The Long Branch of Phase-Environment Fit:
Concurrent and Longitudinal Implications of Match and Mismatch Among Diabetic and Nondiabetic Youth

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Based on the stage-environment fit perspective (Eccles & Midgley), we hypothesized that diabetic adolescents who experience a developmental match would be more likely to experience optimal psychosocial outcomes. Three questions were addressed: Are there links between developmental match and adolescents' psychosocial outcomes, and if so, do such links differ by diabetic status? What are the long-term implications for later psychosocial outcomes of developmental match, and do such links differ by diabetic status? Do adolescents differentially perceive community support as a function of their developmental match and diabetic status? We assessed diabetic and nondiabetic adolescent boys and girls from a larger longitudinal study of chronic illness. Family characteristics were observed in a revealed difference task. Results suggested that even after controlling for psychosocial factors during adolescence, the benefits of developmental match (and the costs of developmental mismatch) could be observed during young adulthood. In addition, preadolescents with diabetes perceived their community as more supportive than any other group of adolescents. Results are discussed within a developmental contextual perspective, with particular attention to the experiences of diabetic adolescents.

The purpose of our longitudinal investigation was to identify family interactions associated with specific aspects of psychosocial development. Developmental match is defined as parents' sensitivity to adolescents' developmental phase, in terms of promoting adolescents' differentiation and cognitive autonomy. Based on the stage-environment fit perspective (Eccles & Midgley, 1989), individuals who experience a developmental match experience more optimal psychosocial outcomes. Three limitations are present in the existing literature with respect to connections between developmental

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match and psychosocial outcomes: (a) they focus exclusively on samples of normative youth, (b) they do not test for long-term implications of developmental match for subsequent outcomes (e.g., adult outcomes based on match identified during adolescence), and (c) they do not assess the role of the broader context (i.e., communities) on this relationship. The present work aimed to close this empirical gap by longitudinally investigating developmental match and psychosocial outcomes among a sample of chronically ill adolescents. Specifically, we studied diabetic and nondiabetic youth from adolescence through young adulthood and examined the way that perceptions of communities influenced connections between developmental match and psychosocial outcomes.

We addressed three sets of research:

1. What are the links between developmental match and adolescents' psychosocial outcomes? Are these links moderated by diabetic status?
2. What are the long-term implications for later psychosocial outcomes of developmental match? Are these links moderated by diabetic status?
3. Do adolescents differentially perceive community support as a function of their developmental match and diabetic status?

We examined these questions using data from a larger longitudinal study of diabetic and nondiabetic adolescents and their families (Hauser et al., 1984; Jacobson, Hauser, Cole, et al., 1997; Jacobson, Hauser, Willett, Wolfsdorf, & Herman, 1997). Parents and adolescents were assessed through direct observation tasks, and their interactions were then analyzed using a coding approach designed to capture parents' levels of constraining or enabling youths' differentiation (Hauser et al., 1984). Psychosocial development was assessed through a sentence completion task (Loevinger & Redmore, 1970; Loevinger, Wessler, & Redmore, 1970), and perceptions of community support were measured through adolescents' self-reports (McCubbin, Olson, & Larsen, 1981). Ten years after these initial assessments, the now-young adults' psychosocial development was reassessed.

CONCEPTUAL CONSIDERATIONS

The Stage-Environment Fit Approach

Guiding our research questions is the stage-environment fit perspective, presented by Eccles and colleagues (Eccles, Lord, & Roeser, 1996; Eccles & Midgley, 1989; Eccles et al., 1993). The stage-environment model is a devel-

opmental perspective (Hunt, 1975) that has as its focus the notion that developmentally appropriate contexts promote optimal psychosocial growth. Specifically, this model suggests that positive outcomes result from a *match* (i.e., a good fit) between an adolescent's developmental stage and the demands of his or her social context. In contrast, negative outcomes are hypothesized to result from a developmental *mismatch* (i.e., a poor fit) between an adolescents' developmental stage (or phase) and the demands of their social context (Eccles & Midgley, 1989). This model is particularly relevant for our sample, given the broad range of ages represented (i.e., preadolescence through middle adolescence). Although the stage-environment fit model was originally proposed to examine links between early adolescents' academic performance and the demands of their school environment (Eccles & Midgley, 1989; Eccles et al., 1993, 1996), it has clear implications for adolescents' family relationships. Specifically, we proposed that parents whose interactions with their adolescents appropriately take into account adolescents' developmental phase (i.e., pre-, early, and middle adolescence), contribute to a developmental match. In other words, a developmental match is where the demands of the parent-adolescent interaction are appropriately structured to meet the demands or abilities of adolescents' developmental phase. A good match between adolescents' family interactions and their respective developmental phase is expected to be associated with enhanced psychosocial outcomes. On the other hand, a developmental mismatch occurs when parents' interactions with adolescents do not reflect adolescents' developmental phase, but instead, are "out of step" with the adolescents' developmental phase; developmental mismatch is expected to be associated with less optimal psychosocial outcomes.

Most of the research on the stage-environment fit model has been conducted exclusively on normative, nonclinical populations. Our study represents a first exploration of the developmental match model with a special population of adolescents, examining whether youth with a serious chronic medical illness (i.e., insulin-dependent diabetes mellitus) respond differently to a developmental mismatch than their nondiabetic peers. Furthermore, the majority of studies examining the stage-environment fit perspective have used only cross-sectional data, or longitudinal data based on one developmental period (e.g., following youth for 3 years during adolescence, 14-17 years). Consequently, results from such studies cannot answer questions about long-term implications associated with developmental match. Identifying the sequelae associated with goodness-of-fit between adolescent phase and family interactions would facilitate a greater understanding of the far-reaching implications for psychosocial outcomes of developmental match.

We envision three competing developmental trajectories that could follow from an adolescent's developmental match with his or her family interactions. First, initial outcomes associated with developmental match could be short-lived; experiencing a good fit during adolescence would not necessarily lead to optimal outcomes in subsequent years. For example, the stressors associated with young adulthood may supersede the benefit of experiencing a good fit during adolescence. Thus, adolescents are not guaranteed more optimal outcomes during young adulthood. Similarly, one can hypothesize that those with a poor fit during adolescence (i.e., a mismatch) rebound during young adulthood. In this scenario, premature promotion of autonomy may exceed the developmental capacities of adolescents, consequently contributing to immediate lower levels of psychosocial development. Yet, in subsequent years, the poor effects associated with premature promotion of autonomy would no longer be evident. In fact, some studies have shown that those adolescents who are "overwhelmed" during adolescence fare better in later life (Compas & Wagner, 1991; Elder & Caspi, 1988), thus fostering a "rebound," or better outcomes in subsequent years.

A second trajectory is exemplified by adolescents who experience a developmental match and do not reap the benefits of the match during adolescence. Instead, optimal outcomes become evident later in life, when the challenges of young adulthood demand that individuals draw on their individual resources (e.g., specific ways of coping to meet challenges of young adulthood). This "sleeper effect" conception is similar to the inoculation hypothesis proposed by Rutter (1987). Analogously, those with a developmental mismatch may not experience lowered psychosocial outcomes during their adolescent years. Instead, developmental mismatch during adolescence may create a vulnerability to later negative outcomes. The poor outcomes expected to be associated with this vulnerability emerge only in subsequent years when certain challenges of adulthood (e.g., intimacy issues, career choices) act as a precipitating influence on earlier developmental mismatch. In this case, less optimal psychosocial outcomes would surface during young adulthood. A third possible pathway is the most continuous one, where adolescents with a developmental match move from optimal functioning (in the adolescent years) to optimal outcomes in young adulthood. In the same vein, adolescents with a developmental mismatch may follow a negative trajectory of psychosocial development, the effects of which persist beyond adolescence and continue into young adulthood. To identify which trajectories best described the goodness-of-fit experiences of diabetic and nondiabetic adolescents, we followed diabetic and nondiabetic youth from their adolescent to their young adult years.

Psychosocial Development

Many studies have underscored ego development as an indicator of psychosocial development of children, adolescents, and adults (e.g., Hauser, 1976, 1991; Hy & Loevinger, 1996). Ego development, encompassing cognitive and social processes, has recently attracted the attention of many investigators (e.g., Adams & Fitch, 1982; Cohen, 1960; Hauser, 1976, 1991; Hauser, Jacobson, Noam, & Powers, 1983; Hauser et al., 1984; Hy & Loevinger, 1996). Ego development is conceptualized as the

> evolution of meanings that the [individual] imposes upon inner experience and perceptions of people and events. Moreover, linked theoretically and empirically with adaptation, coping, and many social behaviors, ego development is especially relevant to our understanding reciprocal relations between adolescent growth and the family setting. (Hauser, 1991, p. 6)

Levels of ego development have been systematically associated with certain types of family interaction patterns (Hauser et al., 1984). Ego development analyses may be especially valuable in extending our understanding of the adolescent era, given that this is a time when an individual's integration of self-concepts with social interactions is most salient (e.g., with peers, new romantic partners, transformed family relationships).

Defined independently of age, three broad levels of ego development can be conceptualized: (a) preconformist, (b) conformist, and (c) postconformist (Hauser, 1991; Loevinger & Wessler, 1970). Although we recognize that there are individual differences regarding people at each level, we present descriptions of each level that capture an "average" individual represented in each category. Furthermore, the individuals in these examples are described as adolescents, although the characteristics mentioned typify each level throughout the life span.

Individuals in the earliest stages of ego development, the preconformist stages, are characterized by impulsive, demanding, and exploitative behaviors. For example, a 13-year-old male who is sexually promiscuous, skips school regularly, tends to use his friends for whatever material items they can provide him, and often blames his parents and teachers for any academic failings he experiences, would be classified as in the preconformist stages. The conformist stages are characterized by superficial niceness, a nearly knee-jerk conformity to rules, a conceptual simplicity regarding inner states, a strong interest in being liked, and expression of feelings in terms of stereotypes. But alongside these compliant orientations is a growing awareness of individual differences in abilities and attitudes. For example, a 13-year-old female who is preoccupied with appearing "nice" to her friends and to those

in authority would be classified as in the conformist stages. She tends to describe her emotional stoicism in terms of such clichés as "big girls don't cry." She also is never late, never fights with her friends, and dislikes being alone. She is overly self-critical, and whenever she angers her siblings, she is overcome with guilt and anxiety.

Finally, the third level of ego development encompasses the postconformist stages, characterized by a respect for differentiated feelings, greater conceptual complexity, an ability to tolerate ambiguity and paradox, and a tendency to cherish relationships, yet not at the expense of individuality and healthy autonomy. Another 13-year-old female typifies characteristics of this category. She experiences and expresses her conflicting inner needs to her friends—the desire to do well academically but to also remain a competitive floor hockey player and maintain close relationships with her competitors. She enjoys listening to her friends' feelings. She sees herself as involved in many interconnected ways with family, friends, classmates, and teammates.

Family Context: Family Interactions and Adolescents' Developmental Phase

Our conceptual framework regarding family context and family interactions was inspired by Steirlin's (1974) analysis of how troubled families oppose the separation of their adolescent members. Building on this earlier work, Hauser and colleagues (1984, 1986) delineated specific ways that parents may cognitively constrain (restrict or limit) or enable (facilitate, enhance) adolescents in family interactions. Cognitive constraining and enabling family interactions are assumed to be reflecting parents' general patterns of interacting with adolescents in daily life. Constraining is exemplified by interjecting or interfering with the feelings of other family members, or expressing beliefs that another's ideas are objectively wrong. Parents who constrain adolescents tend to use expressions that may obstruct or interfere with differentiated thinking of novel ideas within the family (Hauser, 1991). Enabling, on the other hand, refers to parents' support and encouragement of adolescents' independent thoughts, perceptions, and behaviors (Hauser, 1991; Hauser et al., 1990). Such facilitation is marked by interactions that include focusing, problem solving, curiosity, and explaining.

In studies using these constructs among middle to older adolescents, Hauser and colleagues have consistently demonstrated inverse connections between parents' levels of constraining and adolescents' ego development. They also found that parents who engage in more enabling interactions with adolescents were more likely to be associated with adolescents who have higher levels of ego development (Hauser, 1991; Hauser et al., 1984). This

previous work elucidates important links between family interactions and adolescents' psychosocial development and promises a multitude of avenues for additional study. One next step in this line of inquiry is to advance our understanding of how adolescents' specific characteristics, such as their developmental phase, moderate the connections between parental interactions and ego development. Based on developmental perspectives of adolescence, this new line of inquiry emphasizes the importance of examining different age-grouped stages within adolescence (e.g., preadolescence, early adolescence, and middle adolescence) and raises the expectation that family interactions would vary with adolescents' developmental phase (Petersen & Crockett, 1986; Simmons & Blyth, 1987). Thus, we coin the term the *phase-environment fit model*. Our model leads us to pose questions such as, What is the relationship between parental interactions and ego development among middle adolescents? Do the connections between parental interactions and optimal ego development identified for middle adolescents hold for their younger counterparts (i.e., pre- and early adolescents)?

In answering these questions, we rest on the central premise that a good developmental match occurs if parents provide levels of constraining and enabling that reflect adolescents' developmental phase. In other words, it is not simply that parents' lowered constraining facilitates higher ego development in all adolescents; instead, lowered constraining may be linked to higher ego development scores only when appropriately matched to the adolescent's developmental phase. For example, middle adolescents, who are generally in need of increased autonomy, are expected to experience a good match if their parents meet this developmental need with lowered constraining and higher enabling. Middle adolescents who experience a developmental match are expected to be associated with higher levels of ego development compared to their counterparts who experience a developmental mismatch (i.e., higher constraining; lower enabling).

The case is expected to be different for pre- and early adolescents: High levels of constraining, counter to findings in other studies, are expected to represent a good match for pre- and early adolescents. In addition, we hypothesized that parents who encourage adolescents' independent perceptions (i.e., high levels of enabling) would not necessarily represent the most optimal environment for pre- and early adolescents. This is envisioned to be the case because youth embarking on the transition to adolescence, with the concomitant multiple changes associated with this transition, may do best in family interactions characterized by direction and structuring (i.e., higher constraining, lower enabling). The chief assumption underlying this hypothesis is similar to that of identity foreclosure: Pushing youth to formulate independent ideas too early, rather than fostering more mature psychoso-

cial development, may instead impede the successful development of meaningful ideas. By engaging in higher constraining and lower enabling, parents of pre- and early adolescents may allow their youth to have an "interactional moratorium," that is, the time to cultivate their own ideas at a pace that is respectful of their developmental status.

Through integrating the stage-environment fit perspective into a family interactional paradigm, we have arrived at a phase-environment fit model, emphasizing a good match between parent-adolescent interactions and adolescents' developmental phase. The main assumption of this model is consistent with Grotevant and Cooper's (1986) suggestion that healthy parent-child relationships adjust to meet adolescents' changing needs throughout this life stage. In other words, as the process of individuation occurs throughout adolescence (Cooper, Grotevant, & Condon, 1983; Grotevant & Cooper, 1986), parent-child interactions are expected to evolve toward the promotion of greater autonomy. In keeping with the phase-environment fit model, these changes are hypothesized to vary as a function of adolescents' developmental phase and be associated with adolescents' levels of ego development.

Community Support

Studies have consistently underscored the importance of family context as an important mediator of chronic illness and psychosocial outcomes (Hauser et al., 1984, 1990; Jacobson, Hauser, Cole, et al., 1997; Jacobson et al., 1994; Jacobson, Hauser, Willet, Wolfdorf, & Herman, 1997; Wertlieb, Jacobson, & Hauser, 1990). Because families do not exist in a vacuum but instead are embedded within communities, we explored the role of community support on family interactions and adolescents' ego development levels. Examining the parent-child relationship within the community context is consistent with arguments encouraging researchers to explore adolescents' experiences across multiple domains (Bronfenner, Moen, & Garbarino, 1984; Burton, Obeidallah, & Allison, 1996). Adolescents' risks of experiencing poor outcomes are heightened in contexts of poor environmental support (Cauce, Felner, & Primavera, 1982). Similarly, previous research has revealed that perceptions of supportive communities may buffer adolescents from negative outcomes (Stack & Burton, 1993). In explaining this link, supportive communities have been conceptualized as an index of broader social support (Furstenberg, 1993; Furstenberg & Hughes, 1994; Stack & Burton, 1993). Most of the previous work examining community influences, however, focuses on behavioral outcomes (e.g., substance use, delinquency rates),

thereby overlooking possibly less visible connections between perceptions of community support and adolescent psychosocial development.

Community context may hold particular significance with respect to understanding interactions between parents and adolescents. Specifically, dimensions of community support may vary as a function of adolescents' developmental match—that is, youth with family interactions not conducive to the development of appropriate autonomy may reach outside of their family for support. As noted by Stierlin (1974), "the adolescent drives toward autonomy and identity actively seeking partners and values outside his or her family of origin" (p. 10). Given the focus on parental promotion of adolescents' autonomy, we predicted that community support would benefit those youth who needed it the most (i.e., youth with a developmental mismatch).

Other studies have shown that the relationship between community support and adolescents' outcomes varied as a function of adolescents' personal characteristics, such as their race or age (Cauce et al., 1982). Similarly, having diabetes during adolescence may powerfully affect the way youth perceive and use community contexts. Given the additional needs and stressors associated with diabetic adolescents, we predicted that diabetic adolescents would need more support and, as such, may be more inclined to draw on community support than their nondiabetic counterparts. These hypotheses are in keeping with a protective factor model, in that protective factors exert their beneficial effect in the presence of higher adversity (Gourmets et al., 1994; Rutter, 1987).

Importance of Studying Diabetic Adolescents

In concert with the normative stressors associated with adolescence (Petersen, Sarigiani, & Kennedy, 1991; Simmons & Blyth, 1987), adolescents with diabetes experience additional, non-normative stressors (e.g., serious dietary and activity restrictions, new challenges to separation from parents, body-image issues) (Hauser, 1990; Hauser et al., 1983; Hauser & Solomon, 1985; Jacobson et al., 1982). Such conditions may contribute to diabetic youth having different levels of ego development than their nondiabetic counterparts (Hauser et al., 1983, 1986; Jacobson, Hauser, Powers, & Noam, 1982). This expectation is consistent with a cumulative risk hypothesis (Blyth, Simmons, & Carlton-Ford, 1983; Rutter, 1987), which proposes that simultaneously experiencing multiple stressors increases the risk of negative outcomes. Thus, as a consequence of cumulative stressors, youth with diabetes were expected to be more sensitive to developmental mis-

match and thus more likely to experience less optimal psychosocial outcomes than their same-age, nondiabetic counterparts.

We hypothesized that the additional stressors associated with having diabetes during adolescence may create a unique developmental context, such that what might represent a good fit for nondiabetic youth may not necessarily constitute a good fit for youth with diabetes; instead, a good fit for nondiabetic youth may actually represent a mismatch for diabetic youth. Specifically, the competing demands associated with adolescents' needs for autonomy and the need for careful management of their illness were believed to underlie this hypothesis. To examine the role of diabetic status, we investigated whether the hypothesized connections between developmental match and ego development differed among youth with and without diabetes.

Hypothesized Connections

The following hypotheses pertain to cross-sectional analyses.

Hypotheses for middle adolescents. As a function of an increased need to develop differentiation and cognitive autonomy, middle adolescents whose parents were low on cognitive constraining (i.e., a developmental match) would have higher ego development scores than their counterparts whose parents were high on cognitive constraining (Table 1).

Middle adolescents whose parents were high on cognitive enabling (i.e., a developmental match) were expected to have higher ego development scores than their peers whose parents expressed low cognitive enabling (Table 2).

Hypotheses for pre- and early adolescents. With respect to the need for more cognitive structuring, pre- and early adolescents whose parents were high on cognitive constraining (i.e., a developmental match) would have higher ego development scores than their peers whose parents were low on cognitive constraining (Table 1).

Pre- and early adolescents whose parents were low on cognitive enabling (i.e., a developmental match) were expected to have higher ego development scores than their peers whose parents expressed high cognitive enabling (Table 2).

Community support. Based on Steirlin's (1974) supposition that youth seek outside support if their needs are not met in their family context, adolescents who experienced a developmental mismatch were expected to report higher levels of community support than their counterparts who experienced a developmental match.

TABLE 1: Developmental Match as a Function of Maternal Levels of Constraining and Adolescents' Developmental Phase

	Adolescents' Developmental Phase		
	Preadolescents	*Early Adolescents*	*Middle Adolescents*
High levels of maternal constraining	Developmental match	Developmental match	Developmental mismatch
Low levels of maternal constraining	Developmental mismatch	Developmental mismatch	Developmental match

Given the increased stressors associated with their chronic illness, diabetic youth were expected to report higher levels of community support than their nondiabetic counterparts.

Longitudinal connections. These connections described above were expected to contribute to long-term pathways of psychosocial experience. As noted in the introduction, three hypotheses have been proposed. If the "sleeper effect" hypothesis is correct, enhanced ego development associated with developmental match would not surface until young adulthood. If the "continuity effect" hypothesis holds, then enhanced ego development associated with developmental match during adolescence will also be present during young adulthood. Although we expect to see long-term connections, we also allowed for the possibility of no long-term effects of developmental match. In particular, we consider that there may be a "rebound effect," wherein the benefits of development match during adolescence (i.e., optimal ego development) would not be evident in young adulthood.

METHODS

Sample

Data were drawn from a longitudinal study of diabetic and acutely ill patients (Hauser et al., 1984, 1986; Jacobson, Hauser, Cole, et al., 1997; Jacobson, Hauser, Willett, Wolfsdorf, Dvorak, et al., 1997; Jacobson, Hauser, Willet, Wolfdorf, & Herman, 1997). Youth (initially age 9 to 16 years) with insulin-dependent diabetes mellitus (IDDM; $n = 57$) were drawn from the Joslin Clinic Pediatric Service within 1 year of diagnosis with IDDM. As incentive to participate in the study, these youth were offered free outpatient

TABLE 2: Developmental Match as a Function of Maternal Levels of Enabling and Adolescents' Developmental Phase

	Adolescents' Developmental Phase		
	Preadolescents	*Early Adolescents*	*Middle Adolescents*
High levels of maternal enabling	Developmental mismatch	Developmental mismatch	Developmental match
Low levels of maternal enabling	Developmental match	Developmental match	Developmental mismatch

care and routine laboratory testing over a 4-year period. Of those eligible, 76% participated in the study. Those who declined participation indicated reasons including distance from the center and lack of interest in participating in the study. By the 10-year follow-up, 67% of the IDDM sample were still followed for the diabetes primarily at the Joslin clinic by pediatric and adult diabetologists. The remainder of patients went elsewhere for their medical care. All patients were recruited for follow-up (Jacobson, 1996; Jacobson, Hauser, Cole, et al., 1997).

The acute illness ($n = 54$) group consisted of youth who had an acute medical problem that required a change in daily activities. Change in daily activities was defined as two or more visits to a physician or hospitalization and loss of at least 1 day in school or 1 missed day of extracurricular activities. The acute illness group was recruited from a nonillness-specific medical center; 56% of those recruited participated in the study. Acutely ill patients had recently been diagnosed with a non-life threatening but serious illness; they were no longer ill when first studied. The diagnoses breakdown was fractures (48%), infections (15%), appendicitis (13%), and lacerations and other injuries (24%) (Hauser et al., 1986; Jacobson, 1996; Jacobson, Hauser, Cole, et al., 1997). Any respondents who sought treatment for the same illness within the preceding 6 months were excluded from the study. Youth and families in the acutely ill sample were offered $40 for participating in the study. Acutely ill youth were included in this study to disentangle the effects of medical intervention from the effects of the onset of illness. By using an acutely ill comparison group, we were in a better position to control for the potential influence of a new medical encounter, including meaningful contact with a health care provider.

Originally 61 IDDM respondents and 62 comparison group respondents participated in the longitudinal assessment. Of these, 57 IDDM and 54 comparison group subjects participated in the Year 10 follow-up. Two IDDM

patients had died, and two refused to participate. Two comparison group respondents could not be located, and six refused to participate. There were no differences between the two samples with respect to age, gender, and family size or birth order. The diabetic sample had few families from the higher socioeconomic level and more from the lower. All but one respondent was White (Jacobson, 1996; Jacobson, Hauser, Cole, et al., 1997; Jacobson, Hauser, Willet, Wolfdorf, & Herman, 1997).

Across adolescents, 92 were in maritally intact families at the Year 1 assessment; the remainder were in single-parent families. In our analyses, we included only families that completed measures and activities during assessment periods of interest, thus arriving at a total of 102 families (across single and maritally intact households).

Measures

Ego Development

Ego development was measured with Loevinger's Sentence Completion Task (SCT), a 36-item inventory. At each data assessment, responses were coded by research assistants who were trained to reliability. The configuration of each individual's responses then generated an ego development stage score (i.e., based on an ogive distribution), as constructed by Loevinger and her colleagues (1970; Hy & Loevinger, 1996). The ego stages present in the sample studied here ranged from 2 to 6: (I-2) impulsive and self-protective (Δ) (i.e., preconformist stages), (I-3) conformist, (I-4) conscientious (i.e., conformist stages), (I-5) autonomous, and (I-6) integrative (i.e., postconformist stages). Although ego development is often discussed in terms of the three levels described earlier (i.e., preconformist, conformist, and postconformist), we examined ego development scores on the larger continuum (i.e., six categories) to maximize variability within this outcome variable and thereby increase our power to detect significant relationships.

Family Interaction Patterns

Family interactions were assessed via a revealed difference task based on Kolberg moral dilemmas. Parents and adolescents were audiotaped during a discussion in which they were asked to arrive at agreement regarding a particular moral dilemma. Our assessment of family interactions allowed us to investigate moment-to-moment processes in discussions between parents and their adolescents (Hauser, 1991). We focused exclusively on the dimen-

sions of cognitive enabling and constraining. In light of the fact that single- and two-parent families were sampled and that even in two-parent families, fathers did not always participate, we only considered exchanges that occurred between mothers and their adolescents.

Audiotapes of family discussions were transcribed and then coded using the constraining and enabling coding system (CECS) (Hauser et al., 1984). Mothers received scores regarding exchanges that typified cognitive constraining or enabling exchanges between them and their adolescent sons and daughters. An example of cognitive constraining is represented by the following interaction (Hauser, 1991):

Adolescent: I think Heinz should steal the drug because his wife—
Mother: [interrupting] But stealing is illegal and he could go to jail and be there when she dies.
Adolescent: But that's not the point. His wife is dying and he might be able to save her.

In this interaction, the mother attempts to draw the adolescent to her point of view by interfering with the adolescent's own perception of the situation. An example of cognitive enabling is represented by a parent who focuses the interaction to highlight consequences through a hypothetical point of view. For example, one parent stated, "in other words, stealing isn't wrong, but prolonging life is?" (Hauser, 1990).

Interrater reliability of each code was judged acceptable as based on the Kappa statistic (Cohen, 1960), as reported in Hauser and colleagues (1984). To categorize mothers' exchanges, median splits were created to divide interactional patterns into categories of high and low, for each dimension.

Community Support

Levels of community support were measured via the Family Crisis Oriented Personal Scales (F-COPES) (McCubbin et al., 1981), a scale designed to assess how individuals within families cope with difficulties. Moderately high internal consistency on this scale has been reported at $\alpha = .76$ (McCubbin et al., 1981). During the initial data collection, adolescents indicated their level of agreement with statements regarding community support on a 5-point Likert scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*). Example items include, "Asking neighbors for favors and assistance," and "Sharing problems with neighbors." Adolescents' scores were summed to form a composite representing perceptions of community support, with higher scores indicating higher perceived levels of community support.

The Phase-Environment Fit Categories of the Model

To create phase-environment fit categories, youth were first divided into three groups, based on their developmental phase: (a) preadolescents (ages 9-11), (b) early adolescents (ages 12-13), and (c) middle adolescents (ages 14-16). Members in each developmental phase were then categorized into separate groups of high or low maternal constraining. For instance, we separated preadolescents into two groups based on their mothers' level of cognitive constraining and enabling (i.e., high or low). Parallel procedures were performed to group youth in terms of high and low levels of maternal cognitive enabling. Neither diabetic status nor gender significantly covaried with membership in phase-environment categories.

RESULTS

Preliminary Analyses

Results of chi-square analyses showed that diabetic and nondiabetic youth were not disproportionately represented in any of the phase-environment fit categories ($p = .129$ for constraining; $p = .914$ for enabling). Means and standard deviations for ego development as a function of maternal levels of constraining, and maternal levels of enabling are presented in Tables 3 and 4, respectively. These tables show that, either in terms of constraining or enabling, ego development scores during adolescence were considerably lower than ego development scores during young adulthood. In addition, middle adolescents had higher ego development scores than did early adolescents, who in turn, had higher ego development scores than did preadolescents.

Means and standard deviations for ego development as a function of diabetic status are presented in Table 5. At first pass, nondiabetic youth had higher ego development scores when compared with their diabetic counterparts.

Cognitive constraining. To determine links between adolescents' phase-environment fit categories and their concurrent ego development scores, we conducted a series of 2 (match-group status) $\times$ 2 (diabetic status) ANOVAs within each developmental phase. This approach was used to determine associations between maternal levels of constraining and ego development, while holding developmental phase constant. Results shown in Table 6 suggest that developmental match, diabetic status, and the interaction between developmental match and diabetic status were not significantly associated with ego development during adolescence.

TABLE 3: *N*s and Means (plus standard deviations) for Ego Development as a Function of Developmental Match of Maternal Constraining

	Ego Development					
	Adolescent Stage			*Young Adult Stage*		
Developmental Phase	N	*Mean*	(SD)	N	*Mean*	(SD)
Preadolescent developmental match with constraining						
Good match	16	2.50	(1.15)	16	5.62	(0.69)
Poor match	16	2.25	(1.18)	14	4.57	(1.34)
Early adolescent developmental match with constraining						
Good match	17	3.18	(0.81)	16	5.25	(1.00)
Poor match	17	3.29	(1.10)	17	4.64	(1.17)
Middle adolescent developmental match with constraining						
Good match	17	3.35	(1.37)	14	5.28	(0.99)
Poor match	15	3.53	(1.46)	14	4.35	(1.22)

TABLE 4: *N*s and Means (plus standard deviations) for Ego Development as a Function of Developmental Match of Maternal Enabling

	Ego Development					
	Adolescent Stage			*Young Adult Stage*		
Developmental Phase	N	*Mean*	(SD)	N	*Mean*	(SD)
Preadolescent developmental match with enabling						
Good match	17	2.64	(1.27)	15	5.40	(0.63)
Poor match	15	2.06	(0.96)	15	4.87	(1.46)
Early adolescent developmental match with enabling						
Good match	20	2.90	(0.78)	17	4.94	(0.89)
Poor match	17	3.71	(0.99)	16	4.93	(1.34)
Middle adolescent with enabling developmental match						
Good match	14	3.57	(1.22)	12	5.00	(0.85)
Poor match	18	3.33	(1.53)	16	4.69	(1.40)

TABLE 5: *N*s and Means (plus standard deviations) for Ego Development as a Function of Diabetic Status

	Ego Development					
	Adolescent Stage			*Young Adult Stage*		
Developmental Phase	N	*Mean*	(SD)	N	*Mean*	(SD)
Preadolescent diabetic status						
Diabetic	16	2.06	(1.06)	17	4.88	(1.05)
Nondiabetic	16	2.68	(1.19)	13	5.46	(1.19)
Early adolescent diabetic status						
Diabetic	18	2.94	(0.93)	17	4.71	(1.05)
Nondiabetic	16	3.56	(0.89)	16	5.19	(1.17)
Middle adolescent diabetic status						
Diabetic	17	3.17	(1.33)	16	4.56	(1.46)
Nondiabetic	15	3.73	(1.44)	12	5.17	(0.58)

To test the long-term consequences of match group on young adult ego development, we also conducted 2 (match-group) × 2 (diabetic status) ANOVAs within each developmental phase group. In addition, we controlled for the effects of earlier scores on subsequent ego development by specifying adolescents' ego development in the models (Morris, personal communication, April 22, 1998). Results were in the predicted direction, with middle adolescents whose mothers were low on cognitive constraining (i.e., a good match) showing higher ego development scores during young adulthood than did middle adolescents whose mothers were high on cognitive constraining (i.e., a mismatch) ($F = 6.51, 5, 21, p < .01$) (Table 6).

Parallel ANOVAs were conducted for the pre- and early adolescent groups. A trend in the predicted direction was found for the early adolescent group, suggesting that those adolescents whose mothers expressed high constraining during adolescence (i.e., a good match) had higher ego development stages during young adulthood than those whose mothers expressed low levels of constraining (i.e., a mismatch; $F = 3.19, 5, 23, p < .10$). Consistent with our hypothesis, preadolescents whose mothers expressed high cognitive constraining were at higher levels of ego development during young adulthood than were their counterparts whose mothers expressed low con-

TABLE 6: Developmental Match Groups: Relations of Maternal Levels of Constraining and Diabetic Status to Ego Development During Adolescence and Young Adulthood—Analysis of Variance

	Ego Development	
Developmental Phase	*Adolescent Stage*	*Young Adult Stage*[a]
Preadolescent with maternal constraining		
Developmental match	0.65	7.37**
Diabetic status	2.61	0.24
Match × Diabetic Status	0.01	0.25
Adolescents' ego development		2.25+
Early adolescent with maternal constraining		
Developmental match	0.37	3.19+
Diabetic status	3.89+	1.09
Match × Diabetic Status	0.05	0.62
Adolescents' ego develpment		1.56
Middle adolescent with maternal constraining		
Developmental match	0.01	6.03*
Diabetic status	1.15	3.25+
Match × Diabetic Status	0.40	0.00
Adolescents' ego development		0.75

NOTE: *F* values are shown; $n = 32$ for preadolescents, and $n = 29$ during young adult assessment; $n = 34$ for early adolescents and $n = 31$ during young adult assessment; and $n = 32$ for middle adolescents and $n = 32$ during young adult assessment.
a. Adolescents' ego development scores were controlled for in analyses predicting young adult ego development.
$+p < .10$. $*p < .05$. $**p < .01$.

straining ($F = 7.42, 5, 22, p < .01$). Across the three groups, neither diabetic status nor the interaction between diabetic status and developmental match was associated with ego development during young adulthood (Table 6).

To test whether match group and diabetic status were associated with adolescents' perceptions of community support, we conducted 2 (match-group) × 2 (diabetic status) ANOVAs within each developmental phase. Results revealed that middle adolescents whose mothers expressed higher levels of constraining (i.e., a mismatch) reported higher levels of community support than did their counterparts whose mothers expressed low constraining ($F = 4.13, 2, 24, p < .05$; $m = 17.88$ vs. 14.10, for developmental mismatch and developmental match groups, respectively). Although there was a trend in the predicted direction for preadolescents' perceptions of community support and developmental match group, it did not reach the level of statistical significance ($F = 3.99, 2, 23, p < .10$; $m = 18.65$ vs. 13.64, for diabetic and nondia-

TABLE 7: Developmental Match Groups: Relations of Maternal Levels of Constraining and Diabetic Status to Adolescents' Perceptions of Community Support—Analysis of Variance

Developmental Phase	*Perceptions of Community Support*
Preadolescent with maternal constraining	
Developmental match	0.03
Diabetic status	3.99+
Early adolescent with maternal constraining	
Developmental match	0.63
Diabetic status	1.85
Middle adolescent with maternal constraining	
Developmental match	6.72*
Diabetic status	1.51

NOTE: *F* values are shown; $n = 24$ for preadolescents, $n = 34$ for early adolescents, and $n = 25$ for middle adolescents (adolescent and young adult assessment, respectively).
$+p < .10$. $*p < .05$.

betic adolescents, respectively). No differences were found for early adolescents with respect to perceptions of community support (Table 7).

Cognitive enabling. ANOVAs, 2 (match-group) × 2 (diabetic status), were examined for each of the three adolescent phases. No significant results were found for middle adolescents or preadolescents. For early adolescents, however, results were in the predicted direction, showing that early adolescents whose mothers expressed low cognitive enabling (i.e., a good match) had higher ego development scores than their counterparts whose mothers expressed high cognitive enabling (i.e., a mismatch; $F = 7.20$, 2,31, $p < .01$) (Table 8).

To look at possible long-term implications of developmental match of enabling and diabetic status on ego development during young adulthood, a series of parallel ANOVAs were conducted. These analyses controlled for ego development scores assessed during adolescence. No significant relationships were found between adolescents' phase-environment fit categories of enabling and their ego development during young adulthood (Table 8). Also, neither diabetic status nor the interaction between diabetic status and match group were significantly associated with ego development during young adulthood. No significant relationships were found between phase-environment match group and diabetic status as predictive of perceptions of community support (Table 9).

TABLE 8: Developmental Match Groups: Relations of Maternal Levels of Enabling and Diabetic Status to Ego Development During Adolescence and Young Adulthood—Analysis of Variance

	Ego Development	
Developmental Phase	*Adolescent Stage*	*Young Adult Stage*[a]
Preadolescent with maternal enabling		
Developmental match	1.34	0.36
Diabetic status	1.77	0.04
Match × Diabetic Status	0.18	1.95
Adolescents' ego development		0.34
Early adolescent with maternal enabling		
Developmental match	6.95**	0.03
Diabetic status	3.78+	1.20
Match × Diabetic Status	0.00	0.66
Adolescents' ego development		1.39
Middle adolescent with maternal enabling		
Developmental match	0.17	0.06
Diabetic status	1.16	1.06
Match × Diabetic Status	0.00	0.81
Adolescents' ego development		0.39

NOTE: *F* values are shown; $n = 32$ for preadolescents, and $n = 29$ during young adult assessment, $n = 34$ for early adolescents and $n = 31$ during young adult assessment, $n = 32$ for middle adolescents and $n = 27$ during young adult assessment.
a. Adolescents' ego development scores were controlled for in analyses predicting young adult ego development.
$+p < .10$. $**p < .01$.

DISCUSSION

These results, although preliminary, contribute to our understanding of family interactions, ego development, and community support among diabetic and nondiabetic youth. First, by building on the stage-environment fit model, we have presented a more developmental approach to the links between family interaction patterns and adolescents' ego development. Specifically, we showed that low levels of maternal constraining were antecedents of higher levels of adult ego development *only* if the low constraining occurred during the middle adolescent phase. In other words, these results suggest that preadolescents whose mothers expressed low constraining might actually be performing a disservice to their youth in terms of fostering their later ego development. This pattern of findings, then, argues that certain family interactions are not monolithically connected to adolescents' positive psychosocial development—that is, not all good things are correlated (McHale, personal communication, October 12, 1993). Instead, family inter-

TABLE 9: Developmental Match Groups: Relations of Maternal Levels of Enabling and Diabetic Status to Adolescents' Perceptions of Community Support—Analysis of Variance

Developmental Phase	*Perceptions of Community Support*
Preadolescent with maternal enabling	
Developmental match	1.12
Diabetic status	3.24+
Early adolescent with maternal enabling	
Developmental match	0.30
Diabetic status	2.17
Middle adolescent with maternal enabling	
Developmental match	0.17
Diabetic status	0.20

NOTE: *F* values are shown; *n*=24 for preadolescents, *n* = 34 for early adolescents, and *n* = 25 for middle adolescents (adolescent and young adult assessment, respectively).
+*p* < .10.

actions that are sensitive to adolescents' phases are subsequently connected to higher levels of psychosocial outcomes. This connection parallels the sleeper effect pathway in that, although the associations of developmental match were not readily evident during adolescence, the benefits of developmental match (and the costs of developmental mismatch) could be observed during young adulthood. It is also important to note that the phase-environment groups predicted young adult ego development scores over and above ego development scores identified in adolescence (Table 6).

Consistent with our hypothesis, early adolescents expressed higher ego development when their mothers expressed low enabling. This result suggests that mothers who express interactions characterized by high levels of enabling may be prematurely promoting cognitive autonomy among their young adolescents as evidenced by lower ego development scores identified during adolescence. In the context of multiple, simultaneous stressors associated with the transition to adolescence (e.g., transition to new schools, onset of puberty) (Simmons & Blyth, 1987), challenges of higher levels of enabling (e.g., pushing an adolescent to clarify or focus on an issue) may possibly represent another stressor for such youth. We take from this that the transition to adolescence may be more optimally traversed when mothers' interactions express less promotion of their early adolescents' independent thoughts. These connections observed during adolescence, however, become negligible during young adulthood.

The finding that middle adolescents with a developmental mismatch perceived more community support than their counterparts who had a develop-

mental match is consistent with research suggesting that older adolescents spend increasing amounts of time in their neighborhood compared to younger adolescents (Furstenberg & Hughes, 1994) and thus may be more sensitive to community factors. In addition, this result may reflect a child effect—in that middle adolescents whose mothers are higher on constraining may have increased needs, and thus need the support of community. This finding is also consistent with the notion that youth whose developmental needs are not being met at home seek support for their needs outside of the family (Cauce et al., 1982; Steirlin, 1974). The trend that preadolescents with diabetes reported higher levels of community support than their nondiabetic peers may suggest that, given serious chronic illnesses early in life, such youth evoke community support through active receiving and responding to neighborhood resources. Nonetheless, the relationship between preadolescents with diabetes and perceptions of community support did not reach conventionally accepted levels of statistical significance, and thus, any interpretation must be approached with considerable caution.

Except for this connection with community support, diabetic status was not systematically associated with outcomes studied here. This was somewhat surprising, given that other studies show links between diabetic status and youths' outcomes (e.g., Hauser et al., 1986). On the other hand, the lack of differentiated connections associated with diabetic status is consonant with other studies, which have shown that diabetic youth appear to have psychological outcomes equivalent to nondiabetic youth on a wide range of indices of social functioning, behavioral competence, symptoms, and self-esteem (Jacobson, Hauser, Cole, et al., 1997; Jacobson, Hauser, Willett, Wolfdorf, & Herman, 1997). Perhaps grouping all youth with diabetes into the same category (i.e., diabetic youth) obscures differences among these youth. To better understand the experiences of diabetes during adolescence, additional work could consider the severity of diabetes as an important and meaningful way to distinguish among diabetic youth. It may be that more pronounced differences between diabetic and nondiabetic youth emerge when examining diabetes among a subpopulation of youth with severe diabetes mellitus.

These results represent one of the first empirical attempts at unraveling long-term implications of phase-environment fit with respect to psychosocial development. Generally, we found that developmental mismatch of constraining was not necessarily connected to negative outcomes during the time of mismatch for preadolescents and middle adolescents. Instead, effects of phase-environment fit surfaced years later during young adulthood. We take from this that our understanding of youths' developmental sensitivity may be

enhanced by examining far-reaching impacts of phase-environment fit. Furthermore, we found evidence that mothers who prematurely attempted to promote early adolescents' development through higher levels of maternal enabling were associated with early adolescents with lower ego development scores. These patterns highlight the importance of parent-adolescent interactions that are developmentally "in-step" with adolescents' developmental phase. In addition, middle adolescents who experienced a developmental mismatch were associated with higher levels of perceived community support, suggesting their resourcefulness in terms of reaching to have their needs met.

These connections suggest the overall value of considering the phase-environment fit model for understanding connections between family interactions and psychosocial outcomes among diabetic and nondiabetic youth. Even so, several limitations of this work exist. One limitation is that we have described these relationships as primarily unidirectional, suggesting that parents contribute to adolescents' ego development levels. We recognize, however, that adolescents bring characteristics to their families that can shape the way that parents interact with adolescents. It is quite possible that adolescents' levels of ego development elicit certain parental responses, which in turn, contribute to adolescents' stages of ego development in new ways. In addition, this work considered only maternal interactions with adolescents. It would certainly be useful to examine interactions between fathers and adolescents as well, potentially elucidating different connections between each parent and the adolescent (Collins, 1997). Indeed, previous work has shown that fathers' involvement with children is qualitatively different than that of mothers, especially surrounding issues of social and political concern (Youniss & Smollar, 1985). As stated by Youniss and Smollar (1985), "The function of the two parents are not duplicative, but in their separation, keep the family system intact . . . [thus it is important to] consider their synchrony from a systems perspective" (p. 82). Investigating both parents would be particularly intriguing in families where one parent's interactions represent an optimal developmental match whereas the other parent's interactions represent a developmental mismatch.

Despite limitations of these analyses, there is a strong suggestion that these findings point to important concerns regarding developmental mismatch among diabetic and nondiabetic youth on later ego development. We have shown the usefulness of considering a developmental approach in understanding links between family interactions and ego development. In addition, we took a multicontextual point of view, demonstrating different links between perceptions of community support and adolescents' diabetic status and phase-environment group. Moreover, our findings represent one

step toward understanding how the "branches" of the phase-environment fit tree may bear fruit and extend in different eras of the life cycle —adolescence and adulthood.

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