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Parent–Adolescent Discrepancies in Adolescents' Competence and the Balance of Adolescent Autonomy and Adolescent and Parent Well-Being in the Context of Type 1 Diabetes

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This study examined whether intrafamily discrepancies in perceptions of the adolescent's competence and independence were associated with autonomy and well-being for adolescents and parents. The ways in which mothers and fathers consistently differed from their adolescent across measures of independence and competence regarding Type 1 diabetes, a stressful context for families, were examined with the latent discrepancy model. A sample of 185 adolescents (mean age = 12.5 years, *SD* = 1.3), their mothers, and participating fathers completed measures of the adolescent's independence in completing diabetes tasks, problems with diabetes management, adherence to the medical regimen, measures of well-being, and metabolic control. The latent discrepancy model was conducted via structural equation modeling that generated latent discrepancies from the adolescent for mothers and fathers. Both mothers and fathers viewed the adolescent's competence more negatively than did the adolescent. These discrepancies related to more parental encouragement of independence and adolescent autonomy but also to poorer metabolic control and poorer parental psychosocial well-being. The results are interpreted within a developmental perspective that views discrepancies as reflecting normative developmental processes of autonomy but as being associated with disruptions in well-being in the short term.

Keywords: parent–child relationship, autonomy, adolescence, parent adjustment, Type 1 diabetes

Adolescence is a time when children and their parents work toward a new type of relationship as adolescents experience socioemotional and cognitive developments (Steinberg & Silk, 2002). As a consequence, adolescents and parents frequently view the family (Carlson, Cooper, & Spradling, 1991) and their relationship in discrepant ways (Tein, Roosa, & Michaels, 1994). A key parent–child discrepancy involves views of adolescents' competence and independence (Holmbeck & O'Donnell, 1991), with adolescents perceiving themselves as more competent and independent than do parents. In this article, we examine discrepancies between the adolescent's own and the parent's views of the adolescent's competence and independence with respect to diabetes management. We utilize a developmental and transactional perspective that views the parent–child relationship as a dynamic one in which both parent and adolescent develop (Beveridge & Berg, 2007; Kim, Conger, Lorenz, & Elder, 2001). We examine how discrepancies across multiple metrics of independence and competence may reflect normative developmental processes important for the development of autonomy but may be accompanied by disruptions in psychosocial well-being not only for adolescents but also for their parents (Carlson et al., 1991; Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997).

Discrepancies among adolescents, mothers, and fathers may be most fruitfully examined within contexts where discrepancies have consequences for adaptation: highly stressful events surrounding a chronic illness (Mansfield, Addis, Laffel, & Anderson, 2004), academic performance and daily homework (Grolnick, Gurland, DeCourcey, & Jacob, 2002; Pomerantz & Eaton, 2001), and adolescent rights (Holmbeck & O'Donnell, 1991; Smetana, 1988). In this study, we examined discrepancies in perceptions of the adolescent's competence and independence within the context of managing Type 1 diabetes. This context is an example of what Bronfenbrenner (1979) described as an "experiment of nature." It afforded the opportunity to examine discrepancies within high-stress contexts where discrepancies in perceptions of the adolescent's competence and independence may guide daily behavior and well-being.

Management of Type 1 diabetes requires a complicated and intensive daily regimen that includes meal planning, repeated

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glucose testing and insulin injections, and exercise (Seiffge-Krenke, 2001). Children and mothers report experiencing stressful events around issues of poor metabolic control (i.e., blood glucose levels that are either too high or too low), managing diabetes away from home, and conflict with parents (Beveridge, Berg, Wiebe, & Palmer, 2006; Mellin, Neumark-Sztainer, & Patterson, 2004). Fathers also find diabetes to be stressful (Gavin & Wysocki, 2006; Landolt et al., 2002). A key task for children and their parents is to adjust parental involvement to the developing adolescent's competence and independence in performing diabetes tasks (Palmer et al., 2004; Wysocki et al., 1996). Thus, we examined discrepancies that tapped into the following views of the adolescent's competence and independence in successful management of diabetes: (a) adherence to the regimen, (b) independent management, (c) efficacy for performing diabetes management tasks, and (d) problems in managing diabetes.

Consistency Across Constructs in Parent–Adolescent Discrepancies

The developmental literature supports the view that there are consistent ways in which parents differ from their adolescent and that they perhaps reflect a general way in which adolescents and parents are "not on the same page." Adolescents typically view themselves as more competent and autonomous in general and as achieving developmental tasks at an earlier age than do their parents (Daddis & Smetana, 2005; Dekovic, Noom, & Meeus, 1997). Similarly, with respect to diabetes management, adolescents perceive that, compared with their parents, they are more self-reliant and competent (Mansfield et al., 2004; Ott, Greening, Palardy, Holdreby, & DeBell, 2000) and experience fewer problems with diabetes (de Wit et al., 2007). Little information is available to indicate whether mothers and fathers would be discrepant in ways similar to their adolescents, as few studies include fathers. Given that adolescents report feeling closer to their mothers (Buhrmester & Furman, 1987), spend more time in interaction with them (Larson & Richards, 1994), and participate at different levels in diabetes management tasks (Berg et al., 2008), we might expect that fathers would be more discrepant from their adolescent than would mothers. Alternatively, it is also plausible that mothers would be more discrepant from their adolescent than would fathers, given that their increased involvement could make them more sensitive to minor failures in competence (not taken into account by adolescents) that are less apparent from the more distal paternal relationship.

The developmental and clinical literatures convey two somewhat different views concerning what intrafamily discrepancies mean and how they relate to adolescent and parent well-being (Carlson et al., 1991). From a developmental perspective, such discrepancies may reflect key autonomy granting by the parent and developments in the adolescent's autonomy that are adaptive for the adolescent and parent in the long term as they reorganize their relationship (Collins et al., 1997). Similarly, in the diabetes literature, parent–child discrepancies in views of the child's diabetes decision autonomy have been associated with greater conflict but have been interpreted as serving to precipitate changes in the relationship (Miller & Drotar, 2003).

From a more clinical perspective (see Carlson et al., 1991; Mounts, 2007), in contrast, discrepancies have been thought to reflect conflict and poorer well-being (Grills & Ollendick, 2002; Ohannessian, Lerner, Lerner, & von Eye, 2000), with better psychosocial adjustment occurring when parents and adolescents are less discrepant. Parent–child discrepancies across a variety of family adjustment markers and psychological characteristics of the adolescent have been associated with more conflict and poorer adjustment (Feinberg, Howe, Reiss, & Hetherington, 2000), views of warmth and acceptance of the family (Feinberg et al., 2000), and views of the adolescent's psychological adjustment (Grills & Ollendick, 2002). Disagreements between mothers and children regarding who is responsible for diabetes tasks are also associated with poorer metabolic control (Anderson, Auslander, Jung, Miller, & Santiago, 1990).

From a transactional perspective on parent–adolescent relationships (Beveridge & Berg, 2007), these two perspectives may be seen as compatible. Consistent with the clinical perspective, the developmental perspective acknowledges that parent–adolescent discrepancies may produce conflict and poorer psychological adjustment at least initially (Holmbeck & O'Donnell, 1991). However, such discrepancies are thought to trigger changes in the parent–child relationship, so that discrepancies are eventually reduced (Seiffge-Krenke, 1999). If such discrepancies do not serve to spur changes in the parent–adolescent relationship, such discrepancies and their associated poorer well-being could persist.

Discrepancies between parents and adolescents surrounding areas of competence and self-reliance are likely to differ across age, with an initial rise during mid-adolescence and a decline in later adolescence. Theories of autonomy development indicate that discrepancies may increase as adolescents seek more autonomy in their decision making (e.g., Baltes & Silverberg, 1994; Collins et al., 1997) but decline later in adolescence as parent–child conflict declines (Laursen, Coy, & Collins, 1998) and adolescents gain cognitive skills (Alessandri & Wozniak, 1989). In the diabetes literature, only Beveridge et al. (2006) reported age differences such that older adolescents were more discrepant from mothers in the problems they experienced than were younger adolescents. Thus, we predicted that parents' discrepancies would be higher for our older adolescents (Larson & Richards, 1994) and that parents would view the adolescent as less competent than would the adolescent.

Adolescent–parent discrepancies may serve as an impetus for negotiating important developmental functions of independence and autonomy. Discrepancies in adolescent–parent perceptions of independence may serve as an index of the adolescent's growing decision-making autonomy (Holmbeck & O'Donnell, 1991; Miller & Drotar, 2003), which occurs, in part, due to the parents encouragement of such independence and autonomy. For adolescents with diabetes, greater discrepancies may also be associated with poorer health, such as higher Hb_{A1c} levels (an objective measure of diabetes management; see Anderson et al., 1990), particularly if such discrepancies are associated with greater parent–adolescent conflict (Miller & Drotar, 2003). Given that parent–adolescent discrepancies may be fairly normative during mid-adolescence versus late adolescence, discrepancies may have more of an effect on well-being during late adolescence.

Adolescent–parent discrepancies not only may reflect the well-being and physical functioning of the adolescent but may affect parents, given the linked nature of their lives (Greenfield & Marks, 2006; Ryff, Lee, Essex, & Schmutte, 1994). Adolescence can be a

difficult time for parents as they struggle with midlife developmental issues and experience greater distance and conflict with their child (see Silverberg, 1996; Steinberg & Silk, 2002). Mothers' and fathers' well-being and marital satisfaction are further negatively affected as they deal with illness-related stressors (Berg et al., 2007; Kazak & Barakat, 1997; Quittner et al., 1998). Adolescent–parent discrepancies are associated with greater family conflict (Holmbeck & O'Donnell, 1991; Miller & Drotar, 2003), and parent–adolescent conflict is associated with poorer psychological well-being for mothers and fathers (Dekovic, 1999). As mothers are more likely to view themselves as interdependent with their children (Kessler & McLeod, 1984) than are fathers, discrepancies might be associated with poorer well-being more for mothers than for fathers.

A Method for the Examination of Parent–Adolescent Discrepancies

Although discrepancies have been a useful concept for understanding autonomy and parent–child relationships, research on discrepancies has been hampered by limitations in the methods commonly used to understand discrepancies between adolescent and parent reports (see Holmbeck et al., 2002). Several approaches have been used to operationalize discrepancies between parents and adolescents: calculating mean differences in individual variables between adolescents and parents (Law, Kelly, Huey, & Summerbell, 2002), examining correlations for convergent and discriminant validity (Sessa, Sessa, Avenevoli, Steinberg, & Morris, 2001; Tein et al., 1994), calculating interactions between parent and adolescent report (Mansfield et al., 2004; Miller & Drotar, 2003), and estimating similarity among parents and adolescents through latent constructs (Cook & Goldstein, 1993; Jacob & Windle, 1999). These methods have demonstrated the importance of examining discrepancies, but they are limited in their ability to represent discrepancies. For example, some of the methods mentioned above typically yield information about the difference between family members on a single variable (e.g., the discrepancy between adolescent and mother on perceptions of independence) and thus are unable to assess the multidimensional nature by which parents' views differ from the adolescent's views. Other methods examine multiple variables and thereby capture the multidimensional nature of the discrepancy, but they typically focus on the similarity (i.e., shared variance) of family member reports across a series of phenomena. These methods assume that the "true" phenomenon exists in the consistency across family members' perceptions and treat the individual's divergence from shared variance as reporter bias.

In the present study, we used the latent discrepancy method to examine the consistent ways in which adolescents and parents differed from each other across constructs. Like the previously mentioned methods, the latent discrepancy method portrays the inherent dependencies in reports between adolescents, mothers, and fathers within families as one of the central characteristics of the phenomenon itself. The latent discrepancy method can be thought of as an expansion of McArdle and Nesselroade's latent difference score method, which generates factors of differences (McArdle & Nesselroade, 1994; Nesselroade & Cable, 1974). Unlike the latent difference score method but akin to other methods that utilize difference scores to capture dependency, our approach focuses on intrafamily differences rather than differences in time. The latent discrepancy method is a structural equation model analogous to creating difference scores for each scale between parents and the adolescent and then creating factors on the shared variance of those differences (the ways in which parents are consistently divergent from their own adolescent). Unlike the previously mentioned discrepancy approaches, the latent discrepancy method yields information about discrepancies from multiple scales but focuses on the similarity of the differences between family members, rather than on the similarity of the reports across family members.

Current Study

The present study explored the discrepancies between adolescents' perceptions of adolescents' own competence in diabetes management from mothers' and fathers' perceptions of their adolescent's competence across critical aspects of competence and independence in diabetes management (i.e., efficacy for diabetes management, adherence, independence in completing daily management tasks, and the experience of problems in management). It also explored how such discrepancies potentially varied according to adolescents' age and how discrepancies predicted the well-being of adolescents and their parents. We hypothesized that parents would view their adolescent as less competent than would the adolescent (e.g., less self-reliant, less adherent, less efficacious, experiencing more problems) and that these discrepancies would become larger across our 10-to-14-year age range. We predicted that adolescent–parent discrepancies would reflect greater autonomy in the adolescent (controlling for the adolescent's own reports of competence) and greater parental encouragement of independence but that such discrepancies might be associated with poorer diabetes management. Finally, we expected that parent–adolescent discrepancies would be associated with poorer psychosocial well-being for both adolescents and parents.

Method

Participants

Participants included 185 youths diagnosed with Type 1 diabetes, their mothers, and 145 participating fathers. Participants were recruited from two outpatient pediatric diabetes clinics that subscribed to the same treatment regimen. Eligibility criteria for youths included being 10 to 14 years of age, having been diagnosed with Type 1 diabetes for at least 1 year, living with mother, and being able to read and write English or Spanish. Biological fathers were eligible to participate regardless of whether they lived with the youth; stepfathers were eligible if they had lived with the youth for more than 1 year. If an adolescent had both a biological father and a stepfather, the father reported by the adolescent as more involved in diabetes management was recruited.

Of the qualifying participants approached, the majority (66%) agreed to participate in this study, which is the first wave of an intensive 3-year longitudinal study. Reasons for refusal included commute distance (23%), too busy (21%), not interested (30%), uncomfortable with being studied (16%), time commitment (6%), other illness in family (5%), and no reason (3%). Comparisons of eligible adolescents who participated and those who did not indi-

cated that participants were older (12.5 vs. 11.6 years), $t(367) = -6.2$, $p < .01$, but did not differ on gender, insulin pump status, glycosylated hemoglobin (Hb_{A1c}) levels, or time since diagnosis ($ps > .2$). Participating children were on average 12.52 ($SD = 1.3$) years old and had had diabetes for an average of 4.78 ($SD = 3.0$) years. In those families in the study with a participating father, mothers and fathers were predominantly the biological parents of the adolescent (83.1% of these families had both biological parents participating, 12.8% had a biological mother and a nonbiological father, 2% had a biological father and a nonbiological mother, and 2% had parents who were both nonbiological). Among families that had only a participating mother, mothers were predominantly biological (97.2%). The vast majority of both participating parents reported living with the adolescent 100% of the time (95.1% of mothers and 96.2% of fathers). Families were largely Caucasian (94% Caucasian, 4% Latino, 1% African American, and less than 1% Pacific Islander) and middle class; most families (73%) reported household incomes averaging $50,000 or more annually, and 51% of mothers and 58% of fathers reported education levels of associate's (2-year college) degrees or beyond. Families had an average Hollingshead Index (Hollingshead, 1975) value of 42.04, which indicated the sample was on average medium business, minor professional, technical status.

This study was approved by the University of Utah's Institutional Review Board. Children gave written assent, and the parents gave informed consent.

Procedure

During recruitment at the diabetes clinics, interested participants were scheduled for a research laboratory appointment and received a packet of questionnaires to complete individually prior to their appointment. Laboratory appointments were generally 2-hr long and included additional interviews and questionnaires, some of which are not relevant to the current study. There is no overlap between the results reported here and other papers based on this data set.

Measures

Adolescents, mothers, and fathers completed the following four instruments regarding aspects of the adolescent's diabetes management and the operationalization of perceptions of competence and independence. We used these instruments to develop the latent discrepancy factors.

Adherence. Adherence to various aspects of the diabetes regimen over the preceding month was assessed with the 16-item Self-Care Inventory (adapted from La Greca, Follansbee, & Skyler, 1990; e.g., "How well has [youth] followed recommendations for checking blood glucose with monitor?") on a scale of 1 (*never*) to 5 (*always*). The adaptations, which were made after consultation with a certified diabetes educator and a person with diabetes, reflected changes to diabetes management regimens consistent with current treatment standards. For this sample, internal consistencies were $\alpha = .85$ for adolescents ($M = 3.95$, $SD = 0.58$), $\alpha = .81$ for mothers ($M = 3.59$, $SD = 0.55$), and $\alpha = .85$ for fathers ($M = 3.68$, $SD = 0.56$).

Behavioral independence in diabetes management tasks. We included a revised version of the responsibility items from the Diabetes Responsibility and Conflict Scale (Rubin, Young-Hyman, & Peyrot, 1989) to assess perceptions of who is responsible for completing 23 different aspects of diabetes management (e.g., "Who remembers when to give insulin?"). As for adherence, this scale was revised to reflect current treatment approaches. Families with a youth on an insulin pump completed an additional five items relating to pump management. Mean scores of the items relevant for the adolescent were used. Parental level of involvement in completing tasks was rated on a 5-point scale (e.g., 1 = *child does task alone,* 3 = *task shared equally with parents,* 5 = *parent does task alone*). For the purposes of this analysis, we reversed the scores so that adolescent's independence was indexed by higher scores on the scale. This scale is sensitive to declines in maternal involvement that occur during adolescence (Palmer et al., 2004; Rubin et al., 1989). Internal consistency on this scale was $\alpha = .92$ for adolescents ($M = 3.43$, $SD = 0.59$), $\alpha = .92$ for mothers ($M = 3.20$, $SD = 0.57$), and $\alpha = .93$ for fathers ($M = 3.01$, $SD = 0.61$).

Adolescent efficacy. We used the Self-Efficacy for Diabetes Management Scale (Iannotti et al., 2006) to assess the adolescent's perceptions of competence and resourcefulness in managing diabetes across 10 problematic situations (e.g., "How sure are you that you [your child] can manage insulin intake when you [your child] have eaten more or less than usual"). Items were rated from 1 (*not at all sure*) to 10 (*completely sure*). Internal consistency for this scale was $\alpha = .81$ for adolescents ($M = 6.59$, $SD = 1.64$), $\alpha = .87$ for mothers ($M = 5.71$, $SD = 1.76$), and $\alpha = .91$ for fathers ($M = 5.87$, $SD = 1.81$). Adolescents rated their own self-efficacy, and parents rated their perceptions of the adolescent's efficacy.

Problems with diabetes management. Difficulties with managing diabetes were assessed with the second treatment problem subscale of the Peds-QL Diabetes specific module (Varni et al., 2003). This subscale was selected due to its relevance to aspects of successful diabetes management. Families reported the frequency of seven problems (e.g., "It is hard for me to track carbohydrates or exchanges") using a scale of 0 (*never*) to 4 (*almost always*); internal consistency was $\alpha = .66$ for adolescents ($M = 0.88$, $SD = 0.58$), $\alpha = .65$ for mothers ($M = 1.50$, $SD = 0.68$), and $\alpha = .65$ for fathers ($M = 1.23$, $SD = 0.61$).

Adolescent Autonomy Processes

Autonomy. Adolescent autonomy was assessed with a measure of functional autonomy (Noom, Dekovic, & Meeus, 2001). This six-item measure assesses functional autonomy or "the ability to develop a strategy to achieve one's goal" (p. 581). Adolescents rated how descriptive sentence stems were of them (e.g., "I know what my goals are") on a scale of 1 (*not at all descriptive of me*) to 5 (*very descriptive of me*). Internal consistency was only acceptable ($\alpha = .59$, $M = 3.48$, $SD = 0.56$). However, this low reliability may be a function of the multidimensional nature of the functional autonomy scale. Maximized λ_4 is less influenced by dimensionality than is alpha (Osburn, 2000) and indicated a much more acceptable degree of internal consistency (max $\lambda_4 = .78$).

Encouraging independence. The degree to which parents encouraged the adolescent's independence and self-reliance was assessed with the Independence-Encouragement subscale from the Mother–Father–Peer (MFP) scale (Epstein, 1983). Adolescents separately reported how much their mother and father encouraged

their independence (e.g., "My Mother/Father encourages me to make my own decisions") on a scale of 1 (*strongly disagree with statement*) to 5 (*strongly agree with statement*). Internal consistency in our sample was $\alpha = .78$ for adolescent ratings of the mother ($M = 4.05$, $SD = 0.61$) and $\alpha = .87$ for adolescent ratings of the father ($M = 3.98$, $SD = 0.76$).

Adolescent Well-Being

Youth depressive symptoms. The Children's Depression Inventory (Kovacs, 1985) was completed to indicate the extent to which the adolescent had experienced depressive symptoms in the past 2 weeks (e.g., 1 = *I am sad once in a while,* 2 = *I am sad many times,* 3 = *I am sad all the time*). This 27-item scale has high internal consistency and test–retest reliability ($rs > .71$) and is sensitive to difficulties in managing diabetes (e.g., Grey, Davidson, Boland, & Tamborlane, 2001; Kovacs, Goldston, Obrosky, & Bonar, 1997). Internal consistency was excellent ($\alpha = .85$, $M = 5.60$, $SD = 5.35$) in the current sample.

Metabolic control. As part of the routine clinic visit, adolescents' Hb_{A1c} levels were obtained ($M = 8.28$, $SD = 1.45$, range = 4.9–13.9). Hb_{A1c} provides information on average blood glucose levels over the preceding 3 or 4 months and is the current standard to index achievement of diabetes treatment goals (higher levels indicate poorer metabolic control). At all clinics, Hb_{A1c} was obtained by clinic staff using the Bayer DCA2000.

Parental Well-Being

Parent psychosocial adjustment. Parents completed two subscales (each with nine items) of the Psychosocial Well-Being Scale (Ryff, 1989) on which they rated statements pertaining to environmental mastery (competence in managing one's environment; e.g., "In general, I feel I am in charge of the situation in which I live") and purpose in life (has goals in life and a sense of directedness; e.g., "I enjoy making plans for the future and working to make them reality"). Items were rated on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). This scale has been widely used in work on well-being among parents (Ryff et al., 1994) and has high reliability (αs = .87–.90; Ryff, 1989). In our current sample, internal consistencies were $\alpha = .84$ for mother's environmental mastery ($M = 4.33$, $SD = 0.90$), $\alpha = .78$ for mother's purpose in life ($M = 4.89$, $SD = 0.77$), $\alpha = .81$ for father's environmental mastery ($M = 4.57$, $SD = 0.76$), and $\alpha = .79$ for father's purpose in life ($M = 4.74$, $SD = 0.73$).

Parental depressive symptoms. The Center for Epidemiological Studies of Depression Scale (Radloff, 1977) measured mothers' and fathers' depressive symptoms during the past week (e.g., "I felt depressed") on a scale of 0 (*None/Rarely*) to 4 (*Most/All*). This measure has excellent reliability in our sample (mothers, $\alpha = .91$, $M = 12.42$, $SD = 10.04$; fathers, $\alpha = .90$, $M = 9.01$, $SD = 7.93$), validly discriminates between psychiatric and nonpatient groups, and has been shown to be sensitive to difficulties in parenting a child with diabetes (Kovacs et al., 1990).

Marital satisfaction. Mothers and fathers completed the 15-item Locke–Wallace Marital Adjustment Test (Locke & Wallace, 1959). Participants indicated the degree of happiness, everything considered, of their present marriage on a scale of 1 (*Very Unhappy*) to 7 (*Perfectly Happy*); indicated the extent of agreement between them and their mate regarding everyday matters (e.g., "Handling family finances") on a scale of 1 (*Always Disagree*) to 6 (*Always Agree*); and answered other general questions related to marital quality and satisfaction. This widely used measure has strong evidence of reliability and validity (Locke & Wallace, 1959), with alphas in our sample of .82 for mothers ($M = 112.73$, $SD = 29.45$) and .76 for fathers ($M = 110.54$, $SD = 27.01$), and is associated with more positive parent–child interactions in general (Forehand & Brody, 1985) and father–adolescent relationships in particular (King, Radpour, Naylor, Segal, & Jouriles, 1995). Individuals completed this measure referring either to their spouse (if married) or their partner (if not married).

Analysis Strategy: The Latent Discrepancy Model

Our analytic strategy for parent–adolescent discrepancies was conducted as a structural equation model in Mplus Version 3 (Muthén & Muthén, 2005). To maximize our use of the data, we utilized a full information maximum likelihood (FIML) estimator, which takes missing data into account. However, we suspected that those families without fathers could qualify as a nonrandom circumstance for missing data, and we therefore replicated all analyses with only the subset of 145 intact families. Overall, analyses did not change substantially (one finding dropped to a marginal relation, but two new ones consistent with the rest of the pattern surpassed $\alpha = .05$). Because FIML is believed to improve nonrandom circumstances over ignoring the cases entirely (Schafer & Graham, 2002), we report the results from the entire 185 families. All reports of significance used an alpha value of .05 (two-tailed).

In this method, one individual in the family (in our case the adolescent) is used as a referent for examining the discrepancies of the other family members from the adolescent (family member minus adolescent). The series of fixed coefficients in the path diagram in Figure 1 shows how a single construct reported from the adolescent, mother, and father (perceptions of adolescent adherence reported from the adolescent, mother, and father) can be transformed into differences in reports between the adolescent and mother and between the adolescent and the father. The latent

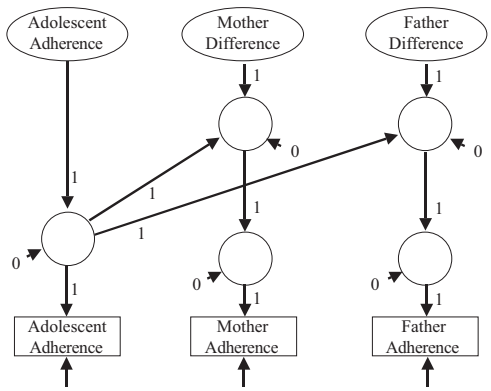

Figure 1. A portion of the structural equation model illustrating the constraints applied to generate individual-item latent discrepancies between the parents and adolescents, in this case for reports of adherence. Unmarked latent variables are node latent variables with intercepts and residual variances fixed to zero. They are necessary for constructing the difference score latent variables.

constructs, represented as circles, are node latent variables (latent variables with means and variances fixed to zero), whereas the lambdas and gammas (the path coefficients) between the node latent variables and the manifest reports of the adolescent, mother, and father are all fixed to one. The ovals are latent constructs capturing the adolescent's own report of adherence, the difference between the adolescent and the mother, and the difference between the adolescent and the father.

This latent variable structure is simultaneously applied to mothers' and fathers' perceptions of adolescent adherence, adolescent independence, adolescent efficacy, and problems with diabetes. The latent differences (ovals from Figure 1) are treated as manifestations of second-order latent constructs, which are interpreted as ways in which mothers and fathers are consistently discrepant across measures from their own adolescent in terms of the adolescent's perceived competence and independence.

For both the mother and father discrepancy factors, one marker variable is chosen to loan a metric to the discrepancy factors (we used the same scale from the mother and father for consistency in interpretation). We chose the difference between the adolescent and parent in adherence as the marker variables. For interpretation purposes, we chose to fix the lambdas for the marker variables to negative one instead of the traditional value of one. This provided an interpretation of the mean for the latent discrepancy factors as the average difference of the parent from the adolescent: A mean of zero indicates that the parent generally reports the same values as the adolescent, a positive value indicates that the parent tends to report lower values than the adolescent, and a negative value indicates that the parent averages higher values than the adolescent. Although this seems confusing, parents tended to perceive adolescents as less competent. Thus, setting the lambda to negative one sets the metric of the latent discrepancies so that higher scores are indicative of more discrepancy (i.e., a higher score indicates that children perceive themselves to be more competent and independent than do parents).The factor variances are the extent to which mothers or fathers vary from their adolescent in a consistent manner.

The model maintains the adolescent's scores on each scale, when the discrepancy factors and adolescent reports freely covary. For example, Figure 1 shows the structure of latent variables using just adherence, reported by the adolescent, mother, and father; the adolescent adherence factor is identical to the adolescent's observed scores on adherence. Figure 2 shows the full expansion of latent constructs, with adherence, behavioral independence (higher scores indicating independence from parents), efficacy, and problems with diabetes management reported from each of the three family sources. Of note, this is a model where mothers and fathers can be discrepant from the adolescent in different but related ways.

The mother's discrepancy factor is constructed from the shared variance of the mother's adherence discrepancy (marker variable), mother's behavioral independence discrepancy, mother's efficacy discrepancy, and mother's problems with diabetes discrepancy. The father's discrepancy factor is constructed in a similar way. We estimated residual variances from each of the observed items and fixed observed intercepts to zero; all of the top-level latent variable's intercepts were estimated except for the marker variables (taus for mothers' and fathers' adherence were fixed to zero). Only the adolescent's latent factors and the mother and father second-order discrepancy factors estimated factor variances (the rest were fixed to zero).

The latent discrepancy approach also allows for testing whether mothers and fathers are discrepant from the adolescent in an identical fashion or in fundamentally different ways. This is analogous to testing the dimensionality of the discrepancies (whether

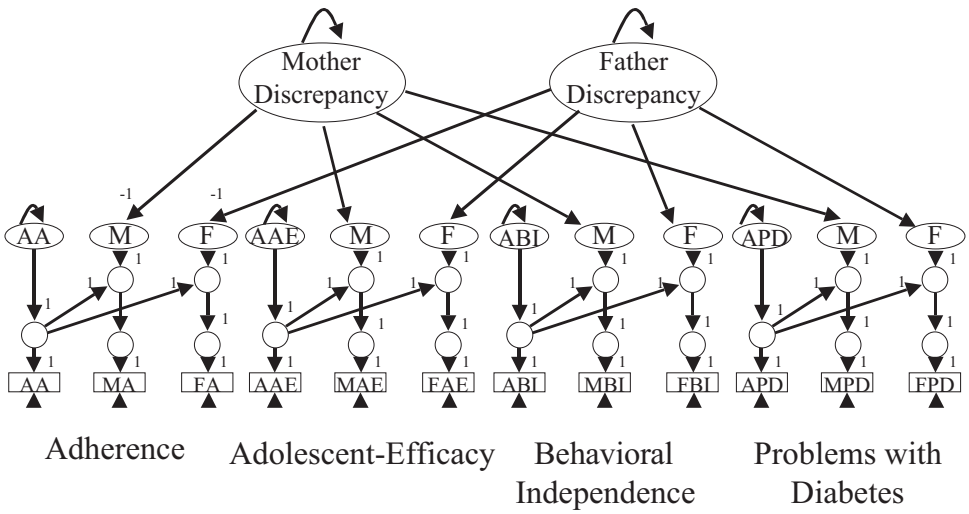

Figure 2. The full latent discrepancy model consisting of second-order factors to capture how mothers and fathers were consistently discrepant from their own adolescent. Several estimated parameters are not drawn for space, these parameters are covariances between the adolescent factors—AA (adolescent adherence), AAE (adolescent adolescent-efficacy), ABI (adolescent behavioral independence), and APD (adolescent problems with diabetes)—with each other and the discrepancy factors, factor means for the mother and father discrepancies, and adolescent factors (values for these are shown in Table 1). All other means and intercepts are fixed to zero. A = adolescent; M = mother; F = father.

mother and father discrepancies constitute a single factor rather than a factor for each parent). The second-order portion of the factor model is constrained to a single factor, which forces mothers' and fathers' discrepancies to have a single way in which parents diverge from their own adolescent. The equivalent model with a single second-order factor uses a single marker variable of mother's adherence discrepancy, and all of the other discrepancy factors freely load onto the single factor.

Once the dimensionality is established, we can examine whether there are consistent ways in which adolescents and parents differ from each other across constructs (i.e., Do parents consistently view their adolescent as less competent than does the adolescent?). Where mother–adolescent discrepancies and father–adolescent discrepancies constitute separate dimensions, we can test whether the parental discrepancies have any consistency between parents within the family (i.e., Are mothers and fathers similar in how they differ from their adolescent?). Last, we can examine whether the discrepancy factors themselves uniquely predict aspects of both adolescent and parent functioning (i.e., Are greater adolescent–parent discrepancies reflective of markers of autonomy processes and yet associated with poorer adolescent and parent well-being?).

Results

Latent Discrepancy Model for Mothers and Fathers

We began by testing two latent discrepancy models. The first fitted a single second-order factor to depict that mothers and fathers were consistent in their discrepancies from their adolescent. The second allowed mothers and fathers to have separate factors. The comparison between these two models tested if differences represented a consistent familial pattern (i.e., one factor) or if they were better represented in terms of separate parent discrepancy patterns (i.e., two factors). The chi-square difference test between the models suggested that mothers' and fathers' discrepancies were better represented by two factors, difference $\chi^2(5, N = 185) = 74.29$, $p < .01$. We therefore report all results using the two second-order factors model, in which mothers and fathers can be discrepant from the adolescent in different ways.

The fit of the two second-order factors latent discrepancy model was excellent according to common fit criteria, $\chi^2(39, N = 185) = 34.02$, $p = .70$, comparative fit index = 1.00, root-mean-square error of approximation = 0.00, standardized root-mean-square residual = .04. Factor means, variances, and correlations are presented in Table 1. Notably, mother and father discrepancy factors showed significant variability and significant loadings for all the differences from adolescent, which indicates that mothers and fathers were discrepant from the child in consistent ways across all the scales (communalities ranged between .54 and .83). Both mothers' and fathers' discrepancy factors reflected consistency in differences for the measures of behavioral independence, adherence, efficacy, and problems with diabetes; positive scores indicate that adolescents reported more behavioral independence than did the parents, for example (or the parents reported less independence than the adolescent), and zero indicates that the parent and adolescent reported the same levels. Because we fixed differences in adherence to have a loading of negative one (the marker variable), all the lambdas are the reverse of what would normally be expected if the marker variable had been positive one: Differences in adolescent efficacy (mothers, $\lambda = -2.5$, $z = -4.8$, $p < .01$; fathers, $\lambda = -1.9$, $z = -5.0$, $p < .01$) and differences in behavioral independence (mothers, $\lambda = -0.2$, $z = -2.3$, $p = .02$; fathers, $\lambda = -0.2$, $z = -2.6$, $p = .01$) loaded negatively. Differences in problems with diabetes (mothers, $\lambda = 1.2$, $z = 5.2$, $p < .01$; fathers, $\lambda = 1.1$, $z = 5.9$, $p < .01$) loaded positively. This reversal in the lambdas gives the second-order discrepancy factors the simpler interpretation that positive factor scores are indicative of more discrepancy.

Mother and father second-order discrepancy factors had means significantly greater than zero ($p < .01$ for mothers and for fathers). This indicated that, on average, adolescents viewed themselves as more behaviorally independent and adherent in diabetes management than did their parents (e.g., adolescent viewed self as more self-reliant, adherent, and self-efficacious but also as expe-

Table 1
Means, Variances, and Correlations for the Latent Discrepancy Factors and Individual Adolescent Items Taken From the Two Second-Order Factors Latent Discrepancy Model

	Mother discrepancy	Father discrepancy	Adolescent adherence	Adolescent adolescent-efficacy	Adolescent behavioral independence	Adolescent problem with diabetes
Mean	0.35 (7.47*)	0.26 (4.86*)	3.95 (92.73*)	6.60 (53.57*)	3.43 (76.69*)	0.89 (20.23*)
Variance	0.16 (3.74*)	0.24 (4.23*)	0.16 (5.42*)	1.29 (5.81*)	0.25 (8.43*)	0.16 (4.88*)
Correlation						
Mother discrepancy	—					
Father discrepancy	0.51 (3.10*)	—				
Adolescent adherence	0.29 (1.85)	0.34 (2.20*)	—			
Adolescent adolescent-efficacy	0.26 (1.88)	0.22 (1.66)	0.75 (5.33*)	—		
Adolescent behavioral independence	−0.07 (−0.67)	0.03 (0.31)	−0.04 (−0.42)	0.47 (4.43*)	—	
Adolescent problem with diabetes	−0.26 (−1.79)	−0.38 (−2.52*)	−0.78 (−5.07*)	−0.56 (−4.03*)	0.00 (−0.03)	—

Note. Parentheses contain estimates divided by standard error.
* $p < .05$.

riencing fewer problems). As shown in Figure 3, a zero value indicates that the parent reported the same level of behavioral independence and adherence as the adolescent; error bars show the average deviation (mean ± the square root of the factor variance) of parents from their adolescent. Some mothers and fathers were minimally discrepant, as a value of zero (i.e., parent same as adolescent) for the factor means is within one standard deviation of the expected variability of the discrepancy factors (see Figure 3). Although it is plausible that some families were negatively discrepant (e.g., parents perceived more behavioral independence than did the adolescent), this was the exception (assuming a normal distribution for factor scores on the latent discrepancies, we would expect 19% of mothers and 30% of fathers to perceive more independence than their adolescent). We therefore discuss the relation between mother and father discrepancies with other external variables in terms of when adolescents see themselves as being more adherent and behaviorally independent than does their mother or father (i.e., more discrepant = a more positive value) or as having the same view as their mother or father (less discrepant = near zero).

We also tested if the means of the discrepancies between mothers and fathers were significantly different from each other. To do this, we first needed to establish factorial measurement invariance of both the lambdas and taus of the difference factors across the two discrepancy factors (this resulted in an acceptably fitting model). We then compared this model with a second model that constrains the latent means to be equal. The resultant chi-square difference test was significant, $\chi^2(1, N = 185) = 6.83$, $p = .01$, and indicated that, on average, mothers were more discrepant than fathers.

As reported in Table 1, the correlation between discrepancy factors contains the ways in which mothers and fathers were consistently discrepant from the adolescent. Mother and father discrepancies were highly correlated ($r = .51$, $p < .01$), which indicated that when mothers had a more negative view than did the adolescent, fathers also tended toward a more negative view. The father's discrepancy factor correlated with the adolescent's self-reported adherence ($r = .34$, $p = .01$) and adolescent problems with diabetes ($r = -.38$, $p = .01$) but not with self-reported adolescent efficacy ($r = .22$, $p = .09$) or behavioral independence ($r = .03$, $p = .75$). This indicated that fathers tended to be more discrepant from the adolescent in perceptions of behavioral independence and adherence when the adolescent reported higher adherence and fewer diabetes problems. However, the adolescent's reports were unrelated to the mother's discrepancy factor (*p*s ranged between .06 for self-reported adolescent efficacy and .50 for self-reported behavioral independence). This suggested that the mother's discrepancies were not based on the adolescent's levels of behavioral independence and adherence.

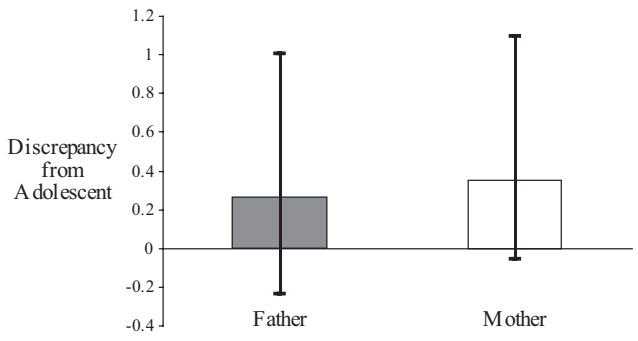

Figure 3. Mean levels of the discrepancy factors. A zero represents a view that is the same as that of the adolescent. Positive values are indicative of parents viewing the adolescent as less competent and independent than the adolescent rates himself or herself. The error bars show one standard deviation in either direction taken from the square root of the factor variances.

Relation Between Discrepancies and Adolescent Autonomy and Diabetes Management

To examine the relation between parent–adolescent discrepancies and adolescent autonomy, we conducted a series of structural models using a single adolescent measure as a predictor of the discrepancies. That is, we used age, autonomy, encouraging independence, and gender of the adolescent as separate predictors of the two discrepancy factors, in order to examine any relation between discrepancies and these variables (correlations among these variables are provided in Table 2). This approach generated a series of simultaneous one-predictor regressions in which the latent discrepancy factors and the adolescent's own reports served as the dependent variables. We therefore present these results using regression logic, even though all analyses were conducted in structural equation modeling. All the equivalent regression coefficients and *z* tests from these analyses are presented in Table 3. We also replicated every analysis controlling for the biological status of each parent and the percentage of time spent living in the household (on a 1–4 scale, 4 being 100% of the time). These covariates had no impact on the analyses and therefore were excluded from our results.

Age was added as a predictor of the parent–adolescent discrepancies, together with the individual adolescent self-reports of adherence, adolescent efficacy, behavioral independence, and problems with diabetes. Contrary to expectations, age did not significantly predict parent–child discrepancies either for mother ($R^2 = .01$, $p = .10$) or for father ($R^2 < .01$, $p = .97$). Age was associated with the adolescent's own reports of adherence (older adolescents reported less adherence; $R^2 = .06$, $p = .01$), adolescent efficacy (older adolescents reported more efficacy; $R^2 = .04$, $p = .01$), behavioral independence (older adolescents reported more behavioral independence; $R^2 = .40$, $p < .01$), and problems with diabetes (older adolescents reported more problems; $R^2 = .04$, $p = .02$). Gender was also used as a predictor of the parent–adolescent discrepancies and the adolescent's self-reports, but none of the coefficients reached conventional significance (largest $R^2 = .02$).

Unlike age, autonomy related both to mother ($R^2 = .04$, $p = .02$) and to father ($R^2 = .09$, $p < .01$) discrepancies, such that adolescents who reported more functional autonomy were more divergent from their parents' perceptions of them (higher autonomy relates to more discrepancy). This was also true for the adolescent's own self-reports of adherence ($R^2 = .13$, $p < .01$), adolescent efficacy ($R^2 = .21$, $p < .01$), behavioral independence ($R^2 = .07$, $p < .01$), and problems with diabetes ($R^2 = .14$, $p < .01$). When adolescent reports of how much parents encouraged independence were used as predictors of the parent–adolescent

Table 2
Correlations Among the Adolescent, Mother, and Father Well-Being Measures Estimated Using FIML for Missing Data

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Adolescent															
1. Age	—														
2. Gender[a]	.10	—													
3. Autonomy	.18*	.16*	—												
4. Mother encouraging independence	.21*	−.05	.21*	—											
5. Father encouraging independence	.11	−.02	.21*	.21*	—										
6. Hb_{A1c}	.17*	−.05	−.20*	.03	−.18*	—									
7. Depressive symptoms	−.01	−.15*	−.40*	−.20*	−.28*	.25*	—								
Mother															
8. Depressive symptoms	.06	.02	−.21*	−.12	−.10	.19*	.08	—							
9. Marital satisfaction	−.02	−.05	.21*	.07	.08	−.21*	−.15	−.42*	—						
10. Environmental mastery	−.03	.04	.18*	.06	.06	−.13	−.12	−.71*	.46*	—					
11. Purpose in life	−.01	.05	.20*	−.02	.07	−.07	−.12	−.64*	.38*	.72*	—				
Father															
12. Depressive symptoms	.01	.05	−.23*	.02	−.01	.17	−.08	.40*	−.36*	−.19*	−.25*	—			
13. Marital satisfaction	.05	−.02	.30*	.03	−.09	−.14	−.08	−.33*	.63*	.29*	.35	−.41*	—		
14. Environmental mastery	−.08	−.00	.11	−.08	.00	−.18	−.08	−.16	.25*	.12	.10	−.60*	.33*	—	
15. Purpose in life	−.12	−.04	.18*	−.10	.05	−.08	.04	−.22*	.33*	.16	.19*	−.57*	.36*	.65*	—

Note. FIML = full information maximum likelihood; Hb_{A1c} = glycosylated hemoglobin.
[a] Gender was coded 1 for male and 0 for female.
* $p < .05$.

discrepancies, we saw a pattern similar to that for autonomy; encouraging independence was positively related to mother–adolescent discrepancies ($R^2 = .09$, $p < .01$). Mothers who were viewed as encouraging more adolescent independence were more discrepant in their views of adolescents' adherence and behavioral independence than were adolescents in their views of themselves. This pattern did not hold for fathers ($R^2 = .02$, $p = .70$). However, both mothers' and fathers' encouraging independence related to adolescents' own reports, with the only exception that behavioral independence and mothers' encouraging independence failed to reach conventional significance (adherence, $R^2 = .17$, $p < .01$; adolescent efficacy, $R^2 = .13$, $p < .01$; behavioral independence, $R^2 = .02$, $p = .06$; problems with diabetes, $R^2 = .09$, $p < .01$).

To examine the relation between parent–adolescent discrepancies and Hb_{A1c}, we treated Hb_{A1c} as a criterion with mother–adolescent discrepancies, father–adolescent discrepancies, and the adolescent's self-reports as predictors in the equivalent of a simultaneous regression analysis (results for this and the analyses of parental well-being are given in Table 4). Hb_{A1c} and adolescent depression were treated as criterion variables, largely because we wanted to conduct a conservative test of the value of discrepancies in predicting well-being, after controlling for the adolescent's own reports of the variables that constituted the discrepancies. Each relation to parent–adolescent discrepancies therefore reflects only how it uniquely relates to Hb_{A1c} over and above the other parent–adolescent discrepancy or the adolescent's self-report (e.g., how mother–adolescent discrepancies relate to Hb_{A1c} above and beyond father–adolescent discrepancies and the adolescent self-reports). We did not have as good a reason for statistically covarying out the other parent's discrepancy, so all analyses were

Table 3
Adolescent Measures of Competency and Independence and Discrepancy Factors Predicted by Autonomy Markers

	Age		Gender		Autonomy		Mother encouraging independence		Father encouraging independence	
Measure	Est.	*SE*	Est.	*SE*	Est.	*SE*	Est.	*SE*	Est.	*SE*
Mother discrepancy	0.03	1.30	0.06	0.75	0.14	2.15*	0.20	3.03*	0.17	2.84*
Father discrepancy	−0.01	−0.04	0.08	0.88	0.26	3.08*	0.11	1.35	0.03	0.37
Adolescent adherence	−0.06	−2.66*	−0.02	−0.25	0.26	4.05*	0.27	4.53*	0.18	3.41*
Adolescent adolescent-efficacy	0.15	2.21*	0.02	0.08	0.94	5.24*	0.68	4.05*	0.56	4.22*
Adolescent behavioral independence	0.21	9.98*	−0.15	1.93	0.23	3.38*	0.12	1.89	0.13	2.49*
Adolescent problem with diabetes	0.05	2.00*	−0.08	−0.99	−0.26	−3.91*	−0.19	−3.04*	−0.18	−3.52*

Note. All coefficients are taken from structural equation models equivalent to one-predictor regressions. Est. = estimate.
* $p < .05$.

Table 4
Relationships Between Discrepancy Factors Predicting Parent and Adolescent Well-Being

Measure	Mother discrepancy		Father discrepancy	
	Est.	*SE*	Est.	*SE*
Adolescent				
Hb_{A1c}	1.14	2.65*	0.03	0.09
Depressive symptoms	−0.83	−0.36	0.74	0.38
Mother				
Depressive symptoms	13.67	3.88*	−1.94	−0.68
Marital satisfaction	−19.85	−2.16*	1.32	0.17
Environmental mastery	−1.36	−3.96*	0.25	1.13
Purpose in life	−1.02	−3.30*	0.27	1.30
Father				
Depressive symptoms	2.95	1.11	1.29	0.62
Marital satisfaction	−13.65	−1.53	0.01	0.00
Environmental mastery	−0.01	−0.02	−0.33	−1.50
Purpose in life	0.04	0.15	−0.39	−2.05*

Note. All coefficients are taken from structural equation models equivalent to simultaneous regression analyses. Est. = estimate; Hb_{A1c}= glycosylated hemoglobin.
* $p < .05$.

conducted only over and above the adolescent self-reports and not controlling for the other parent discrepancy factor. This had no impact on the significance or direction of effects. All effect sizes are squared semipartials above and beyond the other predictors calculated with the standardized betas.

Mothers' discrepancy ($sr^2 = .06$, $p = .01$), but not fathers' discrepancy ($sr^2 = .01$, $p = .93$), predicted Hb_{A1c}, such that mothers who were discrepant from their adolescents had higher Hb_{A1c} (an indication of poorer management of the adolescent's diabetes). Adolescent depressive symptoms was treated as a criterion of the parent–adolescent discrepancies and adolescent self-reports in adherence, behavioral independence, adolescent efficacy, and problems with diabetes. Neither discrepancy factor related uniquely to adolescent depressive symptoms (mothers, $sr^2 < .01$, $p = .72$; fathers, $sr^2 < .01$, $p = .70$).

Thus, this overall pattern of findings suggests a complex picture regarding the implications of discrepancies in perceptions of adherence, behavioral independence, adolescent efficacy, and problems with diabetes for adolescent functioning: Greater mother–adolescent discrepancies were associated with greater adolescent-reported autonomy but with poorer physical well-being in the adolescent.

Relation Between Discrepancies and Parents' Well-Being

To test the relation between parental well-being and parent–adolescent discrepancies, we tested each well-being measure individually in a separate structural equation model. Mothers' and fathers' depressive symptoms, perception of their own environmental mastery, having a purpose in life, and marital satisfaction were added as outcomes predicted by discrepancies and adolescent reports. In all cases, this produced the same conservative test of how a given parental discrepancy uniquely relates to parental well-being (e.g., how mother–adolescent discrepancies predict mother's depression above and beyond father–adolescent discrepancies and the adolescent's own self-reports of competence and independence). Again, regression coefficients and z tests are displayed in Table 4 with selected effects repeated below (correlations among well-being measures are found in Table 2). As before, we also conducted analyses without controlling for the other parent's discrepancies; no impact on significance or direction of effects was found. We also tested for age and age-interaction effects with all the variables reported herein. Only one effect reached statistical significance (age and mother's discrepancy interacted in predicting father's marital satisfaction, such that younger adolescents with greater discrepancies related to less marital satisfaction), and thus these effects were not included in the results.

Mother–adolescent discrepancy was positively related to mother's depressive symptoms ($sr^2 = .12$, $p < .01$), such that mothers had fewer symptoms of depression when they held views similar to those of their adolescent (i.e., lower discrepancy). Mother–adolescent discrepancies also related to mothers' reports of marital satisfaction ($sr^2 = .05$, $p = .03$), mothers' reports of environmental mastery ($sr^2 = .22$, $p < .01$), and mothers' reports of having a purpose in life ($sr^2 = .19$, $p < .01$). In every case when the mother had lower discrepancy scores, indicating views similar to the adolescent's, the mother reported better well-being. Note that mothers' well-being was not associated with overall levels of adolescents' self-reported adherence, behavioral independence, adolescent efficacy, and problems with diabetes. Only problems with diabetes related to mother's reported purpose in life ($z = -2.05$, $p = .04$; for parsimony, these results are not included in Table 4). Hence, it was not that poorly adjusted mothers had adolescents who were (by the adolescents' own assessment) low on competence and independence; it was rather the gap between adolescents' and mothers' perceptions that was associated with maternal maladjustment.

Fathers' discrepancies showed a similar but less strong relation to measures of well-being than did mothers' discrepancies. Only fathers' report of purpose in life was associated with fathers' discrepancy factor (father's depressive symptoms, $sr^2 < .01$, $p = .53$; father's marital satisfaction, $sr^2 < .01$, $p = .99$; father's environmental mastery, $sr^2 = .03$, $p = .13$; father's report in purpose in life, $sr^2 = .04$, $p = .04$). That is, fathers who were more discrepant from adolescents tended to describe themselves as having a less purposeful life. Again, this was in line with greater parent–adolescent discrepancies being associated with poorer parental psychosocial well-being.

Discussion

In general, adolescents perceived themselves to be more competent and independent than did their mothers and fathers, and such discrepancies were associated with greater adolescent autonomy and the promotion of autonomy by parents. Further, mothers and fathers were discrepant in consistent, yet different, ways from their adolescent across multiple markers of competence and independence in dealing with Type 1 diabetes. Such perceptual gaps serve to index the normative process through which adolescents seek and achieve progressively greater autonomy and independence from their parents over the course of adolescence. However, greater discrepancies in perceptions of adolescent competence and independence also were associated with poorer diabetes outcomes

for adolescents and poorer well-being for mothers and, to a lesser extent, for fathers, even when we controlled for the adolescent's level of competence and independence. These results are consistent with a developmental perspective that such discrepancies may reflect the normative process of adolescent autonomy seeking. Such a process is likely to be adaptive in the long run but may entail short-term costs regarding parents' well-being and—perhaps most important in the present context—adolescents' management of chronic health problems.

Developmental Perspective on Discrepancies and Adolescent Autonomy

Our results are consistent with a developmental perspective on how discrepancies may be a normal outgrowth of autonomy processes across adolescence. Across multiple markers of independence and competence in dealing with their chronic illness, adolescents perceived themselves to be better at managing their diabetes than did both mothers and fathers. The results for independence in completing diabetes tasks, adherence, efficacy, and experiencing problems are consistent with previous research in the field comparing mothers and adolescents (Mansfield et al., 2004; Ott et al., 2000; de Wit et al., 2007), and our study extends this work to include fathers. Future research is needed to understand whether the perceptions of greater competence and independence on the part of adolescents reflect that adolescents perceive themselves, in general, as being more competent than do their parents (Dekovic et al., 1997), in ways that go beyond diabetes-specific measures of competence and independence.

Consistent with the developmental perspective, the extent to which mother and father were not on the same page as the adolescent was associated with autonomy-promoting processes. That is, when parents were more discrepant from their adolescent, adolescents reported higher autonomy and perceived their mother as encouraging more independence. The cross-sectional nature of our data prohibits us from making strong conclusions concerning the direction of these effects. From a developmental perspective, the discrepancies may serve as a natural outgrowth of the typical autonomy seeking of the adolescent together with the autonomy granting of the parent (Allen, Hauser, Bell, & O'Conner, 1994). Such discrepancies may serve as a catalyst for changing adolescent–parent relationships and autonomy processes, such that they provide for the opportunity for readjustments in parenting practices that allow for greater well-being in the long run (Greenley, Holmbeck, & Rose, 2006). Current transactional perspectives on parent–adolescent relationships suggest a more complex process of changing autonomy demands, parents' independence encouragement, and changing perceptions of adolescents' competence and independence (Kim et al., 2001) that unfold over time. Parents may encourage the adolescent's independence not only as a response to autonomy demands but also as a way to promote autonomy development (Palmer et al., 2004; Soenens et al., 2007), consistent with notions of the zone of proximal development (Vygotsky, 1978). Especially with respect to diabetes management, late adolescents must become able to independently manage their diabetes, as they transition out of the family home (Weissberg-Benchell, Wolpert, & Anderson, 2007). Mothers in particular may engage in such collaborative processes (Wiebe et al., 2005), as they are more regularly involved in the day-to-day management of diabetes than are fathers (Seiffge-Krenke, 2002). Our future longitudinal work with these data will chart these different developmental pathways.

Age was associated in a complex way with measures of independence and competence. Older adolescents were more independent in completing daily diabetes tasks and reported more efficacy. They were also less adherent and reported experiencing more problems (see also Ott et al., 2000; Palmer et al., 2004), and this confirms that adolescence is a difficult time for managing diabetes (Anderson, Ho, Brackett, & Laffel, 1999; Wysocki, 1993). Age differences were not seen, however, in the discrepancies between adolescents and their mothers and fathers. As numerous scholars (Loevinger, 1979; Steinberg & Silverberg, 1986) have noted, age is an imperfect indicator of maturity (in our sample, age and autonomy were minimally related, $r = .19$). In addition, our sample consisted of a restricted age range during adolescence, a time when autonomy processes are most apparent. Longitudinal work on discrepancies suggests that although adolescents and parents become more congruent during mid-adolescence (potentially due to adolescents' decreased egocentrism and greater cognitive abilities), there is remarkable stability in intrafamily discrepancies (Alessandri & Wozniak, 1989) across adolescence.

Our results add to the literature on discrepancies by demonstrating that although mothers' and fathers' discrepancies were significantly correlated, they were sufficiently separate such that they did not constitute a single factor. Thus, at least for the measures examined in the present study, mothers and fathers differ in how they are discrepant from their adolescent. Further, differences were seen in how tied mothers' and fathers' discrepancies were to the adolescent's self-perceived competence and independence. Fathers' discrepancies were associated with the adolescent's perceptions of competence and independence, such that the greater the adolescent's perceptions of competence and independence, the more discrepant fathers were from the adolescent. Mothers' discrepancies, however, were not significantly associated with the adolescent's perceptions. Mothers' perceptions of the adolescent's competence and independence may be affected by different factors than are fathers' perceptions, such as mothers' own emotional well-being (Berg et al., 2007; Butler, Fortenberry, Berg, Foster, & Wiebe, 2008).

This reliance on different factors for parental perceptions provides a plausible explanation as to why mothers perceived greater discrepancies than do fathers overall. Mothers' greater involvement in adolescents' daily regimen could make them more aware of minor failures in competency and independence not apparent from the more distal role of fathers. The fact that fathers' discrepancies were correlated to adolescents' reports suggests a greater reliance on adolescent accounts and draws father perceptions closer to the adolescent. Future research is needed to examine how mother and father differences in discrepancies may contribute to marital strain, consistent with low marital satisfaction among parents of adolescents (Glenn, 1990). In addition, mother and father discrepancies may contribute to difficulties in coparenting (Fincham & Hall, 2005; Margolin, Gordis, & John, 2001), the ways in which mothers and fathers function together as a dyadic unit regarding parenting involvement and behaviors. Such discrepancies could impair their ability to collaborate concerning diabetes management tasks (Berg et al.,

2007) and might be especially problematic in divorced or separated parents.

Discrepancies and Adolescent and Parental Well-Being

Consistent with the developmental and clinical perspectives on discrepancies, greater discrepancies between mother and adolescent were associated with poorer diabetes management, measured by the amount of glucose control, even when controlling for the adolescent's own perceptions of competence and independence (uniquely accounting for 6% of the variance). This pattern was not found for father–adolescent discrepancies (uniquely accounting for only 1% of the variance). The fact that mothers' discrepancies, but not fathers', were associated with metabolic control may reflect greater monitoring and involvement in adolescents' diabetes management by mothers than by fathers (Berg et al., 2007; Seiffge-Krenke, 2002). By virtue of their greater daily involvement in diabetes management, mothers may use Hb_{A1c} as a gauge for how competent both they and the adolescent are with respect to diabetes management. One pathway whereby these discrepancies may be associated with glucose control is through mother–adolescent conflict. Previous work on parent–adolescent discrepancies has indicated that such discrepancies are associated with greater parent–adolescent conflict (Miller & Drotar, 2003), with conflict associated with poorer metabolic control (Miller-Johnson et al., 1994). Future research should examine the potential relations between conflict and mother–adolescent discrepancies, as no measure of conflict was available in our study.

An important contribution of this study was to examine how parent–adolescent discrepancies relate not only to adolescent outcomes but also to parental outcomes, as this link has not been examined in the present developmental or diabetes literature. Greater mother–adolescent discrepancies was associated with a broad array of measures of psychosocial well-being that included marital satisfaction and purpose in life (uniquely accounting for anywhere from 5% to 22% of the variance in measures of psychosocial well-being). Although father–adolescent discrepancies were associated with lower purpose in life (uniquely accounting for 4% of the variance), the relations for fathers' psychological well-being were not as pervasive as those for mothers' psychological well-being. The greater relations between psychological well-being and discrepancies for mothers as opposed to fathers may be due to the greater daily involvement of mothers in the lives of adolescents (Waizenhofer, Buchanan, & Jackson-Newsom, 2004), particularly with respect to diabetes management (Seiffge-Krenke, 2001). Further, women's greater interdependence in general (Cross & Madson, 1997) and greater familial responsibility in particular (Quittner et al., 1998) may accentuate the role of differences and conflict for the psychological well-being of women. Mothers' emotional well-being may also negatively bias mothers' perceptions of the adolescent's competence (Butler et al., 2008; Luoma et al., 2004; Najman et al., 2001) and lead to greater discrepancies.

Our cross-sectional results are consistent with aspects of both the developmental and the clinical perspectives to how discrepancies function in adolescence. That is, discrepancies were associated with normal autonomy-promoting processes that occur during adolescent development but also with poorer well-being of both adolescents and their parents (especially their mothers) and poorer diabetes outcomes. These results could imply that although discrepancies are a normal part of autonomy development in healthy adolescents, such discrepancies place adolescents with a chronic illness and their parents at risk for serious health complications. Longitudinal research in our laboratory is ongoing and will elucidate whether these discrepancies serve to precipitate changes in the parent–adolescent relationship, so that perceptual gaps are reduced across adolescence, or whether such discrepancies have long-term health implications. Such longitudinal findings will help to inform future recommendations for parents and clinicians as to whether discrepancies are a normal part of development to be understood or should be the target for intervention, as they come at too great a cost for those with a chronic illness.

The Latent Discrepancy Model

The latent discrepancy model provides a flexible statistical strategy with which to examine intrafamily differences. One benefit of our approach is that one can choose any individual as the referent. For example, if the focus had been more on interparental conflict (Cummings & Davies, 2002), one could have chosen either the mother or the father as the referent to reveal the ways in which discrepancies between mothers' and fathers' perceptions may be important for the marital relationship. Choosing the mother as the referent, for example, would have allowed us to control for mothers' (instead of adolescents') perceptions of competence in independence when examining the discrepancies. The approach can easily be expanded for additional family members (e.g., siblings) or other key relationships (e.g., health care providers and friends). By expanding to multiple family roles, one could test for the underlying dimensionality of these discrepancies. For example, some discrepancies among key relationships may function identically and thus create a single latent discrepancy factor (e.g., mother–adolescent discrepancies across multiple adolescents within a family; Shanahan, McHale, Osgood, & Crouter, 2007). Alternatively, discrepancies from a single type of family member could be multidimensional and allow for more than one way in which mothers, for example, could consistently differ from their adolescent.

Limitations and Conclusion

The results should be interpreted in the context of some limitations. First, the study examined discrepancies in relation to the balance between autonomy and well-being during adolescence for families dealing with Type 1 diabetes. It is possible that the stressful nature of this illness accentuated the relation between discrepancies and autonomy processes, beyond what might occur in a healthy sample (see Greenley et al., 2006, for results illustrating that these processes may be more apparent in families dealing with chronically ill adolescents). Thus, although the context of diabetes management provided an excellent context in which to examine these relations, we cannot generalize to all adolescents. Second, our results should be replicated beyond the specific indicators of competence and independence examined here. As with any factor analytic approach, the latent constructs are a function of the measures that make up the construct. Our choice specifically capitalized on the diabetes context. Third, our sample largely comprised intact two-parent families. Discrepancies, especially between mothers and fathers, may be larger in families where the

father is not in residence. Although we were unable to assess fathers for 40 of our families, we chose to extrapolate our results using the entire sample under an assumption that the reasons for father absence were captured in the other measured relations. In doing so, we generated a missing-at-random scenario. We have no way to verify the assumption, and it is just as likely that the reasons for father absence are related to the reports the fathers would have given us and not to those of the mothers or adolescents. Such a relation would generate a non-random-missingness circumstance. We therefore consider our generalizability to nonintact families with caution. However, when we eliminated families without a participating father, the results remained largely the same.

In conclusion, our results are suggestive that intrafamily discrepancies regarding the adolescent's competence and independence in dealing with Type 1 diabetes may reflect autonomy processes during adolescence as well as be associated with poorer well-being and health outcomes in the short run. Future research will show whether interventions within a family systems perspective (Wysocki et al., 2006) should be targeted toward greater awareness among adolescents and parents that discrepancies are a natural part of adolescent development or toward resolving discrepancies. Such interventions could easily be integrated within family teamwork approaches to diabetes management (Anderson et al., 1999).

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