., 2000). In order to prevent problems associated with restriction of range in responding, the scale used was expanded to include 5 response choices. A readability analysis was conducted on the computer to ensure that wording of this instrument did not exceed grade level of participants to be recruited for this study. The instrument's readability was found to be at a fourth grade level and all participants were at least in the fourth grade. Additionally, pilot data was obtained in order to perform an analysis of comprehension. A sample of 11-year-olds demonstrated that the measure captured what this investigator intended.

Measure of parenting stress. The Parenting Stress Index-Short Form (PSI/SF; Abidin, 1990) was used as a measure of parenting stress. Parents completed the measure, which is comprised of 36 items and focuses on three factors including parent distress, parent-child dysfunctional interaction, and difficult child, on each child. A total parenting stress score was also obtained. Psychometric properties are as follows: internal reliability coefficients = .80 to .87 for the domains and .91 for total score, test-retest reliability = .68 to .85 for the domains and .84 for the total score. Evidence for construct and predictive validity of the PSI long version abounds. Though there is not as much independent research supporting the validity of the PSI/SF, it likely shares in the validity of the full-length measure given that it is a direct derivative of the test (Abidin, 1995).

Emotional/behavioral measures. Mothers and fathers were administered the Child Behavior Checklist (CBCL; Achenbach, 1991a). The CBCL is appropriate for use

with children ages 4 through 18, and consists of 100 items rated on a 3-point scale (0=not true, 1=somewhat or sometimes true, 2=very true or often true). Raw scores were converted into T-scores for overall Internalizing, Externalizing, and Total Behavior Problems. The CBCL has demonstrated good test-retest reliabilities and interparent agreement. The measure's scales have been shown to correlate with other measures of child behavior problems and are able to discriminate between referred and nonreferred children after partialling out demographic effects. Additionally, clinical cutpoints have been shown to successfully discriminate between referred and nonreferred children who were demographically matched (Achenbach, 1991a). Achenbach's Youth Self Report (YSR; Achenbach, 1991b), a measure of child internalizing, externalizing, and total behavior problems as reported by youth, was also administered to all child participants in each group. YSR scores have demonstrated adequate test-retest reliability and stability. Content and criterion-related validity for the YSR has been established in a number of studies (Achenbach, 1991b).

Glycemic Control. $HbA1_c$ is a blood laboratory test that indicates the average blood glucose level over the preceding 2-3 months. This measure has been used in prior research as an important indicator of glycemic control and ADA Clinical Practice Guidelines recommend quarterly measurement. For all children with diabetes, this measure was either obtained with permission via chart review (prior to HIPAA change in regulations) or parental report on a form provided within the study packet.

Adherence (Appendices G and H). Johnson, Silverstein, Rosenbloom, Carter, and Cunningham (1986) conducted a factor analysis of 13 adherence behaviors of children ages 6 to 19 years of age who had Type I diabetes. They had assessed these daily

diabetes behaviors by way of a 24-hour recall interview procedure for both patients and their parents. Results supported a five-factor solution which accounted for 70.6% of the variance, demonstrating that adherence is complex and consists of at least 5 different unrelated components (groups of measures): exercise, injection, diet type, testing/eating frequency, and diet amount. The adherence measure that was used for children's and parents' reports of adherence to diabetes behaviors was adapted from a previously published global adherence measure that was internally consistent (Cronbach's alpha = .78) and had demonstrated validity in that it was negatively correlated with current HbA_{1c} (Littlefield et al., 1992). Parents and children with diabetes were separately asked to rate how well the child's diabetes had been managed over the past three to six months. They were provided a five-point Likert scale ranging from "almost never" to "almost always" for seven items. Diabetes-related behaviors rated included testing blood and urine for glucose regularly, taking insulin on schedule, following food plan, maintaining blood glucose in the normal range, exercising as part of one's treatment plan, treating hypo- or hyperglycemia, and "remembering to do everything every day" (an item included in an attempt to capture global perception of regular diabetes adherence).

Procedure

Families in the diabetes group were recruited through a number of sources. Potential subjects were approached in the Diabetes Clinics of USF in Tampa and affiliated satellite clinics during scheduled endocrinology clinics. Sign-up sheets were also posted at these clinics in order for interested families to request a screening call from the research team. In addition, sign-up sheets were placed at another local pediatric

endocrinology practice's site, and a mass-mailing about the study was sent to all families enrolled in the practice. Families were queried for their interest at various sessions of the Florida Diabetes Camps. The primary investigator assisted in preparation of Family Education Days in Tampa and Gainesville and advertised the study to participating families who came from the greater Tampa Bay area and north Florida via flyers and face-to-face prompts. Lastly, requests for interested families to contact the principal investigator were disseminated via electronic list-serves (made possible by the Juvenile Diabetes Research Foundation) and electronic newsletters (namely, the DiabetesInControl weekly diabetes newsletter). The former source disseminated information about the study to all local members of the organization, and the latter source posted the memo for all subscribers (i.e., interested professionals and families, some of whom are located internationally) to view several weeks in a row.

For the comparison group, parents were recruited at various well-child clinics at HealthPoint Pediatrics offices in the greater Tampa Bay area. Additionally, sign-up sheets were posted at these offices for parents to respond to if they were interested. Parents were either screened in person if interested or called on the telephone to determine whether they met eligibility criteria. Families were screened to ensure that no children had any acute illnesses (e.g., cold, flu, or other physical symptoms to be examined by their physician) with regard to participation in the comparison group.

Parents were initially given a brief description of the study's purpose (either in person, over the phone, via sign-up sheet, or by electronic transmission), format, and time requirement and were then screened if they voiced interest and willingness to answer a few questions. They were then asked whether they had at least 2 children between the

ages of 11 and 18 who were within three years of each other, with the younger child being the child with diabetes in the diabetes group. Although only families that included same-sex dyads of children who met the criteria mentioned above were initially recruited, the sex criterion was ultimately relaxed in an effort to recruit more diabetes families. Families were also screened to ensure that neither identified child (barring a diagnosis of diabetes for the younger child in the diabetes group) had ever been diagnosed with any of the chronic medical conditions, developmental, psychological, or behavioral, speech/language, or hearing problems listed on the Brief Screening Instrument. Informed consent forms were reviewed (and then signed) with parents either in person or over the telephone. Each parent was asked to sign his or her own informed consent form to participate and to sign a consent form permitting each child to participate. Additionally, assent was solicited from the children. Once consented, which child was to be rated as child A versus child B (for parents) was established, with parents asked to assist their children only with determining who they were to be rating in the questionnaires. This request was made either face-to-face or over the telephone and was also written on one of the study packet forms, with a place for parents and children to explicitly state who they were rating.

Questionnaires were either administered in person or sent through the mail. Of packets disseminated in the diabetes group, 24.39% of them were given face-to-face to participants, with the remaining packets mailed in response to inquiries made via sign-up sheets, phone messages to the principal investigator, and electronic correspondence. Of the packets distributed to the comparison group, 20.00% were given in person and the rest were mailed to interested families. Both parents (if a two-parent household;

otherwise, one parent sufficed), along with both of the two identified children, were asked to complete a study packet. Pilot data were collected to ensure that all forms could be read and appropriately understood by participants within the targeted range. In order to increase the likelihood that the appropriate members of the household participated, which child was "child A" versus "child B" was established with parents either in person or over the telephone; parental responses to such inquiry were later checked upon packet return to ensure that appropriate members of the family completed forms (via matching names on the face sheet of each packet, which were unattached for confidentiality purposes once packets were received). In an effort to secure the most open and honest responding, all participants were advised (in both verbal and written format) to complete the forms without assistance or observance from any other family member. Participants were encouraged to contact the primary investigator with any questions or concerns about the study rather than asking a family member. Study packets were counter-balanced with regard to order in which persons rated either younger/older child or self/sibling first. Each family member's study packet was collected in person if completed while waiting for an appointment, or returned in the mail with an individual (to ensure privacy) pre-stamped, addressed envelope provided. All families who agreed to participate were entered in a drawing for gift certificates, and children received small prizes (e.g., novelty stickers and writing utensils) for participating. Diabetes families were later offered $20 money orders for returning completed packets given the difficulties encountered in securing these families. No significant differences in terms of parenting or child behavior ratings were detected based on whether participants were paid.

Results

Descriptive Analyses

Parent reports of child behavior problems on the CBCL fell within normal limits and did not differ across groups (see means reported in Table 1 below). Within the diabetes group, median T-scores for younger children's (rated as "child A") internalizing, externalizing, and total behavior problems did not differ significantly from those reported for older children (rated as "child B"). Within the comparison group, median T-scores reported for the younger child's internalizing, externalizing, and total behavior problems were not significantly different from those for the older child, either.

Prior research has determined that children with a diagnosis of diabetes do not have overall worse emotional or behavioral functioning than those who do not carry such a diagnosis. Accordingly, no differences in adjustment were expected between children with and without diabetes. Results of one-way ANOVAs supported this hypothesis, as children with diabetes (n = 32) did not have more reported problems reported than children without diabetes (n = 87). Similar means across diabetes and comparison groups for internalizing ($F(1, 117) = 1.20$, $p = .28$), externalizing ($F(1, 117) = .60$, $p = .44$) and total behavior problems ($F(1, 117) = .63$, $p = .43$) were revealed.

Children did not differ across groups with regard to reported YSR scores, and the median T-scores fell within normal limits across groups. Child reports on the YSR in the diabetes group yielded median T-scores for internalizing, externalizing, and total

behavior problems (scores were 47.48, 50.31, and 49.70, respectively) that were not significantly different from those yielded in the comparison group (scores were 50.77, 48.74, and 49.70, respectively). YSR scores reported by younger children in each family did not differ significantly from those reported by older children in each family. This held true in both the diabetes and comparison families.

In an effort to obtain less subjective data (albeit still reported by parents) regarding child functioning than that reported on measures of child behavior, parents were asked to mark their children's grade point average on one of the measures provided. As hoped, more reported problems were associated with poorer grades. Externalizing problems positively correlated with GPA ($r = .34$, $p < .001$), as did total behavior problems ($r = .30$, $p < .01$). The positive correlations were expected given that GPA was coded such that an "A plus" average was a "1," an "A" was a 2, an "A minus" was a 3, and so on.

Parent reports of parenting stress on the PSI did not differ across groups for any scale. Mean scores were not significantly elevated for either group (i.e., they fell in the non-clinical range; please see data presented in Table 1 below).

It is also important to comment on absolute measures of parenting across groups. Parents were not hypothesized to differ on how affectionate or controlling they were overall across groups. The results of a one-way ANOVA support this hypothesis. Diabetic and comparison group parents reported equally affectionate behavior toward the younger child ($F (1, 108) = .01$, $p = .94$), affection toward the older child ($F (1, 109) = .04$, $p = .84$), control toward the younger child ($F (1, 107) = .58$, $p = .45$), and control toward the older child ($F (1, 109) = .15$, $p = .70$).

Table 1

Child Behavior Problem and Parenting Stress Means By Group

Measure	Group	N	Child A		Child B	
			Mean (s.d.)	Median T-scores	Mean (s.d.)	Median T-scores
Int. CBCL	diabetes	61	.21 (.23)	46.51	.13 (.14)	47.39
	comparison	50	.15 (.13)	47.72	.15 (.17)	45.77
Ext. CBCL	diabetes	61	.26 (.28)	47.48	.18 (.18)	48.25
	comparison	50	.20 (.16)	46.23	.15 (.15)	46.09
Tot. CBCL	diabetes	61	.21 (.21)	47.82	.13 (.12)	48.63
	comparison	50	.16 (.12)	47.38	.13 (.13)	46.16
Def. Resp.	diabetes	61	15.00 (5.74)	-	14.40 (5.08)	-
PSI	comparison	50	14.06 (4.62)	-	13.78 (4.53)	-
Par. Dis. PSI	diabetes	61	24.49 (8.87)	-	23.93 (7.85)	-
	comparison	50	23.04 (7.70)	-	22.62 (7.43)	-
Par.-Child	diabetes	60	21.42 (7.36)	-	20.98 (6.92)	-
Dys. Intn.	comparison	50	20.48 (6.89)	-	20.76 (7.47)	-
Diff. Child	diabetes	52	26.40 (9.74)	-	22.90 (7.03)	-
	comparison	40	27.25 (7.92)	-	25.55 (8.41)	-
Tot. Stress	diabetes	51	71.67 (22.54)	-	67.46	-
	comparison	40	72.88 (20.51)	-	(18.01)	-
					70.20	
					(21.04)	

* $p < .05$; ** $p < .01$

Variable Relationships to Demographics

Analyses were conducted to determine whether any key variables examined in this study were significantly related to demographic variables. Firstly, the relationships between ratings of parental differential treatment and demographic variables were observed. As mentioned earlier, perceptions of absolute parenting (perceived affection or control given to one child), along with perceptions of both relative (difference between ratings of parenting given to younger and older children) and absolute (absolute value of the aforementioned difference score) parental differential treatment were utilized in this project (the interested reader is referred to the "Materials" section for examples of these scores yielded by the SIDE-R). No significant correlations between difference in age between siblings and any measure of PDT emerged, nor did whether child dyads were comprised of the same or opposite sex. Whether there were gender differences in reports of PDT was examined via t-tests. Ratings of relative differential affection were significantly greater for females ($M = -.11$) than for males ($M = .07$; $t = 2.37$, $p < .05$), with females reporting more perceived affection given to the older child. Relative differential control ratings were significantly greater for males ($M = .12$) than females ($M = -.10$; $t = 3.03$, $p < .01$), with males endorsing more perceived control given to the younger child. No other significant relationships between ratings of PDT and demographic variables emerged.

Secondly, the relationships between ratings of child behavior problems and demographic variables were examined. Reports of child internalizing problems were

significantly greater for females (M = .41) than males (M = .27; t = -3.59, p < .01). Total behavior problem reports were also significantly greater for females (M = .41) than males (M = .31; t = -2.93, p < .01). No other demographic variables were significantly related to measures of child behavior problems.

Gender played a significant role in terms of both measures of PDT and child behavior problems. Accordingly, gender was entered as a first step in each regression. This was done in order to determine the variance in child functioning that gender predicts and the relationship between gender and other predictor variables.

Lastly, HbA1c readings, blood test measures of average glycemic control, were not significantly related to any demographic information. Given that such measures were collected in two different ways (as described in the "Method" section), whether HbA1c measures differed by method of data collection was examined. Within the diabetic group, HbA1c measures as gleaned from charts (M = 8.87, SD = 1.77) were compared against those reported by parents on a paper-pencil measure (M = 7.67, SD = 1.64). No significant difference was found for glycemic control measures across these two modes of data collection, F (1, 29) = 3.59, p = NS.

Parental Differential Treatment's Relation to Child Adjustment

A primary goal of this study was to investigate the relationship between perceptions of parental differential treatment (PDT) as it relates to ratings of child behavioral problems and other measures of adjustment. Relative differential treatment measures for parents were created by subtracting a parent's perceptions of treatment (i.e., affectionate or controlling behaviors) toward his or her older child from his or her

reported treatment of the younger child. For children, relative differential treatment measures were created by subtracting perceived parental treatment of sibling (with regard to affection and control) from perceived treatment of self. Relative differential treatment measures convey the perceived *direction and magnitude* of PDT. Absolute differential treatment measures were created by computing the absolute values of each of the aforementioned difference scores. Absolute differential treatment measures convey the perceived overall *amount* of PDT, regardless of direction.

It was hypothesized that perceptions of PDT would be positively correlated with reports of child behavior problems in both groups. The relations between perceptions of parental differential treatment and various measures of child adjustment were evaluated using correlational analyses (see Table 2). As predicted, various PDT measures positively related to internalizing, externalizing, and total behavior problems regardless of group membership. Significant correlations between PDT and child behavior problems emerged based on both parent and child report. Reports of perceived absolute differential treatment in the areas of affection and control were positively related to behavior problems whether respondents were adults or children/adolescents.

For these and all subsequent hypotheses wherein numerous analyses were run, a simple stepwise procedure offered by Benjamini and Hochberg (1995) was employed that controls the "false discovery rate (FDR)." The FDR is the expected proportion of erroneous rejections among the hypotheses rejections. The suggested method for examining the FDR controls the increased error from multiplicity in testing while reportedly compromising less in power. The procedure outlined by Benjamini and Hochberg controls the FDR when test statistics are independent or when they are

positively correlated. P-values of the tested differences are the values inserted into the simple calculation, so the statistical test may be applied to any type of proposed analysis. The details of the procedure utilized to determine the FDR criterion are presented in the aforementioned reference.

Table 2

Significant Correlations Among Overall PDT and Child Behavior Problems

Whose Report	PDT Measure	N	Adjustment Measure	r		
				Internalizing Scale	Externalizing Scale	Total Problems Scale
parent	affection	110	CBCL child A	.21*	.20*	.23*
			CBCL child B:	.21*	.28**	.29**
parent	control	110	CBCL child A	.25**	.34**	.30**
Child	maternal affection	109	YSR	.24*		.26**
Child	maternal control	111	YSR			.20*
Child	paternal affection	100	YSR	.26**	.29**	.34**
Child	paternal control	101	YSR			.28**

* $p < .05$; ** $p < .01$

Of interest was whether correlations between PDT and child adjustment measures would be stronger in one of the groups than in the other. Though it was predicted that relationships of greater strength would be found in the diabetes group, correlations fell in the same general range across groups. No significant differences across groups were revealed when Fisher's z tests were conducted for correlations that were significant in both groups. Group differences, however, did emerge with regard to the type of differential treatment rated as being significantly correlated with adjustment. For parents and children in the diabetes group, perceived differential *control* values correlated with behavior problems. Parents and children in the comparison group, however, rated perceptions of differential *affection* as being significantly related to child behavior problems. Table 3 displays the aforementioned differences.

Table 3

Significant PDT and Child Behavior Problem Correlations By Group

Group	Whose Report	PDT Measure	Adjust-ment Measure	N	r		
					Int. Scale	Ext. Scale	Tot. Probs. Scale
Diabetes	parent	absolute control	CBCL Child A	59	.32*	.38**	.32*
Diabetes	child	absolute paternal control	YSR	51	.42**		.41**
Comparison	parent	absolute affection	CBCL Child A	50	.39**		
			CBCL Child B			.39**	.41**
Comparison	child	absolute maternal affection	YSR	51	.39**		.45**

* $p < .05$; ** $p < .01$

The relationship between other measures of child adjustment, namely perceived average adherence to prescribed medical regimen and an objective measure of average metabolic control, were also examined in the diabetes group. For the diabetes group, PDT was expected to negatively correlate with reported adherence to prescribed medical

regimen and to correlate positively with HbA1c levels. Contrary to prediction, parents rated relative differential control (calculated by subtracting reported control given to older child from reported control given to younger child) as being positively related to adherence ($r = .34$, $p < .01$). They rated more absolute differential parental control, however, as being related to poorer adherence ($r = -.44$, $p < .01$). Children with diabetes, on the other hand, rated both relative differential maternal ($r = -.36$, $p < .05$) and paternal ($r = -.60$, $p < .01$) control and absolute differential maternal affection ($r = -.40$, $p < .05$) and paternal control ($r = -.50$, $p < .05$) as correlating with poorer adherence.

Parent and child ratings of differential treatment in the diabetes group were also compared against most recent measures of metabolic control. Parental perceptions of PDT were not significantly related to $HbA1_c$. Child ratings, however, were significantly correlated with this measure. Consistent with prediction, participants with diabetes who perceived receipt of more control from parents than that given to siblings had worse metabolic control ($r = .42$, $p < .05$).

The Role of Deservedness

It was predicted that child deservedness ratings would moderate the relationship between reports of PDT and child adjustment. Hierarchical linear regressions were utilized in determining whether child generated deservedness ratings moderated the relationship between PDT and child adjustment ratings across groups. Gender was entered in the first step of these and other regressions following given the significant gender differences observed for various PDT and child behavior measures. Gender was found to be a significant predictor in each of these regressions; therefore, boys' and girls'

reports were analyzed separately (and only significant results are presented). Following the procedure used to examine whether moderating relationships are present as outlined by Baron and Kenny (1986), measures of PDT, followed by deservedness, followed by the interaction between these two terms were entered into regression equations. Significant interaction terms unveiled represent the moderating effect of deservedness. Deservedness alone did not predict behavior problems; however, as expected, deservedness ratings did moderate the relationship between absolute differential measures of (both maternal and paternal) control and externalizing behavior problems. Interestingly, only female reports yielded significant moderating effects. Female deservedness moderation results for behavior problems are presented in Table 4. Power was not implicated as the reason for the lack of significant findings when male data was examined more closely for beta weights and significance levels as compared to female data. Partial correlations for this and all following regression tables are presented in parentheses in order to represent effect sizes. The moderating effect of deservedness accounted for 17-21% of the variance in the relationship between PDT and child behavior problems, per female report. Analyses revealed that when girls rated their *siblings* and parental control was viewed as not deserved, PDT was related to increased YSR scores.

Table 4

Deservedness Moderates the Relationship Between Child-Rated PDT and Child Behavior Problems Per Female Report

Dependent Variables	Step 1: ΔR^2 for PDT	Step 2: ΔR^2 Deserved	Step 3: ΔR^2 Int.
Externalizing YSR (N= 65)	Perceived mothers' absolute differential control .01 (.46)[a]	Deservedness of perceived control given to sib from mother .00 (.34)	.21*** (-.46)
Externalizing YSR (N= 60)	Perceived fathers' absolute differential control .07* (.47)	Deservedness of perceived control given to sib from father .00 (.26)	.17** (-.43)

[a] Partial correlations are presented in parentheses in order to represent effect sizes
* $p < .05$; ** $p < .01$; *** $p < .001$

Linear regression analysis also was used to determine whether deservedness moderates the relationship between PDT and measures of adherence and glycemic control from the child's perspective, as predicted. Deservedness (as reported by children with diabetes) was found to moderate the relationship between perceptions of PDT (both affection and control) and average reported adherence. Changes in effect size ranged from 18%-22%. Analyses of reported maternal affection and control revealed that when children rate treatment toward self or sibling as highly deserved, perceptions of PDT

(absolute or relative differential control, absolute differential affection) were related to poorer adherence. Analysis of child ratings of paternal behavior was also conducted. When affection toward sibling was rated as highly deserved, perceptions of absolute differential affection and relative differential affection had differing relations with self-reported adherence. Whereas reports of overall perceived difference in parental affection toward siblings related negatively to adherence, those of relative differential affection (wherein children with diabetes rated themselves as receiving more affection than their siblings) related to more reported adherence. The adherence moderation analyses are displayed in Table 5. No significant moderating effect of deservedness was found in the relationship between perceptions of PDT and glycemic control.

Table 5

Deservedness Moderates the Relationship Between PDT and Child-Rated Adherence

Dependent Variables	Step 1: R^2 Gender	Step 2: ΔR^2 for PDT [a]	Step 3: ΔR^2 Deserved [b]	Step 4: : ΔR^2 Int.
Avg. Adherence		CHADAFM	DAFSELFM	
(N = 27)	.02 (.03) [c]	.09 (.43)	.03 (.49)	.19* (-.46)
Avg. Adherence		CHADAFM	DAFSIBM	
(N = 28)	.01 (-.27)	.12 (.57)	.24** (.72)	.21** (-.58)
Avg. Adherence		CRDCOM	DCOSELFM	
(N = 28)	.01 (.15)	.13 (.38)	.00 (.36)	.18* (-.46)
Avg. Adherence		CHADCOM	DCOSELFM	
(N= 28)	.01 (.15)	.08 (.41)	.01 (.45)	.20* (-.47)
Avg. Adherence		CHADAFD	DAFSIBD	
(N = 23)	.00 (-.13)	.10 (.49)	.16 (.62)	.19* (-.50)

[a] Child perception measures of parental differential treatment (each are for either perceptions of mother's or father's PDT – with "M" or "D" as suffix, respectively): CHADAF = perceived absolute parental

differential affection; CRDCO = perceived relative parental differential control; CHADCO = perceived absolute parental differential control

[b] Deservedness measures (as rated by children): DAFSELFM = deservedness of perceived affection given to self from mother; DAFSIBM = deservedness of perceived affection given to sib from mother; DCOSELFM = deservedness of perceived control given to self from mother; DAFSIBD = deservedness of perceived affection given to sib from father

[c] Partial correlations are presented in parentheses in order to represent effect sizes

* $p < .05$; ** $p < .01$

Absolute Parenting and Child Adjustment

The relationship between absolute parenting measures and reported child adjustment was also explored. It was predicted that reported levels of absolute parental affection would be inversely related to behavior problem scores and that positive relationships would emerge between perceived absolute parental control and reports of child behavior problems. Results of correlational analyses are presented below (all significant findings reported). An emphasis was placed on determining whether these relationships differed across diabetic and comparison groups. Correlation coefficients for all absolute parenting and child adjustment measures are presented in Table 6. Parent ratings in both groups (n = 111) yielded, as expected, negative relationships between affection and behavior problems, though no significant relations emerged between reported control and ratings of child behavior problems. When both groups' data were examined together, child reports supported parent reports of the negative relationship between affection and behavior problems. Fisher's Z tests reveal no significant differences between corresponding correlations for younger and older children.

Table 6

Correlations Between Absolute Parenting and Child Adjustment Measures

Whose Report	Absolute Parenting Measure	Adjustment Measure	N	r		
				Int. Scale	Ext. Scale	Tot. Prob. Scale
All parents	Affection toward child A	CBCL child A			-.23*	-.25**
		CBCL child B	106	-.29**	-.33**	-.38**
All parents	Affection toward child B	CBCL child B	111	-.29**	-.30**	-.38**
All children	Paternal affection toward self	YSR	106		-.32**	-.28**

* $p < .05$; ** $p < .01$

The Relationship Between Absolute Affection/Control and Behavior Problems

When groups were examined separately, parents in the diabetes group (n = 61) had affection ratings that were negatively correlated with child behavior problems for the older child. Similar results were found with regard to perceived parental affection in the comparison group (n = 50), with additional results in the control domain. The aforementioned findings occurred in the hypothesized direction. Reported control directed toward older children, however, related negatively to reported internalizing problems in younger children, the inverse of predicted direction.

As predicted, children in the diabetes group reported positive relationships between perceived maternal control to self (n = 62) and behavior problems. Also consistent with prediction, negative correlations emerged between perceptions of paternal affection directed at self and behavior problems. In sharp contrast and inconsistent with hypotheses, children in the comparison group (n = 54) reported fewer problems when

maternal or paternal control was rated toward self or sibling. Reports of affection (in this case, from father to sibling) were negatively related to reported externalizing behavior problems. Please see Table 7 for a summary of these results. For cases in which both the diabetes and comparison group had significant relationships between ratings of parents and behavior problems, Fisher's Z tests revealed no significant differences in the strength of those relationships across groups (e.g., correlations between total behavior problems and affection for the older child in the diabetes versus comparison groups) for corresponding measures in all but one instance. Ratings of perceived maternal control toward one's self in the diabetes group related to more total behavior problems ($r = .40$, $p < .01$), whereas the same perceptions were related to fewer total behavior problems for the comparison group children ($r = -.27$, $p < .05$).

The Associations Between Absolute Parenting and Diabetes-Related Measures

Negative relationships were expected to emerge between perceptions of control and reported adherence. Counter to prediction, ratings generated by parents of children with diabetes ($n = 59$) demonstrated a positive relationship ($r = .43$, $p < .01$) between control toward the child with diabetes and average adherence to prescribed medical regimen (parent rated). Per child report ($n = 27$), however, and consistent with prediction, more perceived paternal control was associated with poorer child-reported adherence ($r = -.43$, $p < .05$). No significant relationships were uncovered between absolute measures of parenting and glycemic control, either per parent or child report.

Whose Report	Absolute Parenting Measure	Adjustment Measure	N	r Int. Scale	r Ext. Scale	r Tot. Prob. Scale
Diabetes gp parents	Affection toward child A	CBCL child B	60	-.39**		-.46**
Diabetes gp parents	Affection toward child B	CBCL child B	61			-.35**
Comparison gp parents	Affection toward child A	CBCL Child A	50		-.33*	-.35*
		CBCL Child B			-.35*	
Comparison gp parents	Control toward child A	CBCL Child B	50		.30*	
Comparison gp parents	Affection toward child B	CBCL Child B	50		-.40**	-.41**
Comparison gp parents	Control toward child B	CBCL Child A	50	-.37**		
Diabetes gp children	Paternal affection toward self	YSR	54		-.40**	-.35**
Diabetes gp children	Maternal control toward self	YSR	62	.38**	.36**	.40**
Comparison gp children	Paternal affection toward sibling	YSR	52		-.28*	
Comparison gp children	Maternal control toward self	YSR	54			-.27*
Comparison gp children	Maternal control toward sibling	YSR	54			-.29*
Comparison gp children	Paternal control toward self	YSR	51	-.35*		-.38**
Comparison gp children	Paternal control toward sibling	YSR	52			-.40**

* p < .05; ** p < .01

Predictive Value of PDT Over Absolute Measures of Parenting

To determine whether perceptions of PDT predict variance in child adjustment above those of parental affection and control as hypothesized, hierarchical linear regressions were conducted. Measures of absolute parenting were entered in the first step and perceived PDT in the second step of the regression equations, with perceived behavior problems, reported adherence, and glycemic control entered as dependent variables (for each mother and father separately when parent report was examined). As hypothesized, perceptions of PDT oftentimes predicted unique variance in adjustment (between 5 and 44%), and sometimes significantly predicted what absolute measures of affection and control did not. In addition, perceptions of PDT were found to be an important predictor across raters (i.e., parents and children) and measures (i.e., CBCL, average adherence, and HbA1c), as displayed in Tables 8 (parent ratings) and 9 (child ratings). Where gender was found to be a significant predictor of child functioning (based on child report of one's own behavior), analyses were conducted separately for gender; results of these analyses are presented in Table 10. The largest effect sizes based on child report were found based on boys' perceptions of parental affection. Perceptions of absolute differential affection predicted a significant amount of variance (18-21%) in internalizing and total YSR scores, whereas perceptions of absolute affection did not predict a significant amount of variance.

Table 8

PDT as a Predictor of Unique Variance in Adjustment Based on Parent Report

Dependent Variables	Maternal or Paternal Report	Step 1: R^2 for Absolute	Step 2: ΔR^2 PDT [a]
PARENT RATINGS:			
CBCL			
Total Problems	Maternal	Affection given to child B	PARRDAF
Child A (N = 61)		.00 (-.18) [c]	.09* (-.31)
Internalizing Problems		Affection given to child B	PARRDAF
Child A (N = 61)		.00 (-.17)	.12** (-.34)
		Control given to child B	PARADCO
		.03 (-.18)	.09* (.30)
Externalizing Problems		Affection given to child B	PARRDAF
Child A (N = 61)		.00 (-.18)	.08* (-.28)
Average Reported Adherence		Control given to child B	PARADCO
(N = 32)		.12 (.44)	.33** (-.61)
Average Reported Adherence		Control given to child A	PARRDCO
(N = 32)		.48** (.55)	.08* (.38)
Average Reported Adherence		Control given to child B	PARRDCO
(N = 32)		.12 (.55)	.44** (.70)
CBCL			
Total Problems	Paternal	Control given to child A	PARADCO
Child A (N = 48)		.11* (.24)	.11* (.35)
		Control given to child B	PARADCO
		.01 (.10)	.17** (.42)

		Control given to child B	PARRDCO
		.01 (.27)	.12* (.35)
	Externalizing Problems	Affection given to child A	PARRDAF
	Child A (N = 49)	.03 (-.23)	.09* (.30)
		Control given to child A	PARADCO
		.17** (.30)	.21** (.50)
		Control given to child B	PARADCO
		.02 (.13)	.31** (.56)
		Control given to child B	PARRDCO
		.02 (.34)	.18** (.42)
	Average Reported Adherence	Control given to child A	PARADCO
	(N = 27)	.01 (.22)	.15* (-.39)

[a] Parental perception measures of parental differential treatment: PARRDAF = perceived relative parental differential affection; PARADCO = perceived absolute parental differential control; PARRDCO = perceived relative parental differential control

[c] Partial correlations are presented in parentheses in order to represent effect sizes

$p < .05$; ** $p < .01$

Table 9

PDT as a Predictor of Unique Variance in Adjustment Based on Child Report

Dependent Variables	Step 1: R^2 for Gender	Step 2: R^2 for Absolute	Step 3: ΔR^2 PDT [a]
CHILD RATINGS:			
YSR		Paternal affection given to	CHADAFD
Externalizing Problems	.03 (.18) [c]	sibling	.08** (.29)
(N = 100)		.01 (-.08)	
		Paternal affection given to	CRDAFD
	.03 (.21)	sibling	.08** (-.28)
		.01 (-.26)	

		Maternal control given to	CRDCOM
	.03 (.19)	sibling	.05* (.22)
		.01 (.17)	
		Paternal control given to	CHADCOD
	.03 (.15)	self	.07** (.27)
		.00 (-.04)	
		Paternal control given to	CHADCOD
	.03 (.16)	sibling	.07** (.27)
		.01 (-.04)	
Average Reported Adherence		Paternal control given to	CRDCOD
(N= 25)	.00 (.16)	self	.21* (-.50)
		.17* (.10)	
Average Reported Adherence		Paternal control given to	CHADCOD
(N = 25)	.00 (.33)	sibling	.24* (-.52)
		.10 (.26)	
Average Reported Adherence		Paternal control given to	CRDCOD
(N = 25)	.00 (.16)	sibling	.28** (-.56)
		.10 (.10)	
HbA1c		Maternal control given to	CRDCOM
(N = 29)	.03 (-.18)	self	.18* (.43)
		.01 (-.13)	

[a] Child perception measures of parental differential treatment (each are for either perceptions of mother's or father's PDT – with "M" or "D" as suffix, respectively): CRDAF = perceived relative parental differential affection; CHADAF = perceived absolute parental differential affection; CRDCO = perceived relative parental differential control; CHADCO = perceived absolute parental differential control

[c] Partial correlations are presented in parentheses in order to represent effect sizes

$p < .05$; ** $p < .01$

Table 10

PDT as a Predictor of Unique Variance in Adjustment: Analyses By Gender

Dependent Variables	Gender	Step 1: R^2 for Absolute	Step 2: ΔR^2 PDT [a]
Total YSR	Male (N = 42)	Maternal affection given to self	CHADAFM
		.01 (.05) [b]	.15* (.39)
	Male (N = 42)	Maternal affection given to sibling	CHADAFM
		.04 (-.03)	.12* (.39)
	Male (N = 40)	Paternal affection given to self	CHADAFD
		.02 (.16)	.19** (.44)
		Paternal affection given to sibling	CHADAFD
	Male (N = 40)	.00 (-.06)	.18** (.43)
	Female (N = 60)	.05 (-.15)	.08* (.29)
	Female (N = 60)	Paternal affection given to sibling	CRDAFD
		.05 (-.36)	.11* (-.33)
	Female (N = 67)	Maternal control given to sibling	CRDCOM
		.00 (.18)	.12** (.35)
	Male (N = 44)	Maternal control given to sibling	CHADCOM
		.00 (.15)	.13* (.37)
	Female (N = 60)	Paternal control given to self	CHADCOD
		.00 (-.05)	.07* (.27)
Internalizing YSR	Male (N = 42)	Maternal affection given to self	CHADAFM
		.02 (.03)	.21** (.46)
		Paternal affection given to self	CHADAFD
	Male (N = 40)	.00 (.22)	.15* (.38)
	Female (N = 60)	.01 (.08)	.07* (.27)
	Male (N = 40)	Paternal affection given to sibling	CHADAFD
		.01 (-.13)	.11* (.33)

Female (N = 60)	Paternal affection given to sibling	CHADAFD
	.00 (.04)	.08* (.28)
Female (N = 60)	Paternal control given to self	CHADCOD
	.01 (.02)	.08* (.29)
Female (N = 60)	Paternal control given to sibling	CHADCOD
	.01 (-.06)	.09* (.30)

[a] Child perception measures of parental differential treatment (each are for either perceptions of mother's or father's PDT – with "M" or "D" as suffix, respectively): CRDAF = perceived relative parental differential affection; CHADAF = perceived absolute parental differential affection; CRDCO = perceived relative parental differential control; CHADCO = perceived absolute parental differential control
[b] Partial correlations are presented in parentheses in order to represent effect sizes
* $p < .05$; ** $p < .01$

Parenting Stress as a Moderator of PDT and Child Adjustment

It was posited that positive relationships would exist between reports of parenting stress and PDT in both groups. Correlational analyses were run to determine whether these relationships emerged. Parent reports of absolute (in most cases) differential affection and control (n = 110) did positively relate to parenting stress measures.

When looking at the zero-order correlations between reports of parenting stress, PDT, and child problems all positively correlated with one another. All measures of parenting stress (including parental distress, parent-child interaction, difficult child, and total stress ratings) correlated positively with absolute differential affection and control measures (correlations ranged from $r = .20$, $p < .05$ to $r = .35$, $p < .001$; N = 110). All absolute PDT measures and child internalizing, externalizing, and total behavior problems had significant correlations that ranged from .20 ($p < .05$) to .34 ($p < .001$; N = 110). Reports of child internalizing, externalizing, and total behavior problems and all

measures of parenting stress were positively related, with significant correlations ranging between .21 ($p < .05$) and .71 ($p < .001$).

Reports of parenting stress were expected to moderate the relationship between perceptions of PDT and ratings of child behavior problems. Significant (accounting for 5-23% of the variance in child behavior problems) moderating effects were shown to exist for "difficult child" and "total stress" measures on the PSI when examining the relationship between perceived parental differential treatment (affection and control) and reported internalizing, externalizing, and total behavior problems (see Table 11). Mothers' and fathers' data were examined separately. For mothers, when high stress was reported with regard to the younger child being a "difficult child," perceptions of absolute differential affection related to more reported internalizing problems rated for the younger child. Also, perceptions of absolute differential control related to more reported internalizing, externalizing, and total behavior problems rated for the younger child in this condition. When low overall stress was reported for the younger child, maternal report of relative differential control positively related to total behavior problems for the younger child. Lastly, when mothers rated overall stress related to the older child as being high, perceptions of relative differential affection correlated negatively with internalizing problems reported for the younger child. Paternal reports revealed that when low stress was reported with regard to the older child being a "difficult child," perceptions of absolute differential control related to more reported internalizing, externalizing, and total behavior problems for the younger child. When high stress was reported in this domain for the older child, reports of absolute differential control were

positively related to reports of externalizing behaviors for younger children and internalizing and total behavior problems for older children.

Table 11

Parenting Stress Moderates the Relationship Between PDT and Child Behavior Problems

Dependent Variables	Whose Report	Step 1: ΔR^2 for PDT	Step 2: ΔR^2 PSI	Step 3: ΔR^2 Interaction
CBCL	Maternal	Perceived absolute differential affection	Difficult child rating for child A	
Total Problems				
Child A (N = 50)		.03 (-.24) [a]	.44** (.38)	.05* (.32)
		Perceived relative differential control	Total stress rating for child A	
		.03 (.44)	.45** (.55)	.12** (-.47)
		Perceived absolute differential control	Difficult child rating for child A	
		.09* (-.33)	.40** (.30)	.09** (.42)
Internalizing Problems		Perceived relative differential affection	Total stress rating for child A	
Child A (N = 50)		.11* (.24)	.33** (.41)	.06* (-.31)
		Perceived absolute differential affection	Difficult child rating for child A	
		.05 (-.32)	.29** (.16)	.11** (.40)
		Perceived relative differential control	Total stress rating for child A	
		.06 (.46)	.35** (.43)	.16** (-.52)
		Perceived absolute differential control	Difficult child rating for child A	
		.14** (-.35)	.24** (.09)	.14** (.46)

Child B (N = 48)		Perceived relative differential affection	Total stress rating for child B	
		.01 (.25)	.23** (.39)	.06* (-.29)
Externalizing Problems		Perceived relative differential control	Total stress rating for child A	
Child A (N = 50)		.04 (.35)	.46** (.58)	.08** (-.39)
		Perceived absolute differential control	Difficult child rating for child A	
		.05 (-.36)	.50** (.41)	.08** (.41)
CBCL	Paternal	Perceived absolute differential affection	Difficult child rating for child B	
Total Problems		.07 (-.32)	.24** (.14)	.11* (.39)
Child B (N = 41)		Perceived absolute differential control	Difficult child rating for child B	
		.14* (-.26)	.21** (.07)	.11* (.41)
Internalizing Problems		Perceived relative differential affection	Total stress rating for child B	
Child B (N = 41)		.02 (-.52)	.18** (.24)	.23** (.53)
		Perceived absolute differential affection	Difficult child rating for child B	
		.02 (-.38)	.18** (.03)	.14** (.41)
		Perceived absolute differential control	Difficult child rating for child B	
		.18** (-.25)	.12* (-.06)	.13** (.44)

[a] Partial correlations are presented in parentheses in order to represent effect sizes
* $p < .05$; ** $p < .01$

Absolute Parenting Measures as Moderators of PDT and Child Behavior Problems

It was anticipated that perceived parental affection and control would moderate the relationship between perceived differential parenting and reports of child behavior problems. Hierarchical linear regressions were conducted to test this hypothesis. Gender was entered in the first step, PDT measures in the second step, followed by absolute parenting ratings in the regression equations. The interaction (between PDT and absolute parenting) term was examined to determine whether a moderating relationship existed. Results wherein gender was not a significant predictor of behavior problems are displayed in Table 12. Table 13 displays the regressions that were conducted separately for gender due to gender predicting significant variance in behavior problems.

Interestingly, all moderators involved perceptions of parental treatment of sibling rather than self. The absolute parenting construct of maternal affection proved to be important for boys accounting for between 10 and 30 percent of variance in reported child behavior problems. When boys perceived maternal affection toward siblings as high, perceptions of relative differential affection corresponded with fewer externalizing behavior problems. Both boys' and girls' scores yielded significant moderating effects for maternal control toward siblings. When maternal control toward sibling was perceived as low, perceptions of absolute differential control related to more reported internalizing problems and total behavior problems. When maternal control toward sibling was seen as high, perceptions of relative differential control related to fewer reported internalizing problems for boys. For girls, when maternal control toward a sibling was perceived to be high, perceptions of absolute differential control were negatively correlated with reports of internalizing and total behavior problems. Also,

perceived relative differential control related positively to internalizing, externalizing, and total behavior problems reported for girls. Lastly, female data showed moderating effects of perceived paternal affection on the relationship between PDT ratings and reported behavior problems accounting for 11-16% of unique variance in child behavior problems. When paternal affection toward sibling was perceived as high, perceived absolute differential affection related to increased internalizing, externalizing, and total behavior problems reported.

Table 12

Absolute Parenting as a Moderator of the Relationship Between PDT and Behavior Problems

Dependent Variables	Step 1: R^2 for Gender	Step 2: ΔR^2 for PDT	Step 3: ΔR^2 Absolute	Step 4: ΔR^2 Interaction
YSR		Absolute differential	Paternal affection given	
Externalizing		paternal affection	to sibling	
Problems (N = 111)	.03 (.22) [a]	.09** (-.18)	.01 (-.24)	.05* (.23)
		Absolute differential	Maternal control given	
		maternal control	to sibling	
	.03 (.20)	.01 (.25)	.01 (.23)	.05* (-.24)
		Relative differential	Paternal control given	
		paternal control	to self	
	.03 (.19)	.02 (-.23)	.00 (-.02)	.08** (.29)
		Relative differential	Paternal control given	
		paternal control	to sibling	
	.03 (.19)	.02 (.32)	.00 (-.00)	.09** (-.31)

[a] Partial correlations are presented in parentheses in order to represent effect sizes
* $p < .05$; ** $p < .01$

Table 13

Absolute Parenting as a Moderator of the Relationship Between PDT and Behavior Problems: Analyses By Gender

Dependent Variables	Gender	Step 1: ΔR^2 for PDT	Step 2: ΔR^2 Absolute	Step 3: ΔR^2 Interaction
YSR	Female (N = 60)	Absolute differential	Paternal affection	
Total Problems		paternal affection	given to sibling	
		.11* (-.33) [a]	.02 (-.40)	.13** (.38)
	Female	Relative differential	Paternal control	
		paternal control	given to sibling	
		.06 (.37)	.02 (-.14)	.11* (-.34)
	Female	Absolute differential	Maternal control	
		maternal control	given to sibling	
		.01 (.42)	.00 (.32)	.16** (-.41)
	Male (N = 44)	Relative differential	Maternal affection	
		maternal affection	given to sibling	
		.02 (.33)	.02 (-.07)	.10* (-.32)
	Male	Relative differential	Maternal control	
		maternal control	given to sibling	
		.00 (.49)	.00 (.07)	.26** (-.51)
Internalizing	Female (N = 60)	Absolute differential	Maternal control	
Problems		maternal control	given to sibling	
		.00 (.37)	.02 (.35)	.13** (-.36)
	Male (N = 44)	Relative differential	Maternal control	
		maternal control	given to sibling	
		.01 (.49)	.00 (.02)	.30*** (-.55)

[a] Partial correlations are presented in parentheses in order to represent effect sizes
* p < .05; ** p < .01

Group Comparison Analyses

Some researchers have suggested that adolescent females with diabetes may have more anxious or depressive symptomatology than those without a medical condition. In this sample, however, adolescent females with diabetes (n = 21; M = .40) reported no more of the symptoms mentioned above than those without diabetes (n = 47; M = .37) when one-way ANOVAs were employed (F (1, 66) = .16, p = .69). The hypothesis regarding whether patients diagnosed within the past 6 months have elevated anxiety or depression could not be addressed because no participants in this study had been diagnosed that recently.

It was also predicted that more affection and control would be perceived to be given to the younger child in both the diabetes and comparison groups. Paired t-tests revealed that this was not the case in this sample according to both parent (n = 110) and child report. Across groups, younger and older children were rated as being given similar amounts of affection (t = -1.12, p = .27) and control (t = .06, p = .95) by parents. Child A (n = 57) rated no significant differences in amount of perceived affection or control given to self (younger child) versus one's sibling (older child) from mother (t = 1.21, p = .23; t = 1.52, p = .14, respectively) or father (t = .39, p = .70; t = .34, p = .74, respectively). Child B (n = 54) had no significantly different ratings for amount of perceived affection or control given to self versus sibling from mother (t = .94, p = .35, t = -.20; p = .84, respectively) or father (t = -.42, p = .68; t = 1.62, p = .11), either.

Lastly, predictions within the parenting stress domain were made. It was hypothesized that parents in the diabetes group would report more stress on the PSI than

parents in the comparison group, particularly on the Difficult Child scale. However, one-way ANOVAs revealed no significant differences across groups on any PSI scale. Parental distress for younger and older children ($F(1, 109) = .83$, $p = .37$; $F(1, 108) = .37$, $p = .37$, respectively), parent-child interactions ($F = .47$, $p = .50$; $F = .03$, $p = .87$), difficult child ($F = .20$, $p = .66$; $F = 2.68$, $p = .11$), and total stress ($F = .07$, $p = .79$; $F = .44$, $p = .51$) ratings did not significantly differ by group.

Discussion

Parental differential treatment is an important aspect of nonshared environment because of its relationship to child adjustment (Wolf, Fisman, Ellison & Freeman, 1998). Many researchers have commented on the oftentimes heightened problems in child adjustment with increased parental differential treatment (e.g., McGuire, Dunn & Plomin, 1995; McHale & Pawletko, 1992). Families of children who have disabilities or chronic medical conditions provide a "high risk" group for differential parental treatment because of the need for increased parental care and responsibility as compared to children without affliction (Quittner & Opipari, 1994).

Parental differential treatment does not always, however, have the same implications for different children from different families. McHale and Pawletko (1992) illustrated the importance of context in the relationship between PDT and child functioning and remarked "the same level of differential treatment had different correlates for children from different family contexts reporting on different domains of functioning," with regard to results obtained in their study. They highlighted the complexity of the relationships between PDT and adjustment and offered that child perceptions (rather than just parents') of PDT and its fairness would be telling with regard to understanding more fully the role PDT plays in child functioning.

Accordingly, the goals of this study included examining the relationship between perceptions of differential parenting and reports of child adjustment in a more complete fashion. The construct of PDT had yet to be examined in a population of children who

live with a chronic, life-threatening illness that requires intensive assistance and treatment from parents as compared to a population unaffected by a medical condition. Child and parent perceptions of this construct and its correlates were explored, along with child perceptions of deservedness of parental treatment. Several researchers have noted the latter to be an important area of future research. The relationship between reports of parenting stress and PDT was also felt to be a promising area to explore given the heightened responsibilities and potential stress in families with a child with diabetes.

PDT and Child Adjustment

Consistent with prior research findings (e.g., Dunn, Stocker, & Plomin, 1990), ratings of perceived absolute PDT (or total amount of difference in treatment) related to increased internalizing, externalizing, and total behavior problems. In other words, if parents reportedly treated siblings differently, regardless of direction, reports of adverse behaviors increased. This finding was robust. It emerged regardless of group (i.e., diabetes or comparison), rater (i.e., parent or child), or domain (i.e., affection or control).

However, the prediction that relationships of greater strength would be found in the diabetes versus comparison group was not supported. Given that very few participants had seriously elevated HbA1c measures or had experienced negative experiences associated with their diabetes such as hospitalizations or chronic hyper- or hypoglycemia, it was not possible to examine whether this type of profile would have yielded stronger associations between perceptions of PDT and child behavior problems. Whether a sample of children with diabetes in poorer control would have more polarized relationships between perceived PDT and reported behavior problems than a comparison

sample would, however, be an interesting empirical question to study in the future. Correlations between perceptions of PDT and reports of child behavior problems tended to be similar across groups. It is important to note, however, that when specific domains of perceived differential treatment were studied, differences did exist by group. Both parents and children in the diabetes group reported significant relations between perceptions of differential *control* and behavior problems, whereas in the comparison group significant associations between perceptions of differential *affection* and problem behavior emerged. Perhaps this difference across groups existed because of the more pressing demands in the household with a child who has diabetes. Caring for a chronic illness may prime parents and children in the diabetes group to view a dimension like control (that evaluates perceptions of behaviors such as strictness and discipline) as more salient than a dimension such as parental affection because of the constant focus on structure and routine in adhering to a diabetes regimen. Interestingly, perceived differential treatment from fathers (according to children in the diabetes group), rather than from mothers, significantly related to adjustment problems.

An important difference resulted from examining parent versus child correlations between reported adherence and perceptions of PDT. Whereas both reported that perceptions of absolute differential treatment were negatively related to reported adherence (with significant correlations ranging from r = -.40 to -.50), they had differing views on perceptions of relative differential treatment. Parents reported a positive relationship between perceived relative differential control and adherence (i.e., when parents rated more controlling behavior toward the younger child with diabetes than toward the older healthy child, parent-reported adherence to diabetes regimen was

greater). Children with diabetes, however, rated paternal relative differential control as negatively relating to reported adherence (i.e., they reported their own adherence as worse as they felt increasingly more controlled than their sibling).

Perhaps parents feel that when they are more controlling of a child in general, the child will be more adherent to diabetes-related prescribed behaviors. Maybe this sense of control over a child relates to more active attempts to control a child's disease, as well. Also, if a parent is more involved in an ill child's care (with presumed benefits in regard to adherence), a parent has less time and/or energy to control the sibling of the child with diabetes. Such behavior would result in more differential control of the child with the medical condition. From the child's perspective, perhaps if he/she perceives more controlling behavior from a parent as compared to sibling, he/she may rebel by not being as compliant (or not saying he/she is as compliant) to the prescribed medical regimen. It is interesting, nonetheless, that perceptions of parents and children in this regard are so disparate.

A logical solution to determining whether relative differential control actually relates to increased or decreased adherence behavior would be multifold. Firstly, observational and more data-based methods of determining actual differences in treatment of children would have to be utilized. Next, a less subjective measure of adherence would need to be collected (e.g., several 24-hour recall interviews averaged over an extended time period have demonstrated respectable test-retest reliability, correspondence between observations of self-care and self-report, and interrater reliability; Johnson et al., 1986). Methods such as the 24-hour recall or actual observance of self-care behaviors, however, are quite time- and labor-consuming and expensive to

conduct. Additionally, it may be helpful to examine whether adherence and more objective measures affiliated with control (such as HbA1c) are related. In this study, neither parent- nor child-reported adherence was significantly associated with HbA1c, though correlations that emerged were in the expected direction. It is important to remember, however, that factors other than adherence (e.g., how well one's medical regimen works even when adherent) contribute to HbA1c readings and that there is no one-to-one correspondence between even adherence as measured more objectively and the blood test (e.g., Delamater et al., 1990).

Children in the diabetes group did, however, have ratings of relative (maternal) control that related positively to HbA1c (or poorer glycemic control). This lends evidence to the hypothesis that perceived relative differential control (or more control perceived as given to one's self versus sibling) has a negative impact on the control of diabetes. Conversely, parent report on the other hand, yielded no significant relationship between PDT and HbA1c.

Deservedness Plays a Role

The results demonstrated, as hypothesized, child deservedness ratings as moderators of the relationship between perceived PDT and reported child behavior problems, with deservedness' moderation accounting for between 17 and 21% of the variance in the relationship. All significant regressions in which deservedness served a moderating role involved female, rather than male, report. This suggests that females may be sensitive to how they are treated as compared to how siblings are treated. In a study by Konstantareas and Desbois (2001), even preschoolers were able to offer views

on the fairness or unfairness of parental disciplinary practices and could differentiate among them when presented with vignettes. Even at a preschool age, girls, as compared to boys, were more likely to judge differential treatment as unfair. Significant regressions involved perceptions of differential parental control rather than affection, indicating that at least for this sample, whether treatment is deserved or not matters with regard to control more so than affection in predicting child adjustment. Also, when girls rated *their siblings* and parental control was viewed as not deserved, perceptions of PDT were positively associated with child reports of their own behavior problems. The idea that children who do not feel that sibling treatment is deserved would have behavior problems when PDT is felt to be present (whether self is perceived to be given more control or gap between control toward children is seen as large) makes intuitive sense.

Deservedness also explained 18-21% unique variance in the relationship between PDT and adherence as reported by children in the diabetes group. When any sort of maternal treatment toward self or sibling was seen as highly deserved, perceptions of PDT related to reports of poorer adherence. Given that directionality cannot be determined in this correlational study, this could be a reflection of children's recognition that their mother treats them differently *because* of lack of responsible behavior in managing their diabetes. When treatment was seen as not deserved, there was no relationship between perceptions of PDT and reported adherence. Paternal behavior ratings revealed an interesting pattern. When affection toward one's sibling was viewed as highly deserved, perception of absolute difference in affection given to self and sibling related negatively to reported adherence (consistent with prior reports of the relationship between PDT and adherence). In contrast, perceived relative differential affection was

associated with more reported adherence. In simpler terms, when children perceived that they were given more affection than their sibling and they saw that the lesser affection was appropriate for their sibling, they were reportedly more adherent to the regimen. Overall, as other researchers have suggested but not tested, deservedness helped to explain part of the story of PDT and child adjustment. It explained an especially respectable amount of the variance in the relationship between perceived PDT and child-reported behavioral adherence, something that parents would undoubtedly be interested in knowing. Parents may desire to pay closer attention to their children's verbalizations regarding how "fair" perceived treatment is, especially as it relates to their sibling. Additionally, parents of children with diabetes may want to ask their children about their deservedness- and differential treatment-related views, as these variables were actually quite important as they relate to reported adherence.

PDT Predicts Child Adjustment

An additional important quality of perceptions of PDT that was unveiled is the ability to predict reported child adjustment over measures of parenting alone. This is consistent with limited prior research examining the incremental utility of PDT (e.g., Barrett Singer & Weinstein, 2000). Several results unfolded wherein absolute parenting measures were not at all predictive but perceived PDT was a significant predictor. For example, though absolute measures of parenting were rarely significant per parent report in predicting child behavior problems (barring when control toward the younger child was rated), 5-31% of the variance in reported child behavior problems was explained by perceived PDT. Similarly, perceived PDT (control) explained significantly more

variance in parent-reported adherence (8-44%) than did absolute parenting measures. Perceived PDT predicted between 21 and 28% of the variability in child-reported adherence and 18% of the variance in HbA1c readings. This is consistent with the notion that children, especially those who have a medical condition which requires intensive care and parental assistance, are inclined to constantly compare the way they perceive they are treated versus their perceptions of sibling treatment. It makes sense that perceptions of differential treatment would be more salient than perceptions of treatment of self in isolation when there is such a pronounced difference between time and medical attention given to a child with diabetes versus one without. Medical attention is attention nonetheless, and may be sensed as additional caring behavior not given to siblings. From the child's perspective, child ratings revealed that absolute parenting did not predict behavior problems but perceived PDT consistently predicted reports of externalizing behavior problems.

The fact that measures of absolute parenting often were not significant predictors of child adjustment, but measures of PDT were, suggests that perceptions of how children are treated *in relation to their sibling* is more associated with children's emotional and behavioral functioning than how they are treated independently. The notion that they *are* in fact treated independently (assuming at least two children are in the home) is a fallacy, as children are apparently sizing up the treatment they receive versus what their sibling gets across domains. The ability of perceived PDT to predict across raters and different indices of child functioning additionally supports its usefulness.

Parenting Stress Serves as a Moderator of PDT and Child Adjustment

Parenting stress variables were observed to predict significant amounts of variance in the relationship between perceived PDT and reported child adjustment. Under conditions of high reported stress (with the younger or older child rated highly on the Difficult Child scale), the absolute difference in how much affection or control mothers and fathers reported giving to the younger child and the older child related to more rated behavior problems for both children. This finding is consistent with all others previously presented, with stress contributing to the positive relationship between perceived PDT and ratings of problem behavior. Low overall stress reported by mothers in reference to the younger child did not make that child immune from reported behavior problems when perceived relative differential control was present (i.e., it was reported that the younger child was given more control than the older child). When mothers felt stressed overall by their older child, the perceived relative differential affection (more given to younger than older) seemed to be to the younger child's advantage, with him or her displaying fewer behavior problems according to parents. This may, however, be an artifactual finding, as parents had already reported viewing their older child as a problem. Stress appears to pose an increased benefit for the younger child when directed toward the older child, in that the former receives more affection and in turn has fewer internalizing problems. Given that these analyses are correlational in nature, however, it could be that the younger children elicited more affection because they had fewer problems to begin with, or another variable may be contributing to these relationships.

Absolute Parenting Measures and Child Adjustment

Although less central to the goals of this study, parenting measures were also tested to determine whether results were consistent with prior literature and to learn more about diabetes-specific adjustment in this sample. As predicted and demonstrated in studies past, affection negatively related to behavior problems regardless of type of behavior problem, group, rater, or whom treatment was directed toward. Surprisingly, whereas control (consistent with predictions and prior studies) had a positive relationship with behavior problems in the child diabetes group, control had the opposite relation in the child comparison group. Children in the comparison group reported fewer behavior problems when control was increasingly perceived toward self or sibling. This curious finding may have to do with the type of control reported in each of the groups given the general ambiguity of the measure of parental treatment. For instance, the measure may conjure up perceptions of control for children in the diabetes group related to one's own treatment by parents in a diabetes-specific situation. Such scenarios may be perceived as more controlling, and the overall home environment may be conceptualized as more controlling, in a way (despite equal rates of perceived control reported across groups), than in a comparison family's home. That is, medical adherence-related control may be less welcomed than other perceived types of control. Similar to perceived PDT findings, parents rated the relationship between control and adherence as positive, but children with diabetes associated these two sets of behavior negatively.

Further evidence was gathered to support the fact that significant relationships for children are oftentimes portrayed in light of their *sibling's,* rather than their *own* treatment. All absolute parenting measures that served as moderators of perceived PDT

and reported child behavior problems involved perceptions of parental treatment of sibling, not self. For girls, when maternal affection toward sibling was perceived as high, perceived preferential affection toward self related to fewer reports of externalizing behavior problems. For boys and girls, when maternal control of a sibling was sensed as low, perceived absolute and relative differential control had their normal inverse relationship with ratings of child adjustment. When maternal control of a sibling was seen as high, perceived differential control (even absolute differential control) actually related to fewer reported problems. Perhaps this is because comparisons between perceptions of one's own receipt of absolute control versus one's sibling's (who is receiving *much* control) buffers any negativity associated with perceived PDT. For girls, when paternal affection toward a sibling was seen as high, ratings of PDT related to more internalizing, externalizing, and total behavior problems reported. It is interesting that maternal affection was salient for boys, whereas paternal affection was for girls.

Fortunately, the samples derived from both the diabetes and comparison populations appear to be representative and consistent with regard to research findings on which predictions were based. For example, children with diabetes in this sample did not have significantly worse adjustment than those without the diagnosis. As hypothesized, parents in the diabetes group were no more or less affectionate or controlling than those in the comparison group. Counter to prediction and findings in some studies (e.g., Hauenstein, Marvin, Snyder, & Clarke, 1989; Wysocki et al., 1989), parents in the diabetes group were no more stressed overall in the diabetes group than in the comparison group. However, more reported parenting stress was related to more reported PDT, as predicted, in both groups.

Importance of Context and Family with Regard to PDT and Child Adjustment

Perceived parental differential treatment (PDT) is a robust and important factor with regard to ratings of child behavior problems across context (i.e., in families that are and are not affected by chronic illness), rater, and type of child adjustment measure. Perceptions of PDT have also predicted a significant and unique amount of variance in reported adjustment beyond that predicted by perceptions of absolute levels of affection and control. Though rates of perceived PDT were roughly equivalent across context, which dimension of rated differential treatment proved to be important oftentimes varied by group. For example, reports of differential control were oftentimes significant correlates or predictors reported by persons in the diabetes group, whereas perceived differential affection appeared to be more salient in the comparison group. The varying dimensions of importance across group may relate to the effect that a diagnosis of diabetes can have on a family. Seiffge-Krenke (1998) followed 87 adolescents with and without Type I diabetes and found that families reported more structured and organized, less stimulating and emotionally warm interactions over time as compared to families without an ill child. As Wamboldt and Wamboldt (2000) note, however, this finding is not pervasive across all families and chronic illness oftentimes has selective effects on family life, such that more structure and organization does not necessarily relate to less functionality or satisfaction. Nevertheless, it seems quite obvious that similar amounts of the same type of treatment perceived had quite different relationships with ratings of child functioning depending on the context in which it was rated. This notion is consistent with a "process by context" model of human development (Bronfenbrenner &

Crouter, 1983) in that the same process (perceived PDT) has different correlates across different family contexts.

Several other constructs proved to be important in relation to reports of child emotional and behavioral functioning, regardless of whether a family is affected by diabetes. Perceived deservedness, parenting stress, and absolute amounts of parenting given all played a role in explaining the variance in the relations between perceived PDT and reported child adjustment. Certainly the perceived amounts present of the aforementioned operators differ by family. It is also critical to remember that many of these relationships differed as a product of *who* was reporting, with interesting findings emerging only due to the soliciting of information from mothers, fathers, and children in this study.

Another important contribution of this study is the presentation of information regarding context by family interactions. The context of diabetes provided a good framework for studying perceptions of PDT and associated correlates, and one in which these preliminary results may hold promise for future research and clinical implications for families affected by childhood diabetes. For example, though parents and children differed with regard to whether perceived parental differential control related to better or worse reported adherence, measures of differential control correlated with and predicted above and beyond what measures of absolute control predicted with regard to reported adherence. Though perceptions of absolute affection and control predicted none of the variability in HbA1c readings, perceptions of relative differential affection (per parents) and especially relative differential control (as reported by children) contributed to explaining variability in a very important index of diabetes-related self-care and control.

The fact that a parenting construct such as perceived PDT has predictive value with regard to a blood test in very exciting and warrants further attention in order to best assess and treat families affected by Type I diabetes.

Limitations of Research

Several important limitations of this study deserve to be mentioned. The interested reader is reminded that all measures included in this study (with the exception of HbA1c) utilized written self-report. Accordingly, this investigator can only speak of the relationships between *perceptions* of behavior and *reports* of adjustment. As noted by Kagan (2003), a parent's description of a child's behavior is often assumed to be almost as representative as directly observing a child. This tendency to assume, however, has been described as "overly optimistic" (Baillargeon et al., 2001). As mentioned earlier, stronger methodology would include observational data and/or self-report data that allows for less possibility of bias in reporting (e.g., the 24-hour recall methodology discussed earlier). It is important to note that information (though still parent-reported) regarding children's grade point averages was collected in order to have more objective information about child adjustment. Fortunately, reports of poorer grades related to parent report of child internalizing, externalizing, and total behavior problems, suggesting that at least parent report of more objective data coincides with report of that which is necessarily more subjective.

Secondly, the "second wave" of data collected from families for the diabetes group was collected post-HIPAA regulations initiation. Therefore, diabetes-specific information (e.g., HbA1c measures) was collected from these parents via self-report as

opposed to chart review. Comparisons between HbA1c measures gleaned from charts versus obtained via self-report revealed no significant differences.

Another limitation of self-report data is that common method variance is sometimes an issue. In this study, however, shared method variance does not seem to have been a problem, presumably due to the fact that the examination of parental differential treatment negated effects that are sometimes seen (i.e., significantly high correlations between ratings given by the same person on more than one measure, for instance, child ratings of behavior and parental differential treatment).

Yet another limitation of the self-report data gleaned in this study involves the fact that the majority of participants completed questionnaire packets at home. As in any other study, one cannot be entirely certain of the validity of information obtained in such a manner or completely confident in whom allegedly completed the packets. As mentioned earlier, however, several safeguards utilized (i.e., assistance given to families upon recruitment in determining who was to complete packets and checking upon return that names matched with names initially given, provision of separate envelopes for family members to return packets individually), coupled with family interactions with research staff and observed data (i.e., inquiries made by some participants when confused about who should participate, the observance of different handwritings used on completed questionnaires, no significant differences observed on any variable between those who were paid versus unpaid or between those who completed packets in clinic or at home), provide evidence that families members completed questionnaires independently and appropriately.

Additionally, all analyses in this study were correlational in nature. Therefore, no causal relationships were established or implied. Issues involved in interpreting correlational data involve directionality and causality. For example, though perceptions of parental differential treatment may contribute to an increase in behavior problems, it is entirely possible that perceptions of behavior problems cause parents to treat their children differently. Also, some other variable that was not measured in this study could be contributing to the observed relationship between PDT and behavior problems (e.g., marital stress could cause each to be increased when present). Accordingly, this study is unable to rule out the aforementioned possibilities given the correlational nature of the data.

The size of the samples accrued in this study are somewhat limiting in two ways. Firstly, low power is an issue in discrete analyses, particularly those in which children with diabetes (and subgroups of children with diabetes) were compared against those without the diagnosis. Secondly, generalizability, as in many other studies, is certainly an issue in this project. It is important to acknowledge that, particularly with regard to regression analyses and subsequent correlation coefficients run to examine relationships between variables after performing median splits, small sample size limits the generalizability of results. Also, results and discussion are meant to pertain only to families with similar demographic profiles as those drawn from in this study. For instance, overall adjustment fell within normal limits; results should therefore not be applied to populations known to have increased emotional and behavioral problems. The samples obtained in this study included adolescents, who may report fundamentally different relationships between the variables of interest than other age groups (e.g.,

adolescents experience developmental and hormonal changes that may contribute to their perceptions of parenting, PDT, and in the diabetic group, real and perceived changes in adherence and glycemic control). Additionally, most diabetes families did not report (or have, based on chart reviews) children with seriously poor metabolic control, and results can therefore not be generalized to families in which this is an issue. Future studies examining PDT could involve recruitment of more families with children in very poor control (through changes in protocol such as addition of clinics that serve more of these families, increased incentives for participation, or creative recruitment techniques such as those used in telehealth research, e.g., telephone and Internet communications) in order to determine whether relationships are the same in such a population.

Study Contributions

The complex relationship between child and context variables for children with and without chronic illness, their siblings, and their parents was studied as it relates to perceptions of parental differential treatment. A strength of this study involved gathering information from not only one parent and/or child, but rather, from mothers, fathers, children, and their siblings. Another important aspect of the study was that data related to PDT were gathered in a manner that has been demonstrated to yield the least social desirability bias (i.e., assessment by calculating difference scores from direct measures of perceptions of parenting rather than by asking parents and children about one child was treated versus the other; see Barrett Singer & Weinstein, 2000).

The contribution to families of children with diabetes is also certainly important, as adjustment measures of importance to them not only include whether their children

demonstrate behavior problems, but also, how adherent their child with diabetes is to his/her prescribed medical regimen and how under control their disease is as assessed by a common blood test. Families would benefit by knowing how their various behaviors contribute to these important behavioral and medical indicators.

Directions for Future Research

Perceived PDT proved to be a most interesting, rewarding, and thought-provoking construct to study. Further exploration of the nature of PDT and its relationship to various measures of child functioning is warranted. Of significant interest would be determining *whose* reports (e.g., of PDT, absolute parenting, deservedness, parenting stress) are most related to measures of adjustment by infusing more objective ways (such as observations of interactions or obtaining cortisol, catecholamines, or some other stress index levels when child-related cues are presented) of measuring these behaviors. Additionally, it would be useful to continue investigating PDT and its correlates in a diabetic population, given the interesting results obtained with regard to adherence and metabolic control. Replication of these findings, with more and potentially longitudinal data, would help to determine whether PDT is a worthy construct to assess and address. Programs could be established which focus on specific context/family relationships that are potentially detrimental to long-term positive individual and family physical and mental health.

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Appendices

Appendix A

Brief Screening Instrument (Comparison Group)

1. Do you have two children between the ages of 11 and 18 who are within three years of each other AND are of the same gender?

   ☐ Yes ☐ No

   (If no, STOP HERE)

2. Please think about these two children (or the two youngest that meet the above criteria, if more than two apply). Have either of these children ever had any of the following chronic medical conditions or disabilities? If so, please mark the appropriate box with an "X."

☐ Asthma	☐ HIV/AIDS
☐ Blood/bleeding disorder	☐ Kidney or bladder disease
☐ Brain injury	☐ Liver disease
☐ Cancer	☐ Malaria
☐ Cerebral Palsy	☐ Muscular Dystrophy
☐ Cystic Fibrosis	☐ Polio
☐ Diabetes	☐ Rheumatism or arthritis
☐ Emphysema	☐ Severe burn
☐ Epilepsy/seizure disorder	☐ Spina Bifida
☐ Glaucoma	☐ Spinal Cord Injury
☐ Gout	☐ Stomach/duodenal ulcer
☐ Heart trouble/cardiovascular disease	☐ Any other chronic health problems or disabilities (please describe):

_____

3. Have either of these children ever been **diagnosed by a professional** with any of the following
   problems? If so, please mark the appropriate box with an "X."

☐ Attention-Deficit/Hyperactivity	☐ Any other psychological problem (please explain):

Disorder

_____

☐ Major Depression (requiring treatment) ☐ Mental Retardation

☐ Anxiety disorder (requiring treatment) ☐ Autism

☐ Schizophrenia/other psychotic disorder ☐ Hearing disorder (please describe): _____

☐ Eating disorder ☐ Speech/language disorder
(please describe):

_____

Appendix B

Brief Screening Instrument (Diabetes Group)

Status (circle one): a. Meets criteria, agrees b. Meets criteria, does not agree c. Does not meet criteria

Subject # (if meets criteria, agrees): _____ Date: _____

4. Is your child with diabetes between the ages of 10 and 18?

   ☐ Yes ☐ No **(If no, STOP HERE)**

5. Does he/she have an older sibling who is 18 or younger and within four years of your child with diabetes?

   ☐ Yes ☐ No **(If no, STOP HERE)**

6. Please think about your child who has diabetes, and his or her next oldest sibling within four years of your child with diabetes. Have either of these children ever had any of the following chronic medical conditions or disabilities? If so, please mark the appropriate box with an "X."

☐ Asthma	☐ HIV/AIDS
☐ Blood/bleeding disorder	☐ Kidney or bladder disease
☐ Brain injury	☐ Liver disease
☐ Cancer	☐ Malaria
☐ Cerebral Palsy	☐ Muscular Dystrophy
☐ Cystic Fibrosis	☐ Polio
☐ Diabetes (check only if in sib., also)	☐ Rheumatism or arthritis
☐ Emphysema	☐ Severe burn
☐ Epilepsy/seizure disorder	☐ Spina Bifida
☐ Glaucoma	☐ Spinal Cord Injury
☐ Gout	☐ Stomach/duodenal ulcer
☐ Heart trouble/cardiovascular disease	☐ Any other chronic health problems or disabilities (please describe):

_____

7. Have either of these children ever been **diagnosed by a professional** with any of the following problems? If so, please mark the appropriate box with an "X."

☐ Attention-Deficit/Hyperactivity Disorder

☐ Any other psychological problem (please explain):

_____

☐ Major Depression (requiring treatment)

☐ Mental Retardation

☐ Anxiety disorder (requiring treatment)

☐ Autism

☐ Schizophrenia/other psychotic disorder

☐ Hearing disorder (please describe): _____

☐ Eating disorder (please describe):

_____

☐ Speech/language disorder

Appendix C

Parent Demographic Questionnaire

1. Your date of birth: □□/□□/□□ **2. Your age:** □□

3. Your gender (please check one):
□**Male** □**Female**

4. Marital status (please check one):

□ **Single** □ **Divorced**
□ **Married** □ **Widowed**
□ **Living with partner**

5. Highest level of education completed (please check one):
□ **Haven't finished high school (highest grade completed:_____)**
□ **High school graduate**
□ **Business/technical school graduate**
□ **Some college (number of years completed: _____)**
□ **College graduate**
□ **Graduate degree**

6. Approximate yearly family income:

□ **less than $10, 000** □ **$40, 000 - $59, 999**
□ **$10, 000 - $19, 999** □ **$60, 000 - $100, 000**
□ **$20, 000 - $39, 999** □ **more than $100, 000**

7. Racial/ethnic group (please check any that apply):
□ **African American** □ **Latino**
□ **Asian American** □ **Native American**
□ **Caucasian/white** □ **Other, please specify: _____**

8. Please specify your children's ages (from oldest to youngest) and whether each is your biological child or adopted:

a. First-born's age: □□ **Biological** □ **Adopted** □ **Step-parent** □
How long?____
b. Second-born's age: □□ **Biological** □ **Adopted** □ **Step-parent** □
How long?____

c. Third-born's age: □□ Biological □ Adopted □ Step-parent □
How long?____

9. What is CHILD A's current average grade in school (check ONE box that is most appropriate):

□A+	**□B+**	**□C+**	**□D+**	**□F**
□A	**□B**	**□C**	**□D**	
□A-	**□B-**	**□C-**	**□D-**	

10. What is CHILD B's current average grade in school (check ONE box that is most appropriate):

□A+	**□B+**	**□C+**	**□D+**	**□F**
□A	**□B**	**□C**	**□D**	
□A-	**□B-**	**□C-**	**□D-**	

Appendix D

Child Demographic Questionnaire

1. Your date of birth: ☐☐/☐☐/☐☐ **2. Your age:** ☐☐

3. Your gender (please check one):

☐ **Male**

☐ **Female**

4. Please check the box next to the grade you are in:

☐ **3rd** ☐ **8th**

☐ **4th** ☐ **9th**

☐ **5th** ☐ **10th**

☐ **6th** ☐ **11th**

☐ **7th** ☐ **12th**

5. Racial/ethnic group (please check any that apply):

☐ **African American** ☐ **Latino**

☐ **Asian American** ☐ **Native American**

☐ **Caucasian/white** ☐ **Other, please specify: _____**

6. What is your current average grade in school (check ONE box that is most appropriate):

☐ **A+** ☐ **B+** ☐ **C+** ☐ **D+** ☐ **F**

☐ **A** ☐ **B** ☐ **C** ☐ **D**

☐ **A-** ☐ **B-** ☐ **C-** ☐ **D-**

Appendix E: Inventory of Family Experiences-Parent Form A*

PLEASE READ THESE INSTRUCTIONS CAREFULLY

Think about CHILD A (as identified on the face sheet). For the entire questionnaire, answer the questions in relation to this child.

This child's age: _____. This child is male/female (circle one).

I am this child's mother/father (circle one).

This questionnaire is designed to ask you about things that happen in families and about what life has been like for you and this child in the last 12 months.

Each statement says something that is true in some families, and not true in other families. For example, some parents make a lot of rules for their children, but other parents do not. Please place an "X" in the box that best represents your answer.

For the entire questionnaire, think about this child's experiences in your family in the last 12 months.

*Adapted from: Weinstein et al., 1987; Daniels & Plomin, 1984; Barrett Singer, 1996; Volling & Elins, 1998

MY CHILD'S relationship with ME
In the Last 12 Months

	Almost Always	Often	Some-times	Almost Never
1. I have been strict with my child.	☐	☐	☐	☐
2. I have been proud of the things that my child has done.	☐	☐	☐	☐
3. I have enjoyed doing things with my child.	☐	☐	☐	☐
4. I have been sensitive to what my child thinks and feels.	☐	☐	☐	☐
5. I have punished my child for his/her misbehavior.	☐	☐	☐	☐
6. I have shown interest in the things my child likes to do.	☐	☐	☐	☐
7. I have blamed my child for what another family member did.	☐	☐	☐	☐
8. I have tended to favor my child.	☐	☐	☐	☐
9. I have disciplined my child.	☐	☐	☐	☐

Appendix F

Inventory of Family Experiences-Sibling*

PLEASE READ THESE INSTRUCTIONS CAREFULLY

Think about your SIBLING (the one we identified on the face sheet). FOR THE ENTIRE QUESTIONNAIRE, ANSWER THE QUESTIONS FOR THIS SIBLING.

This sibling's age: _____. This sibling is male/female (circle one).

The following set of questions is designed to ask you about things that happen in families and about what life has been like for your sibling and your parents in the last 12 months. Please complete parts I and II for each page.

I. Each statement says something that is true in some families, and not true in other families. For example, some parents make a lot of rules for their children, but other parents do not. Please place an "X" in the box that best represents your answer (and pay close attention to WHICH PARENT the questions are about, that is, whether they are about your mother or father).

II. In addition, there will be a question relating to whether your sibling deserves how he or she is treated for each item. Please place an "X" in the box that best represents your answer for each of these, as well.

For the entire set of questions, think about your sibling's experiences in your family in the last 12 months.

*Adapted from: Weinstein et al., 1987; Daniels & Plomin, 1984; Barrett Singer, 1996.

Appendix F (continued)

MY SIBLING'S relationship with MY MOTHER
In the Last 12 Months

I. Relationship				**II. Did my sibling deserve this?**				
Almost Always	**Often**	**Some-times**	**Almost Never**	**Definitely Not**	**Prob-ably**	**Not Sure**	**Yes, Pro-**	**Yes, Defi-**

					Not			**bably**	**nitely**
1.My <u>mother</u> has been strict with my sibling.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
2.My <u>mother</u> has been proud of the things my sibling has done.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
3.My <u>mother</u> has enjoyed doing things with my sibling.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
4.My <u>mother</u> has been sensitive to what my sibling thinks and feels.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
5.My <u>mother</u> has punished my sibling for his/her misbehavior.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
6.My <u>mother</u> has shown interest in the things my sibling likes to do.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
7.My <u>mother</u> has blamed my sibling for what another family member did.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
8.My <u>mother</u> has tended to favor my sibling.									
☐	☐	☐	☐		☐	☐	☐	☐	☐
9.My <u>mother</u> has disciplined my sibling.									
☐	☐	☐	☐		☐	☐	☐	☐	☐

Appendix G

Diabetes Behaviors (parent)

Rate your child! Please place an "X" in the box that best represents how well your child manages his or her own diabetes. Give him or her a rating to show how well he or she has done each task listed below <u>in the last 3 to 6 months.</u>

	Almost Never	Infre-quently	Some-times	Fre-quently	Almost Always
1. Testing his or her blood and urine for glucose regularly.	☐	☐	☐	☐	☐
2. Taking his or her insulin on schedule.	☐	☐	☐	☐	☐
3. Following his or her food plan.	☐	☐	☐	☐	☐
4. Keeping his or her blood glucose at the right level.	☐	☐	☐	☐	☐
5. Fitting exercise into his or her treatment plan.	☐	☐	☐	☐	☐
6. Treating a reaction.	☐	☐	☐	☐	☐
7. Remembering to do everything every day.	☐	☐	☐	☐	☐

Appendix H

Diabetes Behaviors (child)

Rate yourself! You are on your honor to place an "X" in the box that best represents how well you manage your own diabetes. Give yourself a rating to show how well you have done each task listed below <u>in the last 3 to 6 months.</u>

	Almost Never	Infre-quently	Some-times	Fre-quently	Almost Always
1. Testing your blood and urine for glucose regularly.	☐	☐	☐	☐	☐
2. Taking your insulin on schedule.	☐	☐	☐	☐	☐
3. Following your food plan.	☐	☐	☐	☐	☐
4. Keeping your blood glucose at the right level.	☐	☐	☐	☐	☐
5. Fitting exercise into your treatment plan.	☐	☐	☐	☐	☐
6. Treating a reaction.	☐	☐	☐	☐	☐
7. Remembering to do everything every day.	☐	☐	☐	☐	☐

About the Author

Julie Pidala Reich was born and raised in Tampa, Florida. She obtained her undergraduate degrees in Psychology and Interdisciplinary Natural Sciences (with an emphasis on Biology) from the University of South Florida. She earned a doctorate in Clinical Psychology from USF in Summer 2003 after successfully completing a pre-doctoral internship at the University of Florida Health Sciences Center. She plans to engage in post-doctoral studies and work as a Clinical Child/Pediatric Psychologist in the Tampa Bay area after obtaining her license. She and her husband, Richie, anxiously await the arrival of their first child, who is scheduled to make an appearance in September 2003.