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A Preliminary Examination of the Psychometric Properties of the Coparenting Questionnaire and the Diabetes-Specific Coparenting Questionnaire in Families of Children with Type I Diabetes

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Objectives To examine the structure and psychometric properties of a general childrearing [Coparenting Questionnaire (CQ)] and an adapted Diabetes-Specific Coparenting Questionnaire (DCQ) and compare general and diabetes-specific coparenting among two-parent families caring for a child with type I diabetes. **Methods** Mothers and fathers of children ($N = 61$) aged 8–12 years with type I diabetes completed self-report measures of marital functioning, parenting, and coparenting, including the CQ and DCQ. **Results** Confirmatory factor analyses favored the hypothesized 3-factor model for mothers and fathers for the CQ and DCQ. The internal consistencies and convergent validities of the CQ and DCQ were adequate. Coparenting conflict and triangulation were significantly higher for general child management than diabetes-specific issues. **Conclusions** The CQ and DCQ represent two assessments that differentiate couples' cooperation, conflict, and triangulation coparenting behaviors for general and diabetes-specific issues, and may potentially help inform family-based interventions.

Key words assessment; children; coparenting; type I diabetes.

Extensive research with pediatric populations has examined the role of familial factors in children's adjustment (Roberts & Wallander, 1992; Stein, 1995; Wysocki et al., 2006) and more recently, the unique roles that fathers play (Phares, Lopez, Fields, Kamboukos, & Duhig, 2005; Wysocki & Gavin, 2004). An examination of coparenting—a couples' ability to mutually support, share leadership, and work together as a team when parenting their children—is consistent with this focus (Floyd, Gilliom, & Costigan, 1998; Margolin, Gordis & John, 2001; McHale, 1995). Poor coparenting is demonstrated by interchanges in which parents undermine their partner's childrearing efforts (conflict) (Gable, Belsky, & Crnic, 1992; McHale & Rasmussen, 1998) or form an inappropriate alliance with the child at the exclusion of the other parent (triangulation) (Kerig, 1995; Margolin et al., 2001) and is associated with more externalizing and internalizing behavior problems in

children (Belsky, Woodworth, & Crnic, 1996; Gable, Crnic, & Belsky, 1994; McConnell & Kerig, 2002; Schoppe, Mangelsdorf, & Frosch, 2001). Positive coparenting includes parents' efforts to facilitate their partners' parenting goals; for example, if a father says, "Mom's right, Zachary—it's time to get your pyjamas on. We'll finish the puzzle tomorrow", he is supporting the mother's parenting. Supportive coparenting (e.g., warmth, cooperation, etc.) has been associated with higher academic competence among school-aged children (Brody, Stoneman, & Flor, 1995), fewer externalizing problems (Schoppe et al., 2001) and prosocial behavior among preschoolers (McHale, Johnson, & Sinclair, 1999). Positive coparenting has also been related to higher levels of marital quality and family functioning (Abidin & Brunner, 1995) and lower levels of parenting stress (Sheras, Abidin, & Konold, 1998). Coparenting has not been assessed among children

with a chronic illness, but is potentially highly relevant in light of the demands that chronic disease management place on parents.

Coparenting is particularly applicable to parenting a child with type I diabetes given that the daily challenges of managing diabetes (Wysocki, Greco, & Buckloh, 2003) for younger children (<12 years) (Streisand, Swift, Wickmark, Chen, & Holmes, 2005) may also amplify marital conflict and parenting stress, thereby compromising successful coparenting (Kitzmann, 2000). Cooperative coparenting would be expected to facilitate adherence to diabetes-specific tasks. Although the opposite would likely be true for conflictual coparenting, the relative importance of cooperation versus conflict is worth examining as differential effects may have implications for intervention (Wang & Crane, 2001). Further, the presence of inappropriate parent-child alliances (triangulation) would likely preclude the opportunity for couples to adhere to a consistent and strict diabetes regimen resulting in poorer health. Consistent with Davies & Cummings' (1994) emotional security hypothesis, better coparenting should affect parents' warmth and involvement with their child leading to better psychological adjustment. This is particularly important as children with type I diabetes are at slightly increased risk for psychosocial adjustment problems (Johnson, 1995; Lavigne & Faier-Routman, 1992).

One of the challenges in studying coparenting stems, in part, from a lack of common agreement on how to best define and measure its core dimensions. Some researchers focus solely on the positive aspects of coparenting, such as perceived support or respect from one's partner (Parenting Alliance Measure [PAM]; [Abidin, 1999; Konold & Abidin, 2001]), whereas others include negative aspects of coparenting, such as conflict, but do not assess the formation of inappropriate parent-child alliances (Coparenting Scale; McHale 1995). Furthermore, global terms (e.g., positive vs. negative coparenting) are not used consistently among researchers. Thus, there is a need to clarify the nature and measurement of coparenting in a pediatric population.

In the present study, we used a model of coparenting based on Margolin et al. (2001), which includes three dimensions: (1) cooperation, (2) conflict, and (3) triangulation. Cooperation reflects the extent to which couples "support, value and respect each other as parents and the degree to which they ease another's parenting burden" (p. 5) by sharing caregiving responsibilities. Conflict reflects the extent to which parents disagree about the child and child-rearing issues, and includes interchanges where one parent undermines the other parent. Triangulation reflects the extent to which parents form an unhealthy alliance with the child, thereby inappropriately drawing the child into

inter-parental conflict. Furthermore, focusing on children (≤ 12 years) and comparing coparenting around general versus diabetes-specific issues provided an opportunity to understand how specific aspects of the couples' coparenting relationship varied depending on the nature of parenting task.

Given that Margolin et al.'s (2001) coparenting model has not been tested among families with a child who has a chronic illness, the first aim of the present study was to examine the construct validity of the Coparenting Questionnaire (CQ; Margolin, 2000), which assesses spouses' perceptions of one another's coparenting behavior, among two-parent families caring for a child with type I diabetes. A confirmatory factor analysis (CFA) was used because the factor structure of the measure was previously established (Byrne, 2001; Fabrigar, Wegener, MacCallum, & Strahan, 1999). The second aim was to examine the concurrent validity of the CQ with measures of marital functioning and parenting, and two other measures of coparenting. Based on family systems theory and previous research (e.g., Abidin & Konold, 1999; McHale & Rasmussen, 1998), we expected to find moderate correlations ($r = .30-.50$; Cohen, 1988) between coparenting, marital adjustment, and parenting practices and large correlations ($r > .50$; Cohen, 1988) between the CQ and other measures of coparenting. In light of the fact that coparenting involves an interaction between partners, we also expected mothers' ratings of fathers' coparenting and fathers' ratings of mothers' coparenting to be related. The third aim was to examine coparenting related to diabetes management. To this end, we adapted the CQ to reflect diabetes-specific coparenting tasks. Again, we tested a three-factor structure of the Diabetes-Specific Coparenting Questionnaire (DCQ). Differences between comparable subscales on the CQ and DCQ were explored. Consistent with previous studies that have found increased levels of parenting stress (Abidin, 1995; Hauenstein, 1990) and role strain (Quittner et al., 1998) among couples caring for a child with a chronic illness, we expected that coparenting around more intense daily challenges involving the child's diabetes would be characterized by more coparenting conflict and triangulation compared to general coparenting tasks.

Method

Participants

Given that coparenting a child (<13 years) with diabetes, compared to an adolescent, requires more cooperation and teamwork as parents have greater responsibility for diabetes care, we focused the present study on children with

type I diabetes aged 8–12 years who were at least 1-year post diagnosis and living in two-parent families. Families were identified based on chart reviews of patients receiving care from a diabetes clinic at a children's hospital, which is located in a medium size city and serves most of Western Ontario. An introductory letter with a consent form was mailed to 109 families with children who appeared to meet the study criteria based on chart reviews. We were unable to contact 16 families (15%) in spite of at least two attempts to reach families during the day and evening. Of the 93 families contacted, 10 (11%) were ineligible, 16 (17%) declined, and 6 (6%) agreed to participate but did not return questionnaires. The main reasons parents declined to participate in the present study included a busy schedule (e.g., one parent works away from home), involvement in another diabetes study, and only one parents' interest. The final sample included 61 mothers, fathers, and children. All of the mothers and 57 fathers (93%) were the biological parents of the children identified for the study. Four male parents had been caring for and residing with their children and the children's mothers for more than 1 year; hereafter, referred to as fathers.

On average, mothers were 40 ($SD = 4.9$) and fathers were 42 years old ($SD = 5.1$). Most mothers (61%) and fathers (56%) had acquired at least partial community college-level education or higher. Most couples (84%) were married ($M = 17$; $SD = 4.67$ years); the remainder were in common law relationships ($M = 10$; $SD = 5.47$ years). The family composition ranged from 1 to 5 children ($M = 3$; $SD = 1.0$). Most families (51%) had a family income over \$80,000, which was slightly above the mean (\$78,744) for families living in this region of Ontario (Statistics Canada, 2008). The 61 children (27 boys) had a mean age of 11 years ($SD = 1.0$, boys; $SD = 1.5$, girls). On average, children were diagnosed at 6 years of age ($SD = 2.5$) and had the illness for 5 years ($SD = 2.5$). The mean HbA_{1c} (glycemic control) of children participating in the present study was 8.4% ($SD = 1.2$) which was similar to all 5- to 12-year-old children (8.1%; $SD = 1.95$) seen at the Children's Hospital of Western Ontario (F. Mahmud, personal communication, April 25, 2008).

Measures

CQ

The 14-item CQ (Margolin, 2000) assesses spouses' perceptions of one another's coparenting behavior in terms of: 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") (Margolin et al., 2001). Mothers' coparenting scores are derived from fathers' ratings of their spouse; fathers' coparenting scores are derived from mothers' ratings of their spouse. Parents filled out the questionnaire with the identified child with type I diabetes in mind. Subscale scores were computed by averaging items that were rated on a 5-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = usually, and 4 = always). Internal consistencies for the CQ reported by Margolin et al. based on three different community samples were acceptable for cooperation (Cronbach's $\alpha = .69$ to $.84$), conflict (.74 to $.84$) and triangulation (.73 to $.84$).

DCQ

The DCQ (Barzel & Reid, 2008) was adapted from the CQ (Margolin, 2000) by the authors along with input from members of a pediatric diabetes team. The 14 items were generated to reflect coparenting interactions that are specifically related to diabetes on three dimensions: cooperation (5 items), conflict (7 items) and triangulation (2 items) (see Supplementary Table S1). For example, a cooperation item was "My spouse asks my opinions on parenting issues related to our child's diabetes care". Of the four triangulation items on the CQ, two did not lend themselves to be modified in a parallel way to reflect diabetes-specific issues. Two additional diabetes-related conflict items were added to capture multiple aspects of diabetes management. Subscale scores were computed by averaging items that were rated on a 5-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = usually, and 4 = always).

Convergent Validity Measures

The Dyadic Adjustment Scale [(DAS); Spanier, 1976] was used to assess overall marital adjustment or satisfaction with the marital relationship; higher scores reflect better adjustment. The psychometric properties of the measure have been established (Sabourin, Lussier, Laplante, & Wright, 1990) and it is commonly used in pediatric studies (see Alderfer et al., 2008). Internal reliability estimates for total adjustment scores in the present study were .93 for mothers and fathers.

The Parenting Scale [(PS); Arnold, O'Leary, Wolff, & Acker, 1993] is a widely used measure that assesses the disciplinary strategies parents use. It has established reliability and validity with higher scores reflecting more frequent use of ineffective strategies (Rhoades and O'Leary, 2007). Total scores on the PS for both mothers and fathers were computed by averaging the responses on

all the items. Cronbach's α for the current sample was .84 and .77 for mothers and fathers, respectively.

The short form of the Parenting Stress Index ([PSI-SF]; Abidin, 1995) was used as a measure of overall level of stress parents experienced in their parenting relationship; the psychometrics of this measure have been demonstrated previously (Abidin, 1995). Total stress scores used in the present study displayed good reliability with Cronbach's α of .93 for both mothers and fathers.

Convergent validity measures of coparenting included the PAM (Abidin, 1999; Abidin & Konold, 1999; Konold & Abidin, 2001) and the Coparenting Scale (CS; McHale, 1997). The 20-item PAM assesses positive aspects of coparenting (e.g., respect, teamwork, etc.). The PAM has a single factor structure and high internal consistency (Cronbach's $\alpha = .97$) and 4–6 week test–retest reliability ($r = .63$; Abidin & Konold, 1999); in the present study, internal consistencies were $> .86$). The PAM has been used in studies of both children and adolescents (age range 1–19 years) and has been positively related to marital quality and family functioning (Abidin & Brunner, 1995), and negatively related to parenting stress (Sheras, Abidin, & Konold, 1998). The 16-item CS (McHale, 1997) assesses positive (e.g., family cohesion) and negative coparenting behaviors (e.g., disparagement partner, overt conflict, etc.), but does not assess triangulation; higher total scores reflect more positive coparenting. The CS has been used in studies of families with preschool-age children (McHale & Rasmussen, 1998). In the present study, internal consistencies were $> .76$). Validity data include significant correlations with marital adjustment and family functioning and between parent ratings and observations of coparenting (McHale, Kuersten-Hogan, Lauretti, & Rasmussen, 2000).

Procedures

A meeting immediately prior to or following the child's diabetes clinic appointment was scheduled with 67 families who agreed to participate (See Participants section). Two weeks prior to the scheduled appointment, both parents were mailed separate questionnaire packages, which they were asked to complete independently. Of the 67 families who agreed to participate, 6 families did not return the questionnaire packet. In total, 61 families completed the study protocol for a cooperation rate of 73.5% (families participating divided by all eligible families contacted) and a response rate of 56.4% (families participating divided by all eligible families contacted plus an estimate of cases from the number of cases of unknown eligibility)¹

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

(American Association for Public Opinion Research, 2008). Each family was paid \$25 after the measures were returned. This manuscript presents data from mothers and fathers only as part of a larger project (Barzel & Reid, 2010). The project was approved by The Research Ethics Board at The University of Western Ontario.

Data Analysis

To address the first aim, an examination of the construct validity of the CQ, we ran a confirmatory factor analysis. A CFA was chosen because relationships between observed measures and latent variable structure in the present study are based on a priori theory and empirical research (Byrne 2001; Fabrigar et al., 1999). To address the second aim, correlations were conducted between mothers' and fathers' scores on the CQ and the DAS, PS, PSI, CS, and PAM in order to examine the convergent validity of the CQ; correlations of ratings by the same reporter is a common approach in the literature on coparenting (e.g., Abidin & Konold, 1999; Margolin et al., 2001; McHale, 1997). For the third aim, paired *t*-tests and correlations were used to examine relations between mothers' and fathers' coparenting behaviors on the CQ and DCQ, as well as between couples' general and diabetes-specific coparenting; effect sizes for these analyses were calculated using Morris and DeShon's (2002) equation 8, to account for repeated measures.

Confirmatory factor analysis

CFA using maximum likelihood estimation in AMOS 4.0 (Arbuckle, 1999; Arbuckle & Wothke, 1999) tested a three-factor model for the CQ and DCQ. The incremental fit of a three-factor coparenting model was compared with a dichotomized two-factor (positive coparenting vs. negative coparenting items) model. Model fit was evaluated using chi-square, the normed fit index (NFI; Bentler & Bonett, 1980), comparative fit index (CFI; Bentler, 1990), the Goodness of Fit Index (GFI; Joreskog & Sorbom, 1984), and root mean square error of approximation (RMSEA). CFI and NFI values of .90–.94 are supportive of the model; values .95 or higher are highly supportive of the model (Hu & Bentler, 1999; Konold & Abidin, 2001). The GFI ranges from 0.00 to 1.00, with values close to 1.00 indicative of a good fit (Byrne, 2001). Values of RMSEA $< .10$ are considered acceptable; values $< .05$ are considered indications of a good fit. With small sample sizes, the RMSEA tends to overreject true population models (i.e., the model may still be a good fit for the data even if RMSEA values are slightly $> .05$) (Hu & Bentler, 1999). Thus, we also ran the CFA using EQS 5.7b (Bentler, 1995) to obtain the Satorra–Bentler rescaled χ^2 (S–B χ^2)

(Byrne, 2001; Curran, West, & Finch, 1996; Satorra & Bentler, 1988). In the present study, listwise deletion was applied to handle missing data in two cases (i.e., two different families) in which one mother's and one father's incomplete responses on both the CQ and DCQ appeared to be missing completely at random (MCAR) (Byrne, 2001).

Item parcels

Item parceling (i.e., averaging two or more items) was used as it provides more stable results than obtained with an item analysis and is appropriate when testing the structure of a questionnaire, rather than examining item loadings (Hagtvet & Nasser, 2004). Use of parcels reduces the number of parameters that are estimated, which is also preferred with small sample sizes. Parcels were formed based on item content and the correlation between the scaled items (Hagtvet & Nasser, 2004).

Results

CFA Model Evaluation

CQ

The three-factor model provided an excellent fit for both mothers' and fathers' responses to the CQ. A comparison of nested two- versus three-factor models supported the three-factor model for mothers and fathers (see Table I).

DCQ

There was also support for the three-factor on mothers' DCQ responses (the chi-square was significant but all other fit indices supported the three-factor model; see Table I). A three-factor model also fit the data for fathers' reports and significant chi-square difference tests favored the three-factor versus two-factor model for mothers and fathers.

Internal Consistencies and Intercorrelations among Subscales on the CQ and DCQ

The internal consistencies for each of the three coparenting dimensions were acceptable for mothers' and fathers' reports on both the CQ (median $\alpha = .86$) and the DCQ (median $\alpha = .86$; see Table II). Intercorrelations among the CQ and DCQ subscales are presented in Table II. The correlations of the two DCQ triangulation items were $r = .82$, $p < .01$ for mothers and $r = .39$, $p < .01$ for fathers.

Convergent Validity

Mothers who reported higher levels of fathers' coparenting conflict and triangulation were more likely to rate

Table I. Two- and three-factor CFA Model Fit Statistics for the CQ and DEQ for Mothers and Fathers

	Goodness of Fit Indexes						
	NFI	CFI	GFI	RMSEA	χ^2	χ^2_D	S-B χ^2
Coparenting Questionnaire							
Mother as reporter							
Two-factor model	.94	.98	.94	.08	11.20	–	–
Three-factor model	.98	1.00	1.00	.00	3.63	7.57*	3.33
Father as reporter							
Two-factor model	.89	.92	.87	.18	22.66**	–	–
Three-factor model	.95	.98	.96	.10	9.20	13.46**	10.04
Diabetes-Specific Coparenting Questionnaire							
Mother as reporter							
Two-factor model	.84	.89	.87	.16	32.11**	–	–
Three-factor model	.90	.95	.92	.12	20.06*	12.05**	20.41*
Father as reporter							
Two-factor model	.87	.94	.92	.10	20.59	–	–
Three-factor model	.93	1.00	.95	.03	11.60	8.99*	10.75

Note. Due to incomplete data on one mother's and one father's CQ and DCQ responses, CFA analyses were based on $N = 60$. NFI = normed fit index; CFI = comparative fit index; GFI = goodness-of-fit index; RMSEA = root mean square of approximation; χ^2 = chi-square; χ^2_D = chi-square difference between two models; S-B χ^2 = Satorra-Bentler chi-square computed only for 3-factor model.

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

themselves as having lower marital adjustment, poorer parenting practices, and higher levels of parenting stress (see Table III). Fathers who reported higher levels of mothers' coparenting conflict and triangulation reported themselves as having lower marital adjustment and higher levels of parenting stress. Mothers who reported higher levels of fathers' coparenting cooperation were more likely to report themselves as having higher marital adjustment and lower parenting stress. Similarly, fathers who reported higher levels of mothers' coparenting cooperation also tended to report themselves as having higher marital adjustment and lower parenting stress. Mothers' and fathers' cooperation, conflict, and triangulation scores on the CQ were also significantly correlated with their total scores on the PAM and the CS in the expected directions (Table III).

Relation between Mothers' and Fathers' Coparenting Ratings

Across both the general and diabetes-specific coparenting scales, mothers' ratings of fathers' coparenting were significantly correlated with fathers' ratings of mothers' coparenting (see Table IV). The level of mothers' and fathers' ratings of their partners' coparenting conflict and triangulation scores did not differ significantly (Table IV).

Table II. Summary of Intercorrelations and Internal Consistencies for Subscales on the CQ and DCQ

Subscales	1	2	3	4	5	6	α^a	α^b
1. Coparenting cooperation ^c	–	–.55**	–.56**	.72**	–.44 **	–.45 **	.86	.83
2. Coparenting conflict ^c	–.47**	–	.63**	–.37**	.58**	.50**	.78	.85
3. Coparenting triangulation ^c	–.57**	.49**	–	–.38**	.53**	.66**	.86	.89
4. Diabetes coparenting cooperation ^d	.59**	–.36**	–.27*	–	–.48**	–.35**	.89	.74
5. Diabetes coparenting conflict ^d	–.28 *	.39**	.33**	–.43**	–	.54**	.82	.89
6. Diabetes coparenting triangulation ^d	–.42 **	.52**	.52**	–.37**	.51**	–	.89	.56

Note. CQ and DCQ subscale intercorrelations based on Mothers' reports (e.g., fathers' coparenting) are displayed above the diagonal; CQ and DCQ subscale intercorrelations based on Fathers' reports (e.g., mothers' coparenting) are displayed below the diagonal. α = Cronbach's α .

^aCronbach's α for Mothers' reports.

^bCronbach's α for Fathers' reports.

^cCQ subscales.

^dDCQ subscales.

* $p < .05$, ** $p < .01$.

Table III. Correlations between the Coparenting Questionnaire and Measures of Marital Adjustment, Parenting Practices and Parenting Stress

Coparenting Questionnaire	Dyadic Adjustment Scale ^a	Parenting Scale ^a	Parenting Stress Index ^a	Coparenting Scale ^a	Parenting Alliance Measure ^a
Mother as reporter					
Fathers' coparenting cooperation ^b	.65**	–.22	–.31*	.48**	.72**
Fathers' coparenting conflict ^b	–.71**	.47**	.51**	–.54**	–.75**
Fathers' coparenting triangulation ^b	–.25*	.45**	.65**	–.58**	–.64**
Father as reporter					
Mothers' coparenting cooperation ^c	.55**	–.11	–.29*	.61**	.63**
Mothers' coparenting conflict ^c	–.52**	.20	.60**	–.42**	–.60**
Mothers' coparenting triangulation ^c	–.54**	.37**	.32*	–.58**	–.57**

Note. Higher scores on the Dyadic Adjustment Scale reflect better marital adjustment; higher scores on the Parenting Scale reflect poorer parenting; higher scores on the Parenting Stress Index reflect higher levels of parenting stress.

^aCorrelations are with ratings by the same reporter (e.g., mothers' ratings of coparenting and mothers' ratings of marital adjustment).

^bBased on mothers' reports. ^cBased on fathers' reports.

* $p < .05$, ** $p < .01$.

However, fathers' ratings of mothers' coparenting cooperation on both the CQ and DCQ were significantly higher than mothers' reports of fathers' coparenting cooperation. In other words, fathers perceived mothers as being more supportive in the coparenting relationship than mothers' perceptions of fathers, regardless of whether or not the focus was on illness-related matters.

Relation between General- and Diabetes-Specific Coparenting Ratings

Across mothers' and fathers' data, the diabetes-specific scales were significantly correlated with their corresponding general coparenting scales (median $r = .68$ for mothers' reports and median $r = .53$ for fathers' reports; see Table V). Levels of coparenting conflict and triangulation were significantly greater when parents were dealing with general child management issues compared to diabetes-specific issues (see Table V). Fathers' reports of mothers'

coparenting cooperation for diabetes management issues were higher than general childrearing activities.

Discussion

A measure of general coparenting, the CQ, and a version modified to assess diabetes-specific coparenting (DCQ) were found to have adequate psychometric properties for both mothers and fathers in families of children age 8–12 years with type I diabetes. The addition of these measures increases the range of family-relevant constructs that can be adequately assessed in this population of children with a chronic illness. We found support for the three-dimensional model of coparenting proposed by Margolin et al. (2001) for both mothers and fathers and this model was a better fit than a dichotomized (i.e., positive versus negative) model for general coparenting. Results also favored a three-factor model for the DCQ, suggesting a

parallel structure of coparenting for both general and diabetes-specific tasks. Mothers' and fathers' general coparenting scores on the CQ were significantly correlated in the expected direction with established measures of marital adjustment, parenting stress, parenting, and two other measures of coparenting providing convergent validity for the CQ in this sample of parents of children with type I diabetes.

Given that the CFA supported a three-factor model that includes cooperation, conflict, and triangulation, and was a better fit than a model consisting of just positive versus negative coparenting, this suggests that within a pediatric chronic illness sample, not all "negative" coparenting is the

same. Our findings provide preliminary support for a theoretical distinction of two types of negative coparenting; that is, a difference between engaging in coparenting conflict (e.g., hostility, competition, undermining behaviors, and/or parenting discrepancies) around general childrearing and illness-specific tasks, and involving the child in adult conflict or forming unhealthy and inappropriate parent-child alliances that exclude the other parent (i.e., triangulation). Several researchers have noted that this distinction may have important clinical implications (Kerig, 1995; Margolin et al., 2001). Namely, while both negative aspects of coparenting are associated with psychosocial maladjustment in children, triangulation behaviors may represent a more harmful type of negative coparenting interaction since the child is directly brought into parents' conflict and often forced to take sides (Minuchin, 1985; Wang & Crane, 2001). Others (Caldera & Lindsey, 2006) posit that consistent undermining of one another's parenting efforts (high levels of coparenting conflict) may represent an important precursor to the formation of a parent-child alliance that excludes the other parent (triangulation). Additionally, assessing triangulation behaviors is important given that "one measure of health in family functioning is the extent to which parents keep their own marital and interparental conflicts restricted to their relationship" (Gordis & Margolin, 2001, p. 112). Inconsistency between parents in the form of coparenting conflict regarding diabetes management issues would also likely affect adherence to the regimen plan, especially with younger children. Interparental divisive and undermining coparenting behaviors regarding daily diabetes-related matters might also send the child confusing messages about how to best

Table IV. Descriptive Statistics and Paired *t*-tests Comparing Mothers' and Fathers' Scores on the CQ and DCQ

Coparenting Dimensions	Mother as reporter <i>M</i> (<i>SD</i>)	Father as reporter <i>M</i> (<i>SD</i>)	Mothers' versus Fathers' scores		
			<i>t</i>	<i>d</i>	<i>r</i>
CQ					
Cooperation	2.7 (0.88)	3.0 (0.72)	-3.40**	-.40	.56**
Conflict	1.1 (0.64)	1.2 (0.67)	-1.22	-.15	.50**
Triangulation	0.33 (0.57)	0.41 (0.68)	-1.15	-.14	.58**
DCQ					
Cooperation	2.8 (0.97)	3.4 (0.58)	-4.20**	-.65	.30*
Conflict	0.63 (0.58)	0.64 (0.67)	-.17	-.01	.41**
Triangulation	0.14 (0.43)	0.13 (0.35)	.29	.02	.42**

Note. *M* = Mean, *SD* = Standard Deviation. CQ and DCQ *t*-values and *r* are derived from comparison of mothers' and fathers' reports on each of the respective measures' subscale scores while *d* = the effect size of the difference between mothers' and father's scores. The Effect size was calculated using Morris and DeShon's (2002).

p* < .05, *p* < .01.

Table V. Descriptive Statistics, Paired *t*-tests and Correlation Coefficients Comparing the CQ and DCQ

Coparenting dimensions	CQ <i>M</i> (<i>SD</i>)	DCQ <i>M</i> (<i>SD</i>)	CQ versus DCQ Scores		
			<i>t</i>	<i>d</i>	<i>r</i>
Mother as reporter					
Fathers' coparenting cooperation ^a	2.7 (0.88)	2.8 (0.97)	-1.48	-.14	.72**
Fathers' coparenting conflict ^a	1.1 (0.63)	0.63 (0.58)	7.74**	.85	.58**
Fathers' coparenting triangulation ^a	0.33 (0.57)	0.14 (0.43)	4.01**	.46	.66**
Father as reporter					
Mothers' coparenting cooperation ^b	3.0 (0.73)	3.3 (0.62)	-4.15**	-.49	.59**
Mothers' coparenting conflict ^b	1.2 (0.67)	0.64 (0.66)	7.57**	.76	.39**
Mothers' coparenting triangulation ^b	0.42 (0.69)	0.13 (0.35)	4.46**	.57	.52**

Note. *M* = Mean, *SD* = Standard Deviations. CQ versus DCQ *t*-values and *r* are derived from comparison of mothers' or fathers' reports on the CQ versus the DCQ for each subscale, while *d* = the effect size of the difference between the CQ and DCQ subscales. The Effect size was calculated using Morris and DeShon's (2002) equation 8, which corrects for the dependence between means. [Morris, S. B., & DeShon, R. P. (2002).].

^aBased on mothers' reports.

^bBased on fathers' reports.

***p* < .01.

manage diabetes as they move into adolescence and begin assuming more responsibility for diabetes self-care behaviors. As such, the assessment of both conflict and triangulation in addition to coparenting cooperation may be useful in understanding the development of more pathological dysfunction in families of children with a chronic illness; future studies with larger sample sizes are needed to examine these relationships. It is important to note, however, that the direction and magnitude of the correlations between both triangulation and conflict with parenting practices, parenting stress, and marital adjustment were very similar in the present study.

Relation between Mothers' and Fathers' Coparenting Behavior

Mothers' ratings of fathers' coparenting and fathers' ratings of mothers coparenting on both the CQ and DCQ were significantly correlated. Thus, there was consistency in the tendency of couples to engage in more healthy or dysfunctional coparenting in both general and diabetes-specific situations. Also, echoing findings by Margolin et al. (2001), there were no differences between parents' ratings in the level of each others' coparenting conflict and triangulation; however, fathers' cooperation scores around general and disease-specific coparenting issues (as reported by mothers) were significantly lower than mothers' coparenting cooperation scores (as reported by fathers). This suggests that mothers perceived their partners to be less supportive and less cooperative in their coparenting role than did fathers. Other studies have similarly found that women, on average, rated their coparenting alliance for general childrearing tasks less positively than their male spouses (Floyd & Zmich, 1991). It is also consistent with mothers' and fathers' ratings of support related to diabetes-specific tasks. For example, Seiffge-Krenke (2002) found that fewer than 10% of mothers of adolescents with diabetes reported receiving support from their husbands in diabetes care. In research with healthy children, differences in mothers' and fathers' ratings of coparenting cooperation are seen as reflective of divergent childrearing responsibility roles among parents (Margolin et al., 2001; Schoppe, et al., 2001). Mothers tend to shoulder the burden of responsibility related to illness management (Wysocki, Greco, & Buckloh, 2003). If mothers are the primary caretakers of both health- and non-health-related matters, it is plausible that they also perceived receiving less cooperation in their coparenting relationship than did the fathers. Alternatively, it is possible that the higher coparenting cooperation scores for mothers reflect a reporting bias. That is, fathers who chose to participate in our study may be overreporting the positive

aspects of mothers' coparenting behavior in an effort to portray themselves and their partners in a more favorable light.

Relation between Diabetes-specific and General Coparenting Behavior

Ratings of coparenting on the CQ and DCQ were significantly correlated. This suggests there is consistency in the tendency of couples to engage in more supportive or dysfunctional coparenting in both general and diabetes-specific situations. There were, however, some noteworthy differences. Interestingly, mothers' and fathers' coparenting conflict and triangulation behaviors were significantly lower when dealing with diabetes-specific tasks than general childrearing activities. This suggests that, in spite of stressors involved in caring for a child with diabetes, parents were less likely to undermine their partners' parenting decisions and less likely to engage children in parental conflict when the issues were related to their child's health. One possible explanation for these findings is that successful management of diabetes requires daily monitoring of diet, insulin, and exercise; consequences of poor management are apparent quickly and routinely through daily blood glucose testing or from HbA_{1c} values taken during clinic visits. Further, poor diabetes management can be severe and rapid (e.g., seizure from hypoglycemia). Additionally, every 3 months, the diabetes team reviews adherence behaviors that need to be addressed and in so doing, appraises parents' management of their child's diabetes, thereby providing feedback about the "success" of couples' coparenting related to diabetes. In contrast, for non-health issues, few parents receive professional feedback related to their parenting or coparenting. Given this pattern of results, interventions focusing on diabetes-related issues in coparenting may be more successful than focusing on coparenting in general because parents have lower levels of disagreement on diabetes issues, and it is possible that improvements in diabetes-specific coparenting may have positive spillover effects on how parents collaboratively manage other child-rearing issues. An intervention study aimed at improving diabetes-specific coparenting could address this possibility.

Limitations and Future Directions

The current study is the first to examine the construct validity of coparenting among two-parent families caring for a child with type I diabetes and the first to examine diabetes-specific coparenting. As is common in pediatric research with chronic illness populations, however, the sample size for the present study was not large. It would

be important to replicate these findings. The present results only apply to couples caring for a child with type I diabetes within the ages of 8–12 years. It would be of interest to determine if the three-factor model of the CQ also applies to families with adolescents, given that parents are typically less involved in the daily diabetes management issues with adolescents. The DCQ is a modified version of the previously validated CQ. Given that we developed a diabetes-related coparenting questionnaire that would be parallel to the CQ, we did not engage in a full questionnaire development process. As such, it is possible that there are elements of diabetes-specific coparenting which are not captured. Further, the DCQ might benefit from additional items capturing tasks related to using an insulin pump. A qualitative study examining the construct of coparenting among families with a child with diabetes could inform this possible limitation.

Again similar to many studies, data on non-participants were lacking and thus the representativeness of the study sample is unknown. Although our sample had similar HbA1c levels compared to clinic norms, it may be that our sample of children with type I diabetes underrepresents the proportion of children with poorly controlled diabetes. Data on the percentage of the children seen at the Children's Hospital of Western Ontario who fall in the poorly controlled range were not available. Future studies using samples that vary in terms of geographic location, socioeconomic status, race, clinical distress, and other potentially important factors that could impact on coparenting are needed.

Having measures of general and diabetes-specific coparenting with adequate psychometric properties, we can now examine linkages between coparenting and child outcomes with more clarity (Barzel & Reid, 2010, manuscript submitted for publication). Preliminary findings presented here extend our understanding of how couples with a chronically ill child work together as a parenting team to coordinate daily tasks while concomitantly dealing with ongoing caregiving stressors. Margolin et al. (2001) suggested that interventions aimed at improving the coparenting relationship may work on the grounds that the "separation of the coparenting relationship from the marital relationship creates opportunities for spouses to develop a collaborative relationship with the circumscribed objective of supporting one another's parenting" (p. 17). The CQ and DCQ represent potentially useful tools that may help clinicians focus intervention efforts with distressed couples. For example, a clinician working with a couple who report high levels of triangulation when coparenting might first aim to improve inappropriate family boundaries (i.e., decrease triangulation behaviors), and then,

subsequently help parents decrease their undermining behaviors. As noted above, focusing on diabetes-specific issues first may be helpful. In such families, it would be surprising if both parents attended clinic appointments. Although logistically challenging, assessment of coparenting from the non-attending spouse, most likely fathers, could yield important information that the team's psychologist or social worker could use to coach the attending spouse, likely the mother, on ways to enhance positive coparenting with the aim of improving the child's adherence and adjustment.

Supplementary Data

Supplementary data can be found at: <http://www.jpepsy.oxfordjournals.org/>.

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