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Objective To explore the potential utility of a general and diabetes-specific measure of coparenting by evaluating linkages between coparenting and both the psychosocial and medical adjustment of children with type 1 diabetes (TID). **Method** Mothers and fathers of children (ages 8–12 years; $n = 61$) with TID completed questionnaires including measures of general and diabetes-specific coparenting, and children's internalizing and externalizing problems. Medical adjustment included parent-reported diabetes management behaviors, children's self-reported diabetes quality of life (QOL), and metabolic control (HbA1c) assessed during clinic appointments. **Results** Coparenting conflict around general child rearing tasks was significantly related to children's internalizing and externalizing problems. Diabetes-specific coparenting conflict was linked to poorer diabetes management behaviors and children's reports of poorer diabetes-specific quality of life, but not HbA1c. **Conclusions** Significant findings offer preliminary support for the inclusion of coparenting assessments among children with TID and warrant further exploration.

Key words children; coparenting; diabetes; medical adjustment; psychosocial.

Introduction

The management of type 1 diabetes (TID) involves a demanding regimen of blood glucose monitoring, multiple insulin injections or use of insulin pump, monitoring and modification of diet and physical activity, and regular medical follow-up. Given that children (<13 years) rely on their parents to help manage their diabetes care (Streisand, Swift, Wickmark, Chen, & Holmes, 2005), previous studies have examined characteristics of parents (e.g., parenting) and families (e.g., conflict) in relation to psychosocial adaptation (e.g., symptoms of psychopathology) and diabetes management (e.g., blood glucose testing). More positive general and diabetes-specific parenting (e.g., greater warmth, less conflict) have been related to better adherence (Davis et al., 2001; Duke et al., 2008; Miller-Johnson et al., 1994), glycemic control (Davis et al., 2001, Miller-Johnson et al., 1994), and diabetes-related quality of life (Botello-Harbaum, Nansel, Haynie, Iannotti, & Simons-Morton, 2008). A positive family climate (i.e., high cohesion, flexibility, organization) is related to better medical adjustment (e.g., metabolic control; Hanson, DeGuire, Schinkel, Henngeler & Burghen, 1992), while poorer family functioning (e.g., higher conflict, less adaptability) is related to poorer psychosocial adjustment (Hanson et al., 1992), adherence (Cohen, Lumley, Naar-King, Partridge, & Cakan, 2004) and glycemic control (Williams, Laffel, & Hood, 2009).

Greater parental involvement in diabetes tasks is also associated with better adherence (Davis et al., 2001; Duke et al., 2008; Miller-Johnson et al., 1994) and metabolic control (Anderson, Ho, Brackett, Finkelstien, & Laffel, 1997; Davis et al., 2001; Hauser, Jacobson, Benes, & Anderson, 1997). However, parental involvement varies between mothers and fathers. Mothers are often more

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involved than fathers in managing their child's illness (Hauser et al., 1997) and assume the burden of care (Wysocki, Greco, & Buckloh, 2003); fathers tend to adopt a more distant and inactive stance during family discussions (Seiffge-Krenke, 2002) and report less distress than mothers (Quittner et al., 1998). These discrepancies in parenting are important since it is likely that individuals parent differently when working together in their parental roles as coparents as compared to when parenting apart. From a family systems perspective, this relationship between parents is a key factor in a family's climate and functioning. Accordingly, using a pediatric-specific assessment of coparenting amongst families with a child with TID may enhance our understanding of the role that both mothers and fathers jointly play in influencing children's medical and psychosocial adjustment.

Coparenting includes a couple's ability to support, share leadership, and work together as a team when parenting (Gable, Belsky, Crnic, 1992; Gable, Crnic, & Belsky, 1994; Margolin, Gordis & John, 2001; McHale, 1995). In nonchronic illness samples, coparenting has been found to relate to psychosocial adjustment among school-age children (McConnell & Kerig, 2002), explain additional variance in the child's adjustment beyond parenting alone (Belsky, Putnam, & Crnic, 1996), and mediate the relationship between marital adjustment and parenting (Margolin et al., 2001). Coparenting is a triadic process distinct from marital interactions (i.e., interactions between spouses) and parenting (i.e., dyadic interactions between a parent and a child; McHale & Rasmussen, 1998; Schoppe, Mangelsdorf, & Frosch, 2001).

Margolin et al. (2001) delineated three dimensions of coparenting. *Cooperation* reflects how couples support and respect each other in their roles as parents, and share caregiving responsibilities. *Conflict* includes disagreements related to the child and parenting and may involve one parent undermining the other during interactions with the child. *Triangulation* refers to the formation of an unhealthy alliance between one parent and the child, thereby inappropriately drawing the child into parental conflict. Coparenting has been absent from family-level assessments among chronic illness populations; examining the coparenting relationship, and these three coparenting dimensions, in particular, may help us understand the family interaction patterns that either promote resilience and successful adaptation as well those that may inform family-focused intervention research to improve adherence and quality of life among families caring for a child with TID.

For instance, assisting a child in successfully maintaining the diabetes regimen would most likely occur when couples have a cooperative, coordinated coparenting effort. This does not mean all diabetes tasks are performed jointly or equally by parents. Rather, healthy coparenting involves mutually agreed upon division of responsibilities, along with respect and support, as the couple works together to manage their child's diabetes. If parents undermine one another's parenting efforts, in either general or diabetes-related issues, it may be less likely that diabetes management behaviors are consistently maintained; if the child receives conflicting messages about what to do, her/his own self-care behaviors may also be less consistently maintained. The formation of unhealthy alliances with the child at the expense of the other parent (i.e., triangulation; Kerig, 1995; Margolin et al., 2001) may impair diabetes management as parents' own marital and interparental conflicts are drawn into their interactions with their child. In addition to managing diabetes tasks, among families with children who do not have a chronic illness, fathers' triangulation behaviors have been linked to children's depressive symptomology (Wang & Crane, 2001). Coparenting a child, compared to an adolescent, may require a higher level of cooperation and teamwork as children are more dependent on parents than adolescents (Margolin et al., 2001), particularly with respect to their diabetes care (Streisand et al., 2005). Thus, we examined coparenting in families of children in the age group of 8–12 years with TID.

In a related paper (Barzel & Reid, 2011), we document the psychometric properties of a general and newly developed diabetes-specific measure of coparenting. In the present study, the potential utility of these measures is demonstrated by evaluating linkages between coparenting and both the psychosocial and medical adjustment of children with TID. To the best of our knowledge, this is the first study to examine coparenting among families who have a child with a chronic illness.

Aims and Hypotheses

Accordingly, in line with the goal of this special issue on family assessment to document the utility of family functioning measures in pediatric populations, the first aim of the study was to replicate findings linking coparenting with child adjustment (Belsky et al., 1996; Bearss & Eyberg, 1998; McConnell & Kerig, 2002; McHale & Rasmussen, 1998) within the new context of a chronic-illness population using a measure of general coparenting [Coparenting Questionnaire (CQ); Margolin, 2000]. Children with TID are at risk for psychosocial adjustment problems (Lavigne & Faier-Routman, 1992), particularly internalizing problems (i.e., anxiety, depressive symptomatology; e.g., Berg et al., 2007; Johnson, 1995; Wysockiet al., 2003). Internalizing and externalizing (i.e., aggression, noncompliance, attention problems)

were examined separately as each type of psychosocial problem has been differentially related to other relevant outcomes (e.g., adherence, HbA1c; Cohen et al., 2004; McDonnell, Northam, Donath, Werther, & Cameron, 2007). Consistent with the aims of this special issue to develop and evaluate illness-specific family measures for clinical and/or research purposes, the second aim of the present study was to examine the relationship between coparenting and diabetes-specific outcomes (i.e., performance of diabetes management behaviors, diabetes-specific quality of life, metabolic control) using the CQ (Margolin, 2000) and the Diabetes-specific Coparenting Questionnaire (DCQ; Barzel & Reid, 2011). We hypothesized that better coparenting (i.e., more cooperation, less conflict and triangulation) around general and diabetes-specific issues will be related to children's (a) general psychosocial adjustment (i.e., less externalizing and internalizing problems), and (b) diabetes-specific outcomes (i.e., more frequent performance of diabetes management behaviors, better diabetes-specific quality of life, better metabolic control).

Methods

Participants

Families were identified based on chart reviews of patients receiving care from a diabetes clinic at a children's hospital, located in a medium size city, which serves the Southwestern region of Ontario, Canada. Inclusion criteria were two-parent families with a child, aged 8–12 years, who had TID for at least 1 year. Introductory letters were mailed to 109 families and multiple follow-up telephone calls were made at various times during the day, evenings and weekends to recruit families (both parents had to consent to participate in the study). Sixteen families could not be contacted and of the 93 families contacted, 10 were ineligible, 16 declined (primary reasons were too busy, involved in another diabetes study, only one parent interested), and 6 agreed to participate but did not return the questionnaires. The final sample included 61 families (i.e., 61 children, 61 biological mothers, 57 biological fathers, and 4 male parents who had been in the family for >1 year, hereafter referred to as ''fathers''). The cooperation rate was 73.5% (families participating divided by all eligible families contacted) and the response rate was 56.4% (families participating divided by, all eligible families contacted plus an estimate of cases from the number cases of unknown eligibility)[1] (American Association for Public Opinion Research, 2008). Each family was paid $25 for completed self-report measures. The study was approved by The University of Western Ontario Ethics board.

Table I presents the demographic characteristics of the final sample. Married couples in the sample (84%) had been together for 17 years on average ($SD = 4.7$) while couples in common law relationships had been together for 10 years on average ($SD = 5.5$). The family composition ranged from 1 to 5 children ($M = 3$; $SD = 1.0$). Most families (51%) had an income that was slightly above the mean ($CA 78,744) for families living in Southwestern Ontario (Statistics Canada, 2008). The average HbA1c (glycemic control) of children was comparable to 5- to 12-year-old children (8.1%; $SD = 1.95$) seen at the Children's Hospital of Western Ontario (Mahmud, F., personal communication, April 25, 2008).

Procedure

Following recruitment by telephone and 2 weeks prior to the scheduled appointment, parents were mailed questionnaires and consent forms, which they were asked to complete separately and bring with them to the child's clinic visit. At the clinic visit, child assent was obtained and children completed measures that assessed their diabetes-specific quality of life in the presence of a research assistant to ensure comprehension and privacy.

Table I. *Characteristics of the Sample*

	Children	
Variable	Girls	Boys
Sex	34 (56%)	27 (44%)
Age, *M (SD)* (years)	10.6 (1.5)	11 (1.0)
Duration of diabetes, *M (SD)*	4.9 (2.6)[a]	4.6 (2.5)
Age of diabetes onset, *M (SD)*	5.7 (2.4)[a]	6.5 (2.5)
HbA1c	8.2 (1.2%)[a]	8.7 (1.3%)
	Parents	
	Mothers	Fathers
Age, *M (SD)* (years)	40 (4.9)	42 (5.1)
Educational attainment		
<High school	5 (8%)	8 (13%)
High school	19 (31%)	18 (30%)
Partial college	6 (10%)	12 (20%)
>College graduate	31 (51%)	22 (37%)
Family income[b] ($)	*n* (%)	
20,000–39,999	3 (5)	
40,000–59,999	15 (26)	
60,000–79,999	10 (18)	
>80,000	29 (51)	

Note. Values are represented as *n*(%) unless otherwise specified.
[a]$n = 33$.
[b]Four families did not report family income.

[1]Calculation of the cooperation rate used formula COOP4 and for the response rate formula RR4 was used.

Measures

Coparenting Questionnaire

The 14-item Coparenting Questionnaire (CQ; Margolin, 2000) assesses spouses' perceptions of one another's coparenting behavior on three dimensions: Cooperation (5 items, e.g., ''My spouse asks my opinion on issues related to parenting''), Conflict (5 items; e.g., ''My spouse and I have different standards for our child's behavior''), and Triangulation (4 items; e.g., ''My spouse delivers messages to me through our child, rather than say them to me''). Mothers' coparenting scores are derived from fathers' ratings and fathers' coparenting scores are derived from mothers' ratings. Parents filled out the questionnaire with the identified child with type 1 diabetes in mind. Subscale scores were computed by averaging items; items were rated on a 5-point Likert scale (0 = *never,* 1 = *rarely,* 2 = *sometimes,* 3 = *usually,* 4 = *always*). The ranges of scores are displayed in Table II. The CQ has been used in community samples with healthy children (Margolin et al., 2001). Convergent validity includes significant correlations between the CQ and measures of marital conflict, parenting practices and parenting stress (Margolin et al., 2001). Confirmatory factor analyses supported a three-factor structure in this sample; internal consistencies of the coparenting dimensions ranged from .78 to .92 (Barzel & Reid, 2011).

Table II. *Means, Standard Deviations, and Ranges for Scores on Parent and Child Self-Reports*

	Mothers' reports		Fathers' reports	
Parent ratings	*M* (*SD*)	*Range*	*M* (*SD*)	*Range*
CQ				
Cooperation	2.7 (0.88)	0.60–4.0	3.0 (0.72)	0–4.0
Conflict	1.1 (0.64)	0.20–2.8	1.2 (0.67)	0–4.0
Triangulation	0.33 (0.57)	0–2.5	0.41 (0.68)	0–4.0
DCQ				
Cooperation	2.8 (0.97)	0.4–4.0	3.4 (0.58)	.4–4.0
Conflict	0.63 (.58)	0–2.7	0.64 (0.67)	0–3.4
Triangulation	0.14 (0.43)	0–2.5	0.13 (0.35)	0–2.0
Diabetes management behaviors[a]	4.4 (0.49)	2.4–5.0	4.4 (0.48)	2.6–5.0
Children's adjustment				
Externalizing problems[b]	7.5 (7.74)	0–29	6.4 (7.24)	0–31
T-scores	52 (10.8)	33–74	49 (11.3)	33–75
Internalizing problems[c]	6.5 (4.10)	0–16	4.9 (4.71)	0–23
T-scores	53 (8.1)	33–68	48 (9.9)	33–72
Children's ratings	**Girls' reports**		**Boys' reports**	
Diabetes quality of life[d]	78.4 (12.7)	46.3–93.8	81.6 (10.0)	50.9–94.6

Note. [a]Diabetes management behaviors = based on seven core items that assess overall adherence from the Self-Care Inventory.
[b]Externalizing = externalizing behavior problems, raw scores on the Child Behavior Checklist (CBCL).
[c]Internalizing = internalizing behavior problems on the CBCL.
[d]Children's responses on the PedsQL Diabetes-specific module.

Diabetes-Specific Coparenting Questionnaire

The 14 items on the Diabetes-Specific Coparenting Questionnaire (DCQ; Barzel & Reid, 2008) reflect coparenting interactions specifically related to diabetes: Cooperation (5 items; e.g., ''My spouse asks my opinions on parenting issues related to our child's diabetes care''), Conflict (7 items; ''My spouse and I have different rules regarding insulin injections''), and Triangulation (2 items; e.g., ''My spouse delivers messages to me about my diabetes management decisions through our child, rather than say them to me''). Subscale scores were computed by averaging items; items were rated on a 5-point Likert scale (0 = *never,* 1 = *rarely,* 2 = *sometimes,* 3 = *usually,* 4 = *always*). The ranges of scores are displayed in Table II. Confirmatory factor analyses supported a three-factor structure and internal consistencies were reasonable (Barzel & Reid, 2011).

Child Behavior Checklist

The Child Behavior Checklist (CBCL, 6–18; Achenbach & Rescorla, 2001) is one of the most extensively used measures of children's internalizing and externalizing problems; its validity and reliability are well established. Internal consistencies for the externalizing scale were .93 for mothers' reports and .92 for fathers; and for the internalizing scale were .70 for mothers' reports and .81 for fathers'. Raw scores from both mothers and fathers were used for analyses (Hudziak, Copeland, Stanger, & Wadsworth, 2004). Population-based *t*-scores are reported for comparison with other samples (Table II).

The Self-Care Inventory

Mothers and fathers completed the Self-Care Inventory (SCI; La Greca, Swales, Klemp, & Madigan, 1988) hereafter referred to as diabetes management behaviors. This 14-item scale measures how frequently the common TID regimen tasks are completed (e.g., glucose testing, glucose recording). Items are rated on a 5-point Likert-type scale (1 = *never done*, 3 = *follow recommendation about 50% of the time*, 5 = *always do this as recommended without fail*). Overall adherence scores were calculated separately for mothers and fathers by averaging the responses on seven core SCI items (as per SCI instruction manual, La Greca et al., 1988) higher scores indicate that diabetes management tasks are being completed more frequently. Internal consistency of the score was .81 for mothers and .78 for fathers.

The Pediatric Quality of Life Inventory

The Pediatric Quality of Life Inventory PedsQL-type 1 Diabetes Module (Varni, Burwinkle, Jacobs, Gottschalk, & Jones, 2003) is a 28-item instrument that measures diabetes-specific quality of life related to TID symptoms, treatment barriers, treatment adherence, worries and communications with healthcare providers. The version for 8- to 12-year-olds was used. Children rated how much of a problem each item had been in the past month. The total score, which can range from 0 to 100, was used; higher scores reflect better overall QOL (i.e., fewer diabetes worries). Cronbach's alpha was .88.

Glycolsylated HbA1c

The percentage of HbA1c in the blood reflects the blood sugar concentration over approximately the preceding 2–3 months (Sacks et al., 2002). It is the standard measure of glycemic control for both clinical and research purposes (Gonen, Rubenstein, Rochman, Tanega, & Horwitz, 1977). For 8- to 12-year-old children, target HbA1c levels are typically <8 % (American Diabetes Association, 2010); lower levels reflect better metabolic control. The HbA1c levels, collected every 3 months as part of the child's regular diabetes check-up, were obtained from the next clinic appointment following the appointment during which the family participated in the study.

Data Analyses

Pearson correlations were used to examine associations between parents' perceptions of their partners' coparenting behavior and their own ratings of (a) child psychosocial adjustment, (b) diabetes management behaviors, (c) child-reported diabetes QOL, and (d) glycemic control (HbA1c). The false discovery rate (FDR), which balances type 1 and type 2I errors, was used to control the error rate below $\alpha < .05$ (Benjamini & Hochberg, 1995, 2000).

Consistent with previous studies on coparenting in healthy populations (Margolin et al., 2001; McConnell & Kerig, 2002; McHale, 1997; McHale & Rasmussen, 1998) and similar to other studies interested in examining potential differences between mothers' and fathers' perspectives (Gavin & Wysocki, 2006), all analyses conducted with coparenting and child adjustment were based on the same reporter.

Power and Sample Size

Previous studies have found correlations in the range of .30 to .40 between parent-report of coparenting and children's psychosocial adjustment (McHale & Rasmussen, 1998). The present study was powered to detect a medium correlation ($r = .35$) with 80% power ($\alpha = .05$) between coparenting conflict and child adjustment (target sample size was 60). Coparenting conflict has been most commonly linked to poorer child psychosocial adjustment in previous research with nonchronic illness populations (Belsky et al., 1996; McConnell & Kerig, 2002; McHale & Rasmussen, 1998; Schoppe et al., 2001), and thus was used in the power calculations. As this is the first study of children with diabetes, power calculations could not be based on the relations between coparenting and children's diabetes-specific adjustment.

Transformations

Due to skewed data, subscales of the CQ, DCQ, and CBCL (for fathers' reports only), and diabetes management behaviors (SCI) were transformed logarithmically or by square root to approximate normal distributions. Raw data are presented in Table I for descriptive purposes.

Results

Preliminary Analyses

Table II presents descriptive statistics for variables used in the study. Few children were above the borderline clinical cut-off on the CBCL (≥93rd percentile vs. population norms; t-score ≥ 65) for internalizing (3% mothers' reports; 7% fathers' reports) or externalizing problems (11% mothers' reports; 10% fathers' reports).

Coparenting and Child Psychosocial Outcomes

The first aim of the study was to explore the relationship between coparenting around general childrearing tasks and child psychosocial outcomes. Higher scores on mothers' coparenting cooperation (as reported by fathers) were related to fewer children's internalizing problems; higher levels of both parents' coparenting conflicts and mothers' triangulation behaviors were related to more internalizing problems. Higher scores on both parents' conflict and triangulation were related to higher levels of children's externalizing problems (Table III). Correlations between diabetes-specific coparenting and child adjustment are also reported to guide future research.

Coparenting and Diabetes-specific Outcomes

The second aim of the study was to examine the relationship between general and diabetes-specific coparenting and diabetes-related child outcomes.

Diabetes Management Behavior

Lower levels of fathers' diabetes-specific and general coparenting conflict, higher levels of diabetes-specific cooperation, and lower levels of general coparenting triangulation

Table III. *Correlations Between Coparenting and Measures of Child Adjustment, Diabetes Management Behaviors, Diabetes-Specific Pediatric Quality of Life, and HbA1c*

	Child adjustment		Diabetes- management behaviors	Diabetes PedsQL	
Coparenting dimension	Externalizing	Internalizing	Mothers' ratings	Child self-report	HbA1c
Mother as reporter					
Fathers' coparenting cooperation					
General	−.27	−.10	.25	.18	−.15
Diabetes-specific	−.23	−.03	.29*	.19	−.18
Fathers' coparenting conflict					
General	.56*	.35*	−.32*	−.27	.15
Diabetes-specific	.33*	.23	−.41*	−.33*	.14
Fathers' coparenting triangulation					
General	.31*	.23	−.34*	−.09	.13
Diabetes-specific	.16	.00	−.20	−.17	.10
			Fathers' ratings	Child self-report	
Father as reporter					
Mothers' coparenting cooperation					
General	−.24	−.39*	.33*	.17	.16
Diabetes-specific	−.02	−.27	.14	.16	.07
Mothers' coparenting conflict					
General	.56*	.57*	−.17	−.17	.09
Diabetes-specific	.17	.23	−.33*	−.14	.22
Mothers' coparenting triangulation					
General	.38*	.39*	−.15	−.08	−.01
Diabetes-specific	.42*	.34*	−.19	−.12	.17

Note. Correlations between coparenting and child adjustment are based on the same reporter (e.g., fathers' reports of mothers' coparenting cooperation was associated with fathers' reports of lower internalizing problems). Externalizing = externalizing problems on the CBCL; Internalizing = internalizing behavior problems on the CBCL. Diabetes management behaviors assessed by the Self Care Inventory.

*$p < .05$ with FDR adjustment applied separately for child adjustment and diabetes-specific outcome measures.

(mother as reporter) were related to mothers' ratings of more frequent performance of diabetes management behaviors (Table III). Higher levels of mothers' general coparenting cooperation (father as reporter) and lower levels of mothers' diabetes-specific coparenting conflicts were related to fathers' ratings of more frequent performance of TID management behaviors. All other correlations were not statistically significant.

Pediatric QOL

Only higher levels of fathers' diabetes-specific coparenting conflict (mother as reporter) was related to lower levels of children's self-reported diabetes-specific quality of life (Table III); all other correlations were not statistically significant.

HbA1c

Neither parents' ratings of general nor diabetes-specific coparenting were significantly related to children's glycemic control (Table III).

Discussion

Several prominent researchers (Drotar, 2006; Wysocki & Gavin, 2004; Phares, Lopez, Fields, Kamboukos & Duhig, 2005) in pediatric psychology have called for family-centred research that incorporates both mothers' and fathers' perspectives. However, in spite of the studies that have examined relationships between family level variables and outcomes in children with TID, only a handful have included fathers (Wysocki & Gavin, 2004, 2006), and to our knowledge, none has incorporated an assessment of coparenting. To that end, the focus of the present study was to utilize recently validated measures of general coparenting to explore relationships between coparenting and children's psychosocial and medical adjustment.

Replicating previous findings reported in studies with healthy children (McConnell & Kerig, 2002; McHale & Rasmussen, 1998; Schoppe et al., 2001), we found that higher levels of mothers' and fathers' coparenting conflict were linked to higher levels of children's internalizing and externalizing problems. Based on social learning theory, children learn maladaptive behaviors (e.g., poor conflict

resolution, dysfunctional display of affect) when they are exposed to distressed parental models (Easterbrooks & Emde, 1988; Patterson, DeBaryshe, & Ramsey, 1989). Alternatively, drawing from Davies and Cumming's (1994) emotional security hypothesis, inconsistency between parents' approach to discipline affects children's emotional security by compromising confidence in parents as sources of protection and warmth. As such, a well-functioning coparental relationship goes beyond simply accomplishing parenting tasks successfully or dividing tasks equally; rather, an effective partnership between parents ''conveys to the child a sense of solidarity and common purpose'' (Cowan & McHale, 1996, p. 99).

The relations between coparenting and children's psychosocial adjustment were different for mothers and fathers; again, this is consistent with research among healthy children (McHale & Rasmussen, 1998; Wang & Crane, 2001). Specifically, mothers' coparenting cooperation around general childrearing tasks was associated with children having fewer internalizing problems, whereas this significant finding did not emerge for fathers' coparenting cooperation. It may be then that mothers' display of support and respect for fathers (i.e., mothers' coparenting cooperation) fosters a sense of emotional security and stability in the family, which, in turn, helps children regulate their emotions more effectively. We also found that when mothers inappropriately drew the child into parental conflict (i.e., triangulation), children were also more likely to experience both internalizing and externalizing problems. Fathers' triangulation behaviors around general childrearing issues, on the other hand, were significantly related to children's externalizing but not internalizing problems. These data highlight the unique roles that mothers and fathers play in influencing child adjustment and underscore the importance of assessing the independent contribution of both parents in influencing child outcomes.

Coparenting and Diabetes-Related Outcomes

The second aim of this study was to evaluate an existing and newly developed illness-specific family measure in a chronic illness population in order to augment our understanding of the relationship between coparenting and children's diabetes-specific adjustment. Parents' diabetes-specific coparenting conflict was associated with a lower frequency of performing diabetes management tasks. TID management is challenging and its success is, in large part, contingent upon parents' ability to adopt a consistent set of rules to manage diet, exercise and monitor glucose levels. For general childrearing issues, it has been suggested that a united coparenting team enables parents to enforce ''a consistent set of standards for the child's behavior and exercise consistent discipline'' (Floyd, Gilliom, & Costigan, 1998, p. 1462). Observations of parent–child interactions at mealtimes with young children with TID has shown that conflictual interactions are related to poorer dietary adherence (Patton, Piazza-Waggoner, Modi, Dolan, & Powers, 2009). Similarly, if coparenting about diabetes management is conflictual and parents disrespect one another's parenting efforts in front of their child, the child may not follow through consistently in carrying out diabetes-related behaviors for which she/he is responsible. This explanation echoes findings from previous studies that have demonstrated links between diabetes-specific family conflict and poorer adherence (Lewin, Heidgerken, Geffken, Williams, Storch et al., 2006). Similarly, diabetes-related conflict may result in parents being inconsistent in performing the diabetes-related management tasks for which they take responsibility. If, as is common, the mother is primarily responsible for diabetes-tasks, coparenting conflict in these families may contribute to inconsistency in mothers' performance of these tasks or increased resistance by the child if she/he perceives that the father does not agree or support how the mother is managing diabetes tasks.

Noteworthy differences between parents also emerged in relation to children's quality of life and diabetes management. Namely, our findings revealed that mothers who reported higher levels of fathers' coparenting conflict around illness-specific tasks were also more likely to have children who reported poorer diabetes-specific quality of life. This suggests that fathers' coparenting interactions with mothers around illness-specific issues might play an important and distinct role in influencing how children view their well-being in relation to TID. Moreover, fathers' coparenting cooperation for diabetes issues (as reported by mothers) was related to more frequent completion of diabetes management tasks whereas mothers' diabetes-specific coparenting cooperation (as reported by fathers) was not. As mothers shoulder the majority of diabetes care responsibilities (Wysocki et al., 2003; Wysocki & Gavin, 2004), coparenting support received from fathers (e.g., ''your mother is really good at counting carbs'') may be particularly helpful in following the diabetes regimen. In contrast, mothers' cooperation with fathers may be less influential (i.e., unrelated to adherence) if fathers have less responsibility for illness management. Interestingly, in a sample of families of children with various chronic medical conditions, Wysocki and Gavin (2006) found somewhat different effects for fathers' involvement in disease management tasks; namely, the amount of fathers' involvement in disease management tasks, but not degree of helpfulness, was related to better treatment adherence

for adolescents (≥14 years) but not younger children. Perhaps fathers' ''helpfulness'' in general is less important than ''supporting'' mothers (cooperative coparenting) who are more engaged in daily disease management tasks. We did not assess the degree of responsibility for various diabetes tasks; however, this should be incorporated in future research.

Coparenting was unrelated to children's glycemic control. It is well recognized that long-standing patterns of glycemic control are influenced by many factors (e.g., Rapoff, 1999; Riekart & Drotar, 2000) and differ across families. Lewin and colleagues (2006) found age moderated the relationship between family factors (i.e., negativity and criticism related to diabetes management) and metabolic control among adolescents but not for children. Similarly, coparenting might relate to glycemic control in adolescents but not in children.

It should be noted that compared to coparenting conflict, coparenting cooperation and triangulation were less frequently related to medical outcomes. It may be that the presence of conflict, rather than absence of cooperation, is truly pathological. Triangulation may still be an important aspect of coparenting that has implications for child outcomes, but studies with larger sample sizes and/or more distressed families may be required to see the effects of this more extreme form of coparenting dysfunction.

Limitations

There were several limitations to this study. First, the results from the present study only apply to couples caring for a child with TID within the age group of 8–12 years. It would be of interest to replicate the study with both younger children and adolescents. Parents of adolescents are typically less involved in the daily diabetes management issues than when children are younger; however, previous studies have also shown that among adolescents, a negative and critical relationship with parents is associated with worse metabolic control (Lewin et al., 2006). Second, conclusions about the directionality of our findings cannot be made based on our correlational findings. We assumed a theoretical unidirectional effect from coparenting to child adjustment. However, more complex and reciprocal relationships should be considered; for example, children's psychosocial adjustment problems may lead to more difficulties adhering to treatment regimen, thereby generating coparenting conflict. Third, our sample may under represent children who have poor glycemic control. Data on the proportion of children seen by the Children's Hospital of Western Ontario diabetes team who are considered to be in poor control were not available. However, the average HbA1c in our sample ($M = 8.4\%$) is comparable to the mean HbA1c's of all 5- to 12-year-old children seen at the clinic ($M = 8.1\%$). Fourth, although the diabetes clinic from which our sample was recruited, serves a large portion of the province of Ontario, our results may not be generalizable to samples with a different demographic profile (e.g., lower socioeconomic status, lower parental educational attainment) and it is unclear how universal access to medical care at no direct cost to families might influence the results. Fifth, findings are based on mono-method self-report data. Correlations between general coparenting and cross-informant ratings of child adjustment revealed a similar pattern of associations between coparenting conflict and children's internalizing and externalizing problems (see Supplementary Table S1). Future studies exploring the role of coparenting in child adjustment should consider including multiple ratings of child behavior (e.g., teacher, parent, and self report). Finally, the triangulation subscale of the DCQ has only two items which may compromise its validity and reliability.

Conclusions

Examining the contribution of coparenting has clinical utility, especially when marital stress is high and the child is not functioning well. Results of this study suggest that the assessment of coparenting is of value in understanding the family and its role in the psychosocial and medical adjustment of children with diabetes. In a related manuscript (Barzel & Reid, 2011), we report the finding that coparenting conflict for diabetes-related tasks was lower than for general childrearing tasks. These two sets of findings suggest interventions that focus on strengthening or building the alliance between mothers and fathers in their parenting roles, and decreasing undermining behaviors between couples by focusing on diabetes-specific issues, may be an important addition to the treatment options in this population. Targeting illness-specific coparenting may help couples learn how to negotiate diabetes management issues in a respectful way, which may help the child feel better about having diabetes (i.e., improve diabetes-specific quality of life). Considered from a pragmatic point of view, couples may also be more willing to participate in interventions aimed at helping parents support one another (Margolin et al., 2001), especially when the focus is on helping their child with diabetes, rather than tackle complex marital issues.

The CQ was borne out of family systems theory which views coparenting as a dynamic process in which there is an ongoing bi-directional relationship between the marital

subsystem and the parent–child dyad (Gable et al., 1994; Schoppe et al., 2001). While parenting interventions that aim to improve the dyadic parent–child relationship are helpful, they do not necessarily address the relationship that parents have with one another while parenting together (e.g., consistency in parent behavior is emphasized, but the importance of demonstrating respect or support for the other parent in front of the child may be overlooked). The presence of one parent has been shown to impact upon how the other parent interacts with the child (Gordis & Margolin, 2001; Gjerde, 1986). Thus, coparenting assessments may reveal important information about how mothers and fathers manage their parenting differences related to general and diabetes management issues; for children with poor metabolic control, this information may guide efforts to help families restore and maintain healthy boundaries between the parent subsystem and the child (Minuchin, 1985). Finally, diabetes-specific coparenting may represent an important aspect of family life that is linked to children's overall adjustment to diabetes (i.e., QOL) and should be assessed and addressed by clinicians in addition to identifying barriers to adherence.

Supplementary Data

Supplementary data are available at *JPEPSY* online.

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