The Relationship between Parent-Reported Social Support and Adherence to Medical Treatment in Families of Adolescents with Type 1 Diabetes

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Objective To investigate the relationships between both mother-reported spousal support and social network support, and mother-adolescent diabetes-related conflict, discrepancies in decision-making autonomy (DDMA), and adolescent adherence to diabetes treatment. Method Fifty-one mothers of adolescents with IDDM completed self-report measures of social support, diabetes-related conflict, and adolescent autonomy for diabetes care. Analyses tested conflict and DDMA as mediators between mother-reported social support and adolescent adherence to treatment. Results Increased levels of mother–adolescent conflict were associated with poorer treatment adherence and both mother-reported diabetes-related conflict and DDMA predicted adolescents’ glycemic control. Higher levels of mother-reported spousal support were associated with less conflict and greater adherence to treatment. Sobel’s test indicated a statistical trend for conflict as a mediator between spousal support and adolescent treatment adherence (p < .07). DDMA did not predict mother–adolescent conflict and did not emerge as a mediator between mother-reported social support and adolescent adherence. Conclusions This study highlights the role of spousal support for mothers of adolescents with IDDM and indicates that the level of spousal support mothers receive may play an important role in the health care behaviors of their adolescents.

Key words adherence; conflict; social support.

Type 1 or insulin-dependent diabetes is a chronic illness that affects one in every 400–600 children each year (DCCT, 1994). Children and adolescents with type 1 diabetes must adhere to a complex treatment regimen that involves daily insulin injections, glucose monitoring, and dietary restrictions in order to manage their illness and prevent short- and long-term complications (Wysocki, Greco, & Bukloh, 2003; Silverstein et al., 2005). Nonadherence to diabetes treatment regimens occurs in approximately half of the children and adolescents with type 1 diabetes at some point during the course of their illness with 25% of adolescents reporting mismanagement behaviors such as missed insulin shots (Kovacs, Goldston, Obrosky, & Iyengar, 1992; Weissberg-Benchell et al., 1995). Significant health risks and long-term health complications including retinopathy, neuropathy, and renal disease are associated with nonadherence and poor blood sugar control; health complications that can be avoided with good treatment adherence and metabolic control (DCCT, 1994).

Research has shown that family factors can play a role in adherence behaviors, with family conflict and self-management competence emerging as important predictors of nonadherence to treatment and metabolic control (Anderson, Auslander, Jung, Miller, & Santiago, 1990; Hauser et al., 1990; Miller-Johnson et al., 1994; Anderson, Brackett, Ho, & Laffel, 1999; Wysocki et al., 2003). During adolescence, children assume greater responsibility for their diabetes care, and studies have shown this increased autonomy is related to higher levels of parent–adolescent conflict and poorer adherence to medical treatment (Anderson,
Adolescent-reported family social support has emerged as one factor associated with decreased parent–adolescent conflict and improved treatment adherence for adolescents with type 1 diabetes (Hanson, De Guire, Schinkel, & Henggeler, 1992; La Greca et al., 1995; Skinner & Hampson, 1998; La Greca & Bearman, 2002). However, the role of parent-reported social support (e.g., the support that parents receive from their spouses and members of their support network) on parent–adolescent conflict and adherence to treatment in this population is less clear. Previous research indicates that social support is a protective factor for stress in parents of children with chronic conditions, and that lower levels of social support relate to both emotional distress (Horton & Wallander, 2001) and maternal perceptions of more negative illness impact (Frankel & Wambolt, 1998). Examining the role of parent-reported social support in families of children with type 1 diabetes may be particularly important because stress impacts parents’ abilities to assist in their children’s illness management tasks (e.g., elevated parental stress is related to poorer adherence to diabetes treatment in their children) (Hanson et al., 1992; Streisand, Swift, Wickmark, Chen, & Holmes, 2003). Moreover, elevated stress may lead parents to give their adolescents autonomy for diabetes tasks before their children are developmentally ready (Palmer et al., 2004) putting them at risk for poor adherence and diabetes control. Parents’ perceptions of higher levels of social support would be expected to lower their perceived stress and enhance their abilities to manage diabetes-related treatment tasks.

Parents’ perceptions of social support include spousal support and support from the parents’ social support network more broadly defined (Belsky, 1984). In his determinants of parental competence model, Belsky (1984) suggested that support within the marital relationship is a more effective buffer of stress for parents than external support from extended family and friends, a hypothesis that has received empirical support (Caldwell & Koski, 1997). The purpose of the present study was to conduct a preliminary test of a predictive model based on Belsky’s (1984) model of spousal support and Holmbeck’s (1996) model of DDMA to determine whether the support that mothers received from their spouses and the support networks predicted mother–adolescent diabetes-related conflict and the DDMA between parents and adolescents with IDDM. A second contribution was to test whether DDMA and conflict had similar roles as mediators between social support and adherence to diabetes treatment.

This study extended previous research by examining the important relationship between mother-reported social support and adherence to treatment in adolescents with type 1 diabetes. Focusing on this relationship between mother-reported support, conflict, and autonomy is important because of the potential health risk of diabetes-related conflict and problems with adherence associated with granting adolescents with type 1 diabetes autonomy before they are developmentally ready (Palmer et al., 2004). Based on theory (Belsky, 1984; Holmbeck, 1996) and previous findings from Miller and Drotar (2003), it was hypothesized that (1) levels of mother-reported social support would be related to the amount of maternal–adolescent conflict and the level of DDMA between parents and adolescents, (2) diabetes-related conflict would be predicted by DDMA, and (3) both conflict and DDMA would serve as mediators between mother-reported social support and adherence to treatment.

Method
Participants
The sample consisted of 51 mother–adolescent dyads, with 53% of adolescent participants female. Adolescent participants were 13–18 years old with a mean age of 14.67 years (SD = 1.24). The majority of families who participated in the study were Caucasian (88.2%), with 7.8% African American, and 2.0% identified themselves as “Other”. Approximately 15.2% of the sample had an income of less than $20,000 per year, 36.9% of families earned $20,000–60,000 per year, and 47.8% of households had an income of greater than $60,000 per year. Adolescents were primarily from intact families (70.6%), 21.6% of mothers had a high school diploma, and 45.1% had a college, professional, or graduate degree. For adolescents, the average time since diagnosis was 6.29 years (SD = 4.16) and participants tested their blood glucose levels an average of 2.91 (SD = 0.95) times per day. The average current glycohemoglobin (HbA1c) of participants was 8.92% (SD = 1.95%). An HbA1c level
of <7.0% is viewed as good glycemic control, indicating that the participants in this sample ranged from having good to poorly controlled diabetes. These HbA1c levels obtained in the current study reflect the typical levels for adolescents seen in local endocrine clinics and are comparable or slightly higher than average HbA1c values of adolescents with type 1 diabetes in the United States and in other countries (Mortensen & Hougaard, 1997; Danne et al., 2001).

Procedure
Mother and adolescent dyads were eligible for participation if the adolescents were between 13 and 18 years of age and had a diagnosis of type 1 diabetes for at least 6 months. Participants were excluded from the study if the adolescents were not between 13 and 18 years of age, had more than one chronic health condition, or a sibling was currently enrolled in the study. IRB approval was obtained prior to beginning recruitment and data collection. Recruitment took place after patients were identified from endocrine clinic rosters and physician coinvestigators sent out letters requesting participation in the study. Following notification by mail, families were contacted via telephone to determine if they were willing to participate. Participating families completed questionnaires at their child’s next clinic appointment or questionnaires were mailed to the family’s home. At the clinic, the measures were administered by either one of the investigators or a research assistant. For all families, written consent was obtained from each participant before questionnaires were completed. The approximate completion time for the questionnaires took 45 min and families received $25 for their participation.

Two hundred and four families of children who were eligible for the study were contacted for participation, and 102 were reached by phone. Twenty-six families declined participation in the study, the primary reason for nonparticipation was the time commitment associated with completing the forms. Participants and nonparticipants did not differ by age or gender. Seventy-five mother–adolescent dyads agreed to participate in the study, however, 24 families did not return packets mailed to them after they agreed to participate. Of the 51 participants who took part in the study, 30 participants completed the study in the clinic setting and 21 completed the questionnaires via mail. The families who completed the study did not differ by age or gender from the families who dropped out of the study after failing to return the study materials to investigators.

Measures
Predictors
Parent Perceived Network Support
The Social Support Questionnaire (SSQ) (Sarason, Levine, Basham, & Sarason, 1983) was administered to mothers to assess both the number of social supports available and mothers’ satisfaction with support provided by their support network (mothers were instructed to exclude support from spouses). The six response options ranged from (1) very dissatisfied to (6) very satisfied. The SSQ has high internal consistency, and test–retest correlations in the standardization sample were .90 for number of supports, and .83 for satisfaction with social support (Sarason et al., 1983). In the current sample the internal consistency (Cronbach’s α) of the measure was .97 for the number of supports and .98 for satisfaction with social support. Validity was established in previous studies by conducting factor analysis and by correlating scores on this measure with measures of life events, optimism, and loneliness.

Parent Perceived Spousal Support
The Social Provisions Scale—Spousal Version (SPS-SV) (Cutrona, 1989) was administered only to mothers who were married. The SPS-SV is a spouse-specific version of the original SPS (Cutrona & Russell, 1987) that assesses six provisions of social relationships including guidance, reliable alliance, attachment, social integration, reassurance of worth, and opportunity to provide nurturance. The four response options ranged from (1) strongly disagree to (4) strongly agree. The SPS-SV has been shown to significantly correlate with the original SPS (Cutrona, 1989), a measure with demonstrated reliability and validity in adult samples (e.g., Cutrona & Russell, 1987; Dolbier & Steinhardt, 2000). In the current sample the internal consistency (Cronbach’s α) of the measure was .92.

Proposed Mediators
Diabetes-Related Conflict
The Diabetes Responsibility and Conflict Scale, conflict subscale (Rubin, Young-Hyman, & Peyrot 1989) was used to assess parent–adolescent conflict in 15 diabetes-related tasks. The 15-item measure asked mothers to rate how often they argued with their adolescents regarding tasks such as drawing up insulin, exercising, and blood testing; the five response options ranged from never to all the time. The measure was given to parents, and higher scores indicated more frequent diabetes-related conflict. The internal consistency (Cronbach’s α) in this sample was .93.
Diabetes-Related Autonomy
The Deciding about Diabetes Treatment (DADT) (Saletsky, 1991) scale was used to measure both mother and adolescent perceptions of autonomy in diabetes-related self-care tasks. The 20-item measure asked mothers and adolescents to report who makes decisions regarding diabetes treatment tasks including how much to eat at meals, when to test blood, and how much insulin to take. The four response options were (1) the mother takes exclusive responsibility for decisions about the task, (2) the task is discussed and the mother makes the final decision, (3) the task is discussed and the adolescent makes the final decision, and (4) the adolescent assumes complete responsibility for the task. Discrepancy in decision-making autonomy occurred when either the mother or adolescent reported that the adolescent had more or less autonomy than was indicated by the other respondent. Higher scores on the measures indicated greater levels of adolescent decision-making autonomy. The internal consistency (Cronbach’s $\alpha$) of the scale in the current sample was .95 for mother report and .93 for adolescent report.

Outcome Measures
Adherence to Treatment
Adherence was measured using nurse-report, blood glucose meter readings, and chart review. Nurses completed the Health Care Provider Rating questionnaire (La Greca, Follansbee, & Skyler, 1990). The measure assesses compliance in nine areas of diabetes care, with higher scores indicating increased adherence to treatment. The internal consistency (Cronbach’s $\alpha$) of the measure was .91 in the current sample. Finally, for an objective measure of adherence, data from chart reviews assessing the average frequency of adolescents’ blood glucose testing were collected. During the clinic appointment in which data for the present study were collected, information on the frequency of adolescents’ blood glucose testing over the previous 2 weeks were downloaded from their blood glucose meters. For families who participated via mail, this adherence data was obtained by using data obtained at the adolescents’ last clinic appointment. More frequent blood glucose testing indicated higher adherence to treatment.

Measures of Covariates
Pubertal Status
The current study was statistically controlled for pubertal status because previous research has demonstrated that reports of autonomy may be related to degree of pubertal development (Collins, Laursen, Mortenson, Luebecker, & Ferreira, 1997). The Physical Development Scale (Peterson, Crockett, Richards, & Boxer, 1988) was completed by adolescents. The scale had a male and a female version and participants were asked to identify the level of puberty-related physical changes they are experiencing (e.g., height, body hair, breast growth, and skin changes). Sample response options range from “not yet started growing” to “seems completed” with higher scores indicating more puberty-related physical changes. Adequate reliability and validity had been established (Peterson et al., 1988).

Oppositional Behavioral Symptoms
Because the focus of the current study was the relationship between diabetes-related conflict, DDMA, social support, and adherence to treatment, it was decided to control statistically for the impact of nondiabetes-related oppositional behaviors. In order to assess adolescent oppositional behavior, mothers completed Category C of the Adolescent Symptom Inventory (Gadow & Sprafkin, 1997). The measure consisted of eight items asking mothers to rate how frequently behaviors occur on a scale from (1) never to (4) very often. Sample items included: how often the child loses their temper, argues with adults, defies or refuses to do what he/she is told, and blames others for his/her own misbehavior or mistakes. Higher scores indicated more oppositional behaviors. Prior research has demonstrated adequate reliability of the measure (Gadow & Sprafkin, 1997). The internal consistency of the measure was .91 in the current sample.

Statistical Analyses
Summary statistics were used to describe the demographic characteristics of the sample. Means and standard deviations were used for continuous data, and categorical items were described using frequency statistics. Pearson product moment correlations were used to assess the relationship between demographic variables, conflict, discrepancy in decision-making autonomy, and social support. Regression analyses were conducted to test for main effects for each type of social support, and tests for mediation were conducted using the conditions described by Baron and Kenny (1986). The study was controlled for both pubertal status and adolescent oppositional behavior so these factors were entered in the first step of each of the regression models tested. Data analyses were conducted using the Statistical Package for the Social Sciences Version 12.0 (SPSS 12.0). Significance levels were set at $p < .05$. 
Results

Descriptive Data

Using a method described by Holmbeck, Li, Schurman, Friedman and Coalley (2002), discrepancy in decision-making autonomy was calculated by taking the absolute value of the difference between mothers’ and adolescents’ total scores on the decision-making autonomy measure. Because of the exploratory nature of the current study, analyses focused on the level of discrepancy rather than making specific hypotheses regarding the directionality of the findings. The mean level of discrepancy between mothers and adolescents’ reports of decision-making autonomy was 11.28 (SD = 8.81, range = 0–32), indicating that mothers and adolescents had a moderate level of discrepancy concerning who was responsible for making decisions regarding diabetes care. Adolescents and their mothers reported the greatest DDMA regarding who should decide when to test blood, when to take juice/glucose tablets to treat low blood sugar, and who should be responsible for treating insulin reactions.

Correlations between descriptive, predictor, and outcome variables are listed in Table I. Correlations among mother-reported spousal support and social network support emerged with spousal support associated with support network size ($r = .33, p < .05$), and satisfaction ($r = .43, p < .05$). Correlations among predictor and outcome variables indicated that correlations between spousal support and mother-adolescent diabetes-related conflict were significant. Higher levels of support were associated with less conflict between mothers and adolescents ($r = -.38, p < .05$). Diabetes-related conflict was not significantly associated with either of the adherence measures, however, there was a significant relationship between conflict and metabolic control (HbA1c) ($r = .47, p < .01$). DDMA was not related to any of the predictor or outcome variables, and correlations between DDMA and mother-reported spousal support ($r = -.12, p = n.s.$), DDMA and social network size ($r = -.028, p = n.s.$), DDMA and support satisfaction ($r = -.11, p = n.s.$), and DDMA and adherence to treatment ($r = -.08, p = n.s.$) all failed to reach significance. Nurse-reported adherence was significantly related to both the average number of blood glucose tests per day ($r = .45, p < .01$) and spousal support ($r = .50, p < .01$), with better nurse-reported adherence associated with more frequent testing and higher levels of support. Finally a significant correlation between nurse-reported adherence and metabolic control emerged, with higher levels of treatment adherence associated with lower HbA1c levels ($r = -.65$).

Tests of Hypotheses

Testing Mother-Reported Social Support as a Predictor of Conflict and DDMA

Regressions were used to test the hypotheses that spousal support and the social support network would be additive in predicting both mother-reported diabetes-related conflict and decision-making autonomy. Spousal support and the social support network were entered into the regression model as the independent variables, and conflict and DDMA were entered into separate regressions as the dependent variables. The size of the social support network and maternal satisfaction with the support network were entered first, followed by spousal support.

Results indicated that as hypothesized, parent-reported spousal support predicted diabetes-related conflict ($\Delta R^2 = .14, p < .05$). Higher levels of spousal support were associated with lower levels of mother-adolescent conflict regarding diabetes care. Contrary to the hypotheses, the total number of social supports in the

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<td>Illness duration</td>
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<td>Oppositional behavior</td>
<td>– .17</td>
<td>.07</td>
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<td>Spousal support</td>
<td>– .04</td>
<td>– .03</td>
<td>– .17</td>
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<td>Network support (satisfaction)</td>
<td>– .10</td>
<td>– .04</td>
<td>– .56**</td>
<td>.43*</td>
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<td>Network support (size)</td>
<td>– .14</td>
<td>– .14</td>
<td>– .10</td>
<td>.33*</td>
<td>.31</td>
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<td>DDMA</td>
<td>– .15</td>
<td>– .19</td>
<td>– .40*</td>
<td>– .12</td>
<td>– .11</td>
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<td>Diabetes-related conflict (mother)</td>
<td>.10</td>
<td>.34*</td>
<td>.32*</td>
<td>– .38*</td>
<td>– .17</td>
<td>– .26</td>
<td>– .13</td>
<td>–</td>
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<td>Adherence (nurse)</td>
<td>.06</td>
<td>– .23</td>
<td>– .20</td>
<td>.50**</td>
<td>.24</td>
<td>.06</td>
<td>– .08</td>
<td>– .30</td>
<td>–</td>
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<tr>
<td>Current HbA1c (%)</td>
<td>– .21</td>
<td>.41*</td>
<td>.13</td>
<td>– .08*</td>
<td>– .18</td>
<td>– .09</td>
<td>.10</td>
<td>.47**</td>
<td>– .65***</td>
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<td>–</td>
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<tr>
<td>Average # blood glucose tests per day</td>
<td>– .24</td>
<td>– .16</td>
<td>.01</td>
<td>.11</td>
<td>– .01</td>
<td>– .07</td>
<td>– .26</td>
<td>.24</td>
<td>.45**</td>
<td>– .09</td>
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*p < .05. **p < .01. ***p < .001.
support network, and mothers’ satisfaction with their support systems did not predict diabetes-related conflict, demonstrating that spousal support is a more powerful predictor of conflict than the support network (Table II). Regressions testing whether mother-reported support predicted DDMA were not significant, demonstrating that neither spousal nor network support predicted the level of discrepancy between mothers and adolescents regarding autonomy for diabetes treatment. Because neither support obtained from spouses nor the social support network predicted DDMA between mothers and adolescents, regressions testing DDMA as a mediator between social support and adherence to treatment were not conducted (Table III).

**Regression Analysis Testing DDMA as a Predictor of Mother-Reported Conflict**

A series of regressions were used to test the hypothesis that DDMA between mothers and adolescents would predict diabetes-related conflict (as reported by mothers). Results of this regression analyses indicated that when controlling for pubertal status and adolescent oppositional behavior, DDMA did not predict diabetes-related conflict. However, maternal-report of adolescent autonomy was related to diabetes-related conflict ($\Delta R^2 = .19$, $p < .05$) indicating that a higher mother-reported views of adolescent decision-making control was associated with higher levels of mother-reported conflict concerning diabetes care.

<table>
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<th>$P$</th>
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<td>Adherence to treatment (Nurse report)</td>
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<td>Diabetes-related conflict Adherence to treatment (Nurse report)</td>
<td>6.74</td>
<td>.023</td>
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**Regression Analysis Testing DDMA as a Mediator between Parent-Reported Social Support and Adherence to Treatment**

Regression analyses were also conducted to test the hypotheses that conflict would mediate the relationship between social support and adherence to treatment (measured by both nurse report and the number of blood glucose tests per day) (Table IV). Regression models were computed using the conditions described by Baron and Kenny (1986), (1) the predictor was significantly associated with the mediator, (2) the predictor was significantly associated with the dependent variable, (3) the mediator was significantly associated with the dependent variable, and (4) the relationship between the predictor and the dependent variable became smaller when the mediator was controlled for. Finally Sobel’s test was used to determine if the indirect effect of the independent variable on the dependent variable was significant (Holmbeck, 1997).

To determine whether specific predictors were associated with the mediator, regression analyses tested the pathway between each type of social support and the first proposed mediator, level of diabetes-related conflict. Social support network size and satisfaction was entered first, followed by spousal support. Diabetes-related conflict served as the dependent variable. As outlined previously, spousal support but not support size, nor satisfaction was related to maternal-reported diabetes conflict ($\Delta R^2 = .14$, $p < .05$), with higher levels of spousal support related to less conflict. Because the relationship between the social support network variables and mother–adolescent conflict was not significant they were dropped from the model; as a result the association between spousal support and maternal–adolescent conflict increased ($\Delta R^2 = .21$, $p < .01$).

To satisfy the second requirement of Baron and Kenny’s (1986) method, regression analyses tested the pathway between the predictor (spousal social support) and the dependent variable (adherence to diabetes treatment). Spousal social support served as the
independent variable, and adherence to treatment was used as the dependent variable. Results indicated that mother-reported spousal support was related to adherence as measured by nurse report ($\Delta R^2 = .34$, $p < .01$), with higher levels of spousal support associated with better adherence to diabetes treatment. The relationship between spousal support and adherence as measured by blood glucose tests per day was not significant, so further steps using the objective adherence measure were not conducted.

The third step for testing mediation involved testing if the mediator was significantly associated with the dependent variable. To test whether mother-reported conflict was associated with adherence (as measured by nurse report), mother-reported conflict was entered as the dependent variable. Results indicated that conflict was related to adherence to treatment (as measured by nurse report) ($\Delta R^2 = .17$, $p < .05$), indicating that the third step of Baron and Kenny’s (1986) conditions for testing mediation was satisfied. In other words, mothers’ reports of higher diabetes-related conflict were associated with worse treatment adherence. Finally, the relationship between the predictor (spousal support) and the dependent variable (adherence to treatment) decreased when controlling for the mediator (mother-reported conflict) (Figure 1).

Sobel’s test was conducted to approximate the significance of the indirect effect. Sobel’s test approached significance ($p < .07$), indicating a statistical trend toward mediation. However, because Sobel’s test did not reach $p < .05$, the hypothesis that diabetes-related conflict mediated the relationship between mother-reported spousal support and adolescent treatment adherence (as measured by nurse report) was not supported.

**Exploratory Analyses**

While adherence can be an important indicator of diabetes management, an adolescent’s overall diabetes control (as measured by their current HbA1c level) can also be a useful tool for understanding the health of patients with type 1 diabetes. Exploratory analyses were conducted to determine whether diabetes control was related to any of the social support variables. Results indicated that neither mother-reported spousal support nor social network support measures was related to diabetes control. Exploratory analyses were also conducted to examine the relationship between glycemic control and both conflict and DDMA. Results indicated that both mother-reported diabetes-related conflict ($\Delta R^2 = .243$, $p < .01$) and DDMA ($\Delta R^2 = .127$, $p < .05$) predicted adolescent’s glycemic control.

**Discussion**

To our knowledge, our findings are the first to document that higher levels of perceived spousal support are associated with lower mother–adolescent conflict and better adherence to treatment in adolescents with type 1 diabetes. This finding suggests that spousal support systems are not only important in enhancing the well-being of mothers of adolescents with type 1 diabetes but they can also impact the quality of maternal–adolescent relationships and adherence. These findings corroborate previous research (e.g., Hauser et al., 1990; Miller-Johnson et al., 1994) that has demonstrated a significant relationship between conflictual maternal–adolescent interactions and problematic adherence to diabetes treatment. Contrary to our hypotheses, maternal-reported support from the social support network did not predict maternal–adolescent conflict or adherence to diabetes treatment (as measured by nurse report or blood glucose tests per day). This indicated that perceived spousal support (as opposed to support from friends or relatives) was the most important source of support for this sample. A significant correlational relationship between
diabetes-related conflict and adherence to treatment (e.g., blood glucose tests per day) was also found.

Although the relationships among mother-reported spousal support, conflict, and treatment adherence in adolescents with type 1 diabetes reflect new findings, these results support previous research with physically healthy children that linked spousal support to parenting abilities, parenting style, and parents’ perceptions of their children (Cnnic, Greenberg, Ragozin, Robinson, & Basham, 1983; Simons, Lorenz, Wu, & Conger, 1993). The present findings suggest that the impact of support from spouses extends beyond the mother–spouse relationship. This study demonstrates the potential of spousal support in affecting not only mothers’ health and well-being, but also mothers’ behaviors in treating their children with diabetes.

Contrary to our hypotheses, DDMA did not mediate the relationship between mother-reported social support and adherence to treatment. The differences in the role of conflict versus DDMA as mediators of the relationship between spousal support and treatment adherence suggest that although they both reflect differences in maternal–adolescent views, they are distinct constructs.

In this study, conflict was measured by the frequency of arguments and disagreements regarding diabetes care, whereas DDMA examined differences in who mothers and adolescents believed was responsible for diabetes-related tasks. It may be because conflictual interactions may be more heated and emotional than DDMA, they have a greater impact on adolescent adherence to diabetes treatment. Analyses also revealed that DDMA and conflict have differing relationships with metabolic control, with DDMA not conflict predicting adolescents’ HbA1c levels.

Our hypothesis that mother–adolescent conflict mediated the relationship between spousal support and adolescent adherence to treatment (as measured by nurse report) was not supported, however, results showed a trend toward statistical significance (*p* < .07). This finding suggests that the positive effect of spousal support may be impacted by the level of conflict between mothers and adolescents with type 1 diabetes, although future studies with larger samples are needed to support this conclusion. Results from the current study failed to support Miller and Drotar’s (2003) findings that discrepancies in decision-making autonomy between mothers and adolescents related to mother-reported diabetes-related conflict. On the other hand, our predictors indicated that mothers who viewed their adolescents as having more responsibility for diabetes care also reported having more conflictual interactions with them regarding diabetes treatment. Some mothers in this sample may have given their adolescents autonomy in diabetes management before they were capable of effectively assuming such responsibility, which could have contributed to increased levels of conflict between themselves and their adolescents (Palmer et al., 2004).

Several limitations should be considered in interpreting our findings. First, the current study is limited by a cross-sectional design and findings did not capture temporal or causal relationships. Studies employing a longitudinal design are needed to understand the causal relationships among perceived social support and treatment adherence. In addition, the relatively small sample size may have impacted our ability to detect mediation, and the low participation rate limits the generalizability of the findings. Although participants and nonparticipants did not differ by age or gender, other factors (e.g., race or SES) may have lead to a self-selection bias among participants. To address these limitations future studies using more heterogeneous samples should be conducted to determine if these findings generalize to minorities and lower income families, as well as to single parent households where spousal support is not available.

The findings of the current study are also limited by the discrepant findings between the nurse-reported adherence measure and the more objective number of blood glucose tests per day. Although the two adherence measures were correlated, they assess different aspects of adherence; the nurse-report measures is a more comprehensive assessment of various domains of diabetes care while the number of blood glucose tests is a highly specific measure. Finally, this study is limited by the exclusion of fathers from participation. Future studies should include fathers to provide a greater understanding of their perceptions of spousal support and its relationship with diabetes management.

Our findings have several potentially important clinical implications. Conducting routine assessments of spousal support could help to identify problematic patterns of social support early in the course of diabetes management so that relevant interventions can be implemented. Identifying specifically which mechanisms of spousal support are important (e.g., functional support such as direct help with the child’s care vs. emotional support) will also enable researchers to better tailor social support interventions for parents reporting low levels of spousal support (Ireys, Chernoff, Stein, DeVet, & Silver, 2001). In addition, an important next step would be for clinicians to provide parents with psychoeducation...
regarding the importance of spousal support in their child’s diabetes management.

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