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PROFILING PARENT-ADOLESCENT RELATIONSHIPS: A PATTERN-ANALYTIC

APPROACH TO RELATIONSHIP QUALITY

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ABSTRACT

Our understanding of the nature and development of parent-adolescent relationships derives from empirical studies that focus on one relationship quality at a time (usually conflict), making it difficult to draw conclusions about the implications and consequences of particular relationship experiences, like conflict, for adolescents, parents, and their families. This study approached parent-adolescent relationships from a "person-centered" perspective in order to move away from the practice of studying relationship qualities in isolation. Specifically, this study made use of cluster analysis to profile parent-adolescent relationships along multiple affective and behavioral dimensions, relating those profiles to other characteristics of dyad members and families. In addition, initial relationship profiles were linked to change in relationship quality to see if differences in relationship quality led to differences in how these relationships changed as offspring moved through early and middle adolescence. Data came from 196 families living in central Pennsylvania participating in a longitudinal study; the present study focused on data from mothers, fathers, and secondborn offspring (M age = 12.5) collected during home and phone interviews about individual characteristics, family relationships, and time use. Two-stage cluster analyses, consisting of average linkage with cosine and k-means, were conducted separately for mother-offspring and father-offspring dyads, using eight relationship quality variables: parent and adolescent reports of parental acceptance, time together, conflict frequency, and conflict intensity. Analyses yielded four relationship profiles for both sets of dyads: Harmonious, Uninvolved, Conflictual-Child, and Conflictual-Parent. Harmonious dyads had high acceptance, spent much of their time together, and had infrequent, mild arguments. Uninvolved dyads spent little of their time together, and had infrequent and mild arguments. The two Conflictual clusters were characterized by more negative relationship quality, and differed from one another in who reported more conflict: offspring in Conflictual-Child relationships reported significantly more frequent and intense conflict than their parents, while parents in Conflictual-Parent relationships reported significantly more frequent and intense conflict than their offspring. Individual (e.g., gender, expressivity, depressive symptoms), relationship (e.g., autonomy, parental knowledge), and family (e.g., marital quality, quality of sibling relationships) characteristics were significantly related to relationship profiles in expected ways. The two Conflictual profiles were further distinguished from one another by their pattern of correlates; based on the profiles and pattern of correlates, it appeared that Conflictual-Parent mother-adolescent dyads, and Conflictual-Child father-adolescent dyads, had the most negative relationships. Finally, analyses were conducted testing whether initial relationship profiles moderated the association between adolescent developmental status and relationship change over a two-year period. Longitudinal findings, although scant due to methodological issues, nonetheless highlighted the importance of considering relationship quality when examining how parent-adolescent relationships change as adolescents develop.

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CHAPTER 1. INTRODUCTION

Type "parent and teenager" into the search engine on Barnes and Noble's website (Barnes and Noble), and titles appear such as *Yes, your teen is crazy! Loving your kid without losing your mind* (Bradley, 2001) and *Stop negotiating with your teen: Strategies for parenting your angry, manipulative, moody, or depressed adolescent* (Edgette, 2002). Popular culture, from instructional books to TV sitcoms, continues to portray adolescence as a time of "storm and stress," as a difficult period during which parents and their adolescents will experience problems and conflicts. Researchers perpetuate this view of parent-adolescent relationships by focusing disproportionately on conflict in these relationships. In fact, however, studies show that as many as three-quarters of parents and offspring experience relatively harmonious, positive relationships through adolescence (Steinberg, 1990), which casts doubt on the reality of popular culture's portrayal of, and researchers' overemphasis on, the negative aspects of these relationships. Nonetheless, social scientists and popular culture continue to discuss the "vicissitudes" of parent-adolescent relationships because we recognize that these relationships do undergo transformations as adolescents develop—transformations that can be a source of tension and stress for parents and adolescents.

Researchers and theorists interested in parent-adolescent relationships recognize that our empirical knowledge is limited as a result of isolating individual relationship qualities (e.g., conflict) for study. Conflict by itself tells us very little about the nature of the relationship, and it is hard to draw conclusions about the implications and consequences of conflict for adolescents and parents without knowing the context in which conflict occurs. Conflict in the context of warm, loving relationships not only will look different from conflict in the context of a negative relationship (e.g., how a disagreement is conducted and resolved), but also will have different consequences for the adolescent (e.g., learning a set of social skills versus contributing to emotional disturbance). To that end, researchers have examined interaction patterns (e.g., Holmbeck & Hill, 1991) and resolution strategies (Montemayor & Hanson, 1985; Smetana, Yau, and Hanson, 1991; Youniss & Smollar, 1985) to try to get at the nature of conflictual processes.

This study also attempted to move away from acontextual views of parent-adolescent relationship quality by placing conflict in the context of the overall relationship. Specifically, I made use of cluster analysis to profile parent-adolescent relationships along multiple affective

and behavioral dimensions. These relationship profiles were then assessed in terms of individual- and family-level correlates in order to examine possible routes into, and implications of, particular relationship profiles. In addition, in an effort to move away from the questions of normative, or aggregate, change in parent-adolescent relationships that dominate the literature, I assessed change in affective and behavioral relationship dimensions as a function of initial relationship profile, reasoning that prior relationship quality should influence the nature of parent-adolescent relationship development.

In the review that follows, I first discuss theoretical perspectives on, and what is known about, how parents and adolescents experience their relationships, including variations in those experiences across families. I then discuss what is known about how these relationships change as adolescents develop. Finally, I discuss the use of person-centered approaches as a means of profiling parent-adolescent relationship quality.

Theoretical Models of Parent-Adolescent Relationships

Puberty-Based Models

Puberty-based models of parent-adolescent relationships suggest a period of separation and distance between parents and adolescent offspring during adolescence, specifically during the height of pubertal development. Psychoanalytic perspectives (e.g., Freud, 1958) view parent-adolescent conflict and detachment as both inevitable and necessary for adolescents' successful development (Hall, 1987). In this model, pubertal development sparks an Oedipal stage (Laursen & Collins, 1994), in which adolescents love their parents but have to repress hatred and sexual attraction as the id fights to overwhelm the ego and superego (Hall, 1987). Meanwhile, parents experience feelings of competition toward their adult-like offspring and re-live memories of unresolved issues from their own adolescence (Hall, 1987). The force of adolescents' and parents' psychological struggles leads to heightened tension and conflict, which is the mechanism of adolescents' ultimate separation from parents.

Neoanalytic theorists soften psychoanalytic ideas about detachment, hypothesizing instead a process of individuation (Blos, 1967), which involves a cognitive process of developing a sense of self separate from parents without the complete behavioral detachment of the original models (Steinberg, 1990). Nonetheless, neoanalytic perspectives hypothesize that parent-adolescent relationships will be characterized by conflict and emotional distance, especially during puberty, as adolescents negotiate the process of individuation (Laursen & Collins, 1994).

Like psychoanalytic and neoanalytic models, <u>sociobiological</u> theories also predict that parent-adolescent relationships are characterized by conflict and distance during pubertal development. Unlike psychoanalytic models, however, sociobiological models posit that conflict and distance serve the evolutionarily adaptive function of turning adolescents away from their families toward their peers to increase the chances of successful reproduction (Steinberg, 1989).

Social Cognitive Models

Cognitive complexity. In contrast to models focusing on relationship quality during <u>pubertal</u> development, more recent schools of thought argue that conflict occurs in response to various aspects of adolescents' <u>sociocognitive</u> development. For example, researchers point to adolescents' advances in multi-dimensional, relativistic, and flexible cognition (e.g., Collins, 1996; Selman, 1980; Steinberg & Silk, 2002; Youniss, 1980), and to adolescents' and parents' cognitions about each other and their relationships (e.g., Collins, 1990, 1992; Holmbeck, Paikoff, & Brooks-Gunn, 1995; Smetana, 1988a, 1988b) as factors underlying parent-adolescent relationship quality.

Children's cognitive abilities become more sophisticated and complex during adolescence (Steinberg, 1990). Increasing cognitive abilities allow adolescents to de-idealize their parents—to see their parents as people with positive and negative qualities, as people whose opinions and standards can be right or wrong—which leads to a redefinition of their relationship, one in which adolescents come to see their parents in a more differentiated way (Smollar & Youniss, 1989).

In addition, Selman (1980) and Youniss (Youniss, 1980; Youniss & Smollar, 1985) argue that adolescents' increasing abilities to take others' perspectives, compromise, and negotiate allow adolescents to participate on a more even plane in discussions and conflicts with parents, which influences the nature of conflict resolution (e.g., yielding to the parent's unilateral authority versus agreeing to a compromise negotiated by the parent and the adolescent) and ultimately transforms the parent-child relationship into a more mutual relationship (Selman, 1980; Smetana, 1988b, 1989; Youniss, 1980; Youniss & Smollar, 1985; cf. Holmbeck, Paikoff, & Brooks-Gunn, 1995).

Divergent perceptions/Violated expectancies. Other scholars have focused less on increasing cognitive ability and more on the content of parents' and adolescents' cognitions. Although different scholars use slightly different terminology (e.g., Collins' "violated

expectancies", Holmbeck's "perturbations"), the basic factor underlying patterns of parent-adolescent conflict in these models is discrepancy between parent and adolescent cognitions—expectations and beliefs about each other and their relationship that diverge from each other's expectations, or from what actually happens in their relationship (e.g., Collins, 1990, 1992; Collins & Luebker, 1994; Holmbeck, Paikoff, & Brooks-Gunn, 1995; Steinberg, 1990).

These discrepancies are thought to arise in a number of different ways. For example, exposure to unsupervised, horizontal, symmetrical peer relationships combined with increasingly sophisticated cognitive skills gives rise to adolescents' desire for—and ability to handle—increased autonomy, so adolescents can diverge from their parents when they begin to desire and expect more autonomy than parents are willing to grant (e.g., Eccles et al., 1993; Holmbeck, Paikoff, & Brooks-Gunn, 1995). Youniss (Youniss, 1980; Youniss & Smollar, 1985) argues that as adolescents become more involved in peer relationships, they have a chance to compare their mutual and reciprocal peer friendships to their relationships with their parents, which are often marked by authority and constraint. With this comparison comes a desire to renegotiate the constraining parent-child relationship to resemble the more equal peer relationships—a desire probably not matched by the parent (cf. Laursen & Collins, 1988). Smetana (1988a, 1988b) in particular has argued for domain-specific divergence, arguing that adolescents come to see more and more issues as being a matter of personal choice, and that they do so faster than parents do. As such, adolescents' and parents' perceptions of the boundaries of parents' legitimate authority differ, with each expecting to have more authority over adolescents' lives than the other is prepared to grant.

While adolescents are developing ideas and expectations about their increasing independence, parents' expectations for their offspring (how their adolescents will act, how much autonomy to grant and when) are based on their prior history (e.g., their relationship during middle childhood) (Collins, 1990; Goodnow & Collins, 1990), on their beliefs about what adolescence is like (Buchanan et al., 1990), and on their parenting and socialization goals (Collins, 1992; Goodnow & Collins, 1990). As Collins (1990) describes it, parents and adolescents alike have expectancies—including attributions about each others' behavior, beliefs about relationships, social roles, and developmental timetables (Collins & Luebker, 1994; Goodnow & Collins, 1990)—that guide their interactions. However, because of the rapidity of adolescent development, parents' and adolescents' expectancies are more likely to

be violated or to be discrepant from each other, because past experience during childhood does not necessarily predict parent-adolescent interactions (Collins, 1990). For example, a parent may be "lulled" by the relative ease of middle childhood and not understand that an adolescent is going to need a gradually different relationship with the parent; this parent may then be shocked by the adolescent's initial bids for autonomy (Goodnow & Collins, 1990). Or, a parent may have specific beliefs about what adolescents are typically like, and their adolescents may not conform to those expectations (Buchanan et al., 1990). Initial empirical evidence supports the idea that violated expectancies are greater in early adolescence than in pre-adolescence or later adolescence (Collins, 1990).

Discrepancies between parent and adolescent expectations and beliefs are thought to be related to conflict, presumably the mechanism by which adolescents and parents negotiate and resolve their violated expectancies (e.g., Collins, 1990; Holmbeck 1996). Unlike pubertal models, social cognitive perspectives open the door for individual differences in patterns of relationship quality. Cognitive development does not progress uniformly for all adolescents; differing cognitive abilities probably underlie differences across dyads in relationship quality. Likewise, not all parents and adolescents will have the same expectations or degree of flexibility that allows for negotiation of expectancies, so it is probably not the case that violated expectancies are universally experienced, that heightened conflict is a universal response to violations, or that heightened conflict will serve as a successful mechanism of relational transformation for all families. Social cognitive perspectives also conceptualize conflict differently than psychoanalytic and evolutionary perspectives. In the latter views, conflict is necessarily a negative (but adaptive) relationship quality, one which serves to push parents and offspring apart. In the former view, conflict serves as a mechanism for a "bilateral realignment" of the relationship, rather than a distancing mechanism. As such, conflict can be viewed as a normative and potentially healthy part of positive, close relationships.

Empirical Knowledge of Parent-Adolescent Relationships

Empirical evidence supports more recent arguments that most families experience mostly positive parent-offspring relationships during adolescence, and theorists recognize that any conflict or tension between parents and adolescents is likely to take place in the context of close, loving relationships (Laursen & Collins, 1994). Steinberg (1990) reviewed a series of studies suggesting that about 75% of families report having warm, close relationships during

adolescence, but that parents and adolescent offspring argue about twice a week (e.g., Montemayor, 1982). In a more recent study, American adolescents with different ethnic backgrounds (Mexican, Chinese, Filipino, and European) reported having around three disagreements with mothers and two disagreements with fathers during the prior two weeks (Fuligni, 1998). This relatively high rate of conflict—happily married couples tend to argue about once a week (Steinberg, 1990)—coupled with positive reports of other relationship qualities, suggests that conflict is a significant and important feature of parent-adolescent relationships, even healthy, positive ones. Despite the apparent prevalence of warm, positive parent-adolescent relationships marked by relatively high levels of conflict, considerable variation in relationship quality exists across dyads as a function of a variety of individual and contextual factors. In the following sections, I review some of the possible routes into particular levels of relationship quality, the implications of parent-adolescent relationship quality for parents and offspring, and the ways in which adolescent development may contribute to changes in parent-adolescent relationship quality.

Correlates of Relationship Quality

Individual characteristics. Family relationship researchers are particularly interested in gender-related differences in relationship quality. The existence of differences between mothers and father, sons and daughters, is posited across diverse theories, from psychoanalytic to feminist theories, although the underpinnings of such differences are hotly contested (e.g., inherent biological differences vs. social learning vs. interaction-based) (e.g., Deaux & Major, 1987; McHale, Crouter, & Whiteman, 2003). Overall, evidence exists that mother-adolescent and father-adolescent dyads differ, but the gap between these dyads is smaller than would be predicted by psychoanalytic, feminist, and gender schema theories. Mothers are more involved in the everyday caregiving of offspring than fathers and so spend more time with children, and the range of activities in which mothers participate with offspring (e.g., housework to play) is broad, whereas fathers' range of activities centers more around play and leisure (Collins & Russell, 1991; McHale et al., 2003; Youniss & Smollar, 1985). Mothers' greater involvement with offspring is also evidenced by the fact that children often feel closer to mothers than to fathers, tend to fight more with mothers, and discuss a wider range of topics with mothers, reserving fathers for discussions of instrumental issues (see Collins & Russell, 1991; McHale et al., 2003, for reviews). Complementing mothers' involvement, fathers are seen as more distant authority

figures who meet offspring material need, but not necessarily emotional needs (Youniss & Smollar, 1985; cf. Grotevant, 1998).

One caveat is important to note here. As gender theorists (e.g., West & Fenstermaker, 1993; West & Zimmerman, 1987), and reviewers of gender differences in parent-child relationships (e.g., Siegal, 1987; Grotevant, 1998) make clear, the use of categorical (mother-father, son-daughter) variables in studies of gender is the crudest test of such differences. Instead, a more precise examination of these constructs must involve theoretical ideas about the characteristics, processes, and contextual factors that give rise to differences across gender categories. For example, some evidence exists that fathers who are more involved with adolescents have relationships with adolescents that look more similar to mothers' relationships in terms of acceptance and conflict than fathers who are less involved (Almeida & Galambos, 1991). Other potential constructs for which sex category is a possible proxy include breadwinner/homemaker status, sex-role attitudes, characteristics of children that elicit sex-typed treatment (Siegal, 1987); as well as expressivity and instrumentality, sex-stereotyped personal qualities (e.g., Paulson, Hill, & Holmbeck, 1991).

Expressivity in particular seems to play an important role in close relationships. Expressivity is typically described as a stereotypically "feminine" concern for others (Parsons & Bales, 1955; cf. Bem, 1987) that carries implications for individuals' expectations about themselves and their relationships. Because our notion of close relationships involves mainly expressive types of qualities (e.g., acceptance, intimacy), peer and romantic researchers have found evidence that a "good" relationship is related to the degree to which one or both partners are expressive (Ickes, 1993). Level of expressivity is positively related to relationship quality in marriage (e.g., Antill, 1983; Auhagen & Hinde, 1997; Baucom & Aiken, 1984; Huston & Geis, 1993; Murstein & Williams, 1983; Peterson, Baucom, Elliott, & Farr, 1989), preadolescent and adolescent friendship (e.g., Jones & Costin, 1995), and adult friendship (e.g., Williams, 1985). In the same way, expressivity may also relate to patterns of parent-adolescent relationships insofar as highly expressive parents or adolescents may be more likely to experience close, positive relationships.

In addition to gender, other adolescent characteristics have been linked with parent-offspring relationship quality. For example, parents who reported that their adolescents had more positive or less negative personalities reported less conflict about chores in a sample of white and

black families (Barber, 1994). In a more specific study of temperament, Dekovic (1999) found that adolescent impulsivity was associated with more parent-adolescent conflict. The association between impulsivity and conflict did not hold for mother-daughter dyads when mothers were less strict with their daughters, suggesting that adolescent temperament may interact with the adolescent's environment to shape parent-adolescent relationship quality. Galambos and Turner (1999) examined both parent and adolescent temperament in order to test the idea that the fit between adolescent temperament and the environment was more important for parent-adolescent relationship quality than temperament alone. They found evidence that adolescent temperament in and of itself, as well as goodness-of fit, matter for parent-adolescent relationship quality. Adolescents who were less adaptable had mothers and fathers who were less accepting and warm, and had mothers who were more psychologically controlling. In addition, when fathers and daughters were both less adaptable, their relationships were characterized by more conflict and more psychological control on the part of fathers. Also, mothers who were less adaptable reported <u>more</u> conflict with daughters who were more active, but <u>less</u> conflict with sons who were more active, suggesting that mothers who are less able to adapt may have a more difficult time reconciling stereotypes about gendered qualities and their offspring's actual characteristics.

Parents' personal resources have also been linked to individual differences in parent-child relationships (Belsky, 1984; Parke & Buriel, 1998). Parents' mental health, especially depression, has been linked to parenting behavior. Depressed mothers are more hostile, rejecting, and disruptive (e.g., Orraschel, Weissman, & Kidd, 1980; cf. Belsky, 1984), and interactions between mothers and infants are more mutually negative and less mutually positive for mothers who are depressed (Field, Healy, Goldstein, & Guthertz, 1990; cf. Parke & Buriel, 1998).

Parents' personal resources also derive from experiences in other roles. For example, researchers have long been interested in the links between experiences at work and in the family. This literature suggests that the long-term consequences of chronically-experienced work stressors contribute to individuals' generalized feelings of overload and distress, which in turn give rise to more conflictual and less warm relationships with their spouses and offspring (Crouter & Bumpus, 2001; see Perry-Jenkins, Repetti, & Crouter, 2000, for a review). Parents' work circumstances may enhance or drain the cognitive and emotional resources necessary to deal with their developing offspring during the transition to adolescence. For example, Crouter and colleagues (e.g., Crouter, Bumpus, Head, & McHale, 2001; Crouter, Bumpus, Maguire, &

McHale, 1999), as well as Galambos and colleagues (e.g., Galambos, Sears, Almeida, and Koleric, 1995), have found evidence that stressful work circumstances are in fact related to less positive parent-adolescent relationship quality (e.g., less accepting, more conflictual).

Marital quality represents a second role that can potentially drain parents' resources, thereby influencing parent-adolescent relationship quality. The link between marital quality and parent-child relationship quality is well established, and a number of different mechanisms seem to operate between the two (Cummings, Goeke-Morey, & Papp, 2001; Parke & Buriel, 1998; Wilson & Gottman, 1995). High levels of unhealthy marital conflict are linked to decreases in positive affect and emotional availability, increases in irritability, and inconsistent, lax, or harsh discipline strategies (Cummings et al., 2001; Wilson & Gottman, 1995). Two broad categories of mechanisms have been proposed. First, poor marital quality drains parents' personal resources, including emotional energy (Wilson & Gottman, 1995) and social support from spouse about parenting (Margolin, Gordis, & John, 2001), making it more likely for negative moods and behaviors that occur in the context of marriage to spill over to interactions with children. Second, children can be directly affected by exposure to negative marital conflict, both in terms of cognitive and emotional development. Marital interaction serves as a model from which children learn emotion regulation strategies (Wilson & Gottman, 1995) as well as cognitive schemas about conflict (Grych & Cardoza-Fernandes, 2001). It is likely that children implement learned strategies and schemas in their own interactions with parents; combined with a drain on parents' resources, the quality of interactions between parents and offspring can be seriously eroded in this way.

Parenting style and practices. Parenting styles and practices are also related to variations in parent-adolescent relationship quality, specifically to variations in conflict (e.g., Barber, 1994). In a sample of Chinese families, Shek (2002) found reciprocal associations between parenting style and behavior and conflict: more negative parenting styles (less concern, more harshness) and practices (less responsiveness and demandingness about social and academic achievement) predicted residualized increases in parent-adolescent conflict across one year, while more conflict predicted residualized decreases in parenting style and practices (i.e., more negative parenting). Other studies have found similar links. In particular, parental monitoring (Dekovic, 1999; Smetana & Gaines, 1999) and inconsistent, non-contingent, and/or harsh discipline (Montemayor, 1986) predict higher levels of conflict. It is interesting to note that

parental monitoring (better conceived as parental knowledge) is demonstrably a <u>positive</u> parenting behavior (i.e., related to positive child outcomes; see Crouter & Head, 2002, for a review), whereas other features of parenting that are associated with conflict are demonstrably negative (i.e., related to negative child outcomes; see Steinberg & Silk, 2002, for a review). That conflict is related to both positive and negative features of parenting supports the idea that conflict can be both an adaptive and an unhealthy quality of parent-adolescent relationships.

Implications of Parent-Adolescent Relationship Quality

Adolescent well-being. Conflict between parents and adolescents has variously been described as "normative," "healthy" (e.g., facilitator of growth and development), and "unhealthy." Of these three conceptions, the view that parent-adolescent conflict is unhealthy has received the greatest empirical support (Dekovic, 1999); conflict is robustly associated with adolescent externalizing and internalizing behaviors (Dekovic, 1999; Montemayor, 1986). Nonetheless, theorists argue that the consequences of conflict depend on relational context (Cooper, 1988; Collins & Laursen, 1992; Dekovic, 1999; Holmbeck, Paikoff, & Brooks-Gunn, 1995), even though evidence for this contention is scant.

In a study conducted to test whether conflict per se is negative, or whether relational context matters, Dekovic (1999) found that, when conflict and relationship quality (as measured by adolescent perceptions of the quality of communication and degree of trust) were simultaneously entered in regression analyses predicting adolescent well-being, relationship quality, but neither conflict nor the interaction between the two predicted well-being. One reason for this finding might be methodological, however; adolescents reported on relationship quality, and parents reported on conflict, so it may be that adolescents' own perceptions of the relationship are more reflective of their well-being.

Parent well-being. Although the focus of parent-adolescent relationship researchers tends to fall on adolescents themselves, adolescents' development and concomitant shifts in their relationships with parents influence parents as well. Parents are invested in child outcomes because they and others view themselves as being responsible for their offspring's development. As such, parents evaluate child outcomes in terms of their own performance, which can have an impact on their own lives (Ryff & Seltzer, 1996), especially because parents' investment in offspring is orthogonal to adolescents' struggle to develop their own identities separate from their parents (Antonucci & Akiyama, 1997; Newman & Newman, 1988). In other words, parent-

adolescent relationship quality may be associated with parent well-being to the extent that these relationships live up to or challenge parents' conceptions of themselves and their offspring. For example, Dekovic (1999) found that more conflict (as reported by parents) and less positive relationship quality (quality of communication and degree of trust as reported by offspring) were independently associated with parents' greater depression and decreased confidence in their own ability to parent.

Silverberg (Silverberg, 1996; Silverberg & Steinberg, 1987, 1990) used cross-sectional and longitudinal data to study the effects of children's transition to adolescence on parental well-being and found a more complex association between parent-adolescent relationships and parental well-being. Silverberg and colleagues' findings suggest that when mothers and fathers of sons have a low orientation to work outside of the home, they tend to experience greater midlife identity concerns in the face of sons' development and negative changes in the parent-son relationship (e.g., more intense conflict). Further, working-class fathers, who are more likely than middle-class fathers to value obedience and authority, may also feel that their identities are challenged in the face of sons' development and changes in the father-son relationship. The findings for parent-daughter dyads suggested that mothers with daughters may experience more identity concerns when faced with daughters' increasing autonomy.

Change in Parent-Adolescent Relationships

Despite the force of traditional models that hypothesize detachment and separation, scholars tend now to agree that adolescents' relationships with parents are actually characterized by a great deal of continuity from middle childhood through adolescence, and that change occurs gradually (Collins, 1990, 1995, 1996; Holmbeck, 1996; Laursen & Collins, 1994; Steinberg, 1990). Parent-adolescent relationships generally are "involuntary dyads" (Collins, 1996, p. 2), or a "closed field" (Laursen & Collins, 1994, p. 204). In other words, they cannot be broken up the way that a peer relationship can. As such, parent-child dyads "face considerable pressure to adapt to individual changes, whereas voluntary dyads experience fewer constraints on whether and how the changes are accommodated" (Collins, 1996, p. 2). As outlined by social cognitive models, some increase in conflict might be expected in parent-adolescent relationships as parents and adolescents negotiate adolescents' developmental gains. Given the closed nature of the relationship, however—dissolution is typically not an option—this perturbation in the

relationship serves the purposes of re-establishing or maintaining patterns of closeness carried over from childhood.

The common thread running through all models of parent-adolescent relationship development is that increased conflict or distance during early and possibly middle adolescence should be considered normative and functional for many families during adolescence. Recent conceptualizations, though, all converge on the idea that increased conflict or distance is a temporary "perturbation," a process that re-establishes equilibrium in the relationship, such that the underlying closeness of the relationship is not disturbed. In this view, patterns of affect and interaction set up earlier in childhood, such as connectedness, warmth, and cohesion, will continue through adolescence (e.g., Brooks-Gunn & Zahaykevich, 1989; Collins & Laursen, 2000; Collins & Repinski, 1994), while new patterns of affect and interaction occur, such as decreases in positive affect, increases in conflict, and increases in the symmetry of the relationship with adolescents' increasing autonomy (e.g., Baumrind, 1991; Collins, 1990; Grotevant, 1998; Holmbeck & O'Donnell, 1991; Smetana, 1988b). These patterns of continuity and change will result in a transformation of the parent-child relationship from unilateral authority to mutuality and cooperation (Youniss & Smollar, 1985), in which rules and standards are modified to meet the developmental demands of the adolescent (Baumrind, 1991; Collins, 1990; Grotevant, 1998; Smetana, 1988a, 1988b; Steinberg, 1990), and in which adolescents no longer idealize their parents (Steinberg & Silk, 2002).

Empirical evidence of change in parent-adolescent relationships is mixed, and the majority of studies are cross-sectional, comparing adolescents at different developmental ages rather than measuring intra-individual change. The following review is organized around the most-often discussed relationship qualities, and the relationship qualities that were included in this study: conflict, time together, and closeness. After reviewing empirical evidence of change in each of these relationship qualities, I also consider what is known about variations in change across dyads.

Conflict

Conflict is the most-often studied domain of parent-adolescent relationships. Empirical evidence for the frequently hypothesized "inverted U shape" of conflict—an increase in conflict during early adolescence—has been highly mixed, due in part to methodological and conceptual

differences. As such, a clear picture of the development of parent-child conflict has yet to emerge.

Puberty-related change in conflict frequency and intensity. Some results from self-report studies support the hypothesis of increased intensity and frequency around the height of pubertal development, specifically, in terms of mother-reported conflict frequency with daughters (Hill et al., 1985a), and father-reported conflict frequency and intensity with sons (Steinberg, 1987). Other results have suggested the opposite pattern of less conflict around the height of puberty, as in decreases in father-reported frequency with daughters and intensity with sons (Steinberg, 1988). Still other results suggest a <u>linear</u> association between pubertal status and conflict; pubertal status was positively and linearly related to increased mother-daughter conflict intensity (Steinberg, 1987), to increased mother-adolescent conflict frequency as reported by adolescents (Steinberg, 1988), to increased father-adolescent conflict as reported by both fathers and adolescents (Flannery, Montemayor, Eberly, and Torquati, 1993), and to increased parent-adolescent conflict as reported by adolescent sons (Sagrestano, McCormick, Paikoff, & Holmbeck, 1999). Finally, null findings have emerged as well, for father-daughter conflict (Hill et al., 1985a; Steinberg, 1987), mother-daughter conflict frequency (Steinberg, 1987) and intensity (Steinberg, 1988), and parent-son conflict (Bulcroft, 1991). Obviously, this pattern of findings is very muddled; results, even within the same sample, vary depending on whether the analyses were cross-sectional (Hill et al., 1985a; Steinberg, 1987) or longitudinal (Steinberg, 1988), or involve parent or adolescent report.

To try to untangle these mixed results, Laursen, Coy, and Collins (1998) conducted a meta-analysis of studies that examined both age-related and puberty-related changes in self-reported conflict frequency and intensity. They found no U-shaped increase in conflict during puberty for either frequency or intensity, but they did find a slight linear increase in conflict intensity, across dyads and reporters.

Age-related change. Evidence for change in conflict with age also offers contradictory findings. Some researchers have found no differences in conflict across groups of early, middle, and late adolescents (e.g., Dekovic, 1999). Barber (1994) found evidence in white families that older adolescents and their parents experienced fewer conflicts than younger adolescents, while conflict frequency was not related to adolescent age in black or Latino families. In her work across a number of different cross-sectional samples (white and black) and several different

measurements of conflict, Smetana (e.g., 1988a, 1988b, 1989) has found that conflict with mothers is more frequent, but less intense, for preadolescents than for young adolescents (Smetana & Gaines, 1999), and for young adolescents than for those in middle adolescence (Smetana & Asquith, 1994), especially for mothers and adolescents in intact families (Smetana, 1991). In contrast, conflicts were more intense for younger adolescents and their parents than for older adolescents and their parents in a study of Chinese families (Yau & Smetana, 2003).

Studies of topic-specific conflict suggest that different issues may become more salient then others over the course of adolescents. Disagreements about clothes and appearance may occur more with younger than older adolescents (Brooks-Gunn & Zahaykevich, 1989; Galambos & Almeida, 1992), while dating and alcohol use may become more salient during later adolescence (Collins, 1990). In addition, conflict about chores may increase with age (Smetana, Yau, & Hanson, 1991).

In their meta-analysis of studies of age-related change in conflict, Laursen et al. (1998) found that frequency of conflict actually <u>decreases</u> somewhat from early adolescence to mid-adolescence, and from mid-adolescence to late adolescence; this finding was especially strong for mother-adolescent dyads. Conflict intensity, on the other hand, increases slightly from early to mid-adolescence, then "settles back during late adolescence to a level somewhere between the two early age periods" (Laursen et al., 1998, p. 825), although this was mostly evident for (1) father-son dyads and (2) child reports rather than parent reports.

Change related to divergent expectations. In one of the few studies charting change in conflict as a function of something other than age or puberty, Holmbeck and O'Donnell (1991) found both cross-sectional and longitudinal evidence that conflict frequency increases over time as a function of discrepancies in mothers' and adolescents' reports of who makes decisions in different areas of adolescents' lives. Divergence in mother and adolescent reports of decision-making in 17 domains predicted higher incidence of conflict cross-sectionally, as well as increases in conflict frequency over a six-month period, in a sample of ten- to eighteen- year-olds. In a sample of mothers, fathers, and offspring in early, middle, and late adolescence, Dekovic, Noom, and Meeus (1997) found that discrepancies between perceptions of the age at which adolescents should achieve certain tasks were related to greater conflict for mother-daughter, father-daughter, and father-son dyads (not mother-son dyads). When they broke down the sample into early, middle, and late adolescent groups, discrepancies were related to conflict

only for daughters and their parents in early adolescence, and for fathers and their offspring in middle adolescence.

Time Together

Unlike conflict, time use appears to be a much more straightforward phenomenon during adolescence. Compared to other mothers, mothers whose adolescents are at the height of puberty perceive their offspring to be less involved in family activities (e.g., Hill et al., 1985a, 1985b). Further, both cross-sectional (e.g., Larson & Richards, 1991; Montemayor & Brownlee, 1987) and longitudinal studies (e.g., Larson, Richards, Moneta, Holmbeck, & Duckett, 1996) find that the proportion of adolescents' time spent with parents declines with age across adolescence. For example, Montemayor and Brownlee (1987) found that early adolescents spent more time with a parent (54% of time) than middle and late adolescents (31% of time); time with fathers was more discrepant between early and middle/late adolescents than time with mothers, suggesting that time with fathers decreases more drastically across adolescence than time with mothers.

In a unique research design, Larson and his colleagues (Larson & Richards, 1991; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996) have used the Experience Sampling Method to assess adolescent time use. Their samples of adolescents and parents carried beepers and were randomly paged. When paged, respondents filled out a questionnaire about what they were doing, who they were with, how they felt, and other aspects of their current activity and mood. Larson and colleagues collected data in this way from an initial cross-sectional sample of fifth to eighth graders, and then followed the sample up four years later. In cross-sectional analyses, there was a linear, negative relation between adolescent age and time spent with either parent, and adolescent reports of positive affect during interactions with parents decreased across early and middle adolescent groups (Larson & Richards, 1991). In longitudinal analyses, there was an overall linear decrease in the amount of time that adolescents spent with families, but time alone with either parent did not decrease, which suggests that adolescents (and/or their parents) may be selective about which kinds of family interactions to withdraw from in order to maintain close ties. The activities adolescents engaged in with family also changed: the proportion of family time spent in leisure activities decreased, but daughters increased the time they spent talking to parents (especially mothers), while sons' time spent talking to parents stayed the same. Further, the topics of conversation became more interpersonal. Selectivity is also suggested here: adolescents and their parents may sacrifice activities involving less

communication so that their decreased time together may be spent in more worthwhile and relationship-maintaining communication. Finally, self-reported affect and the perceived friendliness of interaction partners during time spent with family declined during early adolescence, supporting the idea that early adolescence is a time when families experience more negative or strained relationships (Larson et al., 1996).

In light of these grade-related changes, Larson et al. (1996) examined possible causal processes for which grade might be a proxy. Pubertal status was related to decreases in family time for sons, but not daughters. Decreases in family time were unrelated to such family characteristics as parent-adolescent conflict, but were related to expanded opportunities to be away from home (e.g., access to a car). Larson et al. argued that, in contrast to theoretical perspectives focusing on processes that <u>push</u> adolescents away from family, these findings suggest that adolescents may be <u>pulled</u> rather than pushed from family.

Closeness

Puberty-related change. Although empirical evidence points to some association between pubertal development and feelings of closeness in parent-daughter dyads (though not in parent-son dyads), the precise nature of that association is not yet clear. Mirroring results on conflict, some studies find curvilinear associations between acceptance or cohesiveness and pubertal status (e.g., Hill et al., 1985a; Steinberg, 1988), others find linear associations (Steinberg, 1987). At least one study found no association between daughters' pubertal status and cohesion with mothers (Paikoff, Brooks-Gunn, & Carlton-Ford, 1991; cf. Graber & Brooks-Gunn, 1999). Hill's (1988; Hill et al., 1985a) results suggest that the dip in maternal acceptance of daughters is only temporary, while paternal acceptance of daughters decreases during puberty and remains low after.

Age-related change. In his review, Collins (1990) suggests that perceived <u>acceptance</u> drops between middle childhood and adolescence, especially in mother-child dyads (e.g., Johnson & Collins, 1988; cf. Collins, 1990). He also suggests that perceived <u>cohesion</u> drops from mid to late adolescence, but not between early and mid adolescence; supporting that contention, Feldman and Gehring (1988) found a negative linear association between age and cohesion, especially between ninth and tenth graders. In a longitudinal study of parents and adolescents (who were 13 at the first time of measurement), Seiffge-Krenke (1999) found a linear decline in parent reports of relationship quality with adolescent offspring over four years, although

adolescents' reports did not change. Mayseless, Wiseman, and Hai (1998) also found no evidence of differences in adolescents' reports of closeness with parents across groups of early and late Israeli adolescents. However, Barber, Bell, and Armistead (2003) found that, in a sample of African American girls in poor urban neighborhoods, middle adolescents reported significantly less positive relationships than older adolescents.

Change related to divergent expectations. Again, very few studies have examined change in closeness as a function of cognitive discrepancies. Holmbeck and O'Donnell (1991) found that mothers' reports of family cohesiveness decreased over a six-month period as a function of discrepancies between mother and adolescent reports of who makes decisions.

Summary of Change in Parent-Adolescent Relationships

In sum, the best evidence to date regarding <u>conflict</u> suggests that conflict frequency actually decreases somewhat from early to late adolescence (Laursen et al., 1998); whether or not frequency increases from middle childhood to early adolescence has not been satisfactorily established. Conflict intensity, on the other hand, appears to increase slightly as adolescents move from early to middle adolescence and mature physically. <u>Time spent together</u> decreases across adolescence. The forces that "pull" adolescents away from their families might cause adolescents and parents to be more selective about how they spend their time together, as the quality of time spent together (e.g., dyadic time vs. time in groups, conversations about interpersonal issues versus watching TV) seems to improve over adolescence, especially for mother-daughter dyads. In contrast, change in parents' and adolescents' feelings of <u>closeness</u> have not been satisfactorily established, with little or contradictory evidence of age- and puberty-related change in such dimensions as acceptance and cohesion. Initial evidence does exist, though, that feelings of cohesion may be lower when parent and adolescent have discrepant perceptions of other relationship qualities (e.g., decision making).

The timing of pubertal development may contribute to contradictory evidence of relationship change. Some researchers argue that pubertal timing may be more significant for parent-adolescent relationship change than pubertal status (Dekovic, 1999; Montemayor, 1986; but Steinberg & Silk, 2002 disagree). Pubertal timing is linked to adolescent well-being, which suggests that timing may shape adolescent experiences. In particular, early-maturing girls tend to experience more emotional, psychological, and behavioral problems than other girls, while early-maturing boys tend to have more positive self-images and be more popular (see Steinberg &

Morris, 2001, for a review). On the one hand, Sagrestano, McCormick, Paikoff, and Holmbeck (1999) found that parents of early-maturing offspring reported more conflict than other parents, regardless of whether offspring were male or females. On the other hand, Savin-Williams and Small (1986) found that parents of early maturing sons reported less conflict than parents of other sons, while parents of late maturing sons reported more conflict than parents of daughters. In contrast, early-maturing daughters and their parents reported more conflict than both other mother-daughter dyads and parents of boys.

Individual Differences in Relationship Change

Another reason why studies of change in parent-adolescent relationships provide mixed results is that there may not be one pattern of change in each relationship dimension. Instead, parents and adolescents may experience different trajectories of relationship development depending on a variety of individual, family, and contextual factors. Although normative models of change are initially helpful, the recognition that parent-child relationships are multiply determined (Belsky, 1984) is necessary in light of the myriad individual, relational, and contextual variations that exist across parent-adolescent dyads, in order to refine our knowledge of the development of these relationships. However, researchers have only systematically addressed gender in studies of relationship change, despite the relatively wider body of work on cross-sectional variations relationship quality reviewed above.

Gender. Specific theories about gender differences in relational change in adolescence include the gender intensification hypothesis, which hypothesizes that gender stereotyped behavior, preferences, and attitudes will intensify (i.e., boys and girls will diverge more sharply) during early adolescence as physical maturation and peer relationships make sex a more salient identifier for adolescents (e.g., Crouter, Manke, & McHale, 1995). According to this hypothesis, family interactions ought to become more sex-typed; indeed, Crouter et al. (1995) found that from the fourth or fifth grade to the fifth or sixth grade, firstborn girls spent increased amounts of time with mothers, and firstborn boys spent increased amounts of time with fathers, especially in families where the secondborn child was the opposite sex.

The idea that mother-daughter relationships "suffer" more during adolescent development is another common hypothesis (e.g., Collins & Russell, 1991), part of a broader notion that mother-adolescent relationships in general experience more changes during the height of "perturbation" (e.g., Baumrind, 1991). Studies of puberty-related changes suggest that

mothers lose more power than fathers do, especially with sons, and that mother-daughter dyads may experience greater increases in conflict and negativity (Brooks-Gunn & Zahaykevich, 1989; Hill, 1988; Montemayor, 1983; Steinberg, 1981). Besides puberty studies, there is other support in the literature for this notion. Although fathers and adolescents become more distant, these dyads tend to be more distant to begin with, so the increase in distance is not as great. Mothers, because they are already closer to and more involved with offspring, may experience more unrest in their relationships (Collins & Russell, 1991). At the same time, however, there is also support for the idea that the perturbation in mother-adolescent relationships is more short-lived, that mother-adolescent relationships "bounce back" after the disruption of early adolescence, while father-adolescent relationships become more distant in early adolescence and stay that way (Collins & Russell, 1991).

Prior relationship quality. Steinberg (1990) argues that the psychoanalytic focus on detachment from parents has made prior relationship quality "more or less irrelevant to the development of parent-child relationships in adolescence" (p. 257), even though the majority of families who do experience negative parent-adolescent relationships have a history of family problems before offspring reach adolescence (Steinberg, 1990). Although scholars agree that (1) there are individual differences in patterns of parent-child relationships, and (2) these patterns of parent-child relationships likely show relative continuity from middle childhood through adolescence, most of our evidence for relationship development comes from cross-sectional studies, wherein true continuity of pre-existing relationship patterns cannot be tested.

Conger and Ge (1999) offer evidence of continuity in parent-adolescent relationships in their longitudinal observational study of families with seventh grade offspring. In line with universal models of change, they found that negative emotional expression increased, and that positive affect decreased, over time. However, they also found that these constructs were very stable; initial levels of negativity and positivity were predictive of later levels of negativity and positivity, indicating individual variation around the overall change as a function of prior relationship quality. Plus, the observed hostility of one dyad member at the preceding time period significantly predicted the observed hostility of the other dyad member at subsequent time periods (after controlling for the latter's hostility at the preceding time period). Thus, "just as especially hostile parents and children may experience increases in this interactional quality under the pressure of biological, cognitive, and social changes that occur during early to mid-

adolescence, those parent-child dyads without such a history may actually decrease in their level of negative interactions during this time period" (Conger & Ge, 1999, p. 203).

Rueter and Conger (1995) went a step further in their longitudinal study of the same sample, using both self-report and observational measures. Rather than simply looking at stability over time in one construct, they tested the hypothesis that positive and negative interaction patterns will predict differential change in conflict severity. In their "negative family context" structural equation model, self-reported conflict severity, observed hostile family interactions patterns, and observed disruptive problem-solving patterns were positively intercorrelated at Year 1. In addition, each showed considerably stability over time, from Year 1 to Year 2, 3, or 4. However, above and beyond the stability coefficients, each of the constructs significantly predicted increases over time in each of the other constructs. In their "positive family context" structural equation model, observed warm, supportive family interaction patterns were concurrently correlated with conflict severity and flexible problem solving in expected directions. As in the other model, each construct also showed considerable over-time stability. Plus, warm supportive family interactions predicted decreased conflict severity over time. These results reinforce the notion that different aspects of relationship quality can help predict deviations from normative patterns of change.

Profiles of Parent-Adolescent Relationship Quality

All of the studies reviewed thus far have at least one feature in common: all take a variable-centered approach (Magnusson, 1995) in addressing parent-adolescent relationship change. In other words, researchers collect data from samples of respondents about multiple indicators of relationship quality and individual characteristics and then separate the multiple indicators in analyses, looking for unique and distinctive effects of one variable on another. Although variable-centered approaches address interesting and important questions, a person-centered, or pattern analytic, approach can address questions that variable-centered approaches cannot (Hinde, 2000).

As close relationship and family systems theorists would point out, a relationship is more than the sum of its parts (Hinde, 1995; Minuchin, 1985). The fact that families experience multiple transitions and exist in multiple contexts simultaneously makes it impossible to arrive at a set of statements that truly represent the different types of experiences that parents and

adolescents typically have, and so a true picture of what parents and offspring experience with each other during adolescence remains elusive using variable-centered approaches.

Placing particular relationship dimensions in the context of the overall relationship can broaden our knowledge of what particular relationship dimensions mean for parents and adolescents, and how those relationship dimensions might change as offspring age. Increased conflict between parents and offspring during early adolescence, for example, would mean very different things in a family with high levels of warmth and cohesion than in a family with low levels of warmth and cohesion. To say that, in general, conflict frequency increases during early adolescence is to remove conflict from the broader context of the relationship. Although significant and important, this type of work centered on particular relationship properties can be augmented by borrowing ideas from person-centered approaches (e.g., Bergman, 2000; Magnusson, 1995) to create a pattern analytic approach to parent-adolescent relationships.

Person-Centered Approach

A person-centered approach offers a promising way to conceptualize and study parent-adolescent relationships more holistically. Although applied mainly to individual development in order to integrate and locate patterns of biological, psychological, and behavioral characteristics in individuals, the principles of person-centered approaches can and have been applied to the study of families and relationships as well (e.g., Filsinger, 1990). The major tenet of this approach is that individuals are "integrated organisms" wherein development is best understood when studied holistically, not when examined in terms of a single dimensions taken out of context (Magnusson, 1995, p. 25). This perspective maps nicely onto theoretical conceptualizations of relationships, given some overlap with family systems thinking (e.g., parallel *gestalt* concepts); unlike family systems, this perspective is more amenable to use in traditional survey and observational studies where individual relationship qualities are measured independently. Another advantage of this approach is that individual difference models are the norm, rather than the exception, in person-centered approaches. For example, similar to Bronfenbrenner's (e.g., Bronfenbrenner & Morris,1998) ecological model, Magnusson (1995, 2000) and others (e.g., Hinde, 2000), operating from a holistic perspective, place great importance on the concept of transactions between different characteristics within individuals as well as between individuals and their environments.

Methodologically, person- and variable- centered approaches diverge in a number of different ways. Whereas variable-centered approaches amass population-level estimates on particular variables by aggregating across a sample, person-centered approaches search for different patterns in the connections between variables within individuals or groups (Cairns, 2000). Likewise, variable-centered approaches work to estimate the influence of single variables, i.e., to isolate the unique and distinctive contribution of one variable from the contribution of another variable; in contrast, the interactionist perspective of a person-centered approach suggests that variables may actually be most meaningful when considered as part of a pattern rather than considered in isolation (Bergman, 2000; Cairns, 2000). When the question of interest concerns patterns of a number of different relationship dimensions, it may not be the case that isolating variables from one another—in essence removing them from the broader context of the relationship—will give us an accurate picture of the contextual, multi-textured experience of relationship partners. As Bergman and Magnusson state, "The modeling/description of variables over individuals can be very difficult to translate into properties characterizing single individuals because the information provided by the statistical method is variable oriented, not individual oriented" (1997, p. 292).

Measuring Holistic Patterns of Relationship Qualities: Cluster Analysis

Cluster analysis is a method that lends itself to person-centered analyses. Orthogonal to factor analysis, cluster analysis classifies relationships into types based on the similarity and dissimilarity of profiles of variables characterizing the relationships. Employing cluster analysis to study family relationships, even parent-adolescent relationships, is not a new idea. Researchers have used cluster analysis to study parent-infant relationships (Belsky, Woodsworth, & Crnic, 1996; Fish & Stifter, 1995; Jain, Belsky, & Crnic, 1996; Whiteside-Mansell, Pope, & Bradley, 1996), parent-adult child relationships (Frank, Avery, & Laman, 1988; Miller, 1995), sibling relationships (Crouter, McHale, & Tucker, 1999; Maguire, McHale, & Updegraff, 1996; Updegraff & Obeidallah, 1999), family environment (Lustig, 1997; Mink, Blacher, & Nihira, 1988; Moos & Moos, 1976), adult sibling relationships (Stewart, Verbrugge, & Beilfuss, 1998), family relationships (O'Connor, Hetherington, & Reiss, 1998), and marital relationships (Allen & Olson, 2001; Belsky & Hsieh, 1998; Fals-Stewart, Schifer, & Birchler, 1993; Filsinger, McAvoy, & Lewis, 1982; Fowers & Olson, 1992; Guinta & Compas, 1993; Johnson, Huston, Gaines, & Levinger, 1992; Lavee & Olson, 1993; Snyder & Smith, 1986).

Technique. Although a number of different types of cluster analysis exist, the basic form of the analysis is the same across types: an index of similarity is computed for each pair of cases (or between each case and some criterion), and a set of rules is applied to the similarity indices in order to classify each case into one of a number of clusters (Bergman, 2000; Bergman & Magnusson, 1997; Blashfield & Aldenderfer, 1988; Filsinger, 1990). For example, if data were collected on a sample of parent-adolescent relationships regarding conflict frequency, conflict intensity, time together, and acceptance, each relationship could be "plotted" in a space defined by these four dimensions and then grouped together based on their proximity to one another.

The first step in clustering cases is to establish the similarity between any two cases, and a researcher interested in cluster analysis must first decide which type of similarity will be of theoretical interest. Similarity can be established along three criteria: shape, scatter, or elevation (Blashfield & Aldenderfer, 1988; Cronbach & Gleser, 1953; Edelbrock, personal communication). Shape concerns similarity of the rank order of variables between two units and is insensitive to the absolute levels of the variables. Common shape indices include cosine (e.g., used by Belsky & Hsieh, 1998; Crouter et al., 1999) and Pearson's product moment correlation (e.g., used by Lavee & Olson, 1993). Scatter concerns the variability between variables within a given unit of analysis, but it is not often of substantive interest in social science research. Finally, elevation concerns the absolute value or level of the variables in a given case. The most common elevation index is squared Euclidian distance, which is the sum of the squared differences in the values of each variable between two cases (e.g., used by Allen & Olson, 2001; Johnson et al., 1992). When using elevation as the index of similarity, the variables of interest must be on the same scale (or standardized if they are not) (Blashfield & Aldenderfer, 1988; Edelbrock, personal communication). Note that squared Euclidean distance is not a "pure" index of elevation. It also contains information about shape and scatter, as a large distance value can indicate either small differences between cases in all the variables, a large difference between cases on one variable, or anything in between (Edelbrock & McLaughlin, 1980; Lorr, 1966; cf. Skinner, 1978).

Once a similarity index is chosen, the next step is to pick a clustering method. A number of different ways to cluster exists, including various hierarchical agglomerative and divisive methods, iterative partitioning methods, and density search methods (Blashfield & Aldenderfer, 1988). Hierarchical agglomerative methods, the most commonly used in social science research,

start out with every unit of analysis as its own cluster. Every case is then compared with every other case to see which ones can be paired up based on the similarity index being used. These subsequent pairs become a cluster. The process is repeated for each new set of clusters until every original unit of analysis is contained in one overall cluster. The researcher then must decide where to cut off the clusters, or which set of clusters is methodologically and substantively interesting (Blashfield & Aldenderfer, 1988; Edelbrock, personal communication). For example, two common and well-established agglomerative approaches are (1) average linkage, or defining clusters based on maximizing the mean similarity of cases in the cluster relative to the mean similarity of any case in the cluster with all other cases in other clusters (e.g., used by Allen & Olson, 2001; Belsky et al., 1996; Crouter et al., 1999), and (2) Ward's method, or clustering based on minimizing the average within-cluster variance (e.g., used by Fals-Stewart et al., 1993; Filsinger et al., 1982; Johnson et al., 1992; Whiteside-Mansell et al., 1996) (Blashfield & Aldenderfer, 1988; Ward, 1963). One disadvantage of hierarchical methods is that clusters may form around a very small number of outliers, or even one outlier (i.e., cases that are not similar to any other cases). However, outliers can be deleted and the cluster analysis re-run in order to get a more accurate picture of the remaining cases (Edelbrock, personal communication).

Another clustering method often used in social science research is the *k*-means method, which is an iterative partitioning method (Blashfield & Aldenderfer, 1988; e.g., used by Mink et al., 1988; Fowers & Olson, 1992). In this method of clustering, the data are initially split into a set number of clusters, and the centers of these initial clusters are computed. This split is done arbitrarily; for example, in a *k*-means analysis looking for four clusters in a sample of 100 dyads, the first 25 dyads are initially grouped in Cluster 1, the next 25 in Cluster 2, and so on. The data are then looked at one case at a time, and each unit is assigned to the cluster to which the unit is most similar (based on squared Euclidian distance). After each case is considered in this way, the centers of the resulting clusters are re-computed. These steps are repeated until no units are re-assigned (Blashfield & Aldenderfer, 1988). One disadvantage of *k*-means is that it is sensitive to the initial ordering of the data; different cluster solutions can sometimes emerge just by re-ordering the units of analysis (Edelbrock, personal communication). One way to counteract this problem is to look for a cluster solution using a hierarchical method like average linkage, then ordering the data by the number of clusters that look substantively and methodologically

interesting and running a *k*-means analysis on the re-ordered data (Blashfield & Aldenderfer, 1988; e.g., used by Allen & Olson, 2001; Fowers & Olson, 1992; Lavee & Olson, 1993). According to Milligan (1980), "the *k*-means pass, using an initial starting partition derived from average linkage clustering, provided superior recovery of known data structure when compared with the performance of other iterative and hierarchical clustering methods" (Blashfield & Aldenderfer, 1988, p. 455).

Clustering parent-adolescent relationship quality. A number of studies have used cluster analysis to examine cross-sectional patterns in parent-adolescent relationships (e.g., Powers, Hauser, Schwartz, Noam, & Jacobson, 1983). In a study linking experiences with parents with adolescents' level of intimacy with best friends, Mayseless, Wiseman, and Hai (1998) asked adolescents in 9th and 12th grades from two-parent, non-divorced families to report on their experiences of warmth, confrontation, autonomy, and mutuality with both mothers and fathers. Using *k*-means with squared Euclidian distance, Mayseless et al. entered each adolescent's score on four scales for both mother and father (i.e., eight variables entered in the cluster analyses), which resulted in a 6-cluster solution—Cold and controlling, Mother positive/father negative, Father positive/mother negative, Good, Ideal, and Intermediate. Findings suggested that having especially positive family relationships (Ideal, the group with highly positive yet autonomous relationships with both mother and father), or having especially negative family relationships (Cold and controlling, the group with highly negative relationships with and little autonomy from both mother and father) was related to having highly intimate relationships with best friends.

Fallon and Bowles (1998) measured adolescents' perceptions of influence in and cooperation during families' decision-making about what secondary school the adolescent would attend. The adolescents in this study were asked to rate their own and each parent's influence on the adolescent's decision to attend or not attend a particular secondary school. *K*-means cluster analysis yielded four groups: Democratic (adolescent and parents have influence), Parent coalition (parents have more influence than adolescent), Child Dominant (adolescent has more influence than either parent), and Mother dominant (mother has more influence than adolescent or father).

O'Connor, Hetherington, and Clingempeel (1997) used a two-step clustering process to classify mother-father-adolescent triads on their negative and positive behaviors during interactions. Each triad member's negative and positive behavior toward the other two members

was measured, yielding six variables for cluster analysis. Five clusters emerged. Adolescents in the cluster with uniformly positive relationships scored highest on a measure of social competence, while adolescents in the cluster characterized by uniformly negative relationships scored lowest on a measure of cognitive agency and were high on externalizing behaviors.

Finally, Smetana (1996) examined conflict frequency and severity in families with adolescents across three different samples (two American and one Chinese) by clustering on both dimensions of conflict using *k*-means. Smetana labeled the largest group to emerge across all three samples Squabblers; these families reported frequent but not very severe conflict. Placid families reported few conflicts and low severity; Tumultuous families reported high conflict frequency and severity. Smetana linked group membership to a number of different relational and individual phenomenon. Parents in the Tumultuous families were more likely to have lower SES and to be more authoritarian than Placid or Squabbling families. Parents in Squabbling families were more likely to be authoritative, while parents in Placid families were more likely to be either authoritative or permissive. Likewise, parents and adolescents in Tumultuous families engaged in less joint decision-making than other families. Adolescents and parents in Squabbling families disagreed about the legitimate authority of parents over areas in adolescents' lives; adolescents in these families were more likely to classify issues as being under their personal jurisdiction, while mothers in these families were more likely to appeal to social conventions to justify their authority. In terms of adolescent outcomes, adolescents from Tumultuous families were more detached from their parents and had lower academic achievement. These findings support the idea that frequent squabbling, or non-severe conflicts over everyday issues, is in fact typical of many families with adolescents and seemingly as healthy a pattern as a low level of conflict. In contrast, frequent conflict can be unhealthy for families and adolescents when the conflicts are severe (Smetana, 1996).

Two studies have examined change in parent-adolescent relationships using cluster analysis. Noack and Puschner (1999) used cluster analysis to chart patterns of change in connectedness (closeness) and individuality (autonomy) in a sample of 15-year olds over two years and three points of measurement. They employed squared Euclidian distances using Ward's method, and entered adolescents' reports of closeness with mothers and autonomy at all three time points. Three clusters resulted: (1) high, stable closeness with medium but linearly increasing autonomy; (2) medium, stable closeness with high, stable autonomy; (3) low, stable

closeness with medium autonomy that was higher during the middle time point. Cluster membership was related to adolescents' depressive symptoms and aggression, with youth in the third cluster scoring somewhat higher on both than the other two clusters.

Delaney (1996) explored a similar question by clustering 12-year-old adolescents on intimacy with parents and emotional autonomy with parents. Adolescents reported their feelings of intimacy with mother and father separately, so two different cluster analyses were conducted, one with mother-adolescent dyads and one with father-adolescent dyads. In each cluster analysis, Delaney employed the *k*-means method, and adolescents' reports of intimacy and emotional autonomy from two points of measurement over a one-year period were entered. The resulting clusters indicated stability in intimacy and autonomy over the one-year period. Each cluster analysis (for mothers and fathers) revealed three parallel groups: Individuated (high on intimacy and autonomy), Connected (high on intimacy, low on autonomy), and Detached (low on intimacy and high on autonomy). Similar to Noack and Puschner's (1999) findings, adolescents in the Detached group reported higher anxiety, more depressive symptoms, and lower self-esteem than other adolescents.

Summary. In sum, cluster analysis is well-suited to studying the relationship experiences of parents and their adolescent offspring. Such an approach lends itself to a consideration of multiple relationship qualities, which contributes to a description of parent-adolescent relationships more holistically. Also, cluster analysis is commensurate with examining variations in parent-adolescent relationship quality, and in change in these qualities, across dyads.

Specific Aims of the Present Study

This study made use of data from parents and secondborn offspring from a short-term longitudinal study of families with children. The target children in these families were firstborn offspring in the eighth, ninth, or tenth grade (*M* age = 15) during the first phase of data collection and secondborn offspring, who were one to three years younger (*M* age = 12.5). Families were followed over two years, resulting in three annual points of measurement. I chose to focus on secondborns because they were in early and middle adolescence at the first time of measurement. This allowed me to focus on a period of adolescence that researchers consider significant, and to follow these relationships over a two-year period, into middle and late adolescence. In order to examine both individual differences and pattern analytic approaches to parent-adolescent relationships, this study addressed the following goals.

Profiling Parent-Adolescent Relationships

<u>The first aim was to profile parent-adolescent relationships along multiple affective and behavioral dimensions.</u> Borrowing from the traditions of person-centered approaches, cluster analysis was employed to classify parent-adolescent relationships using multiple relationship dimensions in order to develop a more holistic picture of different types of experiences that adolescents have with their parents. Cluster analyses were conducted separately for mother-adolescent and father-adolescent dyads, allowing for indirect comparisons between mothers' and fathers' experiences with offspring.

Choosing relationship characteristics. The choice of relationship dimensions was informed by both theoretical and methodological considerations. Theoretically, my first goal was to choose constructs that other studies of parent-adolescent relationships have demonstrated are significant for parents and adolescents, in order to demonstrate how these constructs that have been studied individually fit together in different families. Methodologically, one challenge in achieving this goal was to strike a balance between subjective and behavioral, and between positive and negative, relationship dimensions, without allowing one category to influence cluster membership more than the other. At the same time, though, the cluster analyses would have to move beyond a basic median-split type of categorization (i.e., high positive-high negative, high positive-low negative, low positive-high negative, low positive-low negative), even though providing a balance of positive and negative relationship dimensions runs the risk of producing a forced "high-low" matrix.

My second theoretical goal in choosing relationship qualities was to examine not only patterns of different relationship dimensions, but also patterns of difference between parents' and adolescents' perceptions of their relationships, given the prominence of divergence as a theme in the study of parent-adolescent relationships. As such, I included only relationship qualities about which I had data from both parents and adolescents. Using two reporters for each relationship dimension also carried a methodological benefit as well, insofar as two reporters can support the claim that the variables are actually "getting at" something about the relationship, not just one person's perception of the relationship (e.g., a parent who is depressed may report more negative relationship quality than is actually the case). In other words, including both members' reports of a given relationship quality not only allows clusters to emerge in which parents and adolescents systematically differ in their perspectives, but also validates a given relationship quality to the

extent that both reporters agree. In addition, I reasoned that including both reporters would minimize the danger of a basic high-low matrix by allowing clusters to emerge that were distinguished by differences in parent and adolescent perspectives in addition to differences across relationship qualities.

Given these goals, I chose four relationship dimensions: parental acceptance, proportion of time spent together, conflict frequency, and conflict intensity (see Figure 1.1). These four constructs represent a balance between subjective and behavioral, positive and negative, and they are considered significant by other parent-adolescent relationship researchers. Plus, I had data from both reporters available.

		Valence	
		Positive	Negative
Type	Subjective	Parental acceptance	Conflict intensity
	Behavioral	Time together	Conflict frequency

Figure 1.1. Relationship Dimensions Chosen for Inclusion in Cluster Analyses.

Hypotheses. Cluster analysis is an exploratory procedure, so generating testable hypotheses for this study was not possible, although I could speculate about what groups might emerge. I predicted that the majority of parent-adolescent relationships would experience relatively high levels of closeness and moderate to high levels of time together. Of this majority, I speculated that some portion would experience low to moderate conflict frequency and intensity ("Harmonious" dyads, similar to Smetana's Placid group), while the other portion would experience frequent but only moderately intense conflict (similar to Smetana's Squabblers group). In addition to the two groups that may potentially make up the majority of relationships, I also expected to see a minority of relationships with more troublesome patterns. I envisioned two possibilities: (1) "Conflictual" relationships characterized by low levels closeness and time together with frequent, intense conflict, and/or (2) "Uninvolved" relationships characterized by relatively low levels of all the relationship dimensions.

In terms of differences between mother-adolescent and father-adolescent typologies, there were three possibilities. At the two extremes, mother and father typologies may be identical or may not resemble one another at all. Another possibility is that mother and father groups may be characterized by similar shapes but different levels of the relationship dimensions. Given the

small but significant differences between mother-child and father-child relationships in the literature, I thought the latter was the most likely possibility. For example, a Harmonious group may emerge for both mothers and fathers, characterized by relatively high levels of closeness and time together and low levels of conflict, but Harmonious mother-adolescent dyads may report higher levels of closeness and time together relative to Harmonious father-adolescent dyads. In other words, along the relationship dimensions of interest to this study, I expected mothers and fathers to be more similar than different, and the differences that did exist to be more quantitative than qualitative.

Correlates of Profiles

The second aim of this study was to examine the possible correlates of the resulting parent-adolescent relationship clusters. Examining various individual- and family-level correlates helped to identify some of the possible routes into, and consequences of, particular relational patterns. I considered four categories of possible correlates. First, I considered SES and demographic characteristics of families, including parents' income, education, job prestige, and age, as well as family size. Second, I considered individual characteristics of the dyad members, including gender-related characteristics (adolescents' sex, and dyad members' gender role attitudes and expressivity), parents' work demands and stressors (role overload, work pressure, work hours), and indicators of well-being (dyad members' depressive symptoms, and adolescents' self-worth and risky behavior). Third, I considered other characteristics of the target dyads' relationships, including perspective taking, parental knowledge, and adolescents' behavioral autonomy. Finally, I considered other family relationships, including secondborns' relationships with the other parent and with firstborn siblings, and parents' marital quality.

I speculated that relationship patterns characterized by relatively higher levels of affective and behavioral closeness and less intense conflict (e.g., Harmonious and Squabblers) would be related to higher expressivity, more positive adolescent temperament, less parental stress, more positive parental well-being, and more positive family relationships relative to more negative patterns of relationship quality. It was also possible that adolescent sex would be related to cluster membership. For example, girls may be over-represented in a Harmonious or Squabblers mother-adolescent group, and/or under-represented in an Uninvolved mother-adolescent group, given past evidence that mother-daughter dyads have closer, more intense relationships than mother-son dyads. Conversely, daughters may be over-represented in an

Uninvolved father-adolescent group, given past evidence that father-daughter dyads are more likely to be the most distant parent-child relationship (Collins & Russell, 1991).

Change in Relationship Quality over Time

The final aim of this study was to examine change over time in parent-adolescent relationships. Specifically, I was interested in whether initial relationship profiles would moderate the association between adolescent developmental status and relationship change. In order to be consistent with the bulk of the literature on parent-adolescent relationship change, I focused on how pubertal status and age were associated with changes in the four relationship constructs used to profile relationships initially (acceptance, centrality, conflict frequency, and conflict intensity), and whether the links between developmental status and relationship change differed across relationship profiles. Prior theory and research on normative changes in parent-adolescent relationships suggest that from early to middle adolescence, conflict may become more intense but less frequent, while from middle to late adolescence, conflict should become less intense and maybe less frequent. In addition, time together should decrease, and feelings of closeness should either stay the same or increase. However, these normative patterns of change probably better describe healthy parent-adolescent relationships, and I expected negative patterns of change for more negative relationship profiles.

CHAPTER 2. METHODS

Participants

The original sample consisted of 197 families participating in a longitudinal study of family relationships and adolescent development called The Penn State Family Relationships Project (R01-HD29409, Ann C. Crouter and Susan M. McHale, Co-Principal Investigators). Families were recruited via letters sent home to all families of eighth, ninth, and tenth graders in each of 18 school districts in the central region of a Northeastern state. Procedures for all steps of data collection were approved in advance by the University's Institutional Review Board. Families who met the criteria and were interested in participating in a "study of family life in the 1990s" were asked to return a self-addressed postcard. Each family who returned a postcard was contacted by project staff to determine eligibility and enroll them in the study. We sought families with a firstborn child in the eighth, ninth, or tenth grade and a secondborn child one to three years younger. We sought parents who were married to one another and who were the biological or adoptive parents of both offspring. Given our sample size, we wished to focus on one type of family structure (in this case, nondivorced, nonblended) given the differences in family dynamics between blended families and ever-married families (Hetherington & Jodl, 1994). In addition, we sought dual-earner families because of our interest in paid work.

We could not ask for return postcards from all families for financial reasons, so we cannot establish the percent of eligible families who agreed to participate. However, among families who returned postcards and met the sampling criteria, over 90% agreed to participate. Based on comparisons with U.S. Census data, parents in the sample were somewhat older and significantly better educated than in the overall population of families living in the same counties (Crouter, Tucker, Head, & McHale, 2004).

This study focused on the parents and secondborn children in these families. For the present study, data from Time 1 (collected between September 1995 and January 1996) and Time 2 (collected two years later) were used. For Time 1 cluster analyses, data from 195 mother-secondborn relationships and 196 father-secondborn relationships were used. One family was excluded from both mother and father analyses because all family members were missing data on relevant parent-offspring relationship measures. One additional mother-offspring dyad was excluded, also because of relevant missing data. A number of other families were missing data

relevant to analyses examining the correlates of cluster membership, but I included those families in all analyses that did not involve the missing data in order to make use of as large a sample as possible. For Time 2 analyses, data from 190 families were used. Four families withdrew from the study between Times 1 and 2, and two additional families were missing data on relevant mother- and father-offspring relationship measures at Time 2.

Table 2.1 shows the background characteristics of these families at Time 1. This was a normative, community sample of working- and middle-class families living in rural areas, towns, and small cities. Parents held jobs such as teacher, secretary, mechanic, construction worker, and business manager. All families were White with the exception of for four biracial (i.e., African American/White) families. Table 2.2 shows the breakdown of sex and grade level among the secondborn adolescents across the phases, who ranged in age from 10 to almost 15 at Time 1 (M age = 12.5). The majority of the target offspring ($n = 167$) were in sixth, seventh, or eighth grade at Time 1. Girls and boys were almost equally represented; data from 97 girls and 99 boys were used in this study.

Table 2.1

Means (M), Standard Deviations (SD), and Ranges of Sample Demographics at Time 1 (N = 196)

Characteristic	*M*	*SD*	Range	
Age				
Mothers	39.88	3.92	31.83	- 50.17
Fathers	41.80	4.23	32.92	- 57.92
Firstborns	14.96	.71	13.08	- 16.50
Secondborns	12.49	1.01	10.00	- 14.83
Education (yrs)				
Mothers	14.35	2.12	11	- 18
Fathers	14.24	2.30	9	- 20
Firstborns	9.24	.71	7	- 10
Secondborns	6.74	1.02	5	- 9
Yearly income				
Mothers	$20,922.00	14,441.00	0	- 100,000
Fathers	$41,323.00	31,364.00	0	- 300,000
Occupational prestige				
Mothers	49.61	12.94	21.16	- 68.40
Fathers	47.22	12.98	22.33	- 85.05
Number of children	2.58	.80	2	- 7
Marriage duration (yrs)[a]	17.61	3.19	4	- 30

[a] In one family, the parents did not marry until after the target children were born, but the parents had cohabited continuously prior to marrying and were the biological parents of both children.

Table 2.2

Percentage of Boys and Girls, and Percentage of Target Adolescents in Each Grade Level, at Times 1 and 2

	Time	
	1	2
	(*N* = 196)	(*N* = 190)
Girls	49.5%	50%
Boys	50.5%	50%
Grade Level		
5	12.2%	
6	29.1%	
7	33.7%	12.1%
8	22.4%	29.4%
9	2.6%	33.1%
10		22.6%
11		2.6%

Procedures

Data were collected in two ways. First, families participated in an annual home interview that lasted approximately three hours. At each phase, each family member was interviewed separately about his or her personal characteristics and attitudes as well as his or her assessment of the quality of family relationships, after each family member provided informed consent and the family was given an honorarium of $100.

Second, families participated in a series of phone interviews on seven different evenings over the course of several weeks during each phase. Adolescents were interviewed on all 7 evenings (5 weekdays, 2 weekend days); parents were each interviewed on 4 evenings (3 weekdays, 1 weekend day; 1 weekday call included both parents). Interviewers specifically asked respondents about their time use during the given day outside of school (for children) or work (for parents). For each of 63 activities (e.g., preparing a meal or snack, doing laundry, eating a meal, working on homework, participating in sports, watching television, attending a religious service), interviewers asked whether the respondent had engaged in the activity that day

and, if so, with whom and for how long. Adolescents' own reports of their time use across the seven calls were used in this study to calculate what proportion of their time outside of school was spent with parents. Likewise, parents' own reports of their time use across their four calls were used to calculate what proportion of their time outside of work was spent with the target offspring.

<div align="center">*Measures*</div>

The following sections describe how the four relationship constructs of interest (acceptance, centrality, conflict frequency, and conflict intensity) were measured. Appendix A contains information about the other measures used in analyses relating cluster membership to possible correlates and to relationship change.

Acceptance

At different points during the home interview, parents and offspring filled out the 24-item, 5-point (*Not at All* to *Very Much*) acceptance sub-scale of the CRPBI (Schaefer, 1965) concerning parents' acceptance of and feelings of warmth toward each of their offspring. Offspring responded to the questionnaire, once for each parent; parents responded to a modified parent version. A sample item from the parent version is "I am a person who is proud of the things my child does." Answers to the items were summed and averaged for each respondent to yield an acceptance score that could range from 1 to 5. Cronbach's alphas at Time 1 and Time 2 for all reports of parental acceptance were acceptable, ranging from .92 to .97.

Centrality of time together

Using adolescents' reports of their time use across the seven phone interview days, I calculated the proportion of their time spent with each parent. First, the total amount of time (in minutes) that adolescents reported across all seven interviews was summed. Then, the total amount of time that adolescents reported spending with their mothers (also in minutes) was computed. Time with mother was calculated based on any time an adolescent reported being with his/her mother, regardless of who else was present. For example, an adolescent could have spent 30 minutes with her mother alone while they went to the grocery store, then spent another 45 minutes with her mother, father, and brother while they ate dinner. Both intervals of time would be included in this adolescent's total time with mother. A proportion was created by dividing the amount of time spent with mothers by the amount of total time in activities adolescents reported to represent the centrality of mothers in offspring's lives. A parallel

proportion variable was created for the centrality of fathers in offspring's lives. A similar measure was created for mothers and fathers using the sum of each parent's report of time spent with their secondborn offspring divided by the total amount of time each parent reported across their four phone calls. This proportion, rather than the absolute amount of time with parents or adolescents reported spending with one another, was used to control for systematic differences in how much time any given adolescent or parent reported.

Conflict Frequency

At different points during the home interviews, both parents and adolescents reported on the <u>frequency of conflict</u> in their relationships across 11 domains, using a measure based on Smetana's (1988b) work developed by Harris (1992) and adapted for this study. Adolescents rated the frequency of conflict with mothers and fathers separately on a scale from 1 to 6 (*Not at All* to *Several Times a Day*) for each of the 11 domains; parents did the same for conflict with their offspring. The 11 conflict domains were chores, appearance, homework and schoolwork, social life, bedtime and curfew, health, choosing activities, money, behavior and personality, relationships with siblings, and relationships with friends/romantic partners. The sum of the 11 items represented total conflict frequency, with higher scores representing greater conflict frequency. Total scores could range from 11 to 66. Cronbach's alphas at Time 1 and Time 2 for all reports of conflict frequency were acceptable, ranging from .76 to .86.

Conflict Intensity

Parents and adolescents also rated how upsetting conflicts in each of the same 11 domains tended to be on a scale from 0 to 4 (*Conflicts Haven't Happened* to *Very Upset*). The sum of the 11 items represented <u>conflict intensity</u>, or how upset in general a parent or adolescent became during conflicts with one another, with higher scores representing greater feelings of upset. Scores could range from 0 to 44. Cronbach's alphas at both phases for all reports of conflict intensity were acceptable, ranging from .73 to .86.

CHAPTER 3. RESULTS – CLUSTER ANALYSES

This chapter begins with a section describing the relationship quality variables used in cluster analyses, particularly their scaling, between- and within-group differences for daughters and sons, and inter-correlations among the variables. The second section describes how I conducted the cluster analyses and subsequent probing of cluster solutions. The final two sections describe the results of cluster analyses, separately for mother-adolescent and father-adolescent dyads.

Descriptive Statistics

Scaling Variables

Of the four parent-adolescent relationship constructs under consideration, two measured positive dimensions of relationships—parental acceptance and centrality of time—while the other two measured negative dimensions of relationships—conflict frequency and intensity. Higher scores on each of these measures indicated more of that characteristic, which placed the positive and negative dimensions on opposite scales. In other words, high scores on the acceptance measure indicated positive relationship quality, while high scores on the conflict measures indicated negative relationship quality. In cluster analysis, though, variables should be scaled in the same direction, because cluster solutions can be unreliable when variables are scaled in different directions (Edelbrock, personal communication; Howard & Diesenhaus, 1967).

Thus, conflict frequency and intensity were re-scaled for this study so that higher scores meant less frequent or less intense conflict, while lower scores meant more frequent or more intense conflict. First, each respondent's answer on each of the eleven frequency and eleven intensity items was reversed by calculating $X' = 2m - X$, where X' represents the reversed score, X represents the original response, and m represents the midpoint of the scale (Cohen, 1969). The frequency items were on a six-point scale, so each response was subtracted from seven (2 * 3.5, the midpoint) in order to reverse it. (For example, a response of "2" becomes "5" when subtracted from seven.) The intensity items were on a four-point scale, so each response was subtracted from five. Then the eleven frequency items and eleven intensity items were summed to create a reversed summary score for each conflict measure. In the section on descriptive statistics that follows, the eight variables (representing parent and offspring reports of each of the

four relationship dimensions) are presented in their unstandardized, reversed form, such that all variables are scaled in a positive direction.

For the cluster analyses themselves, the eight variables were standardized with a mean of zero and a standard deviation of one. Standardization is necessary in order to cluster on variables with different scales so that the variables with the largest variance do not "pull" the clusters (Blashfield & Aldenderfer, 1988; Cattell, 1949). Mother-secondborn and father-secondborn relationship variables were standardized separately, because cluster analyses were conducted separately for mothers and fathers.

Individual Relationship Quality Variables

Before turning to the cluster analyses themselves, it was helpful to examine the individual indicators of relationship quality used in the cluster analyses, not only to see what these relationships looked like at the aggregate level, but also to see how these relationship variables were related to one another. Table 3.1 shows the means, standard deviations, and ranges of the relationship quality variables included in subsequent cluster analyses. Note that scores on parental acceptance tended to be relatively high; sample means ranged from 3.82 to 4.09 on a scale from one to five. Family members generally used the top half of the scale in responding to the individual acceptance items; nonetheless, scores were normally distributed within this truncated range. In terms of centrality, parents and adolescents tended to spend less than one third of their time together (*M* centrality ranged from .24 to .29), with proportions of time ranging from zero to .78. Scores on conflict frequency and intensity reflected relatively mild, infrequent conflict. The sample's mean responses on the eleven conflict intensity items fell between *Not Very Upset* and *A Little Upset* (*M* item-level responses ranged from 1.33 to 1.46 on a scale from 0 to 4 for the non-reversed scale). Likewise, the sample's mean responses on the eleven conflict frequency items fell between *A Couple of Times in the Past Year* and *A Few Times Each Month* (*M* item-level responses ranged from 2.11 to 2.47 on a scale from 1 to 6 for the non-reversed scale.) Similar to acceptance, family members tended to use the positive end of the two conflict scales, but scores were normally distributed within this truncated range.

In addition to the sample means for the relationship quality variables in question, I also wanted to examine daughter-son differences for the sample as a whole. In order to look at between- and within-dyad differences for these relationship quality variables, I conducted a series of 2 (Offspring Sex) X 2 (Reporter) repeated measures ANOVAs, with Reporter as the

repeated measure and parent and adolescent reports of each relationship quality as the dependent variables.

Mother-adolescent dyads. In terms of maternal *acceptance*, there were significant differences for sons and daughters, indicated by significant main effects for Offspring Sex for offspring reports of acceptance, $F(1, 193) = 7.46$, $p < .01$ and mother reports of acceptance, $F(1, 193) = 9.45$, $p < .01$. Daughters and their mothers reported greater feelings of acceptance ($M = 4.15$ for daughters and 4.19 for mothers) than sons and their mothers ($M = 3.91$ for sons and 3.99 for mothers). The main effect for Reporter was not significant, $F(1, 193) = 2.21$, n.s.; mothers and offspring did not significantly differ in their reports of acceptance.

For *centrality of time*, the centrality of offspring for mothers was not significantly different for sons and daughters, $F(1, 194) = 2.65$, n.s. The centrality of mothers for offspring was marginally different for sons and daughters at the level of a trend, $F(1, 194) = 2.98$, $p < .10$, such that mothers were somewhat more central in daughters' non-school lives ($M = .28$) than in sons' ($M = .25$). The between-groups effect for Offspring Sex was significant, $F(1, 194) = 3.92$, $p < .05$, suggesting that mothers and daughters were generally more central in each other's daily lives outside of school and work ($M = .29$) than mothers and sons were ($M = .26$). No significant Reporter effect emerged, $F(1, 194) = .91$, n.s.; mothers and offspring did not significantly differ in how central each was in the other's daily life outside of school and work.

For *conflict frequency*, no significant differences between mother-daughter and mother-son dyads emerged, $F(1, 194) = 1.25$, n.s. for mother reports, $F(1, 194) = 1.77$, n.s. for adolescent reports, and $F(1, 194) = 2.42$, n.s. for the between-group effect. However, a significant Reporter effect, $F(1, 194) = 5.70$, $p < .05$, revealed that mothers ($M = 49.88$) tended to report more frequent conflict than offspring ($M = 51.51$). (Remember that higher conflict scores indicated less conflict.)

Finally, for *conflict intensity*, mother and offspring reports of intensity did not significantly differ by offspring sex individually, $F(1, 194) = 2.59$, n.s. for mother reports, and $F(1, 194) = 2.29$, n.s. for adolescent reports. The between-group effect for Offspring Sex was significant, $F(1, 194) = 4.03$, $p < .05$, such that mother-daughter dyads generally reported having less intense conflict ($M = 29.32$) than mother-son dyads ($M = 27.86$). The main effect for Reporter was not significant, $F(1, 194) = .03$, n.s.

Father-adolescent dyads. For *paternal acceptance*, father reports of acceptance did not differ for sons and daughters, $F(1, 194) = .16$, n.s. A significant effect for Offspring Sex emerged for adolescent reports, $F(1, 194) = 5.68$, $p < .05$, such that daughters tended to report higher acceptance ($M = 3.95$) than sons ($M = 3.72$). The between-group effect for Offspring Sex was also significant at the level of a trend, $F(1, 194) = 3.58$, $p < .10$, suggesting that father-daughter dyads ($M = 3.89$) generally reported more acceptance than father-son dyads ($M = 3.76$). The main effect for Reporter was not significant, $F(1, 194) = .14$, n.s., but there was a significant Reporter X Offspring Sex interaction, $F(1, 194) = 3.92$, $p < .05$. In follow-up *t*-tests on the difference scores (father minus offspring) between father and offspring reports of acceptance, daughters were more likely to report higher levels of paternal acceptance than their fathers (*M* diff = -.12), while fathers and sons did not differ in their reports of paternal acceptance (*M* diff = .08).

For *centrality of time*, fathers and sons were significantly more central in each others' lives outside of school and work ($M = .33$ for fathers and .27 for sons) than fathers and daughters ($M = .26$ for fathers and .20 for daughters), as evidenced by significant effects for Offspring Sex on the centrality of adolescents in fathers' lives, $F(1, 194) = 8.68$, $p < .01$, and the centrality of fathers in adolescents' lives, $F(1, 194) = 14.05$, $p < .01$. In addition, a significant effect for Reporter, $F(1, 194) = 35.81$, $p < .01$, suggested that adolescents were more central in fathers' non-work lives ($M = .30$) than fathers were in adolescents' non-school lives ($M = .24$).

For *conflict frequency*, no significant differences between father-daughter and father-son dyads emerged, $F(1, 194) = .49$, n.s. for father reports, $F(1, 194) = .83$, n.s. for adolescent reports, and $F(1, 194) = 1.03$, n.s. for the between-group effect. A significant Reporter effect, $F(1, 194) = 35.00$, $p < .01$, revealed that fathers ($M = 50.16$) tended to report more conflict than offspring ($M = 53.75$).

For *conflict intensity*, a similar pattern emerged. No significant differences between father-daughter and father-son dyads emerged, $F(1, 194) = .20$, n.s. for father reports, $F(1, 194) = 3.34$, n.s. for adolescent reports, and $F(1, 194) = 2.46$, n.s. for the between-group effect. A significant Reporter effect, $F(1, 194) = 4.62$, $p < .05$, revealed that fathers ($M = 28.84$) tended to report more intense conflict than offspring ($M = 30.08$).

Summary. To summarize, mother-daughter dyads tended to report more maternal acceptance, greater centrality of mothers in daughters' daily lives, and less intense conflict, than

mother-son dyads. In addition, mothers reported more frequent conflict than offspring. Father-daughter dyads, in contrast, tended to report more paternal acceptance, but less centrality of fathers and daughters in each others' daily lives, than father-son dyads. Daughters tended to report higher paternal acceptance than their fathers. Finally, adolescents were more central in fathers' lives than fathers were in adolescents' lives, and fathers tended to report more frequent and more intense conflict than their offspring.

Correlations between Relationship Quality Variables

Tables 3.2 and 3.3 shows the correlations among the relationship quality variables to be used in subsequent cluster analyses for mother- and father-offspring dyads, respectively; these correlations offered several pieces of information. First, these correlations revealed consistency between parents' and adolescents' reports of each relationship quality. Correlations between mothers and adolescents for each of the four relationship constructs ranged from .22 to .45 (for conflict intensity and centrality, respectively); correlations between fathers and adolescents for each of the four relationship constructs ranged from .19 to .67 (also for conflict intensity and centrality, respectively). Second, acceptance, conflict frequency, and conflict intensity were significantly correlated in expected ways, with only three non-significant correlations among them: between father reports of conflict intensity and adolescent reports of acceptance; between adolescent reports of conflict intensity and father reports of acceptance; and between adolescent reports of conflict intensity and mother reports of acceptance. Third, centrality of time was only loosely correlated with the other relationship constructs. For mother-adolescent dyads, acceptance and centrality of time were robustly correlated (all four correlations were significant), but only adolescent reports of conflict frequency were correlated with centrality, and conflict intensity was not correlated with centrality at all. For father-adolescent dyads, father reports of acceptance and conflict intensity were associated with centrality, but none of the other correlations were significant.

Summary

The descriptive statistics described above offer useful insights into the cluster analyses that follow. First, the high correlations between parent and offspring reports for each of the four relationship qualities suggests that using two reporters for each of the four relationship constructs should be helpful in distinguishing whether differences between relationship constructs across clusters are actually "getting at" a difference in relationship quality, rather than a difference in

reporter perception. Second, the correlations between reporters were not so high as to eliminate possible clusters distinguished by systematic reporter differences, especially for conflict frequency and intensity, those domains with the lowest inter-reporter correlations. Finally, the fact that centrality of time together was less correlated with the other constructs may help avoid a high-low matrix of clusters.

Analysis Plan

Stage 1: Hierarchical Cluster Analysis

For this study, I used a two-stage clustering process (see Allen & Olson, 2001; Fowers & Olson, 1992; Lavee & Olson, 1993 for a similar two-stage clustering process). First, I conducted a hierarchical analysis. As discussed in an earlier section, any cluster analysis of this type involves two initial decisions: what similarity index and which cluster method to use.

Similarity index. For the first stage of cluster analyses, I chose to use the cosine similarity index, which is sensitive to shape. Theoretically, either an index sensitive to elevation (e.g., squared Euclidian distance) or shape may have been appropriate for the research questions at hand. An elevation index was indicated in this study to the extent that I was interested in differences between dyads in terms of the <u>levels</u> of conflict and closeness they experienced. However, as described earlier, level differences existed between parent-daughter and parent-son relationship quality in this sample. In light of these daughter-son differences, using only an elevation index may have yielded a tautological solution wherein clusters marked by high levels of closeness would be generated in which daughters were over-represented relative to sons. In other words, cluster analysis of this type would not be theoretically illuminating if the clusters fell primarily along daughter-son differences.

One way to bypass the problem of using an elevation index in the presence of clear daughter-son differences was to standardize the relationship variables separately for mother-daughter, mother-son, father-daughter, father-son dyads, and then conduct cluster analyses for mother-offspring and father-offspring dyads using an elevation index. In that way, a son who had high conflict with his mother relative to other sons would have the same standardized score as a daughter who had high conflict with her mother relative to other daughters. However, standardizing within two groups separately and then combining them in a cluster analysis seemed to create unstable clusters with too many outliers that could not be adequately validated.

In contrast, a shape index would be more likely than an elevation index to cluster parent-daughter and parent-son dyads who shared a similar relationship shape (e.g., higher closeness than conflict) even though a parent-daughter dyad may have had higher absolute levels of closeness and conflict than a parent-son dyad in this cluster. As such, the hierarchical cluster analyses conducted during Stage 1 made use of the cosine similarity index.

Cluster method. Of the hierarchical methods, I chose average linkage. Average linkage computes the similarity between a given unit of analysis (which could be one case or a cluster of cases) outside of a cluster and every unit of analysis within the cluster, and then computes the average similarity between the given case and that particular cluster. After computing the average similarity between the given case and all existing clusters, the case is then placed in the cluster to which it was most similar. This process is repeated until all units are combined in one cluster (Blashfield & Aldenderfer, 1988; Edelbrock, personal communication).

The dendograms that resulted from mother- and father-offspring average linkage cluster analysis were useful in determining the number of clusters that seemed to make practical and theoretical sense, as well as in revealing possible outlying dyads (i.e., dyads that do not get paired with other cases until the later stages of clustering). For this study, I chose to focus initially on the viability of four- and five-cluster solutions for both theoretical and practical reasons. Two-cluster solutions tend to be substantively uninteresting in social science research (i.e., "high" and "low" clusters are not nuanced enough to adequately describe family relationships). Likewise, three-cluster solutions often yield "High," "Medium," and "Low" groups, which also does not necessarily adequately describe the complexity of family relationships. For this study, a six-cluster solution (or more) was impractical given this sample's size, as the number of dyads in a cluster began to be too small for subsequent parametric analyses (e.g., a cluster with 12 mother-offspring dyads emerged in the six-cluster solution).

As a second step, possible outlying dyads were excluded, and the average linkage analyses re-run, to see if deleting these dyads led to any significant change in cluster membership and cluster profiles. Once the final number of dyads to be included in the analysis was determined, the dyads were re-ordered based on cluster membership in preparation for the *k*-means analysis.

Stage 2: K-Means Cluster Analyses

In the second stage of clustering, I conducted *k*-means analyses, which make use of an elevation similarity index and require the researcher to specify the number of clusters beforehand. As discussed earlier, *k*-means cluster analysis is sensitive to the initial order of cases, which can mean unstable clusters when used alone. However, in conjunction with another clustering method, wherein the initial order of the cases is determined by this other clustering method, *k*-means is a very robust clustering method (Blashfield & Aldenderfer, 1988). To summarize, mother-offspring and father-offspring cluster analyses were conducted in a two-step process: (1) average linkage clustering using a cosine similarity index, after which the dyads were re-ordered based on the clusters that emerged; and (2) *k*-means clustering on the re-ordered dyads.

Probing Four- and Five-Cluster Solutions

For each of the four resulting cluster solutions (four- and five-cluster solutions for both mother- and father-adolescent dyads), a series of 4 or 5 (Cluster Membership) X 2 (Offspring Sex) X 2 (Reporter) mixed model ANOVAs were conducted in order to test differences between clusters on each of the relationship qualities. Cluster and Sex were treated as between group factors, and Reporter was treated as a within-group factor. Parent and adolescent reports of each of the four relationship qualities were the dependent variables. As one would expect, all 4 or 5 (Cluster Membership) X 2 (Offspring Sex) X 2 (Reporter) ANOVAs revealed strong main effects for Cluster Membership; i.e., the eight relationship variables all differed significantly between clusters for all three cluster solutions. Because cluster analyses attempt to maximize differences between clusters, this was an obvious and not very informative result, so rather than reporting each *F* statistic for Cluster Membership for each of the eight variables for each of the two cluster solutions, I instead present (1) *how* the eight variables differed between clusters in Tukey's tests (at the $p < .05$ significance level), and (2) significant interaction effects between Cluster Membership and Reporter or Offspring Sex. To follow up significant Cluster X Offspring Sex interactions, I conducted one-way ANOVAs with Tukey's, with the relevant relationship quality as the dependent variable, and an eight- or ten-level categorical variable created by crossing Cluster Membership with Offspring Sex as the between groups factor. To follow up significant Cluster X Reporter interactions, I conducted 4 or 5 (Cluster Membership) X 2 (Offspring Sex) ANOVAs with Tukey's, with the parent-offspring difference scores (parent

minus offspring) for the relevant relationship quality as the dependent variable. Finally, to follow up significant Cluster X Offspring Sex X Reporter interactions, I conducted one-way ANOVAs with Tukey's, with an eight- or ten-level categorical variable created by crossing Cluster Membership with Offspring Sex as the between groups factor; the dependent variables in these analyses were the parent-offspring difference scores for the relevant relationship qualities. In the two sections that follow, I describe the cluster analyses and the profiles for the four- and five-cluster solutions, separately for mother- and father-offspring dyads.

<div align="center">*Mother-Adolescent Dyads*</div>

Cluster Analyses

  Average linkage. Figure B.1 (Appendix B) shows the dendogram of the cosine average linkage cluster analysis for mother-adolescent dyads. The dendogram revealed a smooth progression of clustering, such that none of the clusters were made up of egregious outliers. Table 3.4 shows the number of dyads in each cluster for the four- and five-cluster solutions. The dyads were fairly well distributed in each of these two solutions. One would not expect an even distribution among clusters to occur naturally, but one initial sign of the validity of clusters was that the majority of dyads were not concentrated in one or two clusters.

  Figures 3.1 and 3.2 show the cluster profiles of the four- and five-cluster solutions, respectively, for the average linkage analysis. One cluster, which I labeled "Harmonious," stayed constant across both solutions. These 68 dyads appeared to report above average acceptance and centrality, and below average conflict frequency and intensity. The second cluster, labeled "Uninvolved," appeared in the four-cluster solution. These 46 dyads seemed to report average to above average acceptance, and below average conflict frequency and intensity, but they were distinguished from the Harmonious group by below-average centrality. This cluster split in the five-cluster solution into two clusters. These two new clusters differed in terms of mother reports of acceptance, and in terms of who reported the least frequent and intense conflict. The final clusters were "Conflictual" and were distinguished by differences in who reported high levels of conflict: in one, adolescents reported extremely high levels of conflict ("Conflictual-Child"); in the other, mothers did ("Conflictual-Parent").

  Deleting possible outliers. Before moving to the second stage of the cluster analyses, I examined how deleting possible outliers and re-running the average linkage analyses changed the cluster profiles. Looking at the mother-adolescent dendogram in Figure B.1, I chose those dyads

that did not link with other dyads until relatively late in the cluster analysis: Cases 155, 175, 120, 49, and 110 (cases presented in the order in which they appear in the dendogram). The average linkage cluster analysis was then re-run without these cases (see dendogram in Figure C.1 in Appendix C). Four of the deleted dyads had originally been grouped in the Conflictual clusters (three from Conflictual-Parent and one from Conflictual-Child); the fifth deleted dyad had originally been grouped in the Uninvolved cluster (Table C.1). The overall cluster means appeared unaffected by the deleted dyads, suggesting that they were not true outliers (Figures C.2 and C.3). A second concern was whether the remaining dyads were re-classified in the same clusters. A total of 19 dyads were re-classified in a different cluster once the possible outliers were deleted: eight dyads moved from the Harmonious cluster to the Conflictual-Child cluster, and eleven dyads moved from the Conflictual-Parent to the Conflictual-Child cluster. This movement between clusters indicated some level of instability in the mother-adolescent clusters; however, deleting the possible outliers did not seem to be the way to "solve" this instability, given that the possible outliers did not look like outliers once the new cluster profiles were compared with the original profiles. Overall, these analyses led me to leave the "outliers" in the sample rather than deleting them.

K-means. Upon finalizing the average linkage analysis, the second stage involved re-ordering the dyads according to cluster membership and conducting *k*-means analyses to yield the final cluster solutions. In other words, in order to do the *k*-means analysis that yielded a four-cluster solution, mother-adolescent dyads were ordered so that all the Harmonious dyads from the average linkage analysis were listed first in the data set, followed, in order, by the Uninvolved, the Conflictual-Child, and the Conflictual-Parent dyads. The same re-ordering procedure was done using the five-cluster average linkage solution before conducting the five-cluster *k*-means analysis.

Figures 3.3 and 3.4 show the standardized cluster profiles for the four- and five-cluster *k*-means solutions, respectively. Tables 3.5 and 3.6 show the unstandardized cluster means and standard deviations for the eight relationship quality variables in the four- and five-cluster solutions, respectively. The four-cluster solution yielded clusters similar to those found in the average linkage analysis: Harmonious, Uninvolved, Conflictual-Child, and Conflictual-Parent. The five-cluster solution, however, added a cluster not seen in the average linkage analysis: instead of one Harmonious cluster, there were two Harmonious clusters, one in which the child

reported particularly harmonious relationship qualities, and one in which the parent reported particularly harmonious relationship qualities.

Four-Cluster Solution

In 4 (Cluster Membership) X 2 (Offspring Sex) ANOVAs (see Table 3.5 and Figure 3.3), Tukey's tests revealed that the Harmonious group consistently reported significantly better relationship quality along all four relationship dimensions than either the Conflictual-Child or Conflictual-Parent groups. Mothers in the Harmonious group also were higher on acceptance and centrality than mothers in the Uninvolved group. The Uninvolved cluster reported low levels of conflict frequency and intensity (similar to the Harmonious group), moderate levels of acceptance, and low levels of centrality. Tukey's tests did not detect a significant difference between the Uninvolved and Conflictual groups' centrality.

The two Conflictual clusters were distinguishable in several ways. First, parental acceptance was particularly low in the Conflictual-Parent group relative to the other three groups. Second, adolescents tended to be more central in mothers' daily lives in the Conflictual-Parent group relative to the Uninvolved and Conflictual-Child clusters. (Only Harmonious dyads had a higher centrality.) Third, mothers in the Conflictual-Parent group reported significantly more conflict frequency than mothers in the Conflictual-Child group as well as the other two groups. Fourth, adolescents in the Conflictual-Child cluster reported significantly more frequent and intense conflict than adolescents in the Conflictual-Parent cluster as well as the other two groups.

Significant Cluster Membership X Reporter effects emerged for conflict frequency, $F(3, 187) = 22.08$, $p < .01$, and conflict intensity, $F(3, 187) = 14.96$, $p < .01$. In follow-up ANOVAs with the mother-offspring difference scores for frequency and intensity as the dependent variables, Tukey's tests revealed that mother-adolescent dyads in the Conflictual-Parent group had the most divergent reports of both conflict frequency and intensity among the clusters, while mother-adolescent dyads in the Conflictual-Child group had the next most divergent reports. Mothers in the Conflictual-Parent cluster tended to report more frequent and intense conflict than their offspring (*M* diff = -8.97 for frequency and -5.99 for intensity), while offspring in the Conflictual-Child cluster tended to report more frequent and intense conflict than their mothers (*M* diff = 6.14 for frequency and 5.13 for intensity). (The difference between mother and adolescent reports of conflict in Harmonious and Uninvolved dyads fell in between; *M*

Harmonious difference = -2.99 for frequency and -.29 for intensity; *M* Uninvolved difference = -.83 for frequency and 1.01 for intensity.)

Five-Cluster Solution

The differences between groups in the five-cluster solution were very similar to the differences found between groups in the four-cluster solution (see Table 3.6 and Figure 3.4). The five-cluster analysis added a second Harmonious group. The Harmonious-Child and Harmonious-Parent groups reported similarly high levels of acceptance and centrality. These two groups were distinguished from one another in Tukey's by their reports of conflict: offspring in the Harmonious-Child group reported significantly less frequent and intense conflict than their counterparts in the Harmonious-Parent group, while parents in the Harmonious-Parent group reported significantly less frequent and intense conflict than parents in the Harmonious-Child group.

Significant Cluster X Reporter effects emerged for conflict frequency, $F(4, 185) = 60.19$, $p < .01$, and conflict intensity, $F(4, 185) = 33.33$, $p < .01$. In follow-up analyses, Tukey's revealed that mothers in the Conflictual-Parent (*M* diff = -13.54 for frequency and -7.22 for intensity) and Harmonious-Child (*M* diff = -5.81 for frequency and -4.39 for intensity) clusters tended to report more frequent and intense conflict than their offspring relative to the other groups. Offspring in the Conflictual-Child (*M* diff = 7.69) and Harmonious-Parent (*M* diff = 5.29) groups tended to report more frequent conflict than their mothers relative to the other three groups.

Summary

In the four-cluster solution, Harmonious dyads seemed to have the most positive relationships, reporting significantly better relationship quality, while the Uninvolved cluster reported moderate relationship quality, looking similar to Harmonious dyads on acceptance and conflict, but similar to the Conflictual-Child group on centrality. The Conflictual-Child group was marked by moderate acceptance, low centrality, and high conflict, with offspring in this group reporting the highest levels of conflict frequency and intensity relative to other groups and their own mothers. Finally, the Conflictual-Parent group seemed to have the most negative relationships, characterized by low acceptance, moderate levels of centrality, and high conflict, with mothers in this group reporting the highest conflict frequency and intensity relative to other groups and their own offspring.

In the five-cluster solution, the two Harmonious groups were harmonious from both mother and adolescent perspectives (high acceptance from both perspectives, high centrality, particularly for mothers, low conflict), but the adolescents in the Harmonious-Child group perceived significantly less conflict than their mothers, while mothers in the Harmonious-Parent group perceived significantly less conflict than their offspring. The Uninvolved cluster looked similar to the four-cluster solution—it fell in between on the measures of acceptance and conflict, and was low on centrality, although again it was not significantly different on centrality than either of the Conflictual groups. The Conflictual groups also remained similar to the four-cluster solution: low acceptance, low centrality (except for moderate centrality for mothers in the Conflictual-Parent group), high conflict from the adolescent perspective in the Conflictual-Child group, and high conflict from the parent perspective in the Conflictual-Parent group.

Father-Adolescent Dyads

Cluster Analyses

Average linkage. Figure B.2 shows the dendogram for the father-adolescent cluster analysis; Table 3.7 shows the number of dyads in each cluster for the four- and five-cluster solutions. Similarly to the mother-adolescent analysis, the dendogram for father-adolescent dyads showed a smooth progression of clustering, and the number of dyads in each cluster for each solution was fairly even. As with mother-adolescent dyads, father-adolescent dyads were divided into Harmonious, Uninvolved, and Conflictual clusters in the four-cluster solution. In addition, though, an "Involved" cluster emerged marked by average acceptance and conflict, but with an above average level of centrality (see Figure 3.5). In the five-cluster solution, the original Conflictual cluster split (see Figure 3.6); as with mother-adolescent dyads, the two resulting clusters were distinguished by which dyad member reported the most conflict.

Deleting possible outliers. In order to test for outliers, I chose cases 48, 154, 25, 149, and 19 (see dendogram in Figure B.2). The average linkage cluster analysis was then re-run without these cases (Figure C.4). All five of the deleted father-adolescent dyads had originally been grouped in the Conflictual clusters (two from Conflictual-Parent and three from Conflictual-Child). The cluster profiles for the four- and five-cluster solutions looked almost identical to the profiles that included the whole sample, and all of the remaining dyads were classified in the same clusters with or without the possible outliers (Table C.2, Figures C.5 and C.6). Overall, these analyses led me to leave the "outliers" in the sample rather than deleting them.

K-means. Upon finalizing the average linkage analyses, I then re-ordered the dyads according to cluster membership and conducted *k*-means analyses (once for the four-cluster and once for the five-cluster solution). Figures 3.7 and 3.8 show the standardized cluster profiles for the four- and five-cluster *k*-means solutions, respectively. Tables 3.8 and 3.9 show the unstandardized cluster means and standard deviations for the eight relationship quality variables in the four- and five-cluster solutions, respectively. These profiles looked similar to the solutions in the average linkage analysis, although the order in which clusters emerged differed across the two cluster methods. In the four-cluster solution, Harmonious, Uninvolved, Conflictual-Child, and Conflictual-Parent clusters emerged; an Involved group was added in the five-cluster solution.

Four-Cluster Solution

The four-cluster solution for father-adolescent dyads (see Table 3.8 and Figure 3.7) revealed Harmonious, Uninvolved, Conflictual-Child, and Conflictual-Parent groups, similar to the mother-adolescent four-cluster solution. In 4 (Cluster Membership) X 2 (Offspring Sex) ANOVAs, Tukey's tests revealed that the Harmonious group reported significantly higher acceptance, and significantly lower conflict frequency and intensity, than the other three groups (both father and offspring reports). The Harmonious group was also higher on both father and offspring centrality than the Uninvolved and Conflictual-Child groups (but similar to the Conflictual-Parent group). The Conflictual-Parent group stood out for its significantly higher father-reported levels of conflict frequency and intensity relative to the other three clusters, while the Conflictual-Child group stood out for its significantly higher offspring-reported levels of conflict frequency and intensity relative to the other three clusters. The Conflictual-Parent group was similar to the Uninvolved group in terms of acceptance and offspring-reported conflict, while the Conflictual-Child group was similar to the Uninvolved group in terms of acceptance and father-reported conflict.

Significant Cluster X Offspring Sex interactions emerged for father and adolescent reports of conflict intensity, $F(3, 188) = 4.69$, $p < .01$, and $F(3, 188) = 2.77$, $p < .05$, respectively. In a follow-up ANOVA with an eight-level categorical variable combining Cluster Membership and Offspring Sex as the predictor variable, Tukey's tests revealed that the difference between sons and daughters occurred in the Conflictual-Parent group for both father and adolescent reports of conflict intensity. Fathers with daughters in the Conflictual-Parent group reported

more intense conflict than fathers with sons in this group (*M* for father with daughters = 18.9 and with sons 24.18, respectively), but sons in the Conflictual-Parent group reported more intense conflict with fathers than daughters in this group did (*M* for sons = 27.00 and for daughters 33.80, respectively). No other daughter-sons differences emerged for any other clusters.

Significant Cluster X Reporter interactions emerged for centrality, $F(3, 188) = 2.72$, $p < .05$; conflict frequency, $F(3, 188) = 43.94$, $p < .01$; and conflict intensity, $F(3, 188) = 17.58$, $p < .01$. In a follow-up ANOVA with father-adolescent difference scores as the outcome variable, Tukey's for centrality did not reveal any significant differences between reporters, although t-tests on the difference scores showed that adolescents were more central in their fathers' lives than vice versa in Harmonious, Uninvolved, and Conflictual-Parent dyads (*M* diff = .07, .04, and .11, respectively), but not in Uninvolved dyads (*M* diff = .02). For conflict frequency and intensity, Tukey's revealed that fathers reported more conflict than their offspring in the Conflictual-Parent group (*M* differences = -13.03 for frequency and -8.86 for intensity) relative to other groups, while father reported less conflict than their offspring in the Conflictual-Child group (*M* differences = 7.86 for frequency and 6.07 for intensity) relative to other groups. The differences between reporters in the Harmonious (*M* differences = -2.99 for frequency and -.44 for intensity) and Uninvolved (*M* differences = -4.16 for frequency and -1.93 for intensity) groups fell in between and were not significantly different from one another.

Finally, a significant Cluster X Reporter X Offspring Sex interaction emerged for conflict intensity, $F(3, 188) = 5.23$, $p < .01$. In an 8 (Cluster X Sex) follow-up ANOVA with the father-adolescent difference score as the outcome variable, Tukey's tests revealed that father-daughter dyads in the Conflictual-Parent group had the most divergent reports of conflict intensity, with fathers in this group reporting significantly more intense conflict than their daughters (*M* difference = -14.90) than any other father-offspring dyads (whose mean differences ranged from -2.81 to 6.83).

Five-Cluster Solution

The five-cluster solution added an Involved cluster to the four existing groups (see Table 3.9 and Figure 3.8). This new group was distinguished from the other four by a particularly high level of centrality of the adolescent in the father's life, and was distinguished from the Uninvolved, Conflictual-Parent, and Conflictual-Child groups by a higher level of centrality of the father in the adolescent's life. The distinctions between the other four groups generally held,

with the Harmonious group generally reporting the "best" relationship quality, the Uninvolved group falling in between, and the Conflictual groups differing in who reported the most frequent and intense conflict.

Significant Cluster X Reporter interaction effects emerged for all four relationship qualities: for acceptance, $F(4, 186) = 3.33$, $p < .05$; for centrality, $F(4, 186) = 3.71$, $p < .01$; for conflict frequency, $F(4, 186) = 33.34$, $p < .01$; and for conflict intensity, $F(4, 186) = 21.24$, $p < .01$. Follow-up tests on father-adolescent difference scores revealed that fathers in the Involved group tended to report more acceptance than their offspring (M difference = .31) relative to the Uninvolved and Conflictual-Parent groups, whose fathers tended to report less acceptance than their offspring (M differences = -.12 and -.41, respectively). For centrality, follow-up tests revealed that adolescents tended to be more central in their fathers' lives than vice versa in the Involved group (M difference = .16) relative to the Uninvolved group (M difference = .04). For both conflict frequency and intensity, follow-up tests revealed that fathers in the Conflictual-Parent group tended to report more frequent and intense conflict than their offspring (M difference = -15.32 for frequency and -12.50 for intensity) relative to the other four clusters. Likewise, fathers in the Conflictual-Child group tended to report less frequent and intense conflict than their offspring (M difference = 7.72 for frequency and 4.97 for intensity) relative to the other four clusters.

Summary

In the four-cluster solution, father-adolescent clusters closely resembled mother-adolescent clusters: an Harmonious group reporting significantly more positive relationship quality than the other three groups, an Uninvolved dyad low on centrality but "in between" on other relationship dimensions, and two Conflictual groups distinguished from each other by which dyad member reported the most frequent and intense conflict. The Conflictual-Child group appeared to be the most negative, with the lowest acceptance and highest conflict. Interestingly, Conflictual-Parent dyads spent as much of their time together as Harmonious dyads. In the five-cluster solution, an Involved cluster emerged, distinguished by particularly high levels of centrality, especially centrality of adolescents in fathers' lives.

Choosing Between the Four- and Five-Cluster Solutions

Did these profiles provide a substantive justification for choosing either the four-cluster or five-cluster solution at this point? Because of the literature's orientation toward conflict, my

first thought was that the five-cluster solution did not add anything of interest beyond the four-cluster solution. As I absorbed the five-cluster profile, however, it occurred to me that what interested me about the Conflictual groups were the differences in perception—where do they come from, what were their implications, and will these perceptions continue to be different or converge over time? Even though the perceptions in the two mother-adolescent Harmonious groups were of relatively low conflict, the fact that mothers' and adolescents' perceptions were different could still be as interesting as differing perceptions of high conflict. And a group of particularly "involved" fathers may stand out in some way from the Harmonious fathers. As such, I made a tentative decision to examine the five-cluster solution in subsequent analyses, with the idea that I could return to the four-cluster solution if the two positive clusters were not further distinguished by their correlates.

In fact, however, in analyses examining correlates of cluster membership, and change over time in relationship quality as a function of cluster membership, the five-cluster solution did not add anything of substantive value above and beyond the four-cluster solution. For mother-adolescent dyads, the two Harmonious groups were not distinguished from one another by their correlates, or by change in relationship quality over time (whereas the two Conflictual groups were distinguished from one another). For father-adolescent dyads, the Involved group was likewise not distinguished from the Harmonious group by either correlates or change, although the two Conflictual groups were distinguished in these analyses. Thus, I focus on the four-cluster solution in subsequent chapters.

Table 3.1

Means (M), Standard Deviations (SD), and Ranges of the Indices of Parent-Adolescent Relationship Quality Used in Cluster Analyses

Relationship Quality	*M*	*SD*	Range		
Mother-Adolescent Dyads (*N* = 195)					
Maternal acceptance – mother[a]	4.09	.48	2.63	-	4.96
Maternal acceptance – adolescent[b]	4.03	.61	1.95	-	5.00
Centrality of adolescent – mother[c]	.27	.12	.02	-	.59
Centrality of mother – adolescent[d]	.26	.13	.02	-	.65
Conflict frequency – mother[a]	49.81	7.80	26.00	-	64.00
Conflict frequency – adolescent[b]	51.50	7.56	15.00	-	66.00
Conflict intensity – mother[a]	28.57	6.56	10.00	-	41.00
Conflict intensity – adolescent[b]	28.57	6.56	7.00	-	44.00
Father-Adolescent Dyads (*N* = 196)					
Paternal acceptance – father[a]	3.82	.50	2.38	-	5.00
Paternal acceptance – adolescent[b]	3.84	.68	1.67	-	4.96
Centrality of adolescent – father[c]	.29	.17	.00	-	.78
Centrality of father – adolescent[d]	.24	.14	.00	-	.62
Conflict frequency – father[a]	50.16	.66	29.00	-	64.00
Conflict frequency – adolescent[b]	53.75	7.45	24.00	-	66.00
Conflict intensity – father[a]	28.84	5.60	9.00	-	42.00
Conflict intensity – adolescent[b]	30.08	7.09	6.00	-	44.00

Note. Higher scores on all relationship variables indicate more *positive* relationships; i.e., more acceptance, higher centrality, and less conflict frequency and intensity.

[a] Parent self-report.

[b] Adolescent self-report.

[c] The proportion of parent's time spent with target adolescent; based on parent reports of time use across four phone interviews.

[d] The proportion of adolescent's time spent with parent; based on adolescent reports of time use across seven phone interviews.

Table 3.2

Correlations between Indices of Relationship Quality for Mother-Adolescent Dyads

	Acceptance		Centrality of Time		Conflict Frequency		Conflict Intensity	
	Mother	Adolescent	Mother	Adolescent	Mother	Adolescent	Mother	Adolescent
Acceptance								
Mother	1.00							
Adolescent	.43**	1.00						
Centrality of Time								
Mother	.19**	.20**	1.00					
Adolescent	.23**	.21**	.45**	1.00				
Conflict Frequency								
Mother	.31**	.19**	.07	.05	1.00			
Adolescent	.15*	.31**	.18*	.18*	.23**	1.00		
Conflict Intensity								
Mother	.36**	.20**	.08	.10	.86**	.26**	1.00	
Adolescent	.12+	.23**	.10	.12+	.17*	.69**	.22**	1.00

+ *p* < .10; * *p* < .05; ** *p* < .01

Table 3.3

Correlations between Indices of Relationship Quality for Father-Adolescent Dyads

	Acceptance		Centrality of Time		Conflict Frequency		Conflict Intensity	
	Father	Adolescent	Father	Adolescent	Father	Adolescent	Father	Adolescent
Acceptance								
Father	1.00							
Adolescent	.30**	1.00						
Centrality of Time								
Father	.23**	.01	1.00					
Adolescent	.26**	.01	.67**	1.00				
Conflict Frequency								
Father	.30**	.18*	.09	.08	1.00			
Adolescent	.20**	.29**	.12+	.08	.28**	1.00		
Conflict Intensity								
Father	.32**	.11	.16*	.17*	.79**	.27**	1.00	
Adolescent	.12+	.24**	.03	.00	.19**	.73**	.19**	1.00

+ *p* < .10; * *p* < .05; ** *p* < .01

Table 3.4

Number of Mother-Adolescent Dyads per Cluster for the Four- and Five-Cluster Solutions of an Average Linkage Cluster Analysis using the Cosine Index

Cluster	Four-Cluster Solution		Five-Cluster Solution	
	N	Percent	*N*	Percent
1	68	34.9	68	34.9
2	46	23.6	24	12.3
3	43	22.1	43	22.1
4	38	19.5	38	19.5
5			22	11.3
Total	195	100.0	195	100.0

Table 3.5

Unstandardized Means (and Standard Deviations) of Mother-Adolescent Relationship Quality Variables by Cluster Membership for the Four-Cluster K-means Analysis

Relationship Quality	Harmonious (*N* = 58)	Uninvolved (*N* = 56)	Conflictual – Child (*N* = 39)	Conflictual - Parent (*N* = 42)
Parental acceptance – mother	4.39 (.32)[a]	4.14 (.38)[b]	4.16 (.37)[b]	3.54 (.44)[c]
Parental acceptance – adolescent	4.36 (.46)[a]	4.13 (.49)[a, b]	3.99 (.48)[b]	3.46 (.66)[c]
Centrality of adolescent – mother	.39 (.10)[a]	.19 (.07)[b]	.24 (.10)[b, c]	.26 (.10)[c]
Centrality of mother – adolescent	.38 (.12)[a]	.21 (.09)[b]	.22 (.10)[b]	.22 (.10)[b]
Conflict frequency – mother	52.81 (6.45)[a]	53.88 (5.38)[a]	47.79 (6.24)[b]	42.12 (7.41)[c]
Conflict frequency – adolescent	55.71 (4.65)[a]	54.68 (3.80)[a]	41.74 (7.02)[b]	50.52 (6.69)[c]
Conflict intensity – mother	31.53 (5.26)[a]	32.20 (4.78)[a]	25.48 (5.90)[b]	22.49 (5.01)[b]
Conflict intensity – adolescent	31.83 (5.77)[a]	31.15 (4.56)[a]	20.44 (4.40)[b]	28.19 (4.94)[c]

Note. Higher scores on all relationship variables indicate more *positive* relationships; i.e., more acceptance, higher centrality, and less conflict frequency and intensity.

Note. For each relationship quality variable (i.e., reading across rows), superscript labels indicate significant differences between clusters ($p < .05$) according to Tukey's tests on 4 (CM) X (OS) ANOVAs.

Table 3.6

Unstandardized Means (and Standard Deviations) of Mother-Adolescent Relationship Quality Variables by Cluster Membership for the Five-Cluster K-means Analysis

Relationship Quality	Harmonious – Child (N = 43)	Harmonious – Parent (N = 40)	Uninvolved (N = 48)	Conflictual – Child (N = 27)	Conflictual - Parent (N = 37)
Parental acceptance – mother	4.29 (.35)[a, b]	4.41 (.33)[a]	4.09 (.45)[b]	3.79 (.42)[c]	3.74 (.49)[c]
Parental acceptance – adolescent	4.43 (.45)[a, b]	4.15 (.45)[a]	4.04 (.59)[b]	3.66 (.55)[c]	3.67 (.67)[c]
Centrality of adolescent – mother	.37 (.11)[a]	.33 (.10)[a, b]	.17 (.06)[c]	.21 (.09)[c]	.29 (.10)[b]
Centrality of mother – adolescent	.38 (.10)[a]	.32 (.13)[a]	.17 (.07)[b]	.21 (.10)[b]	.23 (.09)[b]
Conflict frequency – mother	51.88 (6.04)[a]	55.86 (4.90)[b]	52.60 (4.56)[a]	46.78 (4.89)[c]	39.46 (6.43)[d]
Conflict frequency – adolescent	57.84 (3.82)[a]	50.33 (5.92)[b]	53.21 (4.29)[b]	38.78 (6.52)[c]	52.49 (4.71)[b]
Conflict intensity – mother	30.47 (5.22)[a]	33.99 (4.76)[b]	30.90 (4.09)[a]	24.07 (4.64)[c]	20.77 (4.09)[d]
Conflict intensity- adolescent	34.99 (3.97)[a]	25.55 (5.28)[b]	30.04 (4.69)[c]	21.67 (5.08)[d]	27.51 (6.08)[b,c]

Note. Higher scores on all relationship variables indicate more *positive* relationships; i.e., more acceptance, higher centrality, and less conflict frequency and intensity.

Note. For each relationship quality variable (i.e., reading across rows), superscript labels indicate significant differences between clusters ($p < .05$) according to Tukey's tests on 4 (CM) X (OS) ANOVAs.

Table 3.7

Number of Father-Adolescent Dyads per Cluster for the Four- and Five-Cluster Solutions of an Average Linkage Cluster Analysis using the Cosine Index

Cluster	Four-Cluster Solution		Five-Cluster Solution	
	N	Percent	*N*	Percent
1	37	18.9	37	18.9
2	73	37.2	39	19.9
3	60	30.6	60	30.6
4	26	13.3	26	13.3
5			34	17.3
Total	196	100.0	196	100.0

Table 3.8

Unstandardized Means (and Standard Deviations) of Father-Adolescent Relationship Quality Variables by Cluster Membership for the Four-Cluster K-means Analysis

Relationship Quality	Harmonious ($N = 57$)	Uninvolved ($N = 82$)	Conflictual – Child ($N = 25$)	Conflictual - Parent ($N = 32$)
Parental acceptance – father	4.18 (.43)[a]	3.67 (.43)[b]	3.52 (.48)[b]	3.79 (.47)[b]
Parental acceptance – adolescent	4.16 (.54)[a]	3.81 (.66)[b]	3.45 (.59)[b]	3.64 (.80)[b]
Centrality of adolescent – father	.39 (.14)[a]	.18 (.10)[b]	.24 (.14)[b]	.44 (.18)[a]
Centrality of father – adolescent	.32 (.12)[a]	.14 (.08)[b]	.22 (.14)[c]	.34 (.14)[a]
Conflict frequency – father	55.35 (4.02)[a]	50.78 (4.36)[b]	47.08 (5.56)[c]	41.72 (6.69)[d]
Conflict frequency – adolescent	58.35 (4.37)[a]	54.97 (4.58)[b]	39.24 (5.87)[c]	53.78 (4.56)[b]
Conflict intensity – father	33.39 (3.53)[a]	29.07 (3.99)[b]	25.80 (4.78)[c]	22.53 (5.33)[d]
Conflict intensity – adolescent	33.84 (5.51)[a]	30.99 (5.36)[b]	19.76 (5.07)[c]	29.13 (7.17)[b]

Note. Higher scores on all relationship variables indicate more *positive* relationships; i.e., more acceptance, higher centrality, and less conflict frequency and intensity.

Note. For each relationship quality variable (i.e., reading across rows), superscript labels indicate significant differences between clusters ($p < .05$) according to Tukey's tests on 4 (CM) X (OS) ANOVAs.

Table 3.9

Unstandardized Means (and Standard Deviations) of Father-Adolescent Relationship Quality Variables by Cluster Membership for the Five-Cluster K-means Analysis

Relationship Quality	Harmonious (*N* = 40)	Involved (*N* = 33)	Uninvolved (*N* = 79)	Conflictual – Child (*N* = 23)	Conflictual - Parent (*N* = 21)
Parental acceptance – father	4.24 (.44) [a]	3.87 (.43) [b]	3.72 (.45) [b, c]	3.50 (.49) [c]	3.63 (.40) [b, c]
Parental acceptance – adolescent	4.18 (.60) [a]	3.49 (.69) [b]	3.86 (.63) [a]	3.44 (.63) [b]	4.05 (.64) [a]
Centrality of adolescent – father	.40 (.15) [a]	.50 (.14) [b]	.19 (.10) [c]	.22 (.12) [c]	.22 (.13) [c]
Centrality of father – adolescent	.35 (.11) [a]	.38 (.12) [a]	.15 (.08) [b]	.19 (.10) [b]	.19 (.12) [b]
Conflict frequency – father	56.13 (4.30) [a]	47.85 (5.17) [b]	51.95 (3.74) [c]	46.61 (5.57) [b]	39.57 (6.37) [d]
Conflict frequency – adolescent	59.60 (3.55) [a]	52.09 (5.30) [b]	55.40 (4.55) [c]	39.04 (5.68) [d]	55.14 (4.57) [b, c]
Conflict intensity – father	33.78 (3.97) [a]	28.30 (3.46) [b]	30.25 (3.15) [b]	25.26 (4.75) [c]	18.90 (4.05) [d]
Conflict intensity-adolescent	35.65 (4.49) [a]	26.06 (7.04) [b]	31.19 (5.42) [c]	20.26 (4.56) [d]	32.38 (4.90) [a, c]

Note. Higher scores on all relationship variables indicate more *positive* relationships; i.e., more acceptance, higher centrality, and less conflict frequency and intensity.

Note. For each relationship quality variable (i.e., reading across rows), superscript labels indicate significant differences between clusters ($p < .05$) according to Tukey's tests on 4 (CM) X (OS) ANOVAs.
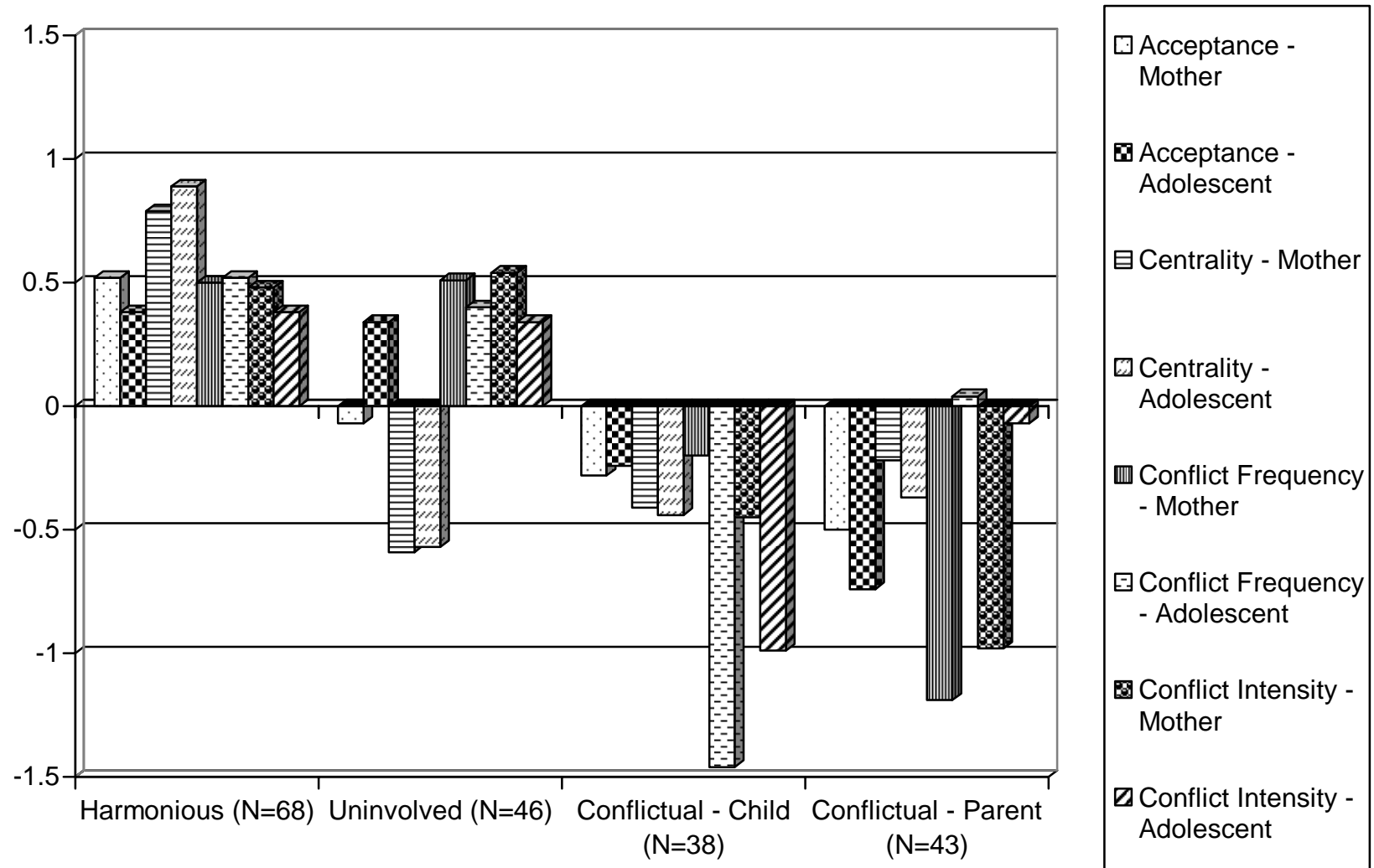
Figure 3.1. Profiles of Mother-Adolescent Dyads for the Four-Cluster Solution in Average Linkage Cluster Analysis.
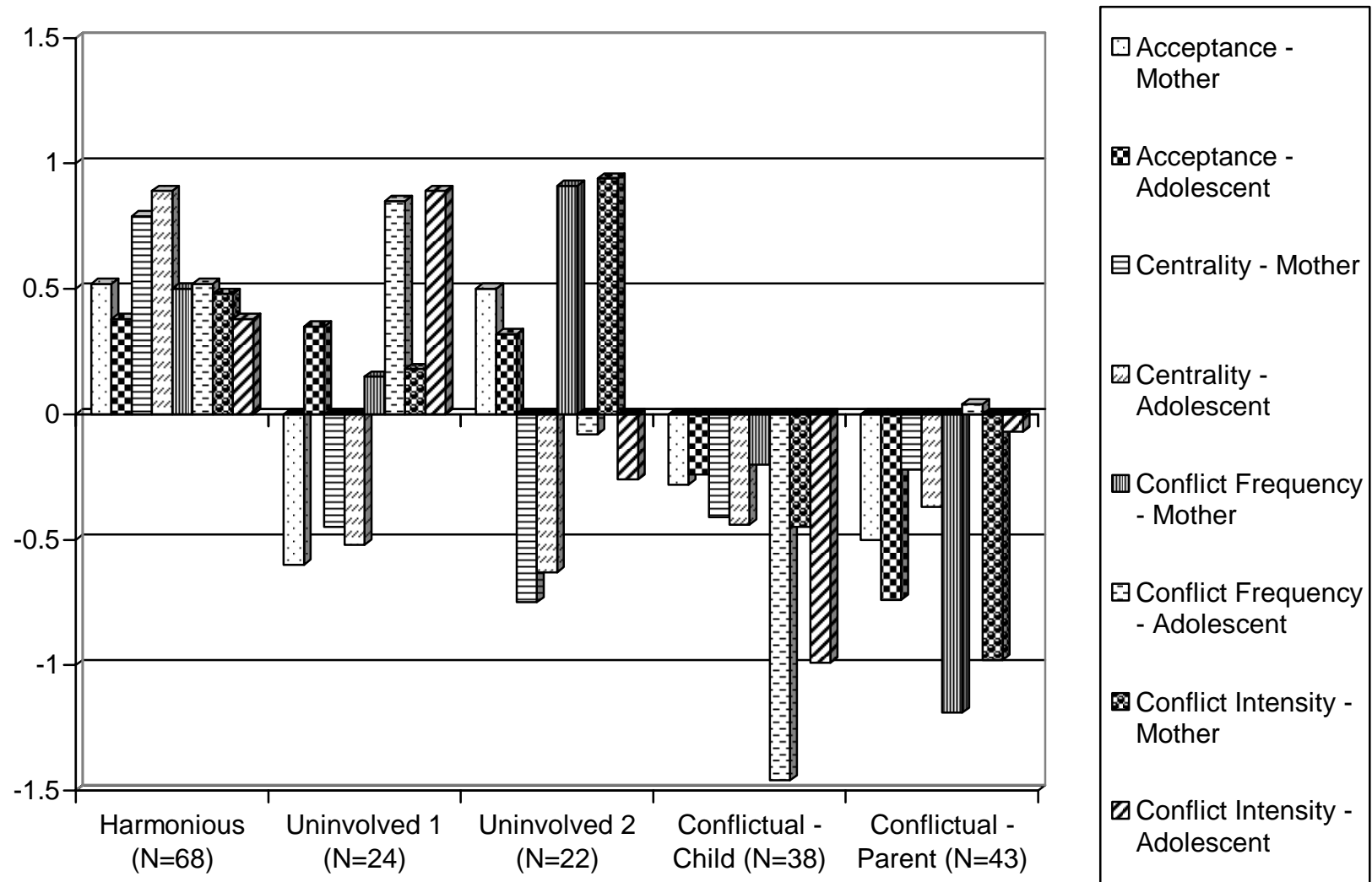
Figure 3.2. Profiles of Mother-Adolescent Dyads for the Five-Cluster Solution in Average Linkage Cluster Analysis.
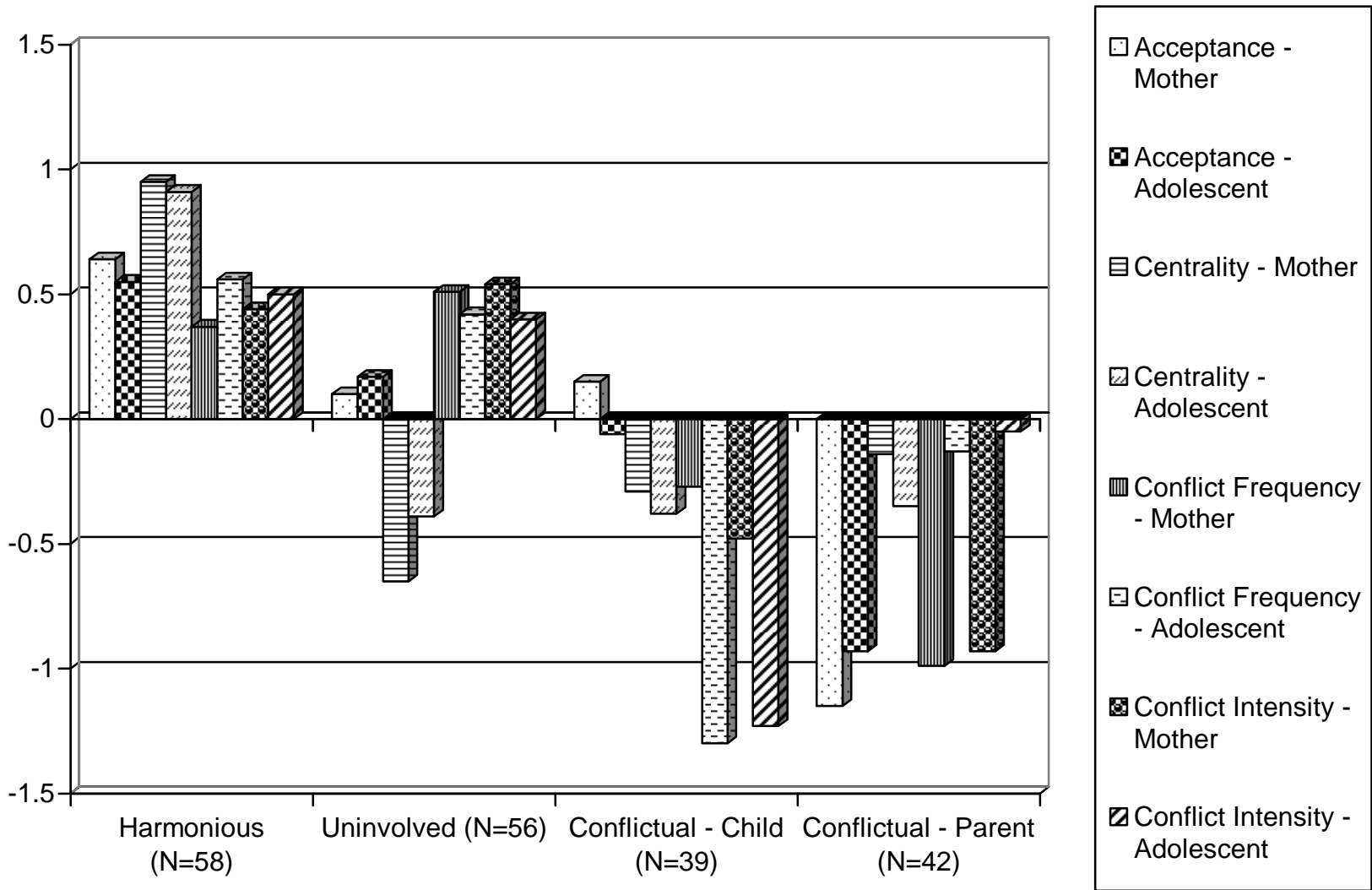
Figure 3.3. Profiles of Mother-Adolescent Dyads for the Four-Cluster Solution in *K*-Means Cluster Analysis.
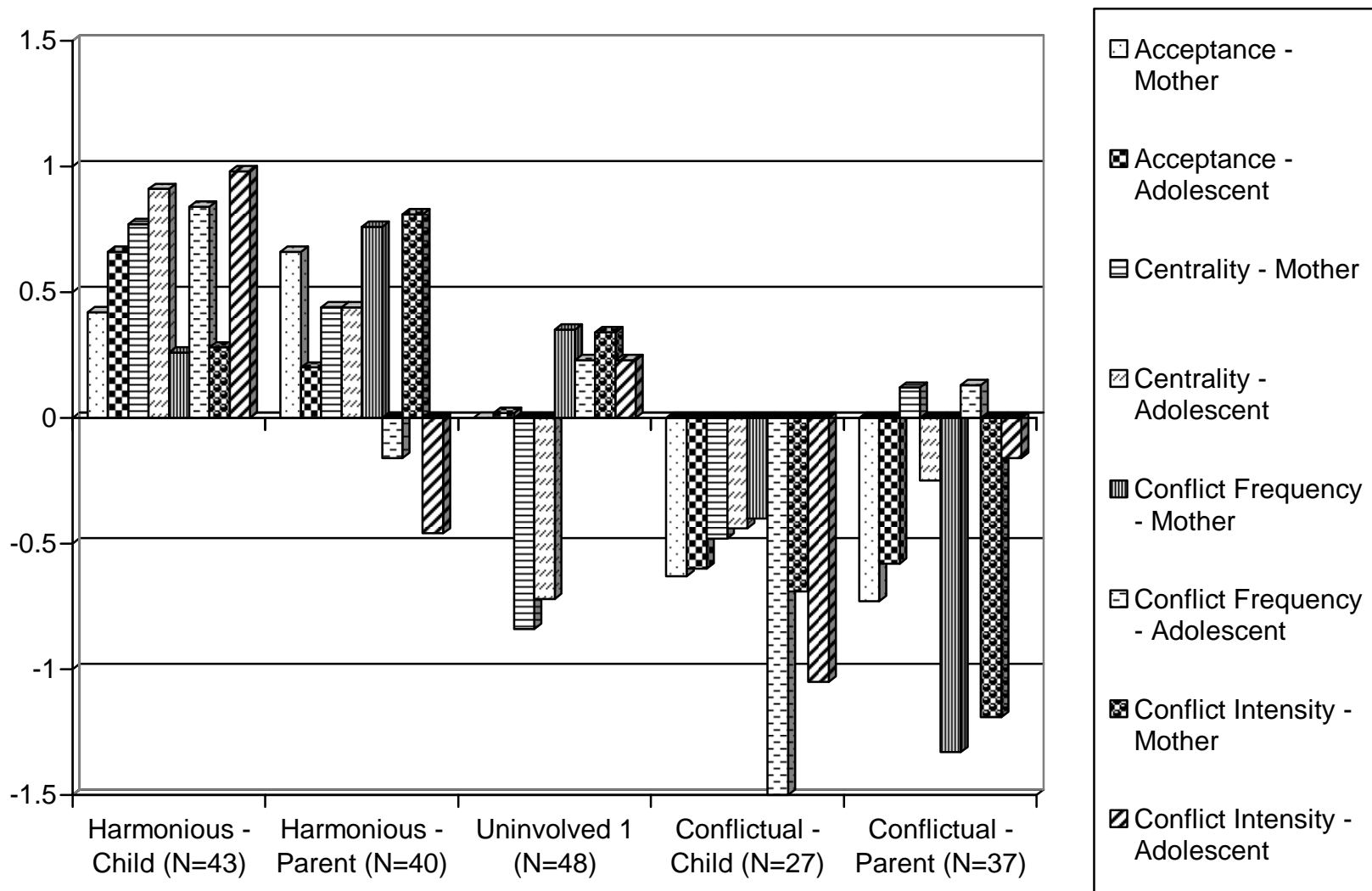
Figure 3.4. Profiles of Mother-Adolescent Dyads for the Five-Cluster Solution in *K*-Means Cluster Analysis.
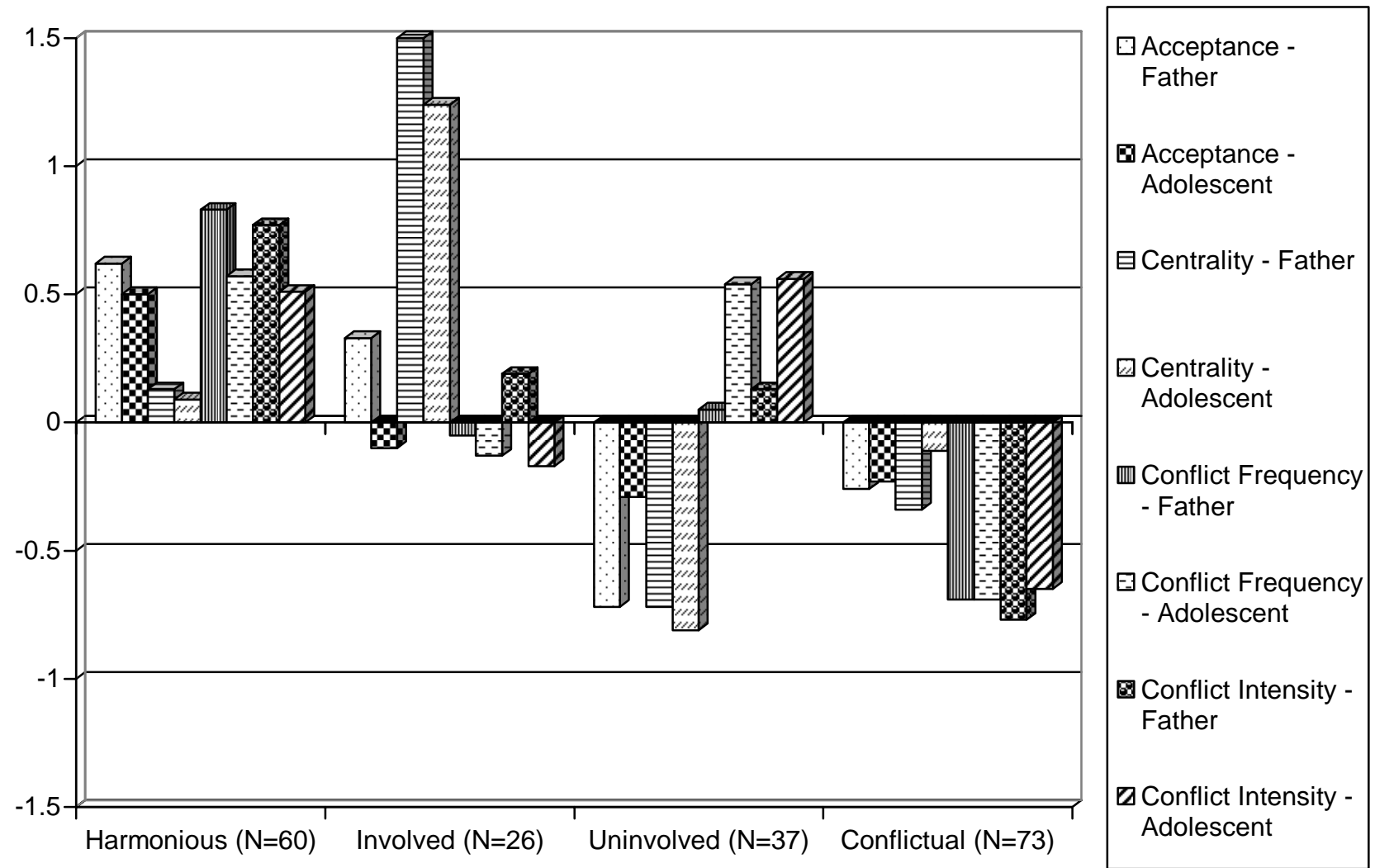
Figure 3.5. Profiles of Father-Adolescent Dyads for the Four-Cluster Solution in Average Linkage Cluster Analysis.
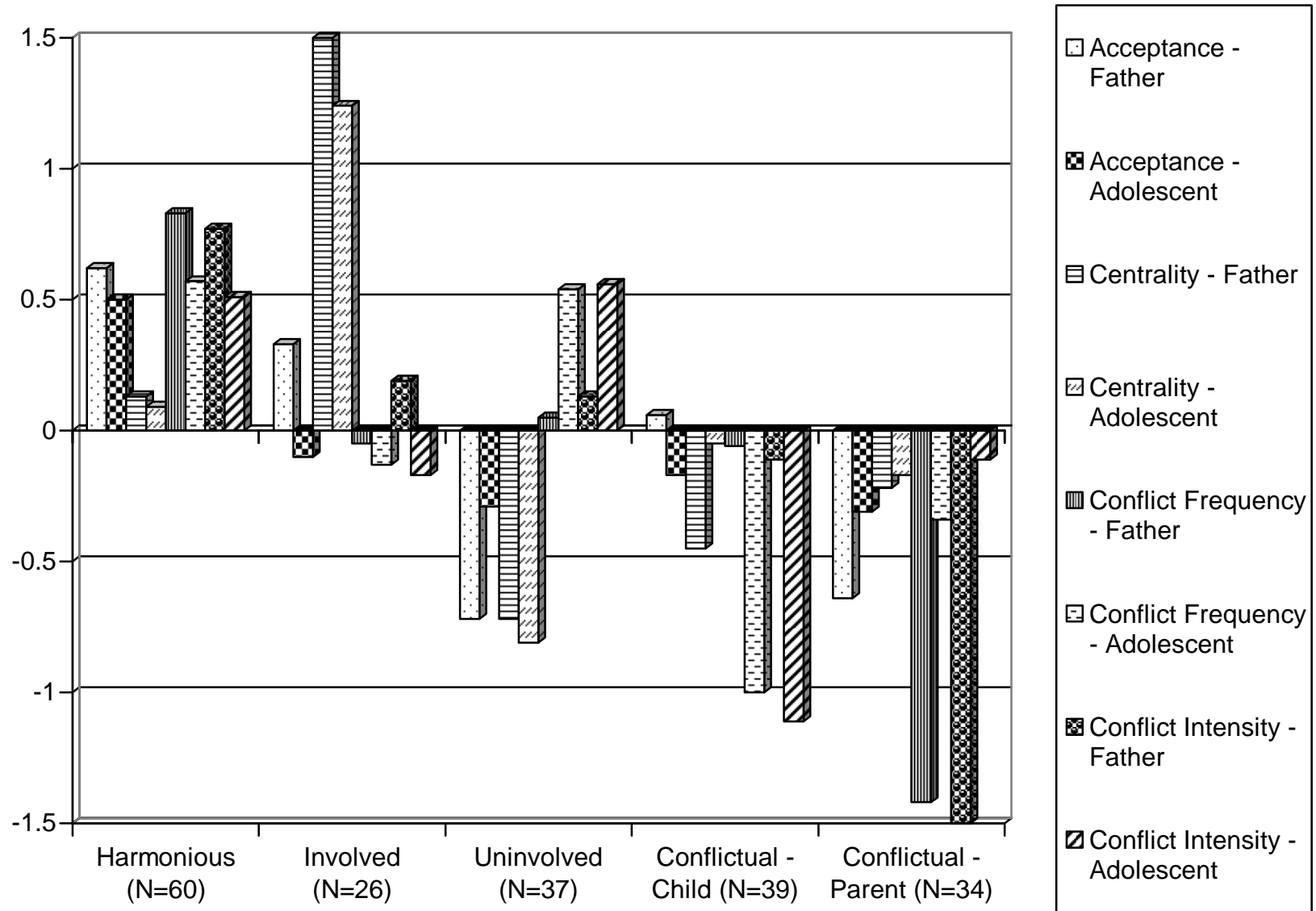
Figure 3.6. Profiles of Father-Adolescent Dyads for the Five-Cluster Solution in Average Linkage Cluster Analysis.
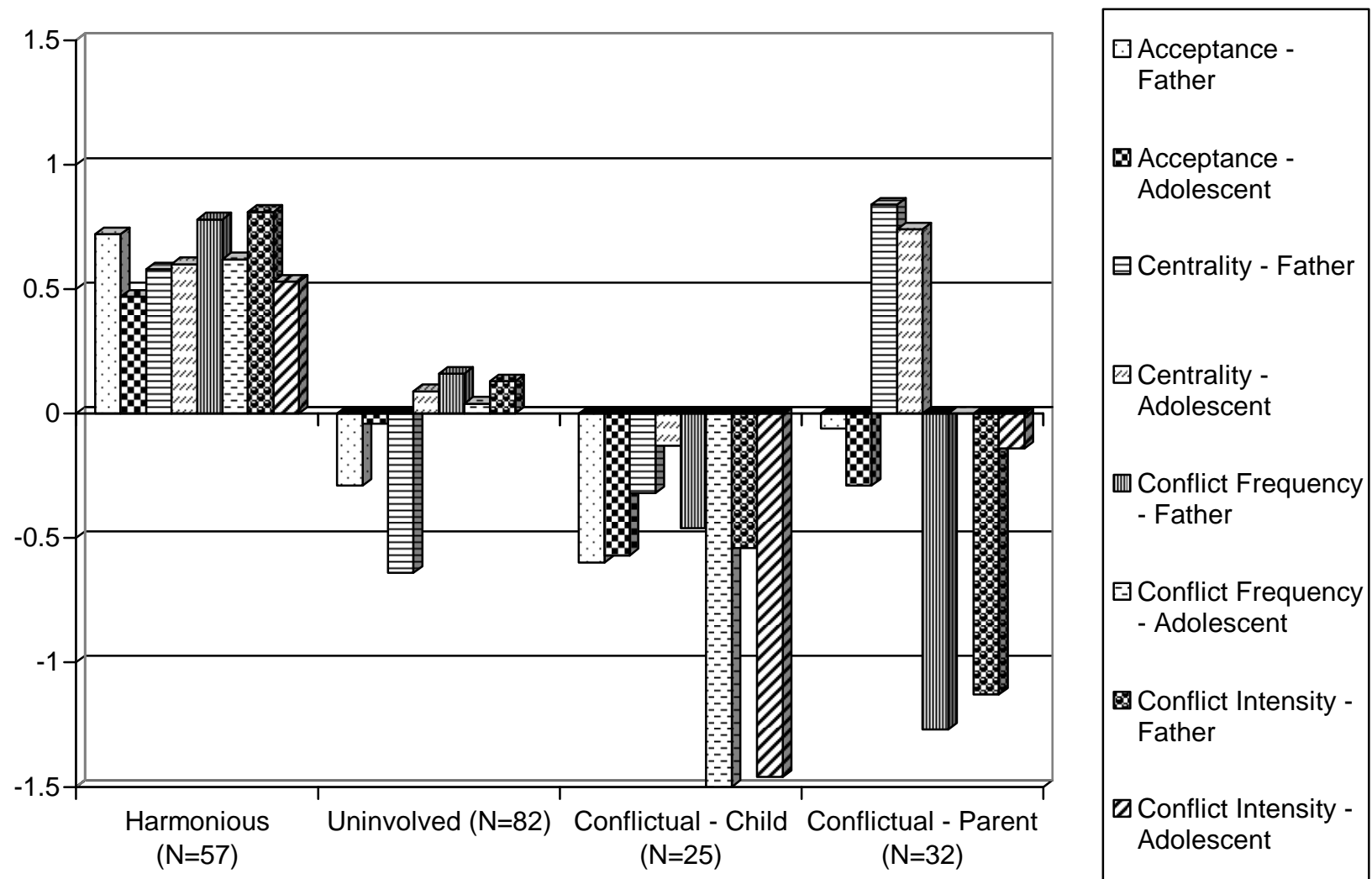
Figure 3.7. Profiles of Father-Adolescent Dyads for the Four-Cluster Solution in *K*-Means Cluster Analysis.
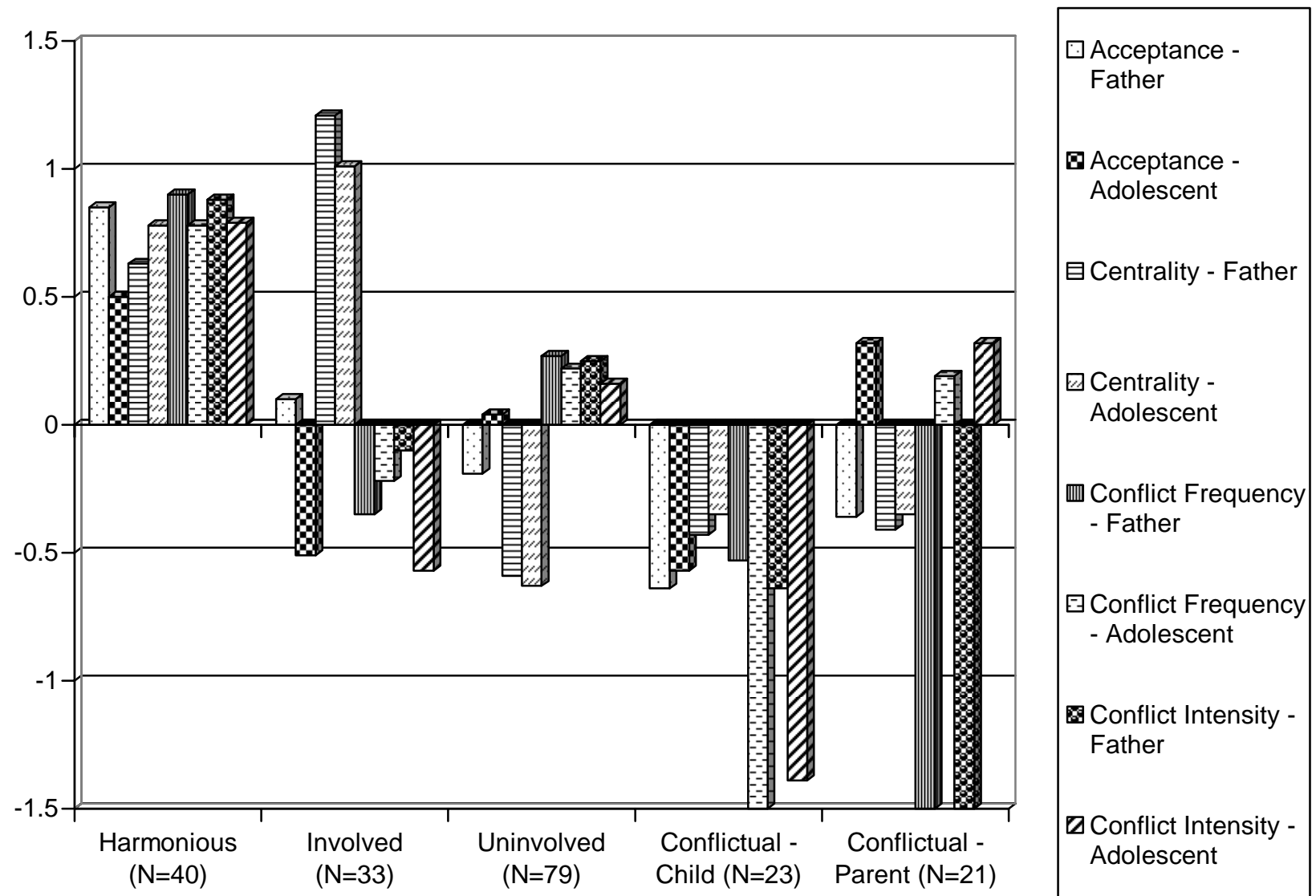
Figure 3.8. Profiles of Father-Adolescent Dyads for the Five-Cluster Solution in *K*-Means Cluster Analysis.

CHAPTER 4. RESULTS – CORRELATES OF CLUSTER MEMBERSHIP

In this chapter, I focus on the individual-, relationship-, and family-level correlates of mother-adolescent and father-adolescent relationship profiles, using the four-cluster solutions presented in the prior chapter. As a first step, I look descriptively at the distribution of daughters and sons within and across clusters, as well as the overlap between mother-adolescent and father-adolescent cluster membership. The rest of the chapter is devoted to describing analyses relating cluster membership to a variety of other potential correlates, separately for mother-adolescent and father-adolescent dyads.

Tables 4.1 and 4.2 list (1) the numbers of daughters and sons in each cluster, (2) the number of daughters and sons expected within each cluster if cluster membership and adolescent sex were completely unrelated, (3) the percent of adolescents within each cluster who were daughters or sons, and (4) the percent of daughters (or sons) in a given cluster. For father-adolescent dyads (Table 4.2), the chi-square statistic was not significant, $\chi^2(3, N = 196) = 5.32$, n.s., indicating that sex and cluster membership were unrelated for these dyads. For mother-adolescent dyads (Table 4.1), the chi-square statistic was significant at the level of a trend, $\chi^2(3, N = 195) = 7.07$, $p < .10$, indicating that cluster membership and adolescent sex were somewhat related. Two of the clusters stood out in terms of sex differences. First, daughters seemed to be over-represented in the Harmonious cluster, insofar as there were more daughters than expected (actual $N = 36$, expected $N = 28.6$) and fewer sons than expected (actual $N = 22$, expected $N = 29.4$). Also, the percentage of all daughters in the Harmonious group (37.5%) was higher (and the percentage of all sons, 22.2%, was lower) than the percentage of all adolescents in the Harmonious group (29.7%). Second, sons seemed to be over-represented in the Conflictual-Parent cluster, insofar as there were more sons than expected (actual $N = 27$, expected $N = 21.3$) and fewer daughters than expected (actual $N = 15$, expected $N = 20.7$). Also, the percentage of all sons in the Conflictual-Parent group (27.3%) was higher (and the percentage of all daughters, 15.6%, was lower) than the percentage of all adolescents in the Conflictual-Parent group (21.5%).

Table 4.3 shows the overlap between mother-adolescent and father-adolescent clusters. Ninety two adolescents (or 47% of adolescents) had similar relationships with mothers and fathers (e.g., Harmonious mother-adolescent and Harmonious father-adolescent relationships in

the same family). An additional 10 adolescents (5% of total) had a Conflictual-Child relationship with one parent, and a Conflictual-Parent relationship with the other parent. The remaining 93 families (48% of total) had different types of relationships with mothers and fathers, including 52 adolescents (27%) who had a Conflictual relationship with one parent, and a Harmonious or Uninvolved relationship with the other. In other words, these relationship profiles did not appear to be solely a function of some quality of the particular adolescent, or some quality of the particular family. In the sections that follow, I turn my attention to other potential correlates of cluster membership, first describing how I conduct the analyses and then the results for mother-adolescent and father-adolescent dyads separately.

Analysis Plan

In order to examine the associations between cluster membership and a variety of individual, dyadic, and family-level characteristics, I conducted variations on 4 (Cluster Membership) X 2 (Secondborn Sex) ANCOVAs, with the potential correlates as outcome variables and family income as a covariate. (See Table 4.4 for a summary of these analyses.) Many of the potential correlates were significantly related to families' socioeconomic status (i.e., parents' income, years of education and job prestige), but family income was related to the potential correlates more consistently than education or job prestige, so I chose family income as a covariate for all analyses except those wherein SES indicators were the dependent variables of interest. For analyses focused on relationships with firstborn offspring, sex of the firstborn was included as an additional factor. In order to follow up significant Cluster X Sex (Secondborn or Firstborn) interactions, I created an eight-level variable by crossing Cluster Membership and Sex, then conducted 8-level (Cluster X Sex) ANCOVAs with family income as a covariate. To follow up significant Cluster X Secondborn Sex X Firstborn Sex interactions, I created a sixteen-level variable by crossing Cluster Membership, Secondborn Sex, and Firstborn Sex, then conducted 16 (Cluster X SB Sex X FB Sex) ANCOVAs. Finally, I used Tukey's tests, with the significance level set at $p < .05$, to follow up all significant effects involving Cluster Membership. Note that N differs somewhat across analyses due to relevant missing data. I included all respondents with complete data for a given analysis, and deleted the particular respondents with missing data only from the relevant analyses.

For many potential correlates, I had access to reports from multiple family members. I dealt with multiple reporters in different ways depending on the type of construct. When

focusing on families' SES and demographic characteristics (e.g., income, education, age), I conducted 4 (CM) X 2 (SB Sex) X 2 (Parent) mixed model ANOVAs, with both mother and father SES or demographic indicators as the outcome variables and Parent as the repeated measure. For these analyses, I present the between-group effect for Cluster Membership only, as the results for individual parents' SES and demographic characteristics were similar, and no significant Parent X Cluster differences emerged.

For multiple reports from both members of the target dyad (i.e., mother-secondborn or father-secondborn dyads) concerning individual characteristics (e.g., expressivity, depressive symptoms) or other qualities of their relationships (e.g., perspective taking), I included both reports in 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) mixed model ANCOVAs. For these analyses, I present the between-group effect for Cluster Membership, the within-group effect for Cluster Membership (i.e., the Dyad Member X Cluster Membership interaction), and any significant between- or within-group interactions between Cluster Membership and Sex. In cases where the between-group effect for Cluster Membership was significant, the individual and between-group results were always similar, so in those cases, I do not present results for the individual reporters. Only if the between-group effect for Cluster Membership was not significant do I present significant effects involving Cluster Membership for individual reports. In order to follow up significant between-group effects involving Cluster Membership, I conducted 4 (CM) X 2 (SB Sex) ANCOVAs with Tukey's, using the dyadic average of the correlate as the outcome variable. In order to follow up significant within-group effects involving Cluster Membership, I conducted 4 (CM) X 2 (SB Sex) ANCOVAs with Tukey's, using difference scores (parent minus offspring) as the outcome variable.

For multiple reports of other family relationships (e.g., mother and father reports of marital quality, or siblings' reports of their relationship quality), I averaged across reporters, reasoning that average reports reflected these other relationships while also simplifying analyses by eliminating the need to describe between- and within-group differences. Exploratory analyses showed that results using the dyadic average mirrored results using individual reports, and that significant Reporter X Cluster effects for these other relationships did not emerge.

I chose an ANCOVA strategy, rather than a MANCOVA strategy or discriminant function analysis, primarily because the potential correlates tended to be highly intercorrelated, especially within each category of potential correlates (e.g., marital love was highly correlated

with marital satisfaction). A multivariate analysis with correlated predictors loses power to discriminate between groups (Tabachnick & Fidell, 1991). One way to address the issue of correlated predictors is to combine those predictors in some way (e.g., a principal components analysis). However, I was not trying to optimally discriminate between well-established relationship profiles; rather, I was exploring the nature of the individuals in, and the family relationships surrounding, a set of relationship profiles derived from exploratory analyses. As such, I chose to keep all of the potential correlates in separate ANOVAs because of the exploratory nature of this study.

In the sections that follow, I present results first for mother-secondborn and then for father-secondborn dyads. For each dyad, I first present results for (1) SES and demographic characteristics, (2) individual characteristics, (3) other characteristics of the target dyads' relationships, and (4) characteristics of other family relationships. For the sake of space, I only present the main effects for Cluster Membership (significant and nonsignificant), and, when significant, interaction effects involving Cluster Membership. (Even though I do not present F statistics for the overall models, I only present significant effects when the overall models were significant.) I then present a summary of the ways in which the correlates of Cluster Membership distinguished each relationship profile.

<div align="center">Correlates of Mother-Secondborn Relationship Profiles</div>

SES and Demographic Correlates

SES correlates. I included mothers' and fathers' years of education, yearly income, and job prestige as outcome variables in 4 (CM) X 2 (SB Sex) X 2 (Parent) mixed model ANOVAs to test the association between relationship profile and socioeconomic status. Table 4.5 shows the means and standard deviations of each of these indicators of SES separately for each mother-secondborn relationship profile. The between-group effect for Cluster Membership was not significant for parents' education, $F(3, 187) = 1.49$, n.s., income, $F(3, 183) = 1.07$, n.s., or job prestige, $F(3, 184) = 1.30$, n.s.

Demographic correlates. Table 4.5 also lists the means of two demographic characteristics, family size and parents' age, separately for each mother-offspring relationship profile. Family size was not related to Cluster Membership, $F(3, 187) = .74$, n.s., in a 4 (CM) X 2 (SB Sex) ANOVA. Parents' ages were also not significantly related to Cluster Membership, $F(3, 187) = .47$, n.s. in a 4 (CM) X 2 (SB Sex) X 2 (Parent) repeated measures ANOVA.

Individual Characteristics

Gender-related characteristics. I chose gender role attitudes and expressivity as two gendered qualities that may be related to relationship quality. Mothers and offspring reported on both constructs, so the following results are from 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) ANCOVAs with family income as the covariate. Table 4.6 includes the adjusted means and standard errors of both constructs for each cluster. With gender role attitudes as the outcome variable, neither the between-group effect nor the Dyad Member X Cluster Membership interaction was significant, $F(3, 184) = 1.15$, n.s., and $F(3, 184) = .42$, n.s., respectively.

For expressivity, the between-group effect for Cluster Membership was significant, $F(3, 183) = 10.52$, $p < .01$, but the Dyad Member X Cluster Membership interaction was not, $F(3, 183) = .19$, n.s. In a follow-up 4 (CM) X 2 (SB Sex) ANCOVA with the dyadic average of expressivity as the outcome variable, Tukey's revealed that those in the Harmonious group ($M = .40$) were significantly more expressive than all other groups, ($M = -.07$ for Uninvolved and Conflictual-Child dyads, and -.38 for Conflictual-Parent) while those in the Conflictual-Parent group were significantly less expressive compared to the Harmonious and Uninvolved groups.

Mothers' work demands and stressors. In order to examine the associations between Cluster Membership and mothers' work demands, I chose mothers' feelings of role overload, reports of work pressure, and weekly work hours (see Table 4.6). Cluster Membership was unrelated to role overload, $F(3, 184) = 2.44$, n.s., and work pressure, $F(3, 181) = .66$, n.s. Cluster Membership was significantly associated with work hours, $F(3, 184) = 4.69$, $p < .01$. In follow-up tests, mothers in the Uninvolved group ($M = 32.40$) worked significantly fewer hours than mothers in the Harmonious ($M = 40.64$) and Conflictual-Parent ($M = 41.03$) groups, and mothers in the Conflictual-Child group ($M = 39.12$) worked significantly fewer hours than mothers in the Harmonious group.

Well-being. Both mothers and adolescents reported on depressive symptoms, and adolescents reported on self-worth and risky behavior (see Table 4.6). In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA with mothers' and adolescents' reports of depressive symptoms as the outcome variables, the between-group effect for Cluster Membership was significant, $F(3, 184) = 3.80$, $p < .01$, but the Dyad Member X Cluster Membership interaction was not, $F(3, 184) = 1.38$, n.s. Follow-up tests on the dyadic average of depressive symptoms revealed that mothers and adolescents in the Conflictual-Parent group ($M =$

21.52) reported significantly more depressive symptoms than mothers and adolescents in the Harmonious ($M = 18.98$) and Uninvolved groups ($M = 19.44$).

Cluster Membership was significantly related to adolescent self-worth, $F(3, 184) = 3.57$, $p < .05$, and risky behavior, $F(3, 184) = 4.21$, $p < .01$. According to follow-up tests, adolescents in the Conflictual-Child group ($M = 2.89$) reported significantly lower self-worth than Harmonious adolescents ($M = 3.29$). Adolescents in both Conflictual groups ($M = 24.91$ for Conflictual-Child and 25.40 for Conflictual-Parent) reported engaging in significantly more risky behavior compared to adolescents in the Harmonious group ($M = 22.18$), and adolescents in the Conflictual-Parent group reported more risky behavior than adolescents in the Uninvolved group ($M = 22.18$).

Temperament. Four temperament characteristics were considered: emotionality, sociability, activity level, and shyness (see Table 4.6). Cluster Membership was unrelated to sociability, $F(3, 184) = .60$, n.s., activity level, $F(3, 184) = 1.08$, n.s., and shyness, $F(3, 184) = .89$, n.s. Cluster Membership was related to emotionality, $F(3, 184) = 5.45$, $p < .01$; this main effect was qualified by a significant Cluster X Sex interaction, $F(3, 184) = 3.15$, $p < .05$. In a one-way ANCOVA with an eight-level variable created by crossing Cluster Membership and Secondborn Sex as the independent variable, follow-up tests revealed that girls in the Conflictual-Parent group ($M = 18.86$) were seen by their parents as significantly more emotional than all other adolescents, both girls and boys (M ranged from 15.09 to 15.55).

Other Characteristics of Mother-Secondborn Relationships

Parental knowledge. Cluster Membership was related to the extent to which mothers knew about their offspring's activities, $F(3, 184) = 2.84$, $p < .05$ in a 4 (CM) X 2 (SB Sex) ANCOVA (see Table 4.7). However, the overall model was not significant, $F(8, 184) = 1.44$, n.s., so the main effect for Cluster Membership was not interpretable.

Adolescents' perspective taking vis-à-vis mothers. I included offspring and mother reports of adolescents' perspective taking vis-a-vis mothers as outcome variables in a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA (see Table 4.7). The between-group effect for Cluster Membership was significant, $F(3, 184) = 24.59$, $p < .01$. Follow-up tests on the dyadic average of adolescent perspective taking revealed that all groups were significantly different from one another except the Harmonious and Uninvolved groups. Adolescents in the Harmonious and Uninvolved groups ($M = 14.40$ and 14.09, respectively) had the greatest

perspective taking, followed by Conflictual-Child adolescents ($M = 13.01$), followed by Conflictual-Parent adolescents ($M = 11.53$).

The Dyad Member X Cluster Membership interaction was also significant, $F(3, 184) = 3.82$, $p < .01$. In a follow-up 4 (CM) X 2 (SB Sex) ANCOVA, the difference score (mother minus offspring) for adolescents' perspective taking vis-à-vis mothers was the outcome variable. Mothers were more likely to report higher perspective taking on the part of their offspring than were the offspring themselves; Tukey's revealed that this mother-offspring discrepancy was larger for Conflictual-Parent dyads (M difference $= 2.83$) than for Harmonious and Uninvolved dyads ($M = 1.13$ and $.38$, respectively).

Mothers' perspective taking vis-à-vis adolescents. In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA with mother and adolescent reports of mothers' perspective taking vis-à-vis adolescents as the outcome variables (see Table 4.7), the between-group effect for Cluster Membership was significant, $F(3, 184) = 21.78$, $p < .01$. Follow-up tests on the dyadic average for mothers' perspective taking revealed that mothers in the Harmonious groups ($M = 15.13$) were significantly better able to take their offspring's perspectives than mothers in the Conflictual-Child and Conflictual-Parent groups ($M = 14.09$ and 12.21 respectively), while mothers in the Conflictual-Parent group were significantly less able to take their offspring's perspectives than all other mothers.

In addition, the Dyad Member X Cluster effect was significant, $F(3, 184) = 3.23$, $p < .05$. In a 4 (CM) X 2 (OS) ANCOVA with the difference score (mother minus adolescent) as the outcome variable, follow-up tests revealed that the Conflictual-Parent (M diff $= -1.41$) and Uninvolved (M diff $= .69$) groups differed significantly from one another. Adolescents in the Conflictual-Parent group tended to overestimate mothers' perspective taking relative to mothers' own reports, while adolescents in the Uninvolved group tended to underestimate mothers' perspective taking relative to mothers' own reports.

Decision-making autonomy. Mothers' and adolescents' reports of adolescents' decision-making autonomy were the outcome variables in a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA (see Table 4.7). The between-group effect for Cluster Membership was not significant, $F(3, 184) = 1.04$, n.s., but a significant Cluster X Sex interaction emerged for adolescents' own reports of decision-making autonomy, $F(3, 184) = 2.90$, $p < .05$. In an 8-level (Cluster X Sex) ANCOVA, follow-ups did not reveal any significant differences between

groups, so I chose to conduct two post-hoc contrasts based on the pattern of means across groups. Looking at the means, it appeared that daughters in the Conflictual-Parent group ($M =$ 16.36) appeared to report more autonomy than all other adolescents (M ranged from 13.15 to 14.99), while sons in the Harmonious group ($M = 13.15$) appeared to report less autonomy than other adolescents (M ranged from 13.38 to 16.36). Two post-hoc contrasts were conducted to test these assertions, and both were significant, $F(1, 184) = 6.67$, $p < .01$ comparing Conflictual-Parent girls to all other adolescents, and $F(1, 184) = 4.89$, $p < .05$ comparing Harmonious sons to all other adolescents.

A significant Dyad Member X Cluster X Sex interaction also emerged in the original repeated measures ANCOVA, $F(3, 184) = 2.63$, $p < .05$. In an 8-level (Cluster X Sex) ANCOVA with the difference score (mother minus adolescent) of decision-making autonomy as the outcome variable, follow-up tests revealed that the discrepancy between mothers' and adolescents' reports of autonomy for Conflictual-Child mother-daughter dyads was significantly different from the discrepancy for Conflictual-Parent mother-daughter dyads. Conflictual-Child mothers were more likely to report more autonomy than their daughters (M diff = 2.58), while Conflictual-Parent mothers were more likely to report less autonomy than their daughters (M diff = -2.01). (Other dyads fell in between: M diffs ranged from .48 to 1.58.)

Characteristics of Other Family Relationships

Marital quality. I included the average of mother and father reports of marital love, conflict, and satisfaction, as well as the centrality of spouses in one another's daily lives outside of work (see Table 4.8), to represent marital quality in 4 (CM) X 2 (SB Sex) ANCOVAS. Significant main effects for mother-secondborn Cluster Membership emerged for marital love, $F(3, 184) = 3.07$, $p < .05$, satisfaction, $F(3, 184) = 5.93$, $p < .01$, and centrality, $F(3, 184) = 3.55$, $p < .05$ but not conflict, $F(3, 184) = 1.88$, n.s. Follow-up tests for love revealed that spouses reported significantly higher marital love when mothers had Harmonious relationships with secondborns ($M = 72.50$) than when mothers had Uninvolved relationships with secondborns ($M = 68.52$). Follow-up tests for marital satisfaction revealed that spouses reported significantly higher satisfaction when mothers had Harmonious relationships with secondborns ($M = 50.76$) than when mothers had Conflictual relationships with secondborns ($M = 46.07$ for Conflictual-Child and 44.69 for Conflictual-Parent). Spouses also reported significantly higher satisfaction when mothers had Uninvolved relationships with secondborns ($M = 49.17$) than when mothers

had Conflictual-Child relationships with secondborns. Follow-up tests for centrality did not reveal any significant differences between groups. It appeared that spouses' centrality was higher when mothers had Harmonious relationships with secondborns ($M = .27$) than for other mothers (M ranged from .20 to .23); a follow-up contrast comparing spouses in families where mothers had Harmonious relationships with offspring to all other spouses confirmed this, $F(1, 184) = 9.83, p < .01$.

Mother-firstborn relationship quality. To represent the quality of the mother-firstborn relationship, I included the same four relationship dimensions as the four used to profile mother-secondborn dyads. The average of mother and firstborn reports of acceptance, centrality of time, conflict frequency, and conflict intensity served as the outcome variables in 4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVAs (see Table 4.8). Significant main effects for mother-secondborn Cluster Membership emerged for mother-firstborn acceptance, $F(3, 176) = 7.83, p < .01$, centrality, $F(3, 176) = 9.17, p < .01$, conflict frequency, $F(3, 176) = 3.96, p < .05$, and conflict intensity, $F(3, 176) = 3.19, p < .05$.

Follow-ups for acceptance revealed that mother-firstborn acceptance was significantly lower for mothers who had Conflictual-Parent relationship with secondborns ($M = 3.67$) than for all other mother-firstborn dyads ($M = 4.13$ for Harmonious, 3.96 for Uninvolved, and 3.93 for Conflictual-Child). Follow-up tests for centrality showed that mothers in the Harmonious group and their firstborn offspring ($M = .27$) were more central in each others' lives than mothers in the Uninvolved and Conflictual-Child groups and their firstborn offspring ($M = .19$ for both). Follow-ups for conflict frequency revealed that mother-firstborn conflict was significantly lower when mothers had Harmonious relationships with secondborns ($M = 53.19$) than when mothers had Conflictual relationships with secondborns ($M = 49.50$ for Conflictual-Child and 50.63 for Conflictual-Parent). Follow-ups for conflict intensity revealed that mother-firstborn conflict was significantly less intense when mothers had Harmonious relationships with secondborns ($M = 29.55$) than when mothers had Conflictual-Child relationships with secondborns ($M = 27.97$).

Sibling relationship quality. The average of first- and second-born reports of sibling intimacy, centrality, and conflict were included as outcome variables in 4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVAs (see Table 4.8). Mother-secondborn Cluster Membership was significantly related to sibling intimacy, $F(3, 176) = 4.52, p < .01$, centrality, $F(3, 176) = 3.58, p < .05$, and conflict, $F(3, 176) = 4.35, p < .01$. Follow-up tests revealed that secondborns in the

Harmonious group and their siblings (M = 24.43) reported significantly higher intimacy than secondborns in the Conflictual-Parent groups and their siblings (M = 20.59). Follow-ups for centrality revealed that Harmonious secondborns and their siblings (M = .32) spent significantly more of their time together than Conflictual-Child secondborns and their siblings (M = .22).

Follow-up tests for conflict revealed that Conflictual-Child secondborns and their siblings (M = 28.91) reported significantly more conflict than Harmonious and Uninvolved secondborns and their siblings (M = 26.55 and 26.83, respectively), while Conflictual-Parent secondborns and their siblings (M = 28.88) reported significantly more conflict than Harmonious secondborns and their siblings (M = 26.55). (Note that the measure used to assess sibling conflict differed from the measures used for parent-offspring relationships; higher scores here represented more sibling conflict.)

Father-secondborn relationship quality. The average of father and secondborn reports of acceptance, centrality of time, conflict frequency, and conflict intensity served as the outcome variables in 4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVAs (see Table 4.8). Significant main effects for mother-secondborn Cluster Membership emerged for father-secondborn acceptance, $F(3, 176) = 15.91$, $p < .01$, centrality, $F(3, 176) = 5.42$, $p < .01$, conflict frequency, $F(3, 176) = 27.02$, $p < .01$, and conflict intensity, $F(3, 176) = 28.53$, $p < .01$. For acceptance and centrality, secondborns who had Harmonious relationships with mothers generally experienced better relationship quality with fathers than other secondborns. Follow-ups revealed that father-secondborn dyads reported significantly more acceptance when secondborns had Harmonious relationships with mothers (M = 4.11) than all other father-secondborn dyads (M = 3.89 for Uninvolved, 3.68 for Conflictual-Child, and 3.52 for Conflictual-Parent), while Uninvolved secondborns and their fathers reported significantly more acceptance than Conflictual-Parent secondborns and their fathers. Follow-ups for centrality revealed that father-secondborn dyads spent significantly more of their time together when secondborns had Harmonious relationships with mothers (M = .32) than when secondborns had Conflictual-Child relationships with mothers (M = .22).

Follow-up tests for conflict frequency revealed that father-secondborn dyads reported significantly less conflict when secondborns had Harmonious or Uninvolved relationships with mothers (M = 54.25 and 54.75, respectively) than when secondborns had Conflictual relationships with mothers (M = 47.36 for Conflictual-Child and 48.91 for Conflictual-Parent).

Likewise, follow-up tests for conflict intensity revealed that father-secondborn dyads reported significantly less conflict intensity when secondborns had Harmonious or Uninvolved relationships with mother ($M = 31.29$ and 31.92, respectively) than when secondborns had Conflictual relationships with mothers ($M = 24.88$ for Conflictual-Child and 27.54 for Conflictual-Parent). In addition, Conflictual-Parent secondborns and their fathers reported significantly less conflict intensity than Conflictual-Child secondborns and their fathers.

Summary of Correlates of Mother-Offspring Relationship Profiles

Table 4.9 represents a summary of the distinguishing correlates of each of the four relationship profiles that emerged in analyses controlling for family income. The Harmonious, Conflictual-Child, and Conflictual-Parent groups stood out in terms of the distinguishing features of mothers, secondborns, and their families. Adolescents in Harmonious relationships with mothers tended to be more expressive, have a greater sense of self-worth, engage in fewer risky behaviors, have better perspective taking vis-à-vis mothers, and have more positive relationships with firstborn siblings and fathers. Mothers in Harmonious relationships tended to be more expressive, work longer hours, experience more positive marital quality, and have more positive relationships with firstborn offspring.

Adolescents in Conflictual-Child relationships with mothers tended to report lower self-worth and more risky behaviors; to be less able to understand mothers' perspectives; and to spend less time, but fight more often, with older siblings. Mothers in Conflictual-Child relationships tended to work fewer hours, have lower perspective taking, experience lower marital satisfaction, spend less of their time with firstborns, and experience more frequent and intense conflict with firstborns. Mothers in this group with daughters were more likely to report more autonomy for their daughters than their daughters reported for themselves.

Adolescents in the Conflictual-Parent group tended to be less expressive; to report more depressive symptoms and more risky behavior; and to have less perspective taking, less intimate and more conflictual relationships with siblings, and more conflictual relationships with fathers. Daughters in the Conflictual-Parent group tended to have more emotional temperaments, and to report more autonomy. Mothers in the Conflictual-Parent group tended to be less expressive, work longer hours, report the most depressive symptoms, have the worst perspective taking, lower marital satisfaction, and poorer relationships with firstborn offspring. Both mothers and

adolescents in this group tended to overestimate the others' perspective taking relative to the others' self reports.

<div style="text-align:center">Correlates of Father-Secondborn Relationship Profiles</div>

SES and Demographic Correlates

  SES correlates. Table 4.10 lists the means of mothers' and fathers' years of education, yearly income, and job prestige separately for each father-secondborn relationship profile. In 4 (CM) X 2 (SB Sex) X 2 (Parent) mixed model ANOVAs, the between-group effect for Cluster Membership was not significant for education, $F(3, 188) = .71$, n.s., income, $F(3, 184) = 1.50$, n.s., or job prestige, $F(3, 185) = .60$, n.s.

  Demographic correlates. Table 4.10 also lists the means of family size and parents' age separately for each father-offspring relationship profile. In a 4 (CM) X 2 (SB Sex) ANOVA, family size was not related to Cluster Membership, $F(3, 188) = 3.21$, $p < .05$ (overall model n.s.). In a 4 (CM) X 2 (SB Sex) X 2 (Parent) repeated measures ANOVA, parents' ages were not significantly related to Cluster Membership, $F(3, 188) = .97$, n.s.

Individual Characteristics

  Gender-related characteristics. In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) ANCOVA with fathers' and adolescents' reports of gender role attitudes as the outcome variable, the between-group effect for Cluster Membership was significant, $F(3, 184) = 4.90$, $p < .01$, although the Dyad Member X Cluster Membership interaction was not, $F(3, 184) = 1.33$, n.s (see Table 4.11). In a follow-up 4 (CM) X 2 (SB Sex) ANCOVA with the dyadic average of gender role attitudes as the outcome variable, follow-up tests revealed that those in the Conflictual-Child group ($M = 30.86$) were significantly more traditional than those in the Harmonious ($M = 27.86$) and Uninvolved ($M = 27.43$) groups.

  In an ANCOVA with fathers' and adolescents' expressivity as the outcome variables, the between-group effect for Cluster Membership was significant, $F(3, 184) = 4.69$, $p < .05$, while the Dyad Member X Cluster Membership interaction was not, $F(3, 184) = 1.36$, n.s. Follow-up tests on the dyadic average of expressivity revealed that those in the Harmonious group ($M = .28$) were significantly more expressive than those in all other groups ($M = -0.5$ for Uninvolved, -.21 for Conflictual-Child, and -.18 for Conflictual-Parent).

  Fathers' work demands and stressors. In 4 (CM) X 2 (SB Sex) ANCOVAs, Cluster Membership was unrelated to fathers' work pressure, $F(3, 182) = 1.50$, n.s., but was significantly

associated with fathers' role overload, $F(3, 185) = 6.94$, $p < .01$ (see Table 4.11). According to follow-up tests, fathers in the Conflictual-Child group ($M = 50.40$) reported significantly more role overload than fathers in the Harmonious ($M = 39.45$) and Uninvolved ($M = 43.64$) groups.

A significant main effect for Cluster Membership emerged for fathers' work hours, $F(3, 185) = 2.65$, $p < .05$, qualified by a significant Cluster X Sex interaction, $F(3, 185) = 2.70$, $p < .05$. In an 8-level (Cluster X Sex) one-way ANCOVA, follow-up tests did not reveal any significant differences between groups. Looking at the means, it appeared that Harmonious fathers with daughters ($M = 45.27$) appeared to work fewer hours than other fathers, and Conflictual-Child and Conflictual-Parent fathers with daughters ($M = 58.09$ and 58.66, respectively) appeared to work more hours than other fathers. Two post-hoc contrasts bore out these assertions, $F(1, 185) = 8.51$, $p < .01$ comparing Harmonious fathers with daughters to all other fathers, and $F(1, 185) = 8.55$, $p < .01$ comparing Conflictual fathers with daughters to all other fathers.

Well-being. In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) ANCOVA with fathers' and adolescents' reports of depressive symptoms as the outcome variables, the between-group effect for Cluster Membership was significant, $F(3, 185) = 10.65$, $p < .01$, but the Dyad Member X Cluster Membership interaction was not significant, $F(3, 185) = .16$, n.s. Follow-ups revealed that fathers and adolescents in the Harmonious group ($M = 18.01$) reported significantly fewer depressive symptoms than all other fathers and adolescents ($M = 20.15$ for Uninvolved, 22.18 for Conflictual-Child, and 20.52 for Conflictual-Parent). In addition, Conflictual-Child dyads reported significantly more depressive symptoms than Uninvolved dyads (see Table 4.11).

Cluster Membership was significantly related to adolescent self-worth, $F(3, 185) = 4.09$, $p < .01$; this was qualified by a significant Cluster X Sex interaction, $F(3, 185) = 2.76$, $p < .05$. In an 8-level (Cluster X Sex) one-way ANCOVA, follow-ups revealed that Conflictual-Child girls ($M = 2.66$) and Conflictual-Parent boys ($M = 2.83$) reported significantly lower self-worth than Harmonious girls ($M = 3.38$). Cluster Membership was also significantly related to adolescent risky behavior, $F(3, 185) = 5.96$, $p < .01$. Follow-ups revealed that adolescents in the Harmonious group ($M = 21.31$) reported engaging in significantly fewer risky behaviors compared to all other adolescents ($M = 23.65$ for Uninvolved, 26.65 for Conflictual-Child, and 23.50 for Conflictual-Parent).

Temperament. Four temperament characteristics were considered: emotionality, sociability, activity level, and shyness (see Table 4.11). Father-secondborn Cluster Membership was unrelated to sociability, $F(3, 185) = 1.54$, n.s., activity level, $F(3, 185) = .12$, n.s., and shyness, $F(3, 185) = .95$, n.s. Cluster Membership was related to emotionality, $F(3, 185) = 5.15$, $p < .01$. Follow-ups revealed that adolescents in the Conflictual-Parent group ($M = 17.33$) were significantly more emotional than Harmonious ($M = 14.34$) and Uninvolved ($M = 15.13$) adolescents.

Other Characteristics of Father-Secondborn Relationships

Parental knowledge. Cluster Membership was related to the extent to which fathers knew about their offspring's activities, $F(3, 185) = 7.05$, $p < .01$ in a 4 (CM) X 2 (SB Sex) ANCOVA (see Table 4.12). According to follow-up tests, fathers in the Uninvolved group ($M = 67.11$) knew less about their adolescents than fathers in the Harmonious ($M = 76.53$) and Conflictual-Parent ($M = 72.17$) groups.

Adolescents' perspective taking vis-à-vis fathers. In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA with fathers' and adolescents' reports of adolescents' perspective taking as the outcome variables, the between-group effect for Cluster Membership was significant, $F(3, 185) = 18.41$, $p < .01$, but was qualified by a significant Cluster X Sex interaction effect, $F(3, 185) = 2.70$, $p < .05$ (see Table 4.12). In an 8-level (Cluster X Sex) follow-up one-way ANCOVA with the dyadic average of adolescent perspective taking as the outcome variable, follow-up tests suggested that Harmonious girls and boys were better able to take fathers' perspectives than others: perspective taking for Harmonious girls ($M = 14.68$) was significantly higher than perspective taking for all other groups (M ranged from 10.68 to 13.38) except Harmonious boys; perspective taking for Harmonious boys ($M = 14.37$) was significantly higher than perspective taking for Uninvolved boys ($M = 12.91$), Conflictual-Child girls ($M = 10.68$) and boys ($M = 12.45$), and Conflictual-Parent boys ($M = 12.47$). Follow-ups also suggested that Conflictual-Child girls were less able to take fathers' perspectives than others: perspective taking for Conflictual-Child girls ($M = 10.68$) was significantly lower than perspective taking for Harmonious girls ($M = 14.68$) and boys ($M = 14.37$), and Uninvolved girls ($M = 13.38$) and boys ($M = 12.91$).

The Dyad Member X Cluster Membership interaction was also significant in the original model, $F(3, 185) = 4.74$, $p < .01$. In a follow-up 4 (CM) X 2 (SB Sex) ANCOVA, with the

difference score (father minus offspring) for adolescent perspective taking as the outcome variable, Tukey's revealed that the discrepancy between father and adolescent reports of adolescent perspective taking was significantly greater for Uninvolved dyads than for Harmonious dyads. Uninvolved fathers reported more perspective taking for offspring than offspring reported for themselves (*M* diff = 2.00), while reports of adolescent perspective taking did not differ for Harmonious fathers and offspring (*M* diff = -.01).

Fathers' perspective taking vis-à-vis adolescents. In a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA with father and adolescent reports of fathers' perspective taking vis-à-vis adolescents as the outcome variables (see Table 4.12), the between-group effect for Cluster Membership was significant, $F(3, 185) = 20.08$, $p < .01$. The Dyad Member X Cluster Membership interaction was not significant, $F(3, 185) = 1.43$, n.s. In a 4 (CM) X 2 (SB Sex) follow-up ANCOVA with the dyadic average of father perspective taking as the outcome variable, follow-up tests revealed that fathers in the Harmonious group (*M* = 15.28) were significantly better able to take offspring's perspectives than all other fathers (*M* = 13.86 for Uninvolved, 12.54 for Conflictual-Child, and 12.95 for Conflictual-Parent); likewise, Uninvolved fathers were significantly better able to take offspring's perspectives than fathers in both Conflictual groups.

Decision-making autonomy. Fathers' and adolescents' reports of adolescents' decision-making autonomy were the outcome variables in a 4 (CM) X 2 (SB Sex) X 2 (Dyad Member) repeated measures ANCOVA (see Table 4.12). The between-group effect for Cluster Membership was not significant, $F(3, 185) = $, n.s.; Cluster Membership was also not significantly associated with adolescent reports of autonomy, $F(3, 185) = .22$, n.s. Cluster Membership was significantly associated with father reports of autonomy, $F(3, 185) = 2.27$, $p < .05$, but the overall model was not significant, $F(8, 185) = 1.31$, n.s., so the effect could not be interpreted.

Characteristics of Other Family Relationships

Marital quality. In 4 (CM) X 2 (SB Sex) ANCOVAS, significant main effects for father-secondborn Cluster Membership emerged for the average of spouses' reports of marital love, $F(3, 185) = 3.21$, $p < .05$, satisfaction, $F(3, 185) = 8.89$, $p < .01$, centrality, $F(3, 185) = 6.72$, $p < .01$, and conflict, $F(3, 185) = 5.88$, $p < .01$ (see Table 4.13). Follow-ups revealed that spouses tended to report more positive marital relationships in families in which fathers had Harmonious

relationships with secondborns. First, marital love was significantly higher for spouses when fathers had Harmonious relationships with secondborns ($M = 72.58$) than for spouses when fathers had Uninvolved relationships with secondborns ($M = 68.67$). Second, marital satisfaction was significantly higher for spouses in families in which fathers had Harmonious relationships with secondborns ($M = 51.74$) than for all other fathers ($M = 47.32$ for Uninvolved, 43.06 for Conflictual-Child, and 46.32 for Conflictual-Parent). Third, spouses' centrality was significantly higher when fathers had Harmonious relationships with secondborns ($M = .28$) than when fathers had Uninvolved ($M = .21$) or Conflictual-Child ($M = .20$) relationships with secondborns. Finally, marital conflict was significantly lower for spouses when fathers had Harmonious relationships with secondborns ($M = 17.94$) than for spouses when fathers had Conflictual-Child ($M = 22.54$) and Conflictual-Parent ($M = 21.59$) relationships with secondborns.

Father-firstborn relationship quality. The average of father and firstborn reports of acceptance, centrality, conflict frequency, and conflict intensity served as the outcome variables in 4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVAs (see Table 4.13). Significant main effects for father-secondborn Cluster Membership emerged for father-firstborn acceptance, $F(3, 177) = 14.10, p < .01$, centrality, $F(3, 177) = 8.49, p < .01$, conflict frequency, $F(3, 177) = 6.30, p < .01$, and conflict intensity, $F(3, 177) = 7.71, p < .01$. For father-firstborn acceptance, conflict frequency, and intensity, follow-ups revealed that fathers who had Harmonious relationships with secondborns experienced significantly better relationship quality with firstborn offspring than all other fathers (see Table 4.13 for means). The main effect for Cluster Membership for father-firstborn centrality was qualified by a significant Cluster X Secondborn Sex interaction, $F(3, 177) = 3.58, p < .05$. In an 8-level (Cluster X Sex) follow-up ANCOVA, four groups stood out in follow-up tests. Fathers who had Conflictual-Parent relationships with secondborn sons ($M = .31$), and fathers who had Harmonious relationships with secondborn daughters ($M = .30$), spent significantly more time with firstborns than fathers in the Uninvolved group ($M = .19$ for daughters and .17 for sons).

Sibling relationship quality. The average of first- and second-born reports of sibling intimacy, centrality, and conflict were included as outcome variables in 4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVAs (see Table 4.13). The main effect for father-secondborn Cluster Membership was not significant for sibling intimacy, $F(3, 177) = 1.12$, n.s. Cluster Membership was significantly associated with sibling centrality, $F(3, 177) = 5.26, p < .01$, but this main effect

was qualified by significant Cluster X Secondborn Sex, $F(3, 177) = 5.48$, $p < .01$, and Cluster X Secondborn Sex X Firstborn Sex, $F(3, 177) = 3.15$, $p < .05$, interactions. In a 16 (Cluster X SB Sex X FB Sex) follow-up ANCOVA, two groups stood out in follow-up tests. Both (1) secondborn daughters in the Harmonious group with older sisters ($M = .42$), and (2) secondborn sons in the Conflictual-Child group with older brothers ($M = .34$), spent significantly more of their time with their older siblings than Harmonious sons with older sisters ($M = .20$), Uninvolved daughters and sons with older sisters ($M = .23$ and $.25$, respectively), and Conflictual-Child daughters with older brothers ($M = .14$). (All other means fell in between and ranged from .18 to .39.)

A main effect for Cluster Membership also emerged for sibling conflict, $F(3, 177) = 2.66$, $p < .05$, which was qualified by a significant Cluster X Firstborn Sex interaction effect, $F(3.177) = 2.95$, $p < .05$. Follow-up tests revealed that Conflictual-Child secondborns and their older brothers ($M = 30.91$) reported significantly more conflict than Harmonious secondborns and their siblings ($M = 25.89$ for secondborns with sisters and 27.16 for secondborns with brothers) and Uninvolved secondborns and their brothers ($M = 27.32$).

Mother-secondborn relationship quality. In 4 (CM) X 2 (SB Sex) ANCOVAs, significant main effects for father-secondborn Cluster Membership emerged for mother-secondborn acceptance, $F(3, 185) = 5.69$, $p < .01$, centrality, $F(3, 185) = 7.80$, $p < .01$, conflict frequency, $F(3, 185) = 33.86$, $p < .01$, and conflict intensity, $F(3, 185) = 33.69$, $p < .01$ (see Table 4.13). Follow-up tests for acceptance revealed that mother-secondborn dyads were significantly more likely to report more acceptance when secondborns had Harmonious relationships with fathers ($M = 4.26$) than when secondborns had Uninvolved ($M = 4.01$) or Conflictual-Parent ($M = 3.90$) relationships with fathers. Follow-up tests for centrality revealed that mother-secondborn dyads were significantly more likely to spend more of their time together when secondborns had Harmonious relationships with fathers ($M = .31$) than when secondborns had Uninvolved ($M = .24$) or Conflictual-Child ($M = .24$) relationships with fathers.

Follow-up tests for conflict frequency revealed that all four groups were significantly different from one another, with mother-secondborn dyads reporting the lowest conflict when secondborns had Harmonious relationships with fathers ($M = 54.86$), followed in turn by Uninvolved secondborns and their mothers ($M = 51.10$), Conflictual-Parent secondborns and their mothers ($M = 47.82$), and Conflictual-Child secondborns and their mothers ($M = 43.84$).

Finally, follow-ups for conflict intensity revealed that all groups were significantly different from one another except for the two Conflictual groups, with mother-secondborn dyads reporting the lowest conflict intensity when secondborns had Harmonious relationships with father ($M =$ 32.17), followed by Uninvolved secondborns and their mothers ($M = 29.08$), followed by Conflictual secondborns and their mothers ($M = 23.16$ for Conflictual-Child and 26.05 for Conflictual-Parent).

Summary of Correlates of Father-Offspring Relationship Profiles

Table 4.14 represents a summary of the distinguishing correlates of each of the four relationship profiles. The Harmonious group, and, to a lesser extent the Uninvolved and two Conflictual groups, stood out in terms of the distinguishing features of fathers, secondborns, and their families. Adolescents in the Harmonious group tended to be more expressive; to report less risky behavior, fewer depressive symptoms, and less traditional gender role attitudes; to have less emotional temperaments, greater perspective taking with fathers, and more positive relationships with mothers. Harmonious daughters in particular reported higher self-worth and spent more time with older sisters. Harmonious fathers tended to work fewer hours; to report less traditional gender role attitudes and fewer depressive symptoms; to be more expressive; and to have more knowledge of secondborns' daily activities, greater perspective taking, and more positive relationships with spouses and firstborn offspring. Harmonious fathers with secondborn daughters also spent more time with firstborn offspring.

Uninvolved adolescents tended to have less emotional temperaments, less conflict with older brothers, and less positive relationships with mothers. Uninvolved fathers tended to report less role overload and less traditional gender role attitudes; and to have less knowledge of secondborns' daily activities, less perspective taking, and less marital love and centrality. These fathers tended to overestimate adolescents' perspective taking relative to adolescents' self reports. Fathers and firstborns also spent less of their time outside of work and school together when fathers had Uninvolved relationships with secondborns.

Adolescents in Conflictual-Child dyads tended to report engaging in more risky behavior, more traditional gender role attitudes, and the highest level of depressive symptoms. Conflictual-Child adolescents also tended to spend less time with, and have more frequent and intense conflict with, mothers. Daughters in this group reported lower self-worth and had less perspective taking with fathers. Conflictual-Child sons who had older brothers tended to spend

more time, and fight more, with the older brother. Fathers in this group tended to report more role overload, more traditional gender role attitudes, and the highest levels of depressive symptoms. These fathers also had less knowledge of secondborns' daily activities, less perspective taking vis-à-vis adolescents. Spouses in families in which fathers had a Conflictual-Child relationship with secondborns spent more time together and fought more.

Adolescents in Conflictual-Parent dyads tended to have more emotional temperaments, and to experience the least accepting and most conflictual relationships with mothers. Sons in this group had lower self-worth. Conflictual-Parent fathers tended to know more about secondborns' daily activities and have less perspective taking. Conflictual-Parent fathers with secondborn daughters were more likely to work longer hours, and fathers in this group with secondborn sons tended to spend more time with firstborns.

Table 4.1

Breakdown of Daughters and Sons within and across Mother-Adolescent Clusters

Relationship Profiles	Daughters	Sons	Total
Harmonious	36	22	58
Expected count	28.6	29.4	58.0
Percent within cluster	62.1%	37.9%	100.0%
Percent within sex	37.5%	22.2%	29.7%
Uninvolved	27	29	56
Expected count	27.6	28.4	56.0
Percent within cluster	48.2%	51.8%	100.0%
Percent within sex	28.1%	29.3%	28.7%
Conflictual – Child	18	21	39
Expected count	19.2	19.8	39.0
Percent within cluster	46.2%	53.8%	100.0%
Percent within sex	18.8%	21.2%	20.0%
Conflictual – Parent	15	27	42
Expected count	20.7	21.3	42.0
Percent within cluster	35.7%	64.3%	100.0%
Percent within sex	15.6%	27.3%	21.5%
Total	96	99	195
Expected count	96.0	99.0	195.0
Percent within cluster	49.2%	50.8%	100.0%
Percent within sex	100.0%	100.0%	100.0%

Note. $\chi^2(3, N = 195) = 7.07, p < .10.$

Table 4.2

Breakdown of Daughters and Sons within and across Father-Adolescent Clusters

Relationship Profiles	Daughters	Sons	Total
Harmonious	29	28	57
Expected count	28.2	28.8	57.0
Percent within cluster	50.9%	49.1%	100.0%
Percent within sex	29.9%	28.3%	29.1%
Uninvolved	45	37	82
Expected count	40.6	41.4	82.0
Percent within cluster	54.9%	45.1%	100.0%
Percent within sex	46.4%	37.4%	41.8%
Conflictual – Child	13	12	25
Expected count	12.4	12.6	25.0
Percent within cluster	52.0%	48.0%	100.0%
Percent within sex	13.4%	12.1%	12.8%
Conflictual – Parent	10	22	32
Expected count	15.8	16.2	32.0
Percent within cluster	31.3%	68.8%	100.0%
Percent within sex	10.3%	22.2%	16.3%
Total	97	99	196
Expected count	97.0	99.0	196.0
Percent within cluster	49.5%	50.5%	100.0%
Percent within sex	100.0%	100.0%	100.0%

Note. $\chi^2(3, N = 196) = 5.32$, n.s.

Table 4.3

Overlap between Mother-Adolescent and Father-Adolescent Relationship Profiles

Mother-Adolescent Relationship Profiles	Father-Adolescent Relationship Profiles				Total
	Harmonious	Uninvolved	Conflictual-Child	Conflictual-Parent	
Harmonious	29	19	2	8	58
% of mother-adolescent dyads	50.0%	32.8%	3.4%	13.8%	100.0%
% of father-adolescent dyads	50.9%	23.5%	8.0%	25.0%	29.7%
Uninvolved	22	30	0	4	56
% of mother-adolescent dyads	39.3%	53.6%	0.0%	7.1%	100.0%
% of father-adolescent dyads	38.6%	37.0%	0.0%	12.5%	28.7%
Conflictual – Child	2	14	18	5	39
% of mother-adolescent dyads	5.1%	35.9%	46.2%	12.8%	100.0%
% of father-adolescent dyads	3.5%	17.3%	72.0%	15.6%	20.0%
Conflictual – Parent	4	18	5	15	42
% of mother-adolescent dyads	9.5%	42.9%	11.9%	35.7%	100.0%
% of father-adolescent dyads	7.0%	22.2%	20.0%	46.9%	21.5%
Total	57	81	25	32	195
% of mother-adolescent dyads	29.2%	41.5%	12.8%	16.4%	100.0%
% of father-adolescent dyads	100.0%	100.0%	100.0%	100.0%	100.0%

Note. $\chi^2(9, N = 195) = 85.17, p < .01.$

Table 4.4

Summary of ANOVAs Conducted for Each Category of Correlates

Categories of Potential Correlates	Analyses Conducted
Parent SES/Demographic Characteristics	
SES indicators	4 (CM) X 2 (SB Sex) X 2 (Parent) rmANOVA
Parent age	4 (CM) X 2 (SB Sex) X 2 (Parent) rmANOVA
Family size	4 (CM) X 2 (SB Sex) ANOVA
Individual Characteristics	
Gender-Related Characteristics	4 (CM) X 2 (SB Sex) X 2 (Dyad Member) rmANCOVA
Parent work demands/stressors	4 (CM) X 2 (SB Sex) ANCOVA
Depressive symptoms	4 (CM) X 2 (SB Sex) X 2 (Dyad Member) rmANCOVA
Adolescent well-being	4 (CM) X 2 (SB Sex) ANCOVA
Adolescent temperament	4 (CM) X 2 (SB Sex) ANCOVA
Other Parent-Secondborn Relationship Characteristics	
Parental knowledge	4 (CM) X 2 (SB Sex) ANCOVA
Perspective taking	4 (CM) X 2 (SB Sex) X 2 (Dyad Member) rmANCOVA
Decision-making autonomy	4 (CM) X 2 (SB Sex) X 2 (Dyad Member) rmANCOVA
Other Family Relationships Characteristics	
Marriage	4 (CM) X 2 (SB Sex) ANCOVA
Parent-Firstborn	4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVA
Sibling	4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVA
Spouse-Secondborn	4 (CM) X 2 (SB Sex) ANCOVA
Spouse-Firstborn	4 (CM) X 2 (SB Sex) X 2 (FB Sex) ANCOVA

Note. "CM" = Cluster Membership; "SB Sex" = Sex of secondborn; "FB Sex" = Sex of Firstborn.

Note. Family income is included as a covariate in all ANCOVAs and rmANCOVAs.

Note. "rmANCOVA" = repeated measure ANCOVA; either "Dyad Member" or "Parent" is the repeated factor in all rmANCOVAs.

Table 4.5

Means (and Standard Deviations) of Indicators of SES and Demographic Characteristics Separately by Mother-Secondborn Relationship Profiles

	Harmonious (N = 58)	Uninvolved (N = 56)	Conflictual-Child (N = 39)	Conflictual-Parent (N = 42)
Years of education[1]	14.09 (1.83)	14.63 (1.89)	14.44 (1.98)	14.04 (1.95)
Mother	14.33 (2.08)	14.66 (2.01)	14.56 (2.15)	13.83 (2.24)
Father	13.86 (2.20)	14.61 (2.33)	14.31 (2.58)	14.24 (2.16)
Yearly income[1]	$32,778 (21,412)	$34,917 (24,740)	$27,501 (9,738)	$28,981 (13,895)
Mother	$22,259 (17,115)	$20,525 (15,341)	$19,826 (13,593)	$20,631 (10,553)
Father	$42,904 (31,826)	$45,787 (40,784)	$35,177 (12,618)	$37,331 (25,867)
Job prestige[1]	47.80 (9.91)	49.78 (9.10)	49.36 (10.34)	46.70 (10.66)
Mother	48.43 (13.66)	49.86 (11.47)	52.84 (12.42)	48.61 (13.74)
Father	47.16 (12.60)	50.23 (13.12)	46.36 (13.09)	44.60 (13.22)
Age (in years)[1]	40.42 (3.80)	41.08 (3.38)	41.11 (3.85)	40.95 (4.15)
Mother	39.55 (4.04)	40.33 (3.52)	39.75 (4.11)	39.93 (4.16)
Father	41.28 (4.12)	41.83 (3.59)	42.46 (4.84)	41.96 (4.58)
Family size	4.47 (.65)	4.59 (.78)	4.69 (1.06)	4.59 (.73)

Note. Due to missing data on the outcome variables, Harmonious *N* = 57 for income; Uninvolved *N* = 54 for income and 55 for job prestige; Conflictual-Child *N* = 38 for income and job prestige; and Conflictual-Parent *N* = 41 for job prestige.

Note. 4 (CM) X 2 (OS) ANOVAs revealed no significant differences between groups on any SES or demographic characteristics.

[1] For each SES/demographic characteristic, dyadic average listed in first row, followed by mothers' and fathers' individual characteristics.

Table 4.6

Adjusted Means (and Standard Errors) for Individual Characteristics Separately by Mother-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (N = 58)	Uninvolved (N = 55)	Conflictual-Child (N = 38)	Conflictual-Parent (N= 42)
Gendered characteristics				
Gender role attitudes[1]	27.11 (.62)	26.15 (.62)	27.61 (.75)	27.72 (.74)
Expressivity[1]	.40 (.09) [a]	-.07 (.09) [b]	-.07 (.11) [bc]	-.38 (.11) [c]
Mother work demands/stressors				
Role overload	45.33 (1.22)	45.45 (1.22)	49.65 (1.48)	48.29 (1.46
Work pressure	25.23 (.72)	24.36 (.73)	25.59 (.90)	25.76 (.86)
Work hours	40.64 (1.85) [ac]	32.40 (1.85) [b]	35.12 (2.24) [bc]	41.03 (2.21) [c]
Well-being				
Depressive symptoms[1]	18.98 (.53) [a]	19.44 (.53) [a]	20.64 (.64) [ab]	21.52 (.64) [b]
Adolescent self-worth	3.29 (.08) [a]	3.16 (.08) [ab]	2.89 (.10) [b]	3.01 (.10) [ab]
Adol. risky behavior	22.18 (.76) [a]	22.18 (.76) [ab]	24.91 (.91) [bc]	25.40 (.90) [c]
Adolescent temperament				
Emotionality[2]				
Daughters	15.24 (.54) [a]	15.25 (.64) [a]	15.09 (.80) [a]	18.86 (.85) [b]
Sons	15.55 (.70) [a]	13.44 (.62) [a]	15.26 (.72) [a]	15.40 (.63) [a]
Sociability	14.94 (.42)	14.24 (.42)	14.95 (.50)	14.74 (.50)
Activity level	18.98(.51)	17.77 (.51)	18.21 (.62)	17.91 (.61)
Shyness	12.38 (.53)	13.21 (.53)	11.99 (.64)	12.93 (.63)

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters ($p < .05$) in Tukey's tests.

Note. Due to missing data on outcome variables, Uninvolved $N = 54$ for work pressure; Conflictual-Child $N = 37$ for adolescent expressivity and 36 for work pressure.

[1] Means reflect the mother-secondborn dyadic average.

[2] The CM X Sex interaction was significant for emotionality, so the means are broken down by daughters and sons. Superscript letters indicate significant differences across all eight Cluster X Sex groups in Tukey's.

Table 4.7

Adjusted Means (and Standard Errors) for Other Mother-Secondborn Relationship Characteristics Separately by Mother-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (*N* = 58)	Uninvolved (*N* = 55)	Conflictual-Child (*N* = 38)	Conflictual-Parent (*N* = 42)
Parental knowledge	80.34 (1.32)	79.15 (1.32)	74.91 (1.60)	76.43 (1.57)
Adolescent perspective taking[1]	14.40 (.23)[a]	14.09 (.23)[a]	13.01 (.28)[b]	11.53 (.28)[c]
Mother-Adolescent discrepancy	1.13 (.47)[a]	.38 (.47)[a]	1.07 (.57)[ab]	2.83 (.56)[b]
Mother perspective taking[1]	15.13 (.26)[a]	15.02 (.26)[ab]	14.09 (.31)[b]	12.21 (.30)[c]
Mother-Adolescent discrepancy	-.01 (.46)[ab]	.69 (.46)[a]	.47 (.55)[ab]	-1.41 (.54)[b]
Adolescent decision-making autonomy[1,2]	14.50 (.28)	15.17 (.28)	14.95 (.33)	14.88 (.33)
Daughter report	14.55 (.51)	14.97 (.41)	13.38 (.74)	16.36 (.79)
Son report	13.15 (.65)	14.47 (.58)	14.99 (.67)	14.09 (.59)
Mother-Daughter discrepancy	1.00 (.61)[ab]	.63 (.72)[ab]	2.58 (.90)[a]	-2.01 (.95)[b]
Mother-Son discrepancy	1.58 (.79)[ab]	1.18 (.69)[ab]	.48 (.80)[ab]	.62 (.71)[ab]

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters (*p* < .05) in Tukey's tests.

[1] Means reflect the mother-secondborn dyadic average.

[2] The Dyad Member X CM X Sex interaction was significant for adolescent-reported autonomy, so the means of adolescents' reports are presented and broken down by daughters and sons. Superscript letters indicate significant differences across all eight Cluster X Sex groups in Tukey's.

Table 4.8

Adjusted Means (and Standard Errors) for Characteristics of Other Family Relationships Separately by Mother-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (*N* = 58)	Uninvolved (*N* = 55)	Conflictual-Child (*N* = 38)	Conflictual-Parent (*N* = 42)
Marital				
Love	72.50 (1.00) [a]	68.52 (1.00) [b]	69.02 (1.21) [ab]	69.81 (1.19) [ab]
Satisfaction	50.76 (1.03) [a]	49.17 (1.03) [ab]	46.07 (1.25) [bc]	44.69 (1.23) [c]
Centrality	.27 (.02)	.23 (.02)	.20 (.02)	.22 (.02)
Conflict	18.78 (.71)	20.33 (.72)	20.61 (.87)	21.24 (.85)
Mother-Firstborn				
Acceptance	4.13 (.06) [a]	3.96 (.06) [a]	3.93 (.07) [a]	3.67 (.07) [b]
Centrality	.27 (.01) [a]	.19 (.01) [b]	.19 (.02) [b]	.21 (.02) [ab]
Conflict frequency	53.19 (.73) [a]	52.15 (.75) [ab]	49.50 (.89) [b]	50.63 (.91) [b]
Conflict intensity	29.55 (.66) [a]	28.47 (.68) [ab]	26.37 (.81) [b]	27.97 (.82) [ab]
Sibling				
Intimacy	24.43 (.66) [a]	23.17 (.68) [ab]	23.42 (.81) [ab]	20.59 (.82) [b]
Centrality	.32 (.02) [a]	.27 (.02) [ab]	.22 (.03) [b]	.25 (.03) [ab]
Conflict	26.55 (.54) [ab]	26.83 (.56) [b]	28.91 (.66) [c]	28.88 (.67) [bc]
Father-Secondborn				
Acceptance	4.11 (.06) [a]	3.89 (.06) [b]	3.68 (.07) [bc]	3.52 (.07) [c]
Centrality	.32 (.02) [a]	.25 (.02) [ab]	.22 (.02) [b]	.25 (.02) [ab]
Conflict frequency	54.25 (.64) [a]	54.75 (.64) [a]	47.36 (.78) [b]	48.91 (.77) [b]
Conflict intensity	31.29 (.55) [a]	31.92 (.55) [a]	24.88 (.67) [b]	27.54 (.66) [c]

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters (*p* < .05) in Tukey's tests.

Table 4.9
Summary of Distinguishing Correlates of each Mother-Secondborn Relationship Profile

Harmonious Mother-Secondborn Dyads	
Adolescent	Mother
Most expressive	Most expressive
Higher self-worth	Worked longer hours
Lower risky behavior	Better perspective taking
Better perspective taking	Higher marital love, satisfaction, centrality
Higher sibling intimacy, centrality	Higher mother-firstborn centrality
Lower sibling conflict	Lower mother-firstborn conflict frequency, intensity
Highest father-secondborn acceptance	
Higher father-secondborn centrality	
Lower father-secondborn conflict frequency, intensity	
Sons: Less autonomy	

Uninvolved Mother-Secondborn Dyads	
Adolescent	Mother
Lower risky behavior	Worked fewer hours
Better perspective taking	Lower marital love
Lower sibling conflict	
Lower father-secondborn conflict frequency, intensity	
Adolescents underestimated mothers' perspective taking	

Conflictual-Child Mother-Secondborn Dyads	
Adolescent	Mother
Lower self-worth	Worked fewer hours
Higher risky behavior	Worse perspective taking
Worse perspective taking	Lower marital satisfaction
Lower sibling centrality	Higher mother-firstborn conflict frequency, intensity
Higher sibling conflict	
Lower father-secondborn centrality	
Higher father-secondborn conflict frequency, intensity	
Mothers more likely to report more autonomy for daughters than daughters reported	

Conflictual-Parent Mother-Secondborn Dyads	
Adolescent	Mother
Least expressive	Least expressive
Most depressive symptoms	Worked longer hours
Higher risky behavior	Most depressive symptoms
Worst perspective taking	Worst perspective taking
Lower sibling intimacy	Lower marital satisfaction
Higher sibling conflict	Lowest mother-firstborn acceptance
Highest father-secondborn conflict frequency, intensity	Higher mother-firstborn conflict frequency
Daughters: most emotional temperament	
Daughters: more decision-making autonomy	
Mothers and adolescents overestimated each others' perspective taking	
Mothers more likely to report less autonomy for daughters than daughters reported	

Table 4.10

*Means (and Standard Deviations) of Indicators of SES and Demographic Characteristics
Separately by Father-Secondborn Relationship Profiles*

	Harmonious (N = 57)	Uninvolved (N = 82)	Conflictual-Child (N = 25)	Conflictual-Parent (N = 32)
Years of education[1]	14.40 (1.93)	14.40 (2.00)	14.00 (1.95)	14.06 (1.59)
Father	14.45 (2.29)	14.27 (2.39)	14.20 (2.58)	13.84 (1.89)
Mother	14.37 (2.17)	14.54 (2.15)	13.80 (2.00)	14.28 (2.04)
Yearly income[1]	$36,452 (30,038)	$30,636 (11,164)	$28,085 (15,959)	$27,281 (10,699)
Father	$47,652 (46,666)	$38,612 (17,699)	$41,912 (31,547)	$33,463 (17,146)
Mother	$21,912 (18,111)	$22,660 (12,939)	$14,258 (10,899)	$20,023 (12,767)
Job prestige[1]	49.29 (10.48)	48.40 (9.52)	49.00 (10.24)	46.13 (10.14)
Father	49.50 (13.09)	46.99 (12.30)	49.54 (14.47)	42.66 (12.77)
Mother	49.57 (12.56)	49.75 (13.55)	49.18 (11.60)	49.61 (13.76)
Age (in years)[1]	41.40 (3.85)	40.88 (3.78)	39.89 (3.96)	40.47 (3.32)
Father	42.30 (4.10)	41.82 (4.15)	41.49 (5.47)	41.10 (3.63)
Mother	40.51 (4.06)	39.95 (3.94)	38.29 (3.80)	39.84 (3.49)
Family size	4.35 (.58)	4.67 (.90)	4.80 (.93)	4.50 (.62)

Note. Due to missing data on the outcome variable, Harmonious $N = 56$ for income and job prestige; Uninvolved $N = 80$ for income and 81 for job prestige; Conflictual-Child $N = 24$ for job prestige; and Conflictual-Parent $N = 31$ for income.

Note. 4 (CM) X 2 (OS) ANOVAs revealed no significant differences between groups on any SES or demographic characteristic.

[1] For each SES/demographic characteristic, dyadic average listed in first row, followed by mothers' and fathers' individual characteristics.

Table 4.11

Adjusted Means (and Standard Errors) for Individual Characteristics Separately by Father-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (N = 57)	Uninvolved (N = 80)	Conflictual-Child (N = 25)	Conflictual-Parent (N = 32)
Gendered characteristics				
Gender role attitudes[1]	27.86 (.58) ab	27.43 (.45) a	30.86 (.80) b	27.62 (.77) ab
Expressivity[1]	.28 (.10) a	-.05 (.08) b	-.21 (.14) b	-.18 (.14) b
Father work demands/stressors				
Role overload	39.45 (1.34) a	43.64 (1.12) a	50.40 (2.00) b	43.38 (1.91) ab
Work pressure	25.34 (.60)	25.14 (.51)	27.28 (.89)	25.67 (.85)
Work hours[2]				
Daughters	45.27 (2.37)	51.57 (1.95)	58.09 (3.56)	58.66 (4.04)
Sons	51.49 (2.45)	47.93 (2.10)	51.29 (3.69)	51.71 (2.73)
Well-being				
Depressive symptoms[1]	18.01 (.44) a	20.15 (.37) b	22.18 (.65) c	20.52 (.62) bc
Adolescent self-worth[2]				
Daughters	3.38 (.11) a	3.11 (.09) ab	2.66 (.17) b	3.40 (.19) ab
Sons	3.22 (.12) ab	3.23 (.10) ab	2.91 (.18) b	2.83 (.13) ab
Adol. risky behavior	21.13 (.36) a	23.65 (.61) b	26.65 (1.09) b	23.50 (1.04) b
Adolescent temperament				
Emotionality	14.34 (.45) a	15.13 (.37) a	15.87 (.67) ab	17.33 (.64) b
Sociability	14.48 (.41)	14.33 (.34)	15.76 (.61)	14.95 (.58)
Activity level	18.40 (.50)	18.08 (.42)	18.39 (.75)	18.01 (.72)
Shyness	13.41 (.51)	12.51 (.43)	12.09 (.76)	12.49 (.73)

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters ($p < .05$) in Tukey's tests.

Note. Due to missing data on the outcome variables, Harmonious $N = 56$ for work pressure; $N = 79$ for fathers' gender role attitudes, 79 for adolescents' expressivity, and 78 for work pressure.

[1] Means reflect the father-secondborn dyadic average.

[2] The CM X Sex interaction was significant for work hours and self-worth, so the means are broken down by daughters and sons. Superscript letters indicate significant differences across all eight Cluster X Sex groups in Tukey's.

Table 4.12

Adjusted Means (and Standard Errors) for Other Father-Secondborn Relationship Characteristics Separately by Father-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (N = 57)	Uninvolved (N = 80)	Conflictual-Child (N = 25)	Conflictual-Parent (N = 32)
Parental knowledge	76.53 (1.58)[a]	67.11 (1.33)[b]	70.04 (2.37)[ab]	72.17 (2.26)[a]
Adolescent perspective taking[1,2]				
Daughters	14.68 (.33)[a]	13.38 (.27)[cd]	10.68 (.49)[e]	12.66 (.56)[bde]
Sons	14.37 (.34)[abc]	12.91 (.29)[d]	12.45 (.51)[de]	12.47 (.38)[de]
Father-Adolescent discrepancy	-.01 (.46)[a]	2.00 (.39)[b]	.27 (.69)[ab]	1.94 (.66)[ab]
Father perspective taking[1,2]	15.28 (.23)[a]	13.86 (.19)[b]	12.54 (.34)[c]	12.95 (.32)[c]
Adolescent decision-making autonomy[1,2]	14.26 (.26)	14.27 (.22)	13.75 (.39)	13.67 (.38)

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters ($p < .05$) in Tukey's tests.

[1] The CM X Sex interaction was significant for the dyadic average of adolescents' perspective taking vis-à-vis fathers, so the means are broken down by daughters and sons. Superscript letters indicate significant differences across all eight Cluster X Sex groups in Tukey's.

[2] Means reflect the father-secondborn dyadic average.

Table 4.13
Adjusted Means (and Standard Errors) for Characteristics of Other Family Relationships Separately by Father-Secondborn Cluster Membership, Controlling for Family Income

	Harmonious (N = 57)	Uninvolved (N = 80)	Conflictual-Child (N = 25)	Conflictual-Parent (N = 32)
Marital				
Love	72.58 (.99) [a]	68.67 (.83) [b]	69.52 (1.48) [ab]	69.37 (1.41) [ab]
Satisfaction	51.74 (1.00) [a]	47.32 (.84) [b]	43.06 (1.49) [b]	46.32 (1.42) [b]
Centrality	.28 (.01) [a]	.21 (.01) [b]	.20 (.02) [b]	.23 (.02) [ab]
Conflict	17.94 (.68) [a]	20.26 (.57) [ab]	22.54 (1.03) [b]	21.59 (.98) [b]
Father-Firstborn				
Acceptance	4.00 (.07) [a]	3.43 (.06) [b]	3.34 (.11) [b]	3.59 (.10) [b]
Centrality[1]				
SB daughters	.30 (.02) [a]	.19 (.02) [b]	.22 (.03) [ab]	.20 (.03) [ab]
SB sons	.25 (.02) [ab]	.17 (.02) [b]	.22 (.03) [ab]	.31 (.02) [a]
Conflict frequency	54.96 (.72) [a]	52.32 (.61) [b]	49.80 (1.12) [b]	51.19 (1.03) [b]
Conflict intensity	32.04 (.69) [a]	28.72 (.58) [b]	27.18 (1.07) [b]	27.71 (.98) [b]
Sibling				
Intimacy	24.07 (.66)	22.68 (.84)	22.38 (1.03)	22.74 (.94)
Centrality[1]				
SB daughters				
With FB sisters	.42 (.04) [a]	.23 (.03) [bc]	.38 (.07) [abc]	.21 (.06) [abc]
With FB brothers	.35 (.04) [abc]	.21 (.03) [bc]	.14 (.05) [c]	.18 (.06) [abc]
SB sons				
With FB sisters	.20 (.04) [bc]	.25 (.04) [abc]	.17 (.07) [abc]	.30 (.04) [abc]
With FB brothers	.39 (.04) [b]	.27 (.03) [abc]	.34 (.05) [abc]	.42 (.05) [a]
Conflict[1]				
With FB sisters	25.89 (.80) [a]	27.40 (.69) [ab]	27.75 (1.36) [ab]	29.42 (1.07) [ab]
With FB brothers	27.16 (.74) [a]	27.32 (.61) [a]	30.91 (1.02) [b]	26.23 (1.13) [ab]
Mother-Secondborn				
Acceptance	4.26 (.06) [a]	4.01 (.05) [b]	3.98 (.09) [ab]	3.90 (.08) [c]
Centrality	.31 (.01) [a]	.24 (.01) [b]	.24 (.02) [c]	.30 (.02) [ac]
Conflict frequency	54.86 (.64) [a]	51.10 (.54) [b]	43.84 (.96) [c]	47.82 (.92) [d]
Conflict intensity	32.17 (.54) [a]	29.08 (.45) [a]	23.16 (.80) [b]	26.05 (.77) [c]

Note. For each characteristic (i.e., reading across rows), superscript letters indicate significant differences between clusters ($p < .05$) in Tukey's tests.
[1] For significant CM X Sex (FB and/or SB) interactions, the relevant means are broken down by daughters and sons. Superscript letters indicate significant differences across all Cluster X Sex groups in Tukey's.

Table 4.14
Summary of Distinguishing Correlates of each Father-Secondborn Relationship Profile

Harmonious Father-Secondborn Dyads	
Adolescent	**Father**
Less traditional gender role attitudes	Less traditional gender role attitudes
Most expressive	Most expressive
Least depressive symptoms	Less role overload
Lowest risky behavior	Least depressive symptoms
Less emotional temperament	Higher parental knowledge
Highest perspective taking	Highest perspective taking
Lower sibling conflict	Higher marital love, centrality
Higher mother-secondborn acceptance, centrality	Highest marital satisfaction
Lowest mother-secondborn conflict frequency, intensity	Lower marital conflict
Daughters: higher self-worth	Highest father-firstborn acceptance
Daughters with older sisters: higher sibling centrality	With daughters: worked fewer hours
	With secondborn daughters: Higher father-firstborn centrality

Higher mother-firstborn acceptance and centrality

Uninvolved Father-Secondborn Dyads	
Less traditional gender role attitudes	Less traditional gender role attitudes
Less emotional temperament	Less role overload
Lower mother-secondborn acceptance, centrality, conflict frequency, intensity	Lower parental knowledge
With older brothers: lower sibling conflict	Higher perspective taking
	Lower marital love, centrality
	Lower father-firstborn centrality

Fathers overestimated adolescents' perspective taking

Conflictual-Child Father-Secondborn Dyads	
Adolescent	**Father**
More traditional gender role attitudes	More traditional gender role attitudes
Most depressive symptoms	More role overload
Higher mother-secondborn conflict frequency, intensity	More depressive symptoms
Lower mother-secondborn centrality	Lower perspective taking
Daughters: lower self-worth	Lower marital centrality
Daughters: lower perspective taking	Higher marital conflict
Secondborn sons with older brothers: higher sibling centrality and conflict	Higher father-firstborn conflict
	With daughters: worked more hours

Conflictual-Parent Father-Secondborn Dyads	
Adolescent	**Father**
More emotional temperament	Higher parental knowledge
Lower mother-secondborn acceptance	Lower perspective taking
Highest mother-secondborn conflict frequency	Higher marital conflict
Higher mother-secondborn conflict intensity	With daughters: worked more hours
Sons: lower self-worth	With secondborn sons: higher father-firstborn centrality

CHAPTER 5. RESULTS – CHANGE IN RELATIONSHIP QUALITY

The final goal of this study was to examine change over time in parent-adolescent relationship quality to see if relational change associated with adolescent development varied as a function of initial relationship profiles. In the sections that follow, I first discuss how I assessed relationship change, and the associations between relationship change and indicators of adolescents' developmental status at Time 1. I then describe results of a series of analyses combining cluster membership and developmental status to explicitly test whether initial relationship quality moderated the associations between relationship change and development.

Measuring Relationship Change

I was interested in changes in the same eight relationship quality variables used to classify mother-offspring and father-offspring dyads—parent and adolescent reports of acceptance, centrality, conflict frequency, and conflict intensity—on which I had access to data not only at Time 1, but also at Time 2, two years later. At Time 2, four families had dropped out of the study, and spouses in one family had separated and so that family was excluded from analyses for this study. In addition, several family members were missing data on the relationship quality variables, so analyses involving relationship change had Ns ranging from 186 to 188 for mother-adolescent dyads, and 187 to 189 for father-adolescent dyads. The eight relationship variables for mother- and father-adolescent dyads exhibited considerable rank-order stability over time, as evidenced by high correlations between Time 1 and Time 2 variables (see Table 5.1).

I initially considered linear change scores (Time 2 minus Time 1) as a measure of pure change for each variable. Table 5.2 lists the means, standard deviations, and ranges for mother- and father-offspring linear difference scores. In one-sample t-tests, all mean scores were significantly different from zero at the $p < .05$ level, indicating that mothers', fathers', and adolescents' reports of each relationship quality decreased from Time 1 to Time 2: less acceptance, less centrality, and less frequent and intense conflict. (Remember that the conflict variables were re-scaled so that higher scores meant less conflict, so that a positive difference score indicated decreased conflict.) An examination of relationship quality between other family members (e.g., sibling and marital relationships) indicated that reports of relationship quality between all family members generally decreased from Time 1 to Time 2. Specifically, Time 2

minus Time 1 difference scores for mothers' reports of marital love and conflict, fathers' reports of marital love and conflict, and first- and second-born offspring's reports of sibling intimacy, conflict, and centrality were all negative and significantly different from zero in one-sample t-tests. This indicates that the overall decline in parent-secondborn relationship quality is probably a function of a measurement issue (e.g., parents and adolescents may have habituated to the measures with repeated exposure), rather than a function of a substantive change, which posed a problem in trying to interpret the meaning of linear change in relationship quality.

A second problem with using linear difference scores as a measure of change (when one is interested in how initial level is associated with change) is that linear difference scores tend to be highly negatively correlated with initial level. In this case, Pearson's r correlation coefficients for Time 1 scores and the associated difference scores ranged from -.31 to -.68 for all mother- and father-adolescent relationship quality variables; eleven of the 16 correlations were greater than .50. As such, using linear change scores as an outcome variable, and relationship profiles based on Time 1 levels as a predictor variable, would have led to results which could best be interpreted as regression to the mean.

Indeed, regression to the mean was evident in exploratory 4 (Cluster Membership) X 2 (Offspring Sex) ANOVAs with relationship quality difference scores as the outcome variables. For mother-adolescent dyads, main effects for Cluster Membership emerged for seven of the eight variables (all but adolescent reports of acceptance). Regression to the mean best described significant differences between clusters that emerged in Tukey's follow-up tests for changes in centrality, and conflict frequency and intensity. Centrality declined significantly more for Harmonious mothers (*M* diff = -.12) and adolescents (*M* diff = -.14) than other dyads (*M* diff ranged from -.05 to -.02). Reports of conflict frequency and intensity decreased significantly more for Conflictual-Parent mothers than for other mothers (*M* diff for CP mothers = 5.71 for frequency, and 3.30 for intensity; *M* diff for other mothers ranged from .73 to 1.86 for frequency, and -.44 to 1.38 for intensity). Likewise, reports of conflict frequency and intensity decreased significantly more for Conflictual-Child adolescents (*M* diff = 6.32 for frequency, and 5.43 for intensity) than other adolescents (*M* diff ranged from -1.09 to 1.00 for frequency, and -.74 to 1.46 for intensity). Harmonious dyads were highest on centrality, and Conflictual-Parent mothers and Conflictual-Child adolescents reported the most conflict to begin with, so the fact that these

groups show decreases on these constructs can be most readily interpreted as regression to the mean.

For father-adolescent dyads, 4 (CM) X 2 (OS) ANOVAs with the difference score yielded similar results: regression to the mean for conflict frequency and intensity emerged for Conflictual-Parent fathers and Conflictual-Child adolescents. In other words, it was not clear how cluster membership could be used in analyses predicting linear changes in relationship quality without running into problems of interpretation—how to disentangle substantively interesting change from either the overall decline in reports of relationship quality or regression to the mean?

Thus, I chose to focus on relative, rather than pure, change by using residualized gain scores, which I created by regressing Time 2 scores on Time 1 scores for each of the eight relationship variables for both mother- and father-adolescent dyads. These residualized change scores were the differences between actual and predicted Time 2 responses, which means that they represented <u>relative</u>, or rank order, change (Burr & Nesselroade, 1990). In other words, a dyad who changed more than predicted on a given relationship quality would have a positive change score, and a dyad who changed less than predicted would have a negative change score. Table 5.3 lists the means, standard deviations, and ranges for the residualized change scores; as is normal, none of the mean change scores were significantly different from zero in one-sample t-tests. In addition, none of the residualized change scores were related to Cluster Membership in 4 (CM) X 2 (OS) ANOVAs with residualized change scores as the outcome variables.

Relationship Change as a Function of Adolescents' Developmental Status

Having established that I would use residualized change scores as measures of relationship change, I then examined how relationship change differed as a function of adolescent pubertal status and age at Time 1, two indicators of developmental status that are commonly used in studies of parent-adolescent relationships. I chose these two indicators of developmental status to be consistent with past studies, in order to be better able to interpret differences between past findings and the results of this study. At Time 1, pubertal status had a mean of 2.25 ($SD = .62$) and ranged from 1.00 to 3.60; age had a mean of 12.50 years ($SD = 1.02$) and ranged from 10.00 to 14.83. For the analyses presented here, both variables were centered around their means to ease interpretation. In exploratory 4 (Cluster Membership) X 2 (Offspring Sex) ANOVAs with Time 1 pubertal status and age as outcome variables, cluster

membership was not related to Time 1 developmental status: for mother-offspring dyads, $F(3, 185) = 1.44$, n.s. for pubertal status, and $F(3, 187) = 1.96$, n.s. for age; and for father-offspring dyads, $F(3, 186) = .80$, n.s. for pubertal status, and $F(3, 188) = .45$, n.s. for age.

I could not include both pubertal status and age in the same analyses, because they were correlated at $r = .51$, $p < .01$. To test the association between relationship change and developmental status, then, I conducted two series of regressions, each with mother-adolescent and father-adolescent residualized gain scores on the eight relationship quality variables as the outcome variables. In the first series, I included Offspring Sex, Pubertal Status, and the interaction between the two, as predictor variables. In the second series, I included Offspring Sex, Age, and their interaction, as predictor variables. Contrary to evidence from numerous cross-sectional studies, neither pubertal status nor age predicted change in relationship quality for any of the relationship quality variables for either mother- or father-adolescent dyads. The lack of evidence for a link between development and relationship change suggested that I might have a difficult time finding evidence for cluster membership as a moderating force on the association between development and relationship change, but it did not rule out the possibility that associations would emerge for particular relationship profiles but not others. I proceeded to a more complex set of analyses in order to explicitly test whether age or pubertal status did predict change in relationship quality for particular relationship profiles.

Relationship Change as a Function of Adolescents' Developmental Status, Moderated by Cluster Membership

Specifically, I conducted a series of analyses to examine whether cluster membership moderated the association between developmental status and relationship change. Initially, one predictor variable was categorical (Cluster Membership), one was dummy-coded (Adolescent Sex) and two were continuous (Age and Pubertal Status), leading to a choice between an ANOVA and a regression strategy. I chose not to use ANOVA, which would have necessitated transforming the continuous variables into categorical ones, because transformations from continuous to categorical variables lead to a loss of power to detect significant differences (Aiken & West, 1991; Cohen, 1983). Instead I chose to use a regression strategy.

As Aiken and West (1991) outline, using regression to test for significant differences across groups in the association between continuous predictor and outcome variables involves adding dummy-coded variables representing the groups (in this case, cluster membership). In

order to add a test of the differences between relationship profiles, Cluster Membership must be re-coded as a series of dummy-coded variables. Generally, a categorical variable is transformed into $n-1$ dummy codes, with n equal to the number of groups (Aiken & West, 1991); in this case, I created three dummy codes from the four groups. With dummy-coded variables, one group always serves as the comparison group; I chose the Conflictual-Child cluster as the initial comparison group, although I also used other clusters as comparison groups when needed (as described later). (I chose the Conflictual-Child cluster because all of the between-cluster differences that emerged involved Conflictual-Child dyads, so it is easiest for the reader to grasp these differences if I include the results of regressions with Conflictual-Child dyads as the comparison group in tables.) Table 5.4 lists the values assigned to each dummy-coded variable (D_1, D_2, and D_3) for each cluster, depending on which cluster served as the comparison group. These dummy-coded variables together contained all the information of the original Cluster Membership variable: each of the four clusters had a unique pattern on D_1, D_2, and D_3 that distinguished it from every other cluster.

With the addition of the dummy-coded cluster variables, the full regression models contained not only the main effects for and interactions between Offspring Sex and developmental status (Pubertal Status or Age), but also (1) main effects for the three dummy-coded cluster variables, and (2) interaction terms created by combining each of the three dummy-coded variables with each of the main effects for and interaction terms between Sex and developmental status . Table 5.5 lists the main effects and interaction terms included in two series of regressions predicting residualized change in relationship quality, one series with Pubertal Status as the developmental status variable, and one series with Age as the developmental status variable.

In regressions with Conflictual-Child dyads as the comparison group, each regression weight associated with a given interaction term involving one of the dummy-coded cluster variables offers a comparison between that cluster and the Conflictual-Child cluster. For example, if B_{10} was significant (D_{M2} X Pubertal Status) in a regression predicting change in mothers' centrality, this would indicate that Conflictual-Child dyads (the comparison group) and Harmonious dyads (the group with a value of 1 on D_{M2}) exhibited a significantly different association between pubertal status and residualized change in mothers' centrality.

As a first step in following up significant regression models, I also examined the other combinations of comparisons between groups for that particular model. Choosing the Conflictual-Child group as my initial comparison group was arbitrary, insofar as it was possible for there to be significant differences between other groups as well (e.g., between the Harmonious and Conflictual-Parent groups) in how developmental status was related to relationship change. As such, for each regression model where the overall F statistic was significant, I re-ran the regression three more times, once with each cluster as the comparison group in turn, for a total of four regressions for each significant model. Changing the comparison group for a given model did not change the amount of variance explained by the overall model (or the significance test associated with it). Instead, changing the comparison group allowed me to probe for differences among the other three clusters.

In presenting the results of regressions separately for mother-adolescent and father-adolescent dyads, I first report on the overall significance of the eight regression models. For significant models, I detail the significant effects involving dummy-coded cluster variables that emerged not only in the initial regression (with Conflictual-Child dyads as the comparison group), but also in the subsequent three regressions (with each of the other three clusters serving as the comparison group in turn). I then describe the process of graphing relevant regression lines for particular clusters to demonstrate significant between-cluster differences. Finally, I interpret the between-cluster differences by testing the significance of the slopes of the graphed regression lines, which, as I describe in more detail at the relevant points, is accomplished by looking at the relevant main effect (i.e., Pubertal Status or Age) across the four regressions, which provides information about the association between that variable and change in relationship quality for the comparison group (Aiken & West, 1991).

Mother-Adolescent Dyads

Pubertal status. In regressions predicting residualized change in relationship quality as a function of pubertal status and cluster membership, all but one model was nonsignificant: for mother reports of acceptance, $F(15, 187) = 1.37$, n.s.; adolescent reports of acceptance, $F(15, 187) = 1.43$, n.s.; adolescent centrality, $F(15, 185) = .42$, n.s.; mother reports of conflict frequency, $F(15, 187) = .76$, n.s.; adolescent reports of conflict frequency, $F(15, 187) = .92$, n.s.; mother reports of conflict intensity, $F(15, 187) = .64$, n.s.; and adolescent reports of conflict intensity $F(15, 187) = .40$, n.s.

The model predicting <u>mother centrality</u> was significant, $F(15, 185) = 1.80$, $p < .05$. Table 5.6 lists the regression weights, standard errors, and Betas for the model predicting change in the proportion of mothers' time spent with adolescents, using Conflictual-Child dyads as the comparison group. In this model, the D_{M1} X Pubertal Status interaction was significant, $b = .10$, $t = 2.05$, $p < .05$. In the three subsequent regressions, each one with a different cluster as the comparison group, no other significant between-cluster differences emerged. In the initial regression, the Uninvolved group had a value of 1 on D_{M1}, so the significant interaction indicated that the association between pubertal status and change in mother centrality differed for Uninvolved and Conflictual-Child dyads.

In order to interpret this difference between the two groups, I first plotted two regression lines representing the association between pubertal status and change in centrality for the Uninvolved and Conflictual-Child clusters. I distilled two regression equations (one for each cluster) from the initial regression equation with Conflictual-Child dyads as the comparison group. (The plotted lines would be identical no matter which of the four regressions I used; I chose the initial regression, and do so for following up all significant effects, in order to be consistent.) In the equation used to plot Uninvolved dyads, all regression weights associated with either Sex, D_{M2}, or D_{M3} (the two dummy-coded cluster variables for which Uninvolved dyads had a value of zero) dropped out. Likewise, for Conflictual-Child dyads, all regression weights associated with Sex, and all three dummy-coded cluster variables, dropped out, resulting in these two equations (refer to Table 5.5 for the list of regression weights):

For Conflictual-Child dyads:

Predicted Change in Mother Centrality: $B_0 + B_2$ * Pubertal Status

For Uninvolved dyads:

Predicted Change in Mother Centrality: $B_0 + B_4 + (B_2 + B_6)$ * Pubertal Status

I substituted two values for pubertal status in each equation to yield the endpoints of each line: the values one standard deviation above and below the centered mean ($0 \pm .62$).

Figure 5.1 shows the graph of the association between pubertal status and change in mother centrality for Uninvolved and Conflictual-Child dyads. In order to interpret this graph, it would be helpful to know which of the slopes is significant. The test of B_2, or the main effect for Pubertal Status, offered a test of the association between pubertal status and residualized change for the comparison group. The main effect for Pubertal Status was not significant in a regression

with Uninvolved dyads as the comparison group, $b = .03$, $t = 1.03$, n.s., but it was significant at the level of a trend when Conflictual-Child dyads were the comparison group, $b = -.07$, $t = -1.80$, $p < .10$.

These findings appeared to suggest that Conflictual-Child mothers whose offspring were less developed at Time 1 tended to increase their time spent with offspring from Time 1 to Time 2. I conducted one additional post-hoc analysis in order to confirm this interpretation. Remember that residualized change scores represent relative change. Because centrality tended to decrease for the whole sample (M difference score = -.05), a positive residualized change score in this case could indicate that centrality for a particular group of dyads (in this case, Conflictual-Child mothers with less developed offspring) increased, did not change, or decreased less relative to other dyads. In order to get a sense of the appropriate interpretation for the relative increase in mother centrality for Conflictual-Child mothers with less developed offspring, I tested the association between pubertal status and linear change in mother centrality for Conflictual-Child dyads. Specifically, I conducted a regression for Conflictual-Child mother-adolescent dyads only ($N = 37$), with Offspring Sex, Pubertal Status, and the interaction between the two as predictor variables, and the linear change score for mother centrality as the outcome variable, in order to calculate the predicted linear change in mother centrality for less developed adolescents. The predicted linear change in mother centrality at one standard deviation below the mean of pubertal status (-.62) equaled .04, suggesting that centrality did tend to increase for Conflictual-Child mothers with less developed adolescents.

Age. In regressions predicting residualized change in relationship quality as a function of age across clusters, as with pubertal status, seven of the models were nonsignificant: mother reports of acceptance, $F(15, 187) = 1.08$, n.s.; adolescent reports of acceptance, $F(15, 187) = .98$, n.s.; adolescent centrality, $F(15, 185) = .64$, n.s.; mother reports of conflict frequency, $F(15, 187) = 1.28$, n.s.; adolescent reports of conflict frequency, $F(15, 187) = 1.28$, n.s.; mother reports of conflict intensity, $F(15, 187) = .46$, n.s.; and adolescent reports of conflict intensity $F(15, 187) = .60$, n.s.

The model predicting mother centrality was significant, $F(15, 185) = 3.92$, $p < .01$. Table 5.7 lists the regression weights, standard errors, and Betas for this model with Conflictual-Child dyads as the comparison group. Differences between Conflictual-Child dyads and all three of the other clusters emerged. First, the D_{M1} X Age interaction was significant, $b = .16$, $t = 4.78$, $p < $

.01; and was qualified by a significant D_{M1} X Sex X Age interaction, $b = -.12$, $t = -2.36$, $p < .05$.

Second, the D_{M2} X Age interaction was significant, $b = .11$, $t = 3.26$, $p < .01$; and was qualified by a significant D_{M2} X Sex X Age interaction, $b = -.14$, $t = -2.70$, $p < .01$. Third, the D_{M3} X Age interaction was significant, $b = .17$, $t = 3.92$, $p < .01$; and was qualified by a significant D_{M3} X Sex X Age interaction, $b = -.14$, $t = -2.55$, $p < .01$. In other words, the association between age and change in mother centrality for daughters and sons differed significantly between Conflictual-Child dyads and all other dyads. In subsequent regressions with each remaining cluster as the comparison group, no other between-cluster differences emerged.

In order to interpret these findings, I first plotted eight regression lines—daughters in each of the four clusters (Figure 5.2), and sons in each of the four clusters (Figure 5.3)—using regression weights from the initial regression with Conflictual-Child dyads as the comparison group. Because Sex was dummy-coded 0 for daughters and 1 for sons, I used two distilled regression equations for each cluster: one for daughters (where every regression weight associated with Sex dropped out), and one for sons (where every regression weight associated with sex was multiplied by 1). For example, the equations for Harmonious dyads looked like this:

Predicted Change in Mother Centrality $= B_0 + B_8 + (B_2 + B_{10}) * \text{Age}$, for daughters

Predicted Change $= B_0 + B_1 + B_8 + B_9 + (B_2 + B_3 + B_{10} + B_{11}) * \text{Age}$, for sons

For each equation, I substituted two values of age to yield the endpoints of the line: one standard deviation above and below the centered mean (0 ± 1.02).

In order to interpret the eight resulting regression lines, I conducted a series of regressions to determine which lines had significant slopes. Because daughters had a value of zero on the dummy-coded Sex variable in the original four regressions, the main effect for Age in each regression represented a test of the association between age and change in mother centrality for daughters in the comparison cluster. The main effect for Age was only significant in the regression with Conflictual-Child dyads as the comparison group, $b = .08$, $t = 2.02$, $p < .05$. In order to test the slopes for sons, I first re-coded Sex so that sons had a value of zero, and daughters a value of one. I then re-ran the four regressions with the new Sex variable. With sons as the comparison group, the main effect for Age was only significant when Harmonious dyads were the comparison cluster, $b = -.07$, $t = -3.01$, $p < .01$, although the slope for Harmonious dyads with sons was not significantly different from the other, non-significant slopes, as

indicated by a lack of significant interaction effects between Age and the dummy-coded cluster variables in regressions with sons as the comparison group.

From the regression lines in Figure 5.2, it appeared that <u>mothers in the Conflictual-Child group tended to increase the amount of their time spent with younger secondborn daughters, while mothers in the Conflictual-Child group tended to decrease the amount of their time spent with older secondborn daughters</u>. Again, because linear difference scores for the whole sample indicated that centrality tended to decline, I conducted one additional post-hoc analysis in order to figure out if centrality for Conflictual-Child mothers with younger daughters actually increased, did not change, or decreased less than other dyads. In a regression for Conflictual-Child mother-daughter dyads ($N = 18$) predicting linear change in mother centrality with Sex, Age, and the Sex X Age interaction, the predicted value of linear change for younger daughters was .08, suggesting that centrality did tend to increase for Conflictual-Child mothers with younger daughters. The predicted value of linear change from older daughters was -.17, suggesting that centrality did tend to decrease for Conflictual-Child mothers with older daughters.

Father-Adolescent Dyads

Pubertal status. In regressions predicting residualized change in relationship quality as a function of pubertal status across clusters, seven models were nonsignificant: <u>father reports of acceptance</u>, $F(15, 187) = 1.08$, n.s.; <u>adolescent reports of acceptance</u>, $F(15, 188) = .98$, n.s.; <u>father centrality</u>, $F(15, 186) = $, n.s.; <u>adolescent centrality</u>, $F(15, 186) = .64$, n.s.; <u>father reports of conflict frequency</u>, $F(15, 187) = 1.28$, n.s.; <u>father reports of conflict intensity</u>, $F(15, 187) = .46$, n.s.; and <u>adolescent reports of conflict intensity</u> $F(15, 188) = .60$, n.s.

The model predicting <u>adolescents' reports of conflict frequency</u> was significant, $F(15, 188) = 2.27, p < .01$. Table 5.8 lists the regression weights, standard errors, and Betas for the model with Conflictual-Child dyads as the comparison group. Significant interactions with dummy-coded cluster variables in the initial regression indicated between-cluster differences for Conflictual-Child dyads on the one hand, and Uninvolved and Harmonious dyads on the other. First, the D_{F1} X Pubertal Status interaction was significant, $b = -8.74, t = -3.68, p < .01$; and was qualified by a significant D_{F1} X Sex X Pubertal Status interaction, $b = 16.62, t = 2.65, p < .01$. Second, the D_{F2} X Pubertal Status interaction was significant, $b = -10.39, t = -4.24, p < .01$; and was qualified by a significant D_{F2} X Sex X Pubertal Status interaction, $b = 16.83, t = 2.60, p < $

.01. In three subsequent regressions with each remaining cluster as the comparison group, two additional between-cluster differences emerged. In the regression with Conflictual-Parent dyads as the comparison group, the D_{F1} X Sex X Pubertal Status interaction was significant, $b = 7.68$, $t = 3.82$, $p < .05$. In that same regression, the D_{F3} X Pubertal Status interaction was significant, $b = -5.99$, $t = -2.13$, $p < .03$; and was qualified by a significant D_{F3} X Sex X Pubertal Status interaction, $b = 7.89$, $t = 1.90$, $p < .05$, indicating that that the association between Pubertal Status and change in adolescent-reported conflict frequency also differed between Harmonious and Uninvolved dyads, and Conflictual-Parent dyads.

In other words, the association between Pubertal Status and change in adolescent-reported conflict frequency for daughters and sons differed significantly between Conflictual-Child and Conflictual-Parent dyads on the one hand, and Harmonious and Uninvolved dyads on the other. I first plotted eight regression lines—daughters in each of the four clusters (Figure 5.4), and sons in each of the four clusters (Figure 5.5)—using regression weights from the initial regression with Conflictual-Child dyads as the comparison group. I distilled the equations for daughters and sons in each cluster in a manner similar to that described above for plotting Sex X Age interactions for mother centrality. For each equation, I substituted two values of pubertal status to yield the endpoints of the line: one standard deviation above and below the centered mean ($0 \pm .62$).

In order to interpret the eight resulting regression lines, I conducted a series of regressions to determine which lines had significant slopes. Because daughters had a value of zero on the dummy-coded Sex variable in the original four regressions with each cluster as the comparison group in turn, the main effect for Pubertal Status in each regression represented a test of the association between pubertal status and change in adolescent-reported conflict frequency for daughters in the comparison cluster. The main effect for Pubertal Status was significant when Conflictual-Child dyads were the comparison group, $b = 9.02$, $t = 4.44$, $p < .01$, and reached significance at the level of a trend for Conflictual-Parent dyads, $b = 4.62$, $t = 1.88$, $p < .10$. In order to test the slopes for sons, I first re-coded Sex so that sons had a value of zero, and daughters a value of one. I then re-ran the four regressions with the new Sex variable. With sons as the comparison group, the main effect for Pubertal Status was not significant in any of the four regressions.

In sum, it appeared as though conflict frequency tended to decrease for more developed daughters in the Conflictual-Child group (and, to a lesser extent, in the Conflictual-Parent group), while reports of conflict frequency tended to increase for less developed daughters in the Conflictual-Child group (and, to a lesser extent, in the Conflictual-Parent group). (Remember that conflict frequency was reverse-scored, so a positive change scores indicated a decrease in conflict.) In a post-hoc regression predicting <u>linear</u> change in adolescent-reported conflict frequency as a function of pubertal status for Conflictual-Child father-daughter dyads ($N = 13$), the predicted value of linear change for less developed adolescents (i.e., at one standard deviation below the mean of pubertal status) equaled 2.60, while the predicted value of linear change for more developed adolescents equaled 15.56. In other words, <u>reports of conflict frequency tended to decrease more for more developed Conflictual-Child daughters relative to other dyads, while reports of conflict frequency tended to decrease just as much for less developed Conflictual-Child daughters as for other dyads</u>.

Age. In analyses predicting residualized change in relationship quality as a function of age and cluster membership, seven models were nonsignificant: <u>father reports of acceptance</u>, $F(15, 187) = 1.08$, n.s.; <u>adolescent reports of acceptance</u>, $F(15, 188) = .98$, n.s.; <u>father centrality</u>, $F(15, 18) = $, n.s.; <u>adolescent centrality</u>, $F(15, 186) = .64$, n.s.; <u>adolescent reports of conflict frequency</u>, $F(15, 188) = 1.28$, n.s.; <u>father reports of conflict intensity</u>, $F(15, 187) = .46$, n.s.; and <u>adolescent reports of conflict intensity</u> $F(15, 188) = .60$, n.s.

The model predicting <u>fathers' reports of conflict frequency</u> was significant, $F(15, 187) = 2.27$, $p < .01$. Table 5.9 lists the regression weights, standard errors, and Betas for the model with Conflictual-Child dyads as the comparison group. The pattern of results in the initial regression, as well as the three subsequent regressions with each cluster as the comparison group in turn, pointed to differences between Conflictual-Child dyads and other dyads. First, the D_{F1} main effect was significant, $b = 3.72$, $t = 2.51$, $p < .05$, as was the D_{F1} X Sex interaction, $b = -5.75$, $t = -2.59$, $p < .01$, indicating a difference between sons and daughters in the Uninvolved and Conflictual-Child clusters in how father-reported conflict frequency changed. Second, the D_{F2} main effect was significant, $b = 3.82$, $t = 2.46$, $p < .05$, indicating a difference between Harmonious and Conflictual-Child dyads in how father-reported conflict frequency changed. Finally, the D_{F3} X Sex interaction was significant, $b = -5.96$, $t = -2.25$, $p < .05$, as was the D_{F3} X Sex X Age interaction, $b = 6.74$, $t = 2.26$, $p < .05$, indicating difference in the association

between age and change in conflict frequency for sons and daughters in the two Conflictual groups. In sum, Conflictual-Child dyads differed (1) from Harmonious dyads in how conflict frequency changed, (2) from Uninvolved dyads in how conflict frequency changed for sons and daughters, and (3) from Conflictual-Parent dyads in the association between age and change in conflict frequency for daughters and sons. I address each of these between-cluster differences in turn.

First, in order to see the difference between change in conflict frequency for Conflictual-Child and Harmonious fathers, the intercept in the initial regression, with Conflictual-Child dyads as the comparison group, represented the mean change in conflict frequency for this group, and was significant, $b = -2.95$, $t = -2.25$, $p < .05$. In contrast, the intercept in the regression with Harmonious dyads as the comparison group was not significant, $b = .87$, $t = 1.04$, n.s. In other words, Conflictual-Child fathers' reports of conflict frequency tended to increase over time (recalling that conflict was reverse-scaled), while Harmonious fathers' reports of conflict frequency did not tend to change.

Second, the intercepts from four particular regressions offered a test of the differences between Uninvolved and Conflictual-Child fathers with sons and daughters. In the initial regression with Conflictual-Child dyads and daughters as the two comparison groups, the intercept was significant, $b = -2.95$, $t = -2.25$, $p < .05$. In a regression with Conflictual-Child dyads and sons as the two comparison groups, the intercept was not significant, $b = 1.13$, $t = .77$, n.s. Likewise, in two regressions with Uninvolved dyads as the comparison group, the intercepts were not significant, $b = .77$, $t = 1.12$, n.s. for daughters, and $b = -.90$, $t = -1.16$, n.s. for sons. In other words, Conflictual-Child fathers' reports of conflict frequency tended to increase over time when the target offspring was a daughter, while the reports of conflict frequency from Uninvolved fathers, and Conflictual-Child fathers with sons, did not change.

Finally, Figure 5.6 shows the regression lines representing the association between age and change in father-reported conflict frequency for father-daughter and father-son dyads in the two Conflictual groups (plotted similarly to prior figures). In four regressions (one regression each with Conflictual-Child father-daughter and father-son, and Uninvolved father-daughter and father-son, dyads as comparison groups), the main effect for Age offered a test of the significance of the slope of each regression line. The only significant main effect for Age emerged for Conflictual-Child father-son dyads, $b = -4.17$, $t = -1.92$, $p = .05$. It appeared that

fathers of younger sons in the Conflictual-Child group tended to report decreasing conflict over time, while fathers of older sons in the Conflictual-Child group tended to report increasing conflict over time. In a post-hoc regression predicting linear change in father-reported conflict as a function of age for Conflictual-Child father-son dyads ($N = 10$), the predicted value of linear change in conflict frequency for older sons was .72, and the predicted value of linear change for younger sons was 7.48. In other words, Conflictual-Child fathers with younger secondborn sons tended to report decreasing conflict over time relative to other dyads, while conflict frequency did not change for Conflictual-Child fathers with older secondborn sons.

Summary

The results of these analyses revealed only spotty evidence that parent-adolescent relationships changed as a function of developmental status, or that the association between relationship change and developmental status differed across relationship profiles. Only mothers' centrality and father-adolescent conflict frequency changed as a function of developmental status and cluster membership. Specifically, centrality tended to increase for Conflictual-Child mothers with less developed adolescents, and Conflictual-Child mothers with younger daughters, while Conflictual-Child mothers tended to decrease the amount of their time spent with older daughters. For Conflictual-Child father-adolescent dyads, conflict frequency tended to decrease for more developed daughters and fathers with younger sons, while conflict frequency tended to increase for fathers with daughters.

Table 5.1

Stability Coefficients (Pearson's r) between Time 1 and Time 2 Relationship Quality Variables

	N	Time 1 - Time 2 *r*
Mother-Adolescent Dyads		
Maternal acceptance – mother	188	.73**
Maternal acceptance – adolescent	188	.61**
Centrality of adolescent – mother	186	.26**
Centrality of mother – adolescent	186	.46**
Conflict frequency – mother	188	.67**
Conflict frequency – adolescent	188	.47**
Conflict intensity – mother	188	.70**
Conflict intensity – adolescent	188	.47**
Father-Adolescent Dyads		
Paternal acceptance – father	188	.76**
Paternal acceptance – adolescent	189	.62**
Centrality of adolescent – father	187	.32**
Centrality of father – adolescent	187	.40**
Conflict frequency – father	188	.58**
Conflict frequency – adolescent	189	.48**
Conflict intensity – father	188	.54**
Conflict intensity – adolescent	189	.45**

** $p < .01$

Table 5.2

Means (M), Standard Deviations (SD), and Ranges of Linear Change Scores for the Eight Parent-Adolescent Relationship Quality Variables of Interest

	N	*M*	*SD*	Range	
Mother-Adolescent Dyads					
Maternal acceptance – mother	188	-.10	.36	-1.17 -	.83
Maternal acceptance – adolescent	188	-.18	.56	-1.50 -	1.82
Centrality of adolescent – mother	186	-.05	.15	-.48 -	.45
Centrality of mother – adolescent	186	-.07	.13	-.44 -	.27
Conflict frequency – mother	188	2.27	6.06	-11.00 -	27.00
Conflict frequency – adolescent	188	1.11	7.34	-23.00 -	40.00
Conflict intensity – mother	188	.80	5.01	-11.00 -	14.00
Conflict intensity – adolescent	188	1.15	6.95	-23.00 -	28.00
Father-Adolescent Dyads					
Paternal acceptance – father	188	-.05	.36	-1.17 -	.96
Paternal acceptance – adolescent	189	-.20	.63	-2.46 -	1.50
Centrality of adolescent – father	187	-.07	.19	-.53 -	.48
Centrality of father – adolescent	187	-.05	.15	-.49 -	.38
Conflict frequency – father	188	2.62	5.62	-11.00 -	20.00
Conflict frequency – adolescent	189	.75	7.08	-18.00 -	30.00
Conflict intensity – father	188	1.32	5.06	-13.00 -	18.00
Conflict intensity – adolescent	189	1.08	7.59	-20.00 -	23.00

Note. N differs across variables due to relevant missing data on Time 2 relationship quality variables.

Table 5.3

Means (M), Standard Deviations (SD), and Ranges of Residualized Change Scores for the Eight Parent-Adolescent Relationship Quality Variables of Interest

	N	*M*	*SD*	Range	
Mother-Adolescent Dyads					
Maternal acceptance – mother	188	.00	.34	-1.12 -	.68
Maternal acceptance – adolescent	188	.00	.50	-1.21 -	1.74
Centrality of adolescent – mother	186	.00	.13	-.23 -	.53
Centrality of mother – adolescent	186	.00	.10	-.21 -	.38
Conflict frequency – mother	188	-.03	5.15	-16.28 -	14.96
Conflict frequency – adolescent	188	-.03	5.87	-20.96 -	17.53
Conflict intensity – mother	188	.01	4.55	-12.93 -	10.69
Conflict intensity – adolescent	188	-.03	6.04	-21.94 -	15.71
Father-Adolescent Dyads					
Paternal acceptance – father	188	.00	.35	-1.07 -	1.01
Paternal acceptance – adolescent	189	.00	.59	-1.92 -	1.48
Centrality of adolescent – father	187	.00	.14	-.28 -	.41
Centrality of father – adolescent	187	.00	.12	-.23 -	.41
Conflict frequency – father	188	-.01	4.50	-13.77 -	11.21
Conflict frequency – adolescent	189	.00	5.73	-19.23 -	16.83
Conflict intensity – father	188	-.04	4.35	-12.87 -	12.77
Conflict intensity – adolescent	189	-.03	6.53	-18.69 -	13.83

Note. N differs across variables due to relevant missing data on Time 2 relationship quality variables.

Table 5.4

Transformation of the Four-Category Cluster Membership Variable into Sets of Three Dummy-Coded Variables, with Each Cluster Serving as the Comparison Group

Cluster Membership	Dummy-Coded Variables[1]		
	D_1	D_2	D_3
Harmonious as Comparison:			
Harmonious	0	0	0
Uninvolved	1	0	0
Conflictual-Child	0	1	0
Conflictual-Parent	0	0	1
Uninvolved as Comparison:			
Harmonious	1	0	0
Uninvolved	0	0	0
Conflictual-Child	0	1	0
Conflictual-Parent	0	0	1
Conflictual-Child as Comparison:			
Harmonious	0	1	0
Uninvolved	1	0	0
Conflictual-Child	0	0	0
Conflictual-Parent	0	0	1
Conflictual-Parent as Comparison:			
Harmonious	0	0	1
Uninvolved	1	0	0
Conflictual-Child	0	1	0
Conflictual-Parent	0	0	0

[1] The dummy-coded variables were labeled D_{M1}, D_{M2}, and D_{M3} for mother-adolescent dyads, and D_{F1}, D_{F2}, and D_{F3} for father-adolescents dyads.

Table 5.5

Summary of Regression Models Predicting Residualized Change from Time 1 to Time 2 in Parents' and Adolescents' Reports of Acceptance, Centrality, Conflict Frequency, and Conflict Intensity as a Function of Parent-Adolescent Cluster Membership, and Adolescents' Sex, and Age or Pubertal Status at Time 1

Regression Weight	Term	Regression Weight	Term
B_0		B_0	
B_1	Offspring Sex	B_1	Offspring Sex
B_2	Pubertal Status (PS)	B_2	Age
B_3	Sex X PS	B_3	Sex X Age
B_4	D_1	B_4	D_1
B_5	D_1 X Sex	B_5	D_1 X Sex
B_6	D_1 X PS	B_6	D_1 X Age
B_7	D_1 X Sex X PS	B_7	D_1 X Sex X Age
B_8	D_2	B_8	D_2
B_9	D_2 X Sex	B_9	D_2 X Sex
B_{10}	D_2 X PS	B_{10}	D_2 X Age
B_{11}	D_2 X Sex X PS	B_{11}	D_2 X Sex X Age
B_{12}	D_3	B_{12}	D_3
B_{13}	D_3 X Sex	B_{13}	D_3 X Sex
B_{14}	D_3 X PS	B_{14}	D_3 X Age
B_{15}	D_3 X Sex X PS	B_{15}	D_3 X Sex X Age

Note. The following variables were dummy-coded in the initial regression: Adolescent Sex (0 = girls, 1 = boys); D_1 (0 = not in the Uninvolved group, 1 = in the Uninvolved group); D_2 (0 = not in Harmonious, 1 = in Harmonious); D_3 (0 = not in Conflictual-Parent, 1 = in CP)

Table 5.6

Regression Weights (B), Standard Errors (SE), and Betas (β) for the Regression Predicting Residualized Change in the Centrality of Adolescents in Mothers' Daily Lives as a Function of Adolescents' Sex and Pubertal Status at Time 1, with Conflictual-Child Dyads as the Comparison Group

	B	SE	β
Intercept (Conflictual-Child)	.03	.03	.00
Adol. Sex	-.09*	.04	-.35
Adol. Pubertal Status (PS)	-.07	.04	-.35
Sex X PS	.05	.07	.14
(Uninvolved)			
D_{M1}	-.02	.04	-.06
D_{M1} X Sex	.02	.05	.05
D_{M1} X PS	.10*	.05	.28
D_{M1} X Sex X PS	-.08	.09	-.12
(Harmonious)			
D_{M2}	-.01	.04	.04
D_{M2} X Sex	.08	.05	.20
D_{M2} X PS	.05	.05	.13
D_{M2} X Sex X PS	-.12	.09	-.18
(Conflictual-Parent)			
D_{M3}	.05	.05	.16
D_{M3} X Sex	.00	.06	-.01
D_{M3} X PS	.06	.07	.13
D_{M3} X Sex X PS	-.09	.10	-.14
R^2	.14*		
$F(15, 185) = 1.80$			

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

Table 5.7

Regression Weights (B), Standard Errors (SE), and Betas (β) for the Regression Predicting Residualized Change in the Centrality of Adolescents in Mothers' Daily Lives as a Function of Adolescents' Sex and Age at Time 1, with Conflictual-Child Dyads as the Comparison Group

	B	SE	β
Intercept (Conflictual-Child)	-.01	.03	.00
Adol. Sex	-.02	.04	-.10
Adol. Age	-.13**	.03	-1.03
Sex X Age	.08*	.04	.47
(Uninvolved)			
D_{M1}	.04	.04	.12
D_{M1} X Sex	-.06	.05	-.17
D_{M1} X Age	.16**	.03	.75
D_{M1} X Sex X Age	-.12*	.05	-.37
(Harmonious)			
D_{M2}	.02	.03	.07
D_{M2} X Sex	.01	.05	.01
D_{M2} X Age	.11**	.03	.48
D_{M2} X Sex X Age	-.14**	.05	-.39
(Conflictual-Parent)			
D_{M3}	.07	.04	.22
D_{M3} X Sex	-.03	.06	-.08
D_{M3} X Age	.17**	.04	.63
D_{M3} X Sex X Age	-.15**	.06	-.46
R^2	.26*		
$F(15, 185) = 3.92$			

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

Table 5.8

Regression Weights (B), Standard Errors (SE), and Betas (β) for the Regression Predicting Residualized Change in Adolescents' Reports of Conflict Frequency with Fathers as a Function of Adolescents' Sex and Pubertal Status at Time 1, with Conflictual-Child Dyads as the Comparison Group

	B	SE	β
Intercept (Conflictual-Child)	-.03	1.53	.00
Adol. Sex	.97	2.33	.08
Adol. Pubertal Status (PS)	9.02**	2.03	.98
Sex X PS	-14.86*	5.87	-.94
(Uninvolved)			
D_{F1}	-.19	1.74	-.02
D_{F1} X Sex	-.42	2.63	-.03
D_{F1} X PS	-8.74**	2.39	-.59
D_{F1} X Sex X PS	16.62**	6.26	.65
(Harmonious)			
D_{F2}	.81	1.84	.06
D_{F2} X Sex	-1.19	2.79	-.07
D_{F2} X PS	-10.39**	2.45	-.62
D_{F2} X Sex X PS	16.83**	6.48	.54
(Conflictual-Parent)			
D_{F3}	-1.01	2.44	-.06
D_{F3} X Sex	-2.78	3.23	-.15
D_{F3} X PS	-4.41	3.18	-.20
D_{F3} X Sex X PS	8.94	6.66	.32

R^2 .16**

$F(15, 188) = 2.27$

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

Table 5.9

Regression Weights (B), Standard Errors (SE), and Betas (β) for the Regression Predicting Residualized Change in Fathers' Reports of Conflict Frequency as a Function of Adolescents' Sex and Age at Time 1, with Conflictual-Child Dyads as the Comparison Group

	B	*SE*	*β*
Intercept (Conflictual-Child)	-2.95	1.31	.00
Adol. Sex	4.08	1.97	.45
Adol. Age	-.79	1.16	-.18
Sex X Age	-3.38	2.46	-.53
(Uninvolved)			
D_{F1}	3.72	1.48	.41
D_{F1} X Sex	-5.75	2.23	-.50
D_{F1} X Age	.58	1.37	.09
D_{F1} X Sex X Age	4.75	2.66	.52
(Harmonious)			
D_{F2}	3.82*	1.56	.39
D_{F2} X Sex	-4.29	2.30	-.34
D_{F2} X Age	1.57	1.39	.19
D_{F2} X Sex X Age	3.93	2.74	.31
(Conflictual-Parent)			
D_{F3}	2.92	1.98	.24
D_{F3} X Sex	-5.96	2.65	-.42
D_{F3} X Age	-1.31	1.83	-.12
D_{F3} X Sex X Age	6.74	2.99	.52

R^2 .13*

$F(15, 187) = 1.72$

** $p < .01$; * $p < .05$
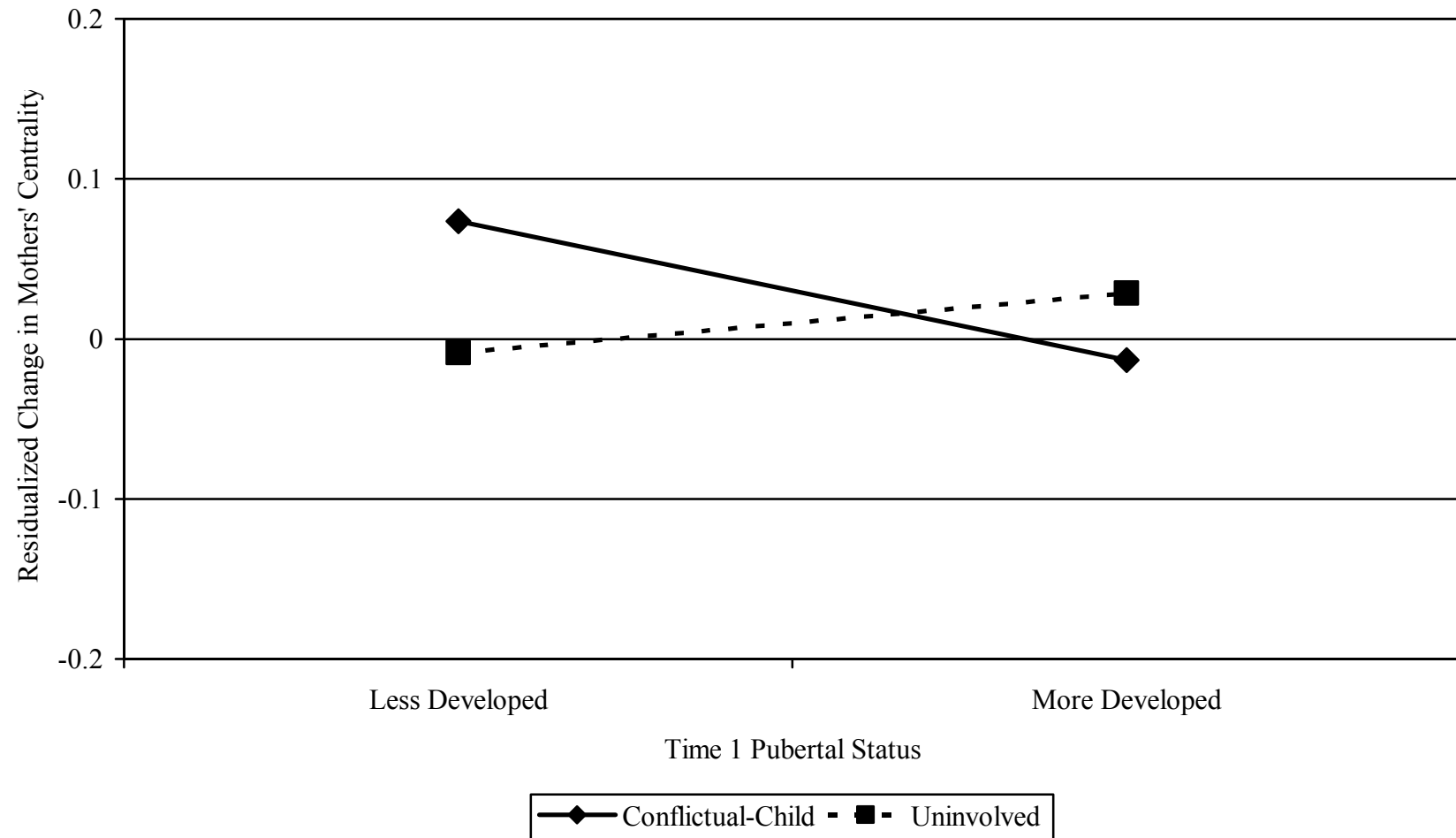
Figure 5.1. Residualized Change in the Proportion of Mothers' Time Spent with Adolescents as a Function of Adolescent Pubertal Status at Time 1 for the Conflictual-Child and Uninvolved Clusters.

Note. The slope for Conflictual-Child dyads (solid line) is significant at the level of a trend. The slope for Uninvolved dyads (dotted line) is nonsignificant.

Note. The slopes for Conflictual-Child and Uninvolved dyads are significantly different from one another.
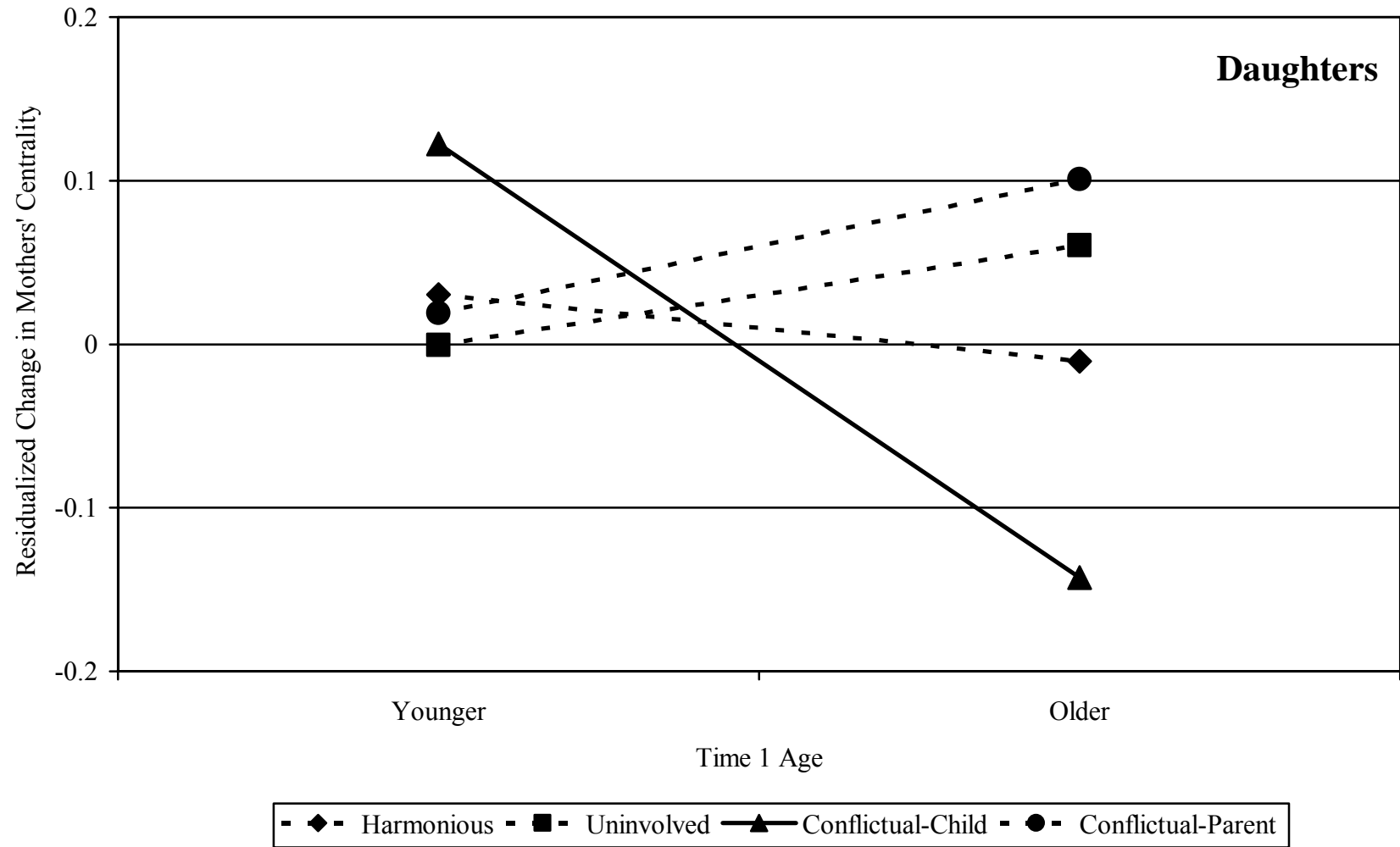
Figure 5.2. Residualized Change in the Proportion of Mothers' Time Spent with Adolescent Daughters as a Function of Adolescent Age at Time 1, Separately by Mother-Adolescent Cluster.
Note. The slope for mother-daughter dyads in the Conflictual-Child group (solid line) is significant; dotted lines are nonsignificant.
Note. The slope for mother-daughter dyads in the Conflictual-Child group is significantly different from all other slopes.
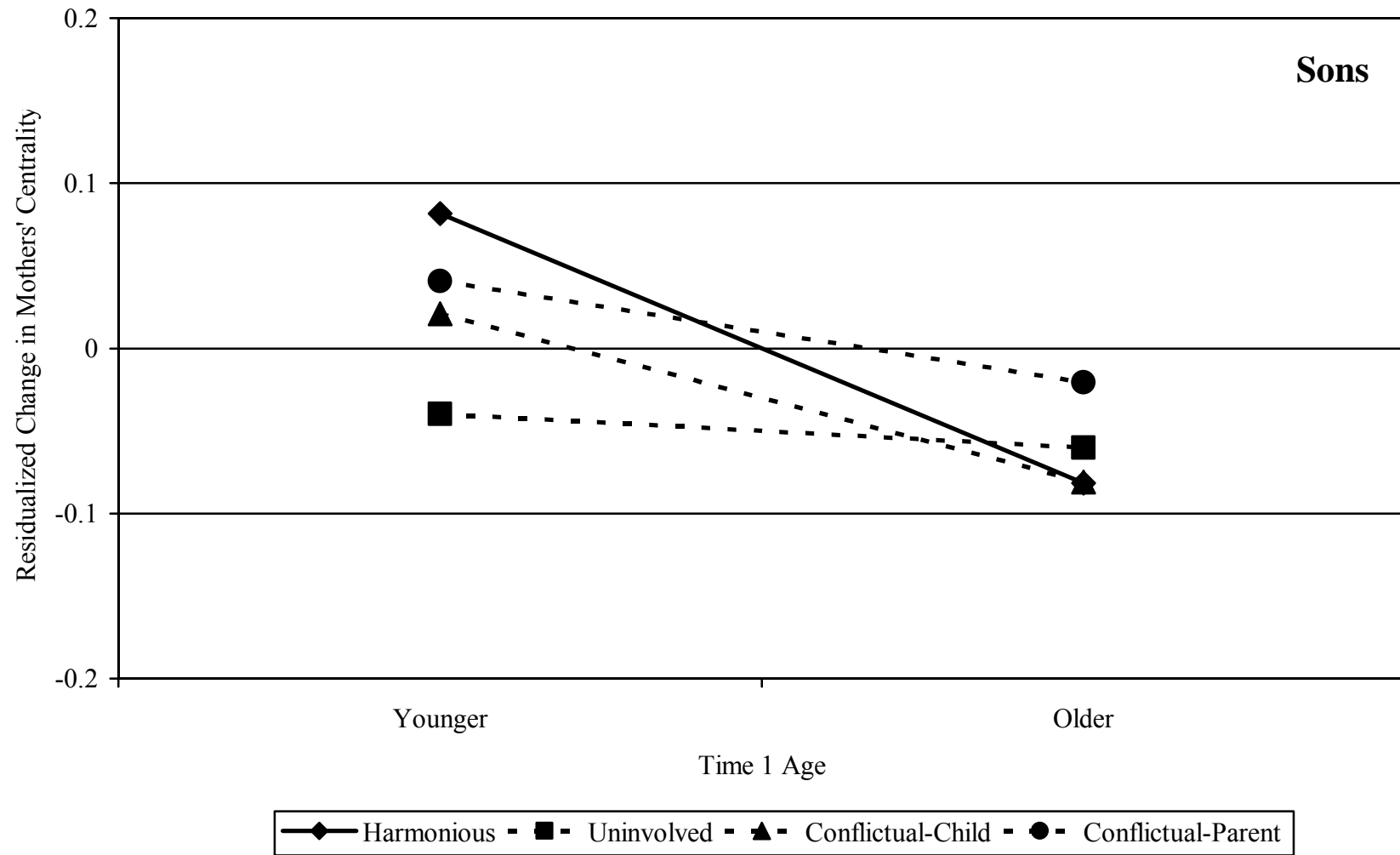
Figure 5.3. Residualized Change in the Proportion of Mothers' Time Spent with Adolescent Sons as a Function of Adolescent Age at Time 1, Separately by Mother-Adolescent Cluster.

Note. The slope for mother-son dyads in the Harmonious group (solid line) is significant; dotted lines are nonsignificant.

Note. None of the slopes are significantly different from one another.
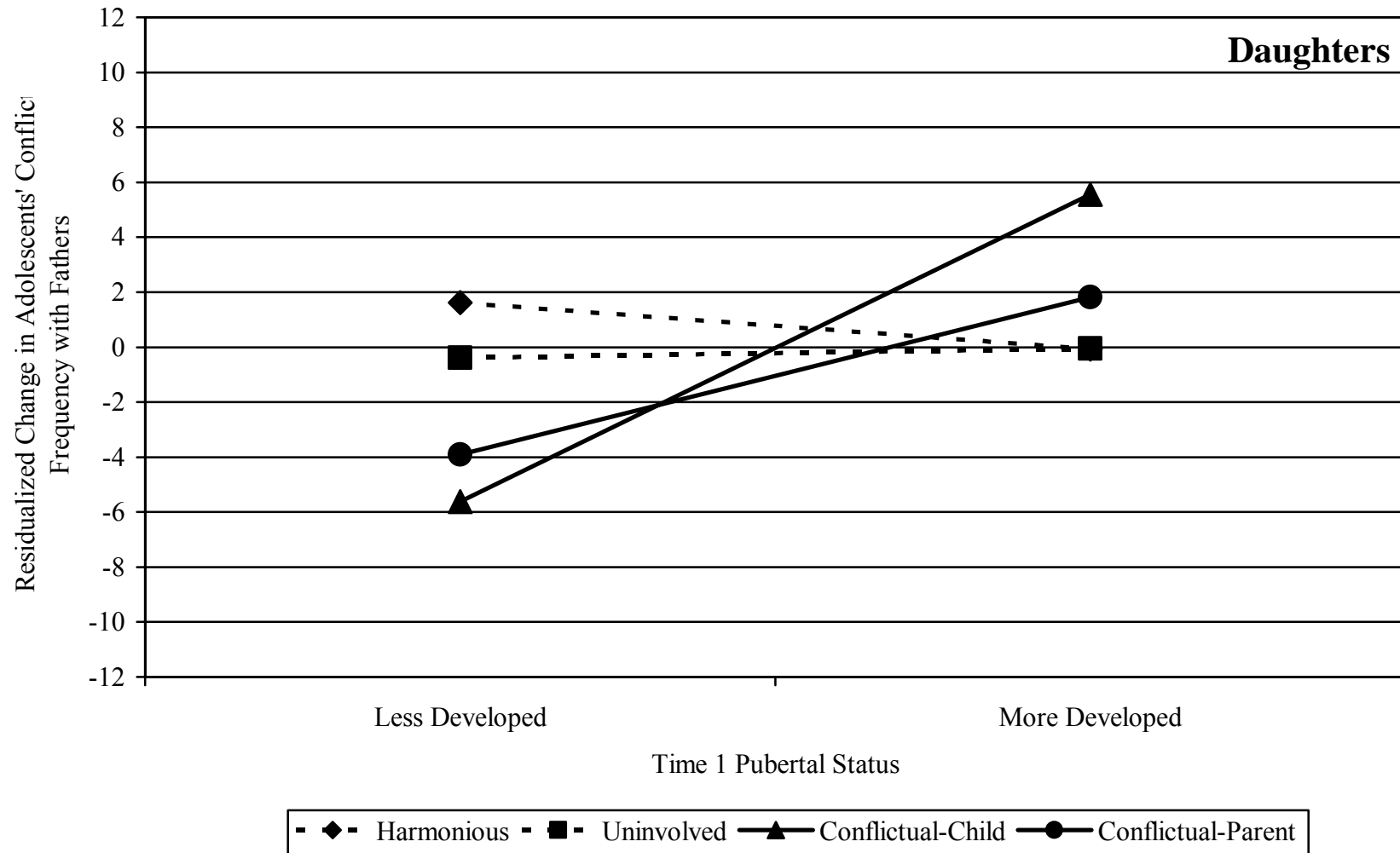
Figure 5.4. Residualized Change in Adolescent Daughters' Reports of Conflict Frequency with Fathers as a Function of Adolescent Pubertal Status at Time 1, Separately by Father-Adolescent Cluster.
Note. The slope for the Conflictual-Child group (solid triangle line) is significant. The slope for the Conflictual-Parent group (solid circle line) is significant at the level of a trend. The slopes for the Harmonious and Uninvolved groups (dotted lines) are nonsignificant.
Note. The slopes for the two Conflictual groups are significantly different from the slopes for the Harmonious and Uninvolved groups.
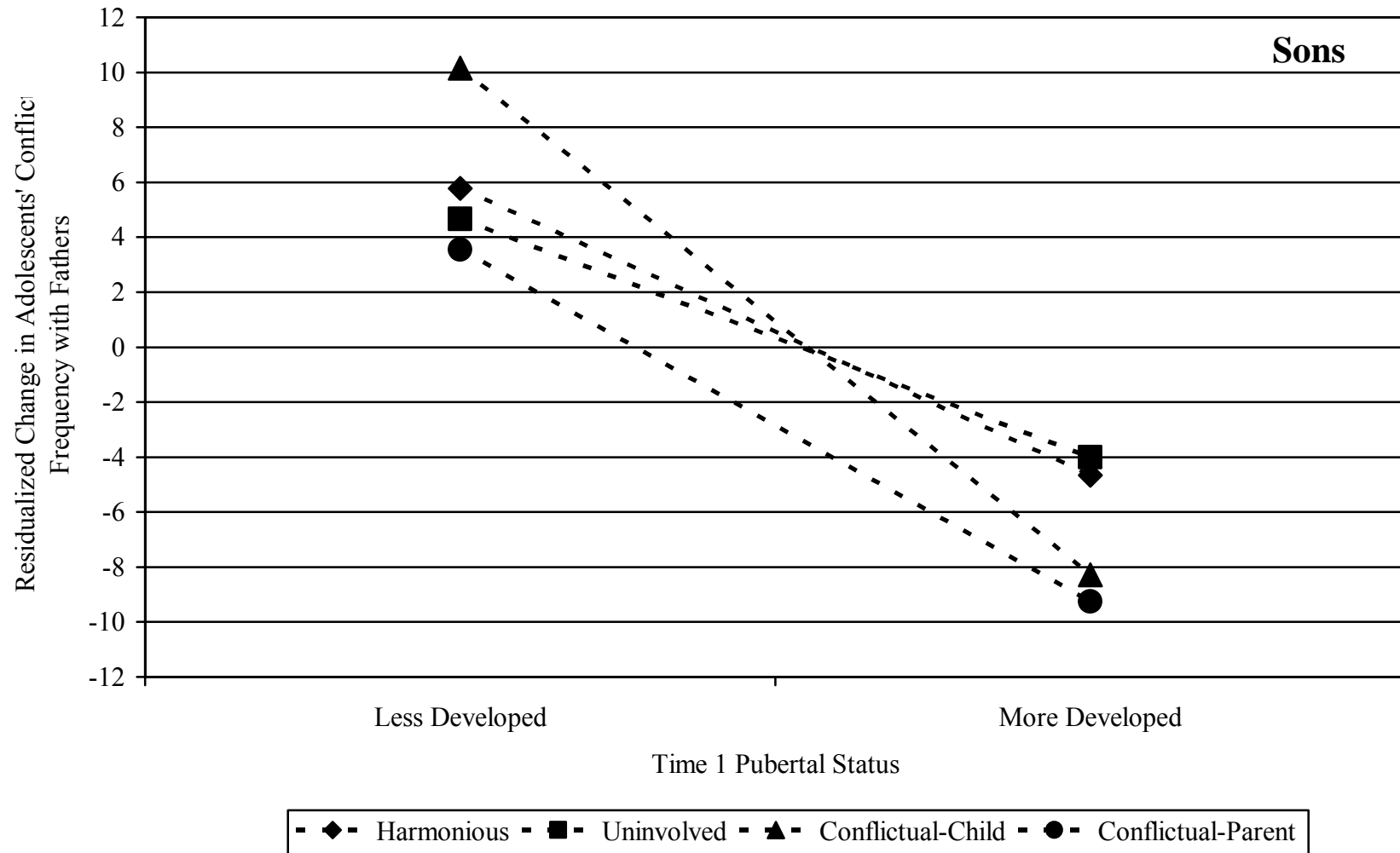
Figure 5.5. Residualized Change in Adolescent Sons' Reports of Conflict Frequency with Fathers as a Function of Adolescent Pubertal Status at Time 1, Separately by Father-Adolescent Cluster.
Note. All slopes are nonsignificant.
Note. None of the slopes are significantly different from one another.
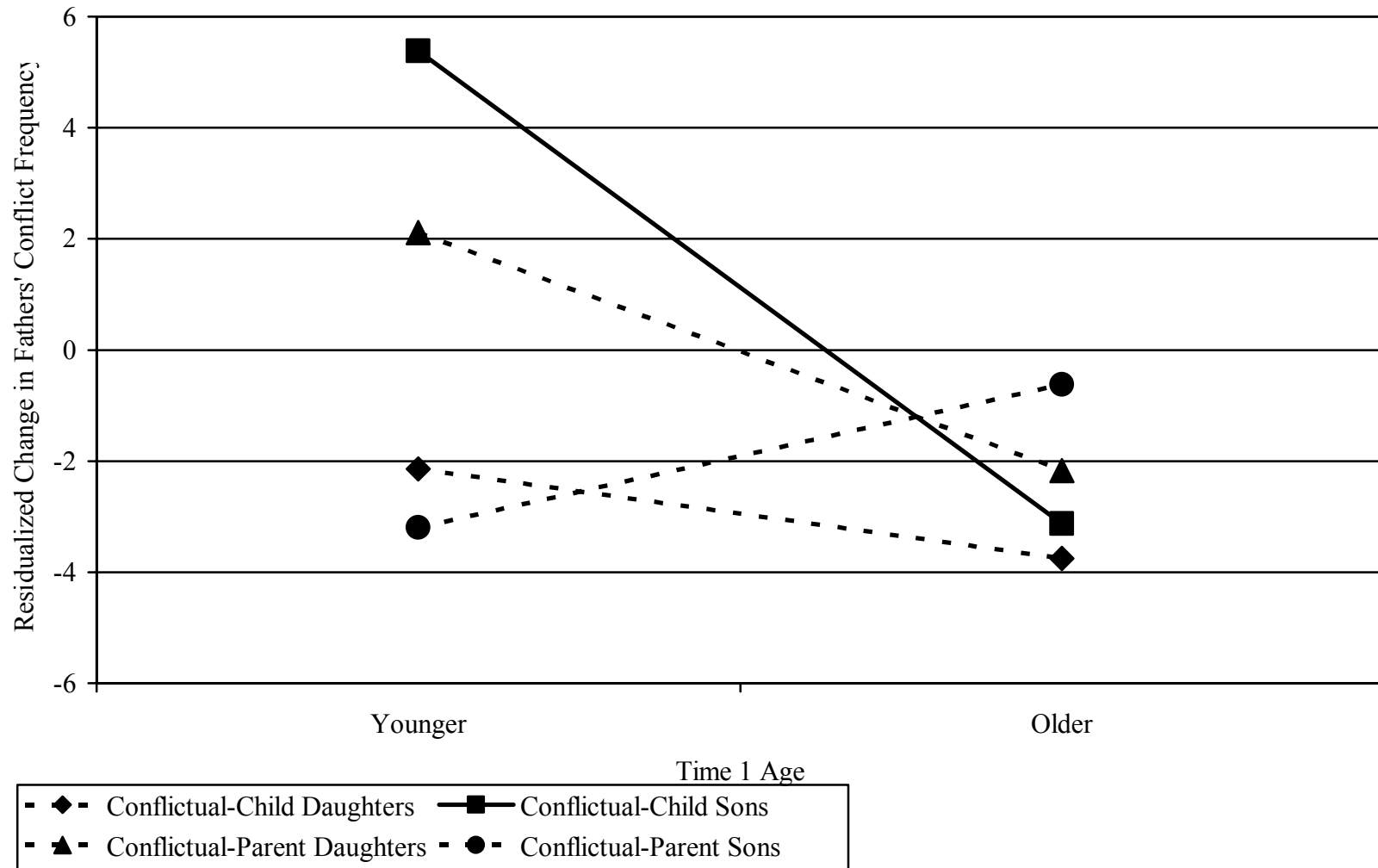
Figure 5.6. Residualized Change in Fathers' Reports of Conflict Frequency as a Function of Adolescent Age at Time 1, Separately for Father-Daughter and Father-Sons Dyads in the Conflictual-Child and Conflictual-Parent Clusters.
Note. The slope for Conflictual-Child father-son dyads (solid line) is significant. All other slopes (dotted lines) are nonsignificant.
Note. The slope for Conflictual-Child father son dyads is significantly different from the other slopes.

CHAPTER 6. DISCUSSION

In this study, I approached parent-adolescent relationships from a "person-centered" (rather than a "variable-centered") perspective in order to move away from the practice of studying isolated relationship qualities. Because our understanding of the nature and development of parent-adolescent relationships derives largely from empirical studies that focus on one relationship quality at a time (usually conflict), it is difficult to draw conclusions about the implications and consequences of particular relationships experiences, like conflict, for adolescents, parents, and their families. In the following discussion, I first address how well the relationship profiles that emerged in this study matched current arguments based on theory and existing research about what parent-adolescent relationships are like, in terms of (1) how well individual and family characteristics distinguished between clusters, (2) gender differences in relationship quality, and (3) the existence in this sample of relationship patterns considered normative by researchers. Second, I address the results of analyses linking change in relationship quality to adolescents' developmental status and initial relationship profile, both in terms of how these results differed from current theoretical and research-based expectations, and what these results suggest about individual differences in relationship change. Finally, I conclude with a discussion of the study's strengths and limitations, the study's contributions to the broader literature on parent-adolescent relationships, and the study's implications for future research.

Relationship Profiles in the Present Study

In cluster analyses on parents' and adolescents' reports of acceptance, time together, conflict frequency, and conflict intensity, four relationship profiles emerged for both mother-adolescent and father-adolescent dyads. These four relationship profiles were distinguished from one another not only in terms of their relationship quality, but also in terms of the individual- and family-level characteristics that accompanied each profile. In this section, I briefly describe each profile in turn.

Harmonious

Harmonious dyads were defined by the highest acceptance and centrality, and lowest conflict frequency and intensity. Harmonious mother-adolescent dyad members had consistently better relationships with husbands and firstborn offspring. Harmonious father-adolescent relationships stood out as being especially positive. Members of these dyads consistently

reported fewer depressive symptoms and role overload, and more expressivity. These relationships had other positive characteristics: fathers knew more about adolescents' daily activities, and fathers and adolescents had the highest perspective taking. Harmonious fathers and adolescents also had consistently more positive relationships with mothers and firstborn offspring.

Uninvolved

Uninvolved mother-adolescent dyads had below-average centrality and conflict, and moderate acceptance. Uninvolved father-adolescent dyads had below-average father centrality, and moderate acceptance, conflict, and adolescent centrality. Uninvolved dyads seemed to be not so much negative as just generally uninvolved. Uninvolved mothers worked fewer hours, and adolescents who had Uninvolved relationships with mothers engaged in less risky behavior and fought less with siblings and fathers. Likewise, Uninvolved fathers reported less role overload, and knew less about adolescents' daily activities, while adolescents who had Uninvolved relationships with fathers had less emotional temperaments and uninvolved relationships with mothers. Having an Uninvolved relationship was also related to dyad members' divergent perceptions of one dyad member's perspective taking. Uninvolved adolescents tended to underestimate their mothers' perspective taking relative to mothers' self reports, and Uninvolved fathers tended to overestimate their adolescents' perspective taking relative to adolescents' self reports. Perhaps having less involved relationships limits dyad members' interactions in which perspective taking is necessary, or in which perspective taking skills are developed or put to use, leading to one dyad members' underestimation of the others' perspective taking, or to one dyad members' overestimation of his or her own perspective taking.

Conflictual-Child

Conflictual-Child mother- and father-adolescent dyads were distinguished by differences in reports of conflict: adolescents who had a Conflictual-Child relationship with a parent reported much more frequent and intense conflict than their parents reported. Conflictual-Child mother-adolescent dyads had moderate acceptance, low centrality, and high adolescent-reported conflict. Conflictual-Child mother-adolescent relationships generally experienced lower well-being and more negative family relationships with other family members, although these correlates tended to be less severe for, and less consistently related to, these dyads than Conflictual-Parent mother-adolescent relationships. (In terms of severity, for example,

secondborns who had Conflictual-Child relationships with mothers tended to have more frequent and intense conflict with fathers relative to secondborns who had Harmonious or Uninvolved relationships with mothers, but secondborns who had Conflictual-Parent relationships with mothers tended to have the most frequent and intense conflict with fathers relative to all other secondborns. In terms of consistency, for example, members of both Conflictual groups exhibited signs of lower well-being, but Conflictual-Parent dyad members exhibited lower well-being across more indicators of well-being—most depressive symptoms, least expressive characteristics, higher risky behavior on the part of adolescents—while Conflictual-Child adolescents exhibited lower self-worth and somewhat higher risky behavior.)

Conflictual-Child father-adolescent dyads exhibited the most negative relationships compared to other father-adolescent dyads: the lowest acceptance, moderate centrality, and the highest conflict. Fathers and adolescents in the Conflictual-Child group were more depressed than all other dyads. Conflictual-Child fathers were more stressed and had consistently more negative relationships with wives and firstborn offspring, while adolescents who had Conflictual-Child relationships with fathers had less involved but more conflictual relationships with mothers. Conflictual-Child daughters in particular had lower self-worth and perspective taking compared to other adolescents.

Conflictual-Parent

Conflictual-Parent dyads were distinguished by differences in reports of conflict: Conflictual-Parent mothers and fathers both reported much more frequent and intense conflict than their offspring reported. Conflictual-Parent mother-adolescent dyads exhibited the most negative relationships compared to other mother-adolescent dyads, with the lowest acceptance, moderate centrality, and high conflict. The pattern of correlates supported this contention. Conflictual-Parent mothers and adolescents were the least expressive and reported having the most depressive symptoms, and these dyads had the worst perspective taking. Conflictual-Parent mothers and adolescents had the most conflictual and least close relationships with fathers and firstborn offspring.

Interestingly, mothers and adolescents who had Conflictual-Parent relationships tended to overestimate each others' perspective taking; I would argue that this pattern was related to the negativity of these relationships. Overestimating the other's perspective taking may lead to frustrated expectations, which in turn could lead to more conflictual, less close relationships. For

example, a mother who thinks that her son can understand her perspective may become frustrated and conflictual when her son acts as though he does not understand her perspective—the mother is liable to interpret his behavior as willfully obtuse rather than as a sign of a lack of ability. It may also be that negative relationships could lead to attributions about the others' behavior that serve to maintain the negative relationship; a negative relationship may leave a dyad member more open to the attributions of willfulness that will allow the conflict to continue.

Conflictual-Parent father-adolescent dyads, in contrast, were characterized by moderate acceptance, above-average centrality, and high father-reported conflict. Conflictual-Parent father-adolescent dyads also had negative correlates; for example, adolescents who had Conflictual-Parent relationships with fathers had the most frequent conflict with mothers. However, Conflictual-Parent fathers were not as stressed or depressed as Conflictual-Child fathers and did not have as consistently negative relationships with wives and firstborns compared to Conflictual-Child fathers. Also, Conflictual-Parent fathers knew more about their offspring's day-to-day activities, probably because they spent so much time together.

Gender Differences

A number of differences between mothers and fathers, daughters and sons, emerged in the relationship profiles, and in the correlates of the profiles. One difference that was made explicit in the above description of the profiles is that Conflictual-Parent mother-adolescent relationships, and Conflictual-Child father-adolescent relationships, appeared to be the most negative. Why would mother-reported conflict be worse, or occur in the context of less accepting relationships, than adolescent-reported conflict? Likewise, why would adolescent-reported conflict be worse, or occur in the context of less accepting relationships, than father-reported conflict? Because mothers are expected to have positive, warm, and accepting relationships with offspring, the consequences of less acceptance and higher conflict on the part of mothers may be more negative for offspring and mothers. Another possibility is that expectations about mothers' positive relationships may mean that the conditions under which mothers become less accepting or perceive that they have conflictual relationships with offspring may have to be more negative. Less maternal acceptance and higher perceived conflict may be linked for mothers either because mothers who tend to perceive discussions as arguments become less accepting of seemingly "difficult" children, or because less maternal acceptance leads mothers to more readily perceive discussions as arguments. The expectations for fathers, in contrast, are more fluid, and fathers

may not need an explicit reason to feel and behave with less acceptance and warmth. Fathers may be less accepting of offspring even when they do not perceive frequent and intense conflict. Offspring of less accepting fathers, however, may react to their fathers' lack of acceptance by perceiving discussions with fathers as conflictual.

Mother-Daughter Relationships as Closer and Father-Adolescent Relationships as More Distant

Existing theory and research suggest that mother-daughter dyads tend to have either the closest or the most intense relationships, while father-adolescent relationships, especially father-daughter relationships, are more likely to be distant. Father-adolescent relationships in this study were more likely to be distant, insofar as 42% of father-adolescent dyads were classified as Uninvolved (the largest father-adolescent group), compared to 29% of mother-adolescent dyads classified as Uninvolved. Note, however, that father-daughter dyads were not significantly over-represented in the Uninvolved group, which I would have expected based on prior research.

In terms of involved fathers, it was interesting that Conflictual-Parent father-adolescent dyads spent as much of their time together as Harmonious father-adolescent dyads. While mothers who were involved in their adolescents' daily lives had Harmonious relationships with offspring, fathers who were involved in adolescents' daily lives could have either a Harmonious or a Conflictual-Parent relationship with offspring. While there is really only one set of expectations about what kind of relationship "involved" mothers should have with offspring, fathers actually have a choice between two sets of expectations about acceptable "involved" fathering—the "New Man" father (e.g., Harris & Morgan, 1991), whose parenting resembles mothers', and the "stern, authoritarian" father, whose job it is to lay down and enforce the rules. This might explain why a portion of "involved" fathers had only moderately accepting relationships and reported frequent and intense conflict with offspring. Alternatively, fathers who try to be "involved" fathers may become more easily frustrated than mothers in the face of difficulties getting along with offspring, and may be more likely to perceive interactions with offspring as conflictual when they do encounter difficulty. That Harmonious father-adolescent relationships were overwhelmingly related to positive individual and family characteristics suggests that it is easiest for involved fathers to develop and engage in positive relationships with offspring when the contexts in which these relationships happen are also positive.

This study also supported the argument that mother-adolescent dyads tend to have closer relationships, but did not support the idea that these relationships are more intense. Mother-

daughter dyads were more likely than mother-son dyads to be Harmonious. Interestingly, mother-son dyads were more likely than mother-daughter dyads to have a Conflictual-Parent relationship, something not explicitly anticipated by previous work on mother-adolescent relationships. Research on interaction patterns between mothers and early adolescent sons provides a possible explanation for the over-representation of mother-son dyads in the Conflictual-Parent group. Specifically, studies of behavior during dyadic or family interactions have shown that sons tend to interrupt mothers more often, offer fewer explanations for assertive statements, and defer less to mothers' explanations during early adolescence, especially around the height of pubertal development (Hill et al., 1985b; Steinberg, 1981). To the extent that sons are engaging in these types of assertive behaviors with mothers during early adolescence, mothers may be more likely to perceive their relationships as conflictual.

Gendered Correlates

Gender role attitudes. Several correlates distinguished dyads with particular relationship profiles in a way that highlighted gender-related differences between mothers and fathers, daughters and sons. Gender role attitudes were related to father-adolescent, but not mother-adolescent, relationship quality. This pattern fits with the argument that father-adolescent relationships are less scripted, and so more influenced by, gendered characteristics than mother-adolescent relationships. Specifically, Conflictual-Child fathers and adolescents tended to have more traditional gender role attitudes than other father-adolescent dyads. Given my interpretation that Harmonious and Conflictual-Parent fathers are trying to be "involved" fathers, it makes sense to think that they would have less traditional attitudes than fathers who are less accepting and spend less time with offspring. I would have predicted, however, that Uninvolved fathers would also have more traditional attitudes than Harmonious or Conflictual-Parent fathers; I am unsure why Uninvolved dyads' gender role attitudes were similar to Harmonious and Conflictual-Parent dyads'.

Temperament. Adolescents' emotionality (as reported by parents) was related to both mother- and father-adolescent relationship quality, albeit in different ways. Adolescents who had Uninvolved relationships with fathers had less emotional temperaments, suggesting that calmer adolescents demand less of fathers' attention, making it more likely that fathers will be less involved with them. Adolescents who had Conflictual-Parent relationships with fathers had more emotional temperaments, suggesting that fathers whose offspring are emotional may be more

likely to interpret adolescents' emotional behavior as conflictual, or that emotional adolescents may react to fathers in a more volatile way, which fathers then interpret as conflictual. Finally, daughters who had Conflictual-Parent relationships with mothers were more emotional than all other adolescents, suggesting that daughters' emotionality is a route into this type of relationship for mother-daughter dyads. Because mother-daughter dyads may be less likely to have this type of negative relationship, mothers may need more of an explicit reason to be less accepting of daughters than they need to be less accepting of sons, or to perceive interactions with daughters as conflictual. Emotional daughters may be particularly reactive to mothers (e.g., to mothers' behavior that adolescents find irritating); mothers in turn may be more likely to interpret daughters' volatile behavior as conflictual.

Work hours. Work hours emerged as a distinguishing correlate, but it did not appear to operate solely as a stressor (i.e., more work hours related to more negative relationships), even though it is often conceptualized as such in the literature. Mothers who had Harmonious or Conflictual-Parent relationships with adolescents tended to work more hours, while mothers who had Uninvolved or Conflictual-Child relationships with adolescents tended to work fewer hours. Work hours may operate as a stressor for some mothers; working long hours may contribute to mothers' overall stress, making negative relationship quality with offspring more likely. For other mothers, working longer hours may be a sign of well-being. Working long hours may signal that Harmonious mothers are invested not only in family but also in work; participation in multiple roles is thought to enhance energy and resources such that experiences in one role can contribute to positive experiences in another role (Greenhaus & Parasuraman, 1999). I thought it interesting that evidence emerged for work hours as a stressor and work hours as an indicator of the protective nature of investment in multiple roles; other characteristics of mothers' lives probably shape the extent to which mothers' work hours are a source of stress or a sign of well-being.

Fathers' work hours were only related to relationship quality for father-daughter dyads; specifically, fathers worked fewer hours when father-daughter dyads had Harmonious relationships, and more hours when father-daughter dyads had Conflictual relationships. In a recent study, I found that fathers become more involved at work over time (i.e., increased work hours and psychological job involvement) when their relationships with firstborn daughters were less warm and accepting, and become less involved at work over time when their relationships

with firstborn daughters were <u>more</u> warm and accepting (Head, Crouter, & McHale, in press). These findings seem to mirror the results from this study. Opposite-sex parent-adolescent relationships are somewhat less scripted than same-sex relationships, and father-adolescent relationships are less scripted than mother-adolescent relationships, giving fathers more choice about how to invest themselves, and how to react to experiences with daughters in particular. Fathers may choose to work fewer hours in order to invest more in Harmonious relationships with daughters, and fathers may choose to work more hours in order to invest less in Conflictual relationships with daughters. Alternatively, the correlation between work hours and father-daughter relationship quality may be caused by fathers' orientation toward family: fathers who are more family-oriented may be more likely than fathers who are less family-oriented to work fewer hours and have more positive relationships with daughters.

Autonomy. Adolescents' decision-making autonomy differed across mother-adolescent clusters for sons and daughters, and offered some insight into (1) why particular mother-son dyads had Harmonious relationships, (2) why particular mother-daughter dyads had Conflictual-Parent relationships, and (3) what distinguished mother-daughter Conflictual-Child dyads from mother-daughter Conflictual-Parent dyads. First, Harmonious mother-son dyads reported less autonomy for sons than other dyads, suggesting that having less autonomy may be a route into a Harmonious relationship between mothers and sons. Second, Conflictual-Parent mother-daughter dyads reported more autonomy for daughters than other dyads, suggesting that having more autonomy may be a route into a Conflictual-Parent relationship between mothers and daughters. Given evidence that adolescent girls actually tend to have more decision-making autonomy than adolescent boys (e.g., Holmbeck & O'Donnell, 1991), I did not expect that more autonomy would be linked to negative relationships between mothers and daughters, and positive relationships between mothers and sons. However, the conditions under which girls have more decision-making autonomy than boys, and vice versa, are only just being explored (e.g., Bumpus, Crouter, & McHale, 2001). Perhaps mothers who maintain more say in sons' lives are able to maintain a closer relationship with them. Daughters who achieve greater autonomy relative to other adolescents may be more likely to have negative relationships with mothers, either because greater autonomy is something mothers are not willing to grant, or because more negative relationships drive daughters away from mothers sooner.

Third, discrepancies between mothers' and daughters' reports of daughters' autonomy provide one reason why differences in who reported more conflict emerged between the Conflictual groups. On the one hand, adolescent daughters who had Conflictual-Parent relationships with mothers tended to report more autonomy than their own mothers reported. To the extent that mothers do not want to grant autonomy to daughters, but daughters believe they do have autonomy, mothers may perceive discussions to be conflictual, while their daughters do not. This pattern of findings appears to be in keeping with Smetana's work on parents' and adolescents' perceptions of the boundaries of parents' authority. Smetana (e.g., 1988a, 1989) has repeatedly demonstrated in a variety of cross-sectional samples that adolescents tend to classify a variety of moral, conventional, and multifaceted issues as being a matter of personal choice, rather than falling under their parents' legitimate authority, while parents are more likely to report that they should have authority concerning these same issues. Her research also suggests that parents' and adolescents' perceptions of the boundaries of parental authority are most divergent during early adolescence (Smetana, 1989), and that such divergence is related to increased conflict (Smetana, 1995a, 1995b).

On the other hand, adolescent daughters who had Conflictual-Child relationships with mothers tended to report less autonomy than their own mothers reported, which may be why daughters in these families may have perceived more conflict than their mothers did. This type of divergence—where parents actually report granting more autonomy than adolescents report—is not generally addressed in the literature. To the extent that daughters feel that mothers are not granting autonomy in particular areas, daughters may perceive discussions with mothers about these areas to be conflictual, while their mothers do not perceive them as conflictual because they feel they are granting decision-making autonomy to the adolescent.

<div align="center">*Where Are the Squabblers?*</div>

Prevalence of Positive Relationships

Existing theory and research suggest that the majority of parents and adolescents have positive (warm and loving) relationships, but experience relatively frequent conflict (around two arguments per week). A corollary to this argument is that "squabbling"—patterns of frequent but mild conflict as part of otherwise loving relationships—is not only normative among parent-early adolescent dyads, but also adaptive or healthy. On the surface, the relationship profiles that emerged in this study do not support either contention. First, the majority of relationships were

not classified as "positive": fewer than one third of dyads were classified as Harmonious, while a plurality of mother-adolescent dyads and 29% of father-adolescent dyads were classified as Conflictual. It is worth noting that scores on parental acceptance tended to be relatively high, and conflict scores tended to be relatively low. In this non-clinical sample, not only were families relatively well-adjusted, but also social desirability concerns and scale interpretation may have effectively shrunk the range of possible responses. Although scores were normally distributed within this truncated range, it is difficult to interpret how positive or negative these relationships were in an absolute sense. Comparative interpretations are possible but response patterns make statements about the prevalence of "positive" and "negative" relationships speculative.

Squabblers

Second, an obvious group of "Squabblers" did not emerge—no group of dyads reported above average acceptance, centrality, and conflict frequency, but below average conflict intensity. The high within-reporter correlations between conflict frequency and intensity probably account for the lack of an obvious Squabbler group. In this sample, family members who reported more frequent conflict tended to rate those conflicts as more upsetting, while family members who reported less frequent conflict ended to rate those conflicts as less upsetting.

Before concluding that this study did not yield Squabbler groups, however, I wanted to explore the possibility that two clusters—<u>mother-adolescent Conflictual-Child</u> dyads, and <u>father-adolescent Conflictual-Parent</u> dyads—approximated Squabblers, despite the fact that standardized scores for conflict frequency and intensity were similar within these groups. The range of responses on the two conflict measures offer some support for this argument. First, the sample's mean responses on the eleven conflict intensity items fell between *Not Very Upset* and *A Little Upset*, indicating that the sample as a whole reported having fairly mild conflicts. The mean responses for adolescents who had Conflictual-Child relationships with mothers, and fathers who had Conflictual-Parent relationships with adolescents (the two groups reporting the most intense conflict), fell around *A Little Upset*. Second, for conflict frequency, the sample's mean responses fell between *A Couple of Times in the Past Year* and *A Few Times Each Month*, while the mean responses for adolescents who had Conflictual-Child relationships with mothers, and fathers who had Conflictual-Parent relationships with adolescents, fell between *A Few Times Each Month* and *Several Times Each Week*. In other words, adolescents who had Conflictual-

Child relationships with mothers and fathers who had Conflictual-Parent relationships with adolescents were reporting seemingly relatively frequent conflict that was only slightly upsetting. Further, acceptance for these dyads was average relative to other dyads, but nonetheless high in an absolute sense. All together, the pattern of conflict and acceptance reported by these two groups suggests that these dyads may more closely approximate the often-discussed Squabbling pattern than they appear to on the surface.

Nonetheless, two considerations weaken this argument. The first concerns the pattern of correlates that distinguished mother-adolescent Conflictual-Child dyads and father-adolescent Conflictual-Parent dyads from other dyads; the second concerns the measurement properties of the measure of conflict frequency. First, to the extent that a relationship marked by positivity and frequent mild conflict is normative and adaptive (as is argued by many parent-adolescent relationship researchers), this pattern of relationship quality should be related to positive individual and family functioning (e.g., Smetana, 1996). The correlates of the two proposed Squabbler groups (lower well-being and more negative relationships with other family members), although not as negative as the correlates of Conflictual-Parent mother-adolescent dyads and Conflictual-Child father-adolescent dyads, nonetheless suggest that these two relationship patterns are not adaptive.

The second concern that weakens the argument that Conflictual-Child mother-adolescent dyads and Conflictual-Parent father-adolescent dyads are Squabblers is the nature of the measure of conflict frequency used in this study. As scored, this particular measure does not provide an estimate of the number of arguments per week that parent-adolescent dyads have. In order to see how this results from this particular measure compared to other reports that parents and adolescents argue about two times per week, I calculated per-week averages from family members' responses. Descriptive results of this weekly average revealed frequency estimates that are grossly inflated compared to evidence from other studies. The sample as a whole reported having 11 to 16 arguments per week between a given parent and adolescent. Adolescents who had Conflictual-Child relationships with mothers reported having 38 arguments per week with mothers, and fathers who had Conflictual-Parent relationships with adolescents reported having 53 arguments per week.

One issue contributing to these over-inflated estimates may be that one year is not an appropriate time period to ask respondents to consider when reporting on a behavioral

phenomenon such as conflict frequency. Obviously, family members do not literally keep a count of how many arguments they had with other family members in the past year. As such, I would argue that respondents were likely to implicitly use the six-point response scale as a general measure of frequency (e.g., "Not at all", "Occasionally", "Often") rather than using the provided response categories. If family members in this sample were not using our response categories literally, then it is impossible for me to compare the frequency of conflict in this sample to the generally accepted reports of weekly averaged reported in prior studies, and it becomes difficult to determine if particular parent-adolescent dyads were squabbling.

A second issue that may make it difficult to interpret how much conflict parents and adolescents had concerns the response categories themselves. Even though I treated the response categories as an interval scale and summed the responses, the response categories really are not balanced. For example, compare two hypothetical family members: Person A responds to each of the eleven frequency items with *A Couple Times in the Past Year* (2 on the original 1 to 6 scale); Person A's summary score equals 22. Person B responds to four of the frequency items with *A Few Times Each Month* (3), to three items with *A Couple Times in the Past Year* (2), and to four items with *Not at All in the Past Year* (1). Person B's summary score also equals 22, so these two respondents would be treated as having reported the same amount of conflict. If respondents implicitly used more general response categories because one year was too long a period to comprehend in this measure (as I argued above), then it would be fair to say that Person A and B reported comparable levels of conflict. Literally translated, though, Person A reported having an average of .42 conflicts/week, while Person B reported having an average of 2.88 conflicts per week.

In other words, while it would be fair to draw general comparative conclusions about conflict frequency using this particular measure, it is difficult to draw more specific conclusions about how much conflict family members were actually reporting. As such, the argument that Conflictual-Child mother-adolescent dyads and Conflictual-Parent father-adolescent dyads were actually "Squabblers" must remain speculative, given the pattern of relatively negative correlates as well as the measurement properties of the conflict frequency measure.

Change in Relationship Quality as a Function of Relationship Profiles

Prior research and theory suggests that (1) conflict frequency may decrease across adolescence (with or without a spike in conflict during early or middle adolescence), (2) conflict

intensity may increase from early to middle adolescence as adolescents mature physically, (3) time together will decrease across adolescence, and (4) closeness may be lower during early adolescence, at the height of puberty. In this sample, all four relationship qualities generally decreased (i.e., less acceptance, less centrality, and less conflict) from Time 1 to Time 2, as offspring progressed from early/middle adolescence at Time 1 (grades 5-9) to middle/late adolescence at Time 2 (grades 7-11). As exploratory analyses of relationship quality difference scores for other family relationships suggested, the overall decline in relationship quality was probably a function of a shift in family members' responses to the surveys (e.g., Arrindell, 2001; Jorm, Duncan-Jones, & Scott, 1989; Sharpe & Gilbert, 1998). Such a shift may occur for a number of reasons and limits the ability to draw causal conclusions about change over time. For example, respondents may exaggerate and inflate their responses the first time they are interviewed in order to draw the interest of the interviewer. Or, the content of particular items may cue respondents' recall of particular events or feelings that match the content, leading to inflated responses during the first interview; respondents may become habituated to the items with repeated exposure, thereby lessening the extent to which the content cues recall of similar events (Arrindell, 2001).

Further, adolescents' pubertal status and age at Time 1 did not predict relationship change from Time 1 to Time 2 (as measured by residualized change scores). This means first that no evidence emerged for a spike in conflict or a decrease in closeness for adolescents moving from early to middle adolescence, or moving from pre-puberty through puberty. Second, no evidence emerged that adolescents moving from middle adolescence to later adolescence, or adolescents moving from the height of pubertal development to post-puberty experienced decreased conflict or increased closeness as they and their parents emerged from the "temporary disruption" of early adolescence. The frequency of measurement probably contributed to the lack of evidence for relationship change as a function of adolescents' developmental status. Collecting data once per year may not pick up the subtleties of the temporary disruption around the height of puberty. Also, Time 1 and Time 2 were two years apart, and we may have missed spikes in conflict that happened during that period.

Family members' habituation to the relationship quality measures, combined with the lack of evidence that relationship quality changed differently for adolescents at different developmental phases, made it difficult to test the hypothesis that the trajectories of these

relationships would differ depending on initial relationship quality. Indeed, in analyses testing this question, only change in the proportion of mothers' time with offspring, and father-adolescent conflict frequency, appeared to differ as a function of both developmental status and cluster membership.

Change in Mother-Adolescent Relationship Quality

Mothers' centrality decreased more so for mothers who had Conflictual-Child relationships with older daughters than for other mothers. Conflictual-Child dyads had somewhat below average centrality to begin with, so a further decrease in centrality is not suggestive of regression to the mean. A mother may distance herself further from her daughter when the daughter appears to believe that their relationship is conflictual, perhaps out of frustration that the daughter is seemingly preventing their relationship from being as close as mother-daughter relationships are "supposed" to be, or perhaps believing that giving the daughter more space will help the daughter to behave less conflictually. Mothers with daughters in middle adolescence may be more prone to this than mothers of early adolescent daughters to the extent that older daughters can be granted more autonomy, or to the extent that mothers in this type of relationship may become more frustrated over time, and only begin to distance themselves after putting forth other efforts to change their relationship. The latter interpretation is indirectly supported by results suggesting that mothers who had Conflictual-Child relationships with less developed adolescents and younger daughters increased the proportion of their time spent with offspring. This increase in time together, which contradicts other evidence that time together gradually decreases over adolescence, may be a sign of mothers' attempts to repair these kinds of relationships as they unfold in early adolescence.

Change in Father-Adolescent Relationship Quality

Patterns of change in father-adolescent conflict frequency differed for father and adolescent reports of conflict. Fathers who had Conflictual-Child relationships with daughters reported increased conflict, while more developed daughters who had Conflictual-Child relationships with fathers reported decreased conflict. If Conflictual-Child daughters' reports of conflict had decreased regardless of pubertal status, I would have argued that Conflictual-Child fathers and adolescents were converging in their perceptions of conflict. However, less developed Conflictual-Child daughters' reports of conflict did not change any more than other daughters'. In other words, father-daughter dyads in which daughters in particular perceived their

relationships to be conflictual got worse as those daughters moved from pre-puberty through puberty, insofar as fathers came to see their relationships as similarly conflictual. Those daughters who perceived more conflict than their fathers when they were already advanced in their pubertal developmental perceived some improvement in their relationships with fathers as their perceptions of conflict converged with fathers'.

This pattern is commensurate with theory insofar as it matches the pattern of "temporary disruption" that is thought to happen at the height of pubertal development. It diverges from theory insofar as this pattern only emerged for relationships that were already negative, and did not characterize Harmonious relationships. The temporary disruption of early adolescence is typically thought to occur for otherwise positive relationships. It may be that relationships are more likely to experience heightened conflict around puberty when they are already negative or conflictual.

In contrast, Conflictual-Child fathers' reports of conflict frequency decreased as sons moved through early adolescence. Although this appears to contradict the pattern of temporary disruption, fathers' perceptions of decreased conflict may be related to evidence that sons actually begin to defer more to fathers during early adolescence (especially around puberty) (Hill, 1988; Hill et al., 1985b; Steinberg, 1981).

Why Conflictual-Child Dyads?

A striking feature of the scant findings concerning relationship change is that relationship change emerged only for Conflictual-Child mother-adolescent and father-adolescent dyads. If relationship change was evident only for Conflictual-Child father-adolescent dyads (or, even better, for Conflictual-Child father-adolescent dyads and Conflictual-Parent mother-adolescent dyads), I would speculate that the patterns of relationship change bolstered the argument that these groups were Squabblers, insofar as the period of frequent but mild conflict is supposed to be transitory, and should resolve itself as offspring move into later adolescence. Unfortunately, I cannot make such a tidy argument. In fact, I have no ideas about why these particular dyads would exhibit relationship change while the others would not. This pattern does not appear to be a function of instability in the cluster, as I cannot find evidence for instability (e.g., wider range of responses on mother centrality or father-adolescent conflict frequency for Conflictual-Child dyads than other dyads). I also cannot apply a substantive argument for this pattern, as the Conflictual-Child relationships appear to be substantively different for mother-adolescent dyads

and father-adolescent dyads (e.g., Conflictual-Child father-adolescent dyads appear to be more negative than other father-adolescent dyads, while Conflictual-Child mother-adolescent dyads do not).

Conclusion

A strength of this study was the use of multiple relationship qualities to profile both mother-adolescent and father-adolescent relationships, which allowed me to examine a broader picture of what these relationships were like than using relationship qualities in isolation. Including analyses for mothers and fathers allowed for indirect comparisons between mothers' and fathers' relationships with offspring. This study not only supported arguments about common differences in relationship quality for mothers and fathers, daughters and sons (e.g., fathers being less involved, mother-daughter relationships closer than other relationships), but also highlighted some of the conditions under which dyads do not conform to expected gender-related patterns (e.g., more autonomy and emotionality as routes into Conflictual-Parent relationships for mother-daughter dyads; working fewer hours as a route into Harmonious relationships for father-daughter dyads). Highlighting individual differences in gendered patterns is especially important, as the similarities between mother-adolescent and father-adolescent relationships are probably greater than the differences, and it is important to understand the nature of these similarities.

A further strength of this study was the use of both dyad members' reports of the four relationship qualities, which allowed me to examine the relationship itself, not just one member's perceptions of the relationship, and allowed me to explore systematic differences between parents' and adolescents' perceptions of their relationships. It is interesting that relationships marked by high levels of conflict were also marked by systematic differences in dyad members' perceptions of conflict frequency and intensity. This suggests that studies of parent-adolescent conflict should take both members' reports into account whenever possible, given that high conflict and divergent perceptions of conflict were confounded in this study. Remember that robust evidence exists linking high conflict to negative outcomes. To the extent that high conflict is commonly associated with divergent perceptions of conflict, the task for researchers would be to untangle the separate contributions of high conflict and divergent perceptions on negative outcomes. For example, Bagley, Bertrand, Bolitho, and Mallick (2000) found that larger

discrepancies between parent and adolescent reports of relationship quality were correlated with more behavior and emotional problems, and lower self-esteem, for adolescents.

Although the use of multiple relationship qualities allowed for comparisons of general patterns of these relationships, family members' tendencies to respond to acceptance and conflict measures using the positive half of the response scales made it difficult to discuss how positive or negative these relationships were in absolute terms. Likewise, concerns about the meaning of the conflict frequency measure made it difficult to assess how often parents and adolescents actually argued. One implication of these measurement concerns is that it was difficult for me to explicitly compare the relationship profiles that emerged in this sample to existing theory and prior empirical findings about what parent-adolescent relationships are like.

Concerns about how conflict frequency was measured in particular highlight one factor that may be contributing the researchers' inability to converge on a particular pattern of relationship change during adolescence. Different ways of measuring conflict may yield different mean levels of conflict as well as different patterns of change. One possibility would be to assess conflict in multiple ways with the same sample. The other common measure of conflict, for example, is the Issues Checklist (e.g., Steinberg, 1987), in which respondents rate the calmness of discussions (e.g., "very calm" to "very upset") that have occurred in a range of domains during a specified time period. A frequency count is obtained by the researcher (instead of being rated explicitly by the respondent) by counting the number of issues that had been discussed and were rated as anything more than "calm," and an intensity measure is obtained by averaging the responses across domains. On the one hand, the Issues Checklist is more appealing than the measure used in this study insofar as it does not require that respondents have a good count of the number of conflicts they have had in the given time period. On the other hand, the Issues Checklist might actually underestimate the amount of conflict that occurs, insofar as multiple arguments may have occurred in the specified time period about one particular topic, but respondents are generally only asked to rate the calmness of discussions about that topic one time. An explicit comparison of the Issues Checklist with the type of measure used in this study might help researchers figure out how best to measure conflict in these relationships.

The use of longitudinal data to study intra-dyadic change in relationship quality over time was another strength of this study, one that potentially allowed me to supplement the broad body of cross-sectional work on relationship change across adolescence. In particular, patterns of

change as a function of initial relationship quality, although scant, highlighted the existence of individual differences in patterns of relationship change across early and middle adolescence. Unfortunately, the nature of the longitudinal data on relationship quality in this study did not lend itself to straightforward testing of hypotheses about individual differences in relationship change. First, measurement was probably too infrequent to detect the relationship change that is discussed in the literature. Second, the overall decline in reports of relationship quality and high rank-order stability made it difficult to detect and interpret substantive changes in relationship quality. This represents a potential problem for future longitudinal work on relationship change, as response shifts are not well understood, especially outside of clinical populations. Longitudinal observational studies of parent-adolescent interactions represent one potentially fruitful avenue of research that could complement cross-sectional studies of parent-adolescent relationship change while circumventing the problem of response shifts in survey data.

Another limitation of this study concerns the generalizability of the findings based on the similarity of sample families to wider populations. Families in this sample were relatively well-functioning, financially secure, intact, dual-earner White families. The research design and desire to conduct a hands-on, labor intensive study required a local, limited sample; a level of generalizability was sacrificed in order to obtain detailed data across a range of constructs. However, my colleagues are currently conducting parallel studies in different locations on African American and Mexican American families. These data will provide information about a broader range of family types and experiences. Future work replicating and extending these findings with other types of families (e.g., single-parent families, families of color) will enable parent-adolescent relationship researchers to draw more general conclusions about the types of relationships that adolescents have with their parents.

Of course, cluster analysis is exploratory only, so I also cannot generalize these particular relationship profiles to the larger population. Future work on parent-adolescent relationships could address this issue not only by conducting similar cluster analyses on different samples in order to compare similarities and differences in profiles across samples, but also by working on the question of how to move from exploratory analyses to a more systematic typology of relationship quality that is generalizable and can be applied across samples. One method would be a median-split approach (such as that usually used to construct parenting style categories). I shied away from forcing relationship types through median splits because I was more interested

in looking for natural relationship patterns in this sample. However, a body of systematic research, involving exploratory techniques like cluster analysis as well as forced techniques like median splits, could yield information about patterns of relationship profiles that might generally be found across samples, ultimately yielding an empirically-based discussion about parent-adolescent relationships that will complement the largely theoretical discussion extant in the current literature. Another way to contextualize individual relationship qualities involves more traditional variable-centered analyses. For example, studies focused on the association between conflict and outcomes could test whether the association between conflict and outcomes is moderated by dimensions of warmth, love, or acceptance in those relationships (e.g., Dekovic, 1999). To the extent that conflict occurring in an otherwise warm, loving relationship is adaptive, it should be related to positive outcomes, while conflict occurring in negative relationships should be related to negative outcomes.

In sum, this study represented a positive step in parent-adolescent researchers' quest to understand what parent-adolescent relationships are like and how relationship dimensions change as adolescents develop. The use of multiple relationship qualities, the opportunity to indirectly compare mothers and fathers, the validation of relationship profiles through their associations with dyad members' individual characteristics and family relationships, and the investigation of relationship change as a function of relationship quality add to and move forward the body of work on parent-adolescent relationships.

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APPENDIX A: LIST OF ADDITIONAL MEASURES

The list below describes the measures used as potential correlates of cluster membership. "M" refers to Mother, "F" refers to Father, "SB" refers to Secondborn Offspring, "FB" refers to Firstborn Offspring.

Parent SES/Demographic Correlates		
Construct (Reporter)	Measure	Alphas at Time 1
Education (M, F)	Years of education	--
Income (M, F)	Yearly income	--
Job prestige (M, F)	National Opinion Research Center codes; Nakao & Treas, 1994	--
Age (M, F)	[(Date of interview) – (Date of birth)]/12	--
Family size (M)	Number of nuclear family members (parents plus offspring)	--

Individual Characteristics		
Construct (Reporter)	Measure	Alphas at Time 1
Gender role attitudes (M, F, SB)	Spence and Helmreich's (1978) Attitudes Toward Women. Fifteen-item, four-point (*Strongly Agree* to *Strongly Disagree*) scale. Higher scores indicated more traditional attitudes. Item scores summed.	.79 (M) .71 (F) .67 (SB)
Expressivity (M, F)	Feminine sub-scale of the Bem Sex Role Inventory (Bem, 1974). Twenty-item, seven-point (*Never or Almost Never True* to *Always or Almost Always True*) scale. Item scores summed; summed scores standardized for this study.	.81 (M) .78 (F)
Expressivity (SB)	Feminine sub-scale of the Personality Characteristics Scale (Antill, Russell, Goodnow, & Cotton, 1993). Six-item, five-point (*Almost Never* to *Almost Always*) scale. Item scores summed; summed scores standardized for this study.	.74
Role overload (M, F)	Reilly's (1982) Role Overload Scale. Thirteen-item, five-point (*Strongly Agree* to *Strongly Disagree*) scale. Item scores summed.	.89 (M) .92 (F)
Work pressure (M, F)	Work Pressure sub-scale of Moos' (1986) Work Environment Scale (WES-R). Nine-item, four-point (*Very True* to *Very Untrue*) scale. Item scores summed.	.85 (M) .77 (F)
Work hours (M, F)	Self-reported hours per week spent at work plus hours per week spent working at home	--

Depressive symptoms (M, F, A)	CESD Scale, Short Form. Twelve-item, four-point scale (*Rarely or None of the Time* to *Most or All of the Time*) about symptoms over the last two weeks. Item scores summed.	.85 (M) .79 (F) .70 (A)
Self-worth (SB)	Global self-worth sub-scale of the Harter Self-Perception Profile (Harter, 1988). Five-item, four-point scale. Item scores averaged.	.77
Risky behavior (SB)	The Risky Behavior Scale (Eccles & Barber, 1990). Eighteen-item, four-point scale (*Never* to *More than 10 Times*) about behavior over the last year. Item scores summed.	.86
Adolescent temperament (M, F)	Buss and Plomin's (1984) EAS Temperament Survey. Twenty-item, five-point (*Not characteristic or typical of my child* to *Very characteristic of my child*) scale measuring emotionality, activity, shyness, and sociability. . Item scores summed. Parent reports averaged for this study.	.73 - .82 (M) .69 - .75 (F)

Other Parent-Secondborn Relationship Characteristics

Construct (Reporter)	Measure	Alphas at Time 1
Parental knowledge	Percent agreement between parent and adolescent on 24 questions across four phone interviews concerning adolescents' daily activities (school, conduct, social lives, leisure)	--
Perspective taking (M, F, SB)	Stet's (1993, 1995) measure of how well each dyad member can take the other's perspective. Eight-item, five-point (*Not at all* to *Very much*) scale. Each dyad member was asked four questions about his/her own perspective taking and four questions about the other's perspective taking. Item scores summed.	.81, .85 (M) .69, .71 (F) .65 - .73 (SB)
Behavioral autonomy (M,F,SB)	Who has made decisions for/with the adolescent over the last year in 8 of the 11 domains that are used in the conflict measures (based on Dornbusch et al., 1985). Respondents chose from 9 response categories which are then collapsed into 4 categories: 0 = Neither parent(s) nor adolescent makes decisions in this area; 1=Decisions made entirely by parent(s); 2 = Decisions made by both parent(s) and adolescent; 3 = Decisions made entirely by adolescent. Item scores summed.	--

Marital Relationships

Construct (Reporter)	Measure	Alphas at Time 1
Love (M, F)	Love sub-scale of Braiker & Kelly's (1979) Relationships Questionnaire. Nine-item scale with a nine-point scale. Item scores summed.	.91 (M) .87 (F)
Satisfaction (M, F)	Marital satisfaction scale adapted from Huston, McHale, and Crouter (1986). Assessed satisfaction in seven domains using a nine-item (*Extremely Dissatisfied* to *Extremely Satisfied*) scale. Item scores summed.	.85 (M) .86 (F)

Centrality	For wives, the proportion of the total self-reported time across four phone interviews that was spent with husbands. For husbands, the proportion of the total self-reported time across four phone interviews that was spent with wives.	--
Conflict (M, F)	Conflict sub-scale of Braiker & Kelly's (1979) Relationships Questionnaire. Five-item scale with a nine-point scale. Item scores summed.	.79 (M) .76 (F)

Sibling Relationships

Construct (Reporter)	Measure	Alphas at Time 1
Intimacy (SB, FB)	Measure adapted from Blyth, Hill, and Thiel (1982). Eight-item, five-point (*Not at all* to *Very much*) scale. Item scores summed; dyadic average calculated for this study.	.85 (SB) .86 (FB)
Centrality	The proportion of total self-reported time across seven phone interviews spent with the other sibling for both secondborns and firstborns.	--
Conflict (SB, FB)	Measure adapted from Stocker and McHale (1992). Five-item, five-point (*Not at all* to *Very much*) scale. Item scores summed; dyadic average calculated for this study.	.81 (SB) .74 (FB)
Differential Treatment (SB, FB)	Measure asking adolescents the extent to which parents treated the two siblings differently on a five-point scale (*Me much more* to *Sibling much more*). Scale collapsed and re-coded to a three-point scale, 1 = *Younger sibling more*, 2 = *Siblings the same*, 3 = *Older sibling more*. Treatment dimensions included in this study: the extent to which mother (father) was nice to, spent time with, fought with, and punished one sibling more than the other. Dyadic average calculated for each item for this study.	--

Parent-Firstborn Relationships

Construct (Reporter)	Measure	Alphas at Time 1
Acceptance (M, F, FB)	Acceptance sub-scale of the CRPBI (Schaefer, 1965). Twenty-four item, five-point (*Not at all* to *Very much*) scale. Item responses summed; dyadic average computed for this study.	.91 (M) .93 (F) .74, .79 (FB)
Centrality	The dyadic average of the proportion of total self-reported time across phone interviews spent with the other dyad member.	--
Conflict frequency (M, F, FB)	Six-point (*Not at all* to *Several times a day*) scale assessing the amount of conflict in eleven domains. Scale was reverse scored, and item responses summed, so that higher scores meant less frequent conflict. Dyadic average calculated for this study.	.81 (M) .85 (F) .74, .79 (FB)

| Conflict intensity (M, F, FB) | Five-point (0 = *Conflicts haven't happened* to 4 = *Very upset*) assessing the extent to which dyad members become upset during conflict in eleven domains. Scale was reverse scored, and item responses summed, so that higher scores meant less intense conflict. Dyadic average calculated for this study. | .75 (M) .82 (F) .95, .97 (FB) |

Adolescent Developmental Status		
Construct (Reporter)	Measure	Alphas at Time 1
Pubertal status (SB)	Peterson (1988) Pubertal Development Scale. Five-item, four-point (*Has not yet started* to *Seems complete*) scale about growth spurt, body hair, skin changes; breast development and menstruation for girls; facial hair and voice changes for boys. Response items summed.	.81 (girls) .71 (boys)
Age	[(Date of interview) – (Date of birth)]/12	--

APPENDIX B: DENDOGRAMS FOR THE FOUR- AND FIVE-CLUSTER SOLUTIONS USING AVERAGE LINKAGE CLUSTER ANALYSES

Figure B.1. Dendogram for Mother-Adolescent Average Linkage Cluster Analysis.

```
* * * * * * H I E R A R C H I C A L   C L U S T E R    A N A L Y S I S * * * * * *
 Dendrogram using Average Linkage (Between Groups)

   C A S E      0         5        10        15        20        25
 Label   Num   +---------+---------+---------+---------+---------+
          95
         174
          14
          50
          23
          51
          53
          44
         193
          49
          55
         142
          30
          47
           3
          74
         147
          90
         112
         157
           7
           9
          31
          27
         164
          20
          25
          96
          29
          45
          33
          77
          80
          24
          57
          13
          37
          36
         138
          28
          39
          26
          61
           4
          38
         136
           6
```

```
 C A S E      0          5         10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
       160
       134
        35
       107
        10
       123
       151
        43
       154
       182
       189
       190
       179
        65
       177
       113
       171
       137
        99
       133
       153
        15
        19
        71
       140
        41
        16
        32
        52
        59
        92
       130
       114
        97
       152
       194
       184
        54
       155
        63
       161
       186
       149
        58
       132
        17
        81
        62
        88
        69
        82
        84
```

```
C A S E        0         5        10        15        20        25
Label  Num  +---------+---------+---------+---------+---------+
        79
        87
        64
        93
        89
        11
       102
        78
        85
        22
        60
        48
        18
        42
       125
       109
       168
       178
       163
        94
       187
       128
       196
       158
       175
       127
       185
       192
       159
         2
        21
       167
       173
        56
       143
       170
         1
       165
       101
       139
       129
        66
        68
       115
       180
       117
       150
       166
        86
       141
       116
        46
```

```
C A S E      0         5        10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
       195   ⇓⇓⇓⇓⇓⇓⇗                              ⇔
        67   ⇓⇓⇓✗⇓⇓⇓⇓⇓⇓⇓⇘                           ⇔
        70   ⇓⇓⇓⇗        ◻⇓⇓⇓⇘                       ⇔
        73   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗   ◻⇓⇓⇓⇓⇘                     ⇔
        34   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗       ⇔               ⇔
         5   ⇓⇓⇓⇓⇓⇓⇓✗⇓⇓⇓⇓⇓⇓⇘      ◻⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇘  ⇔
       188   ⇓⇓⇓⇓⇓⇓⇗          ⇔        ⇔       ⇔ ⇔
        76   ⇓⇓⇓⇓⇓✗⇓⇓⇓⇓⇓⇘   ◻⇓⇓⇓⇓⇗          ⇔ ⇔
       191   ⇓⇓⇓⇓⇗      ⇔     ⇔           ⇔ ⇔
        72   ⇓✗⇓⇓⇓⇘    ◻⇓⇓⇓⇗            ⇔ ⇔
       131   ⇓⇗    ◻⇓⇓⇓⇘    ⇔            ⇔ ⇔
       176   ⇓⇓⇓⇓⇓⇗    ◻⇓⇓⇓⇗           ⇔ ⇔
       144   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗                 ⇔ ⇔
       119   ⇓✗⇓⇓⇓⇓⇓⇓⇓⇓⇘               ⇔ ⇔
       126   ⇓⇗        ◻⇓⇓⇓⇓⇓⇓⇓⇓⇘         ⇔ ⇔
       103   ⇓⇓⇓⇓⇓✗⇓⇓⇓⇘ ⇔         ⇔        ◻⇓⇗
       169   ⇓⇓⇓⇓⇓⇗   ◻⇓⇗        ⇔         ⇔
        40   ⇓⇓⇓⇓⇓⇓⇓⇓⇓◻       ◻⇓⇓⇓⇘        ⇔
       120   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗     ⇔     ⇔       ⇔
       135   ⇓⇓⇓⇓⇓⇓✗⇓⇓⇓⇓⇓⇘   ⇔     ⇔       ⇔
       181   ⇓⇓⇓⇓⇓⇓⇓⇗     ◻⇓⇓⇓⇓⇗   ⇔       ⇔
       111   ⇓⇓⇓⇓⇓⇓✗⇓⇓⇓⇘   ⇔       ⇔
       148   ⇓⇓⇓⇓⇓⇓⇗    ◻⇓⇓⇓⇗     ⇔       ⇔
        83   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗           ⇔       ⇔
        12   ⇓⇓⇓✗⇓⇘          ⇔        ⇔
        75   ⇓⇓⇓⇗ ◻⇓⇓⇓⇓⇘            ⇔       ⇔
       122   ⇓⇓⇓⇓⇗      ◻⇓⇓⇓⇓⇘      ◻⇓⇓⇓⇓⇓⇓⇓⇓⇗
       118   ⇓⇓⇓⇓⇓⇓⇓⇓⇓✗⇓⇗      ⇔        ⇔
       162   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗        ⇔        ⇔
       121   ⇓✗⇓⇓⇓⇘          ⇔        ⇔
       124   ⇓⇗   ◻⇓⇘      ◻⇓⇓⇓⇓⇓⇘ ⇔
       104   ⇓⇓⇓⇓⇓⇗ ◻⇓⇓⇓⇓⇘       ⇔     ⇔ ⇔
       156   ⇓⇓⇓⇓⇓✗⇓⇗      ⇔     ⇔     ⇔ ⇔
       183   ⇓⇓⇓⇓⇓⇗       ⇔     ⇔     ⇔ ⇔
        98   ⇓⇓⇓⇘      ◻⇓⇓⇓⇗     ⇔ ⇔
       108   ⇓⇓⇓⇓⇘       ⇔       ⇔ ⇔
       105   ⇓⇓⇓⇗ ◻⇓⇓⇓⇓⇘ ⇔         ◻⇓⇗
       145   ⇓⇓⇓⇓⇓⇗    ◻⇓⇗       ⇔
       100   ⇓⇓⇓⇓⇓⇓⇓⇓⇓✗⇓⇗        ⇔
       110   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗        ⇔
       106   ⇓⇓⇓⇓⇓⇓⇓⇓⇓✗⇓⇓⇓⇓⇘      ⇔
       172   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗    ◻⇓⇓⇓⇘  ⇔
         8   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗    ◻⇓⇓⇓⇗
       146   ⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇓⇗
```

Figure B.2. Dendogram for Father-Adolescent Average Linkage Cluster Analysis.

```
* * * * * * H I E R A R C H I C A L   C L U S T E R   A N A L Y S I S * * * * * *
 Dendrogram using Average Linkage (Between Groups)
                    Rescaled Distance Cluster Combine

   C A S E      0         5        10        15        20        25
  Label  Num    +---------+---------+---------+---------+---------+
          64
          79
          82
          92
          74
          87
          80
          93
          77
          90
          85
          89
          61
          76
          78
          62
          84
          95
          83
          71
          94
          97
          67
          88
          65
          68
          69
          70
          73
          66
          63
          91
          75
          96
          72
          81
          86
         166
         183
         161
         181
         179
         188
         196
         176
         193
         194
```

```
C A S E      0         5         10        15        20        25
Label  Num  +---------+---------+---------+---------+---------+
       160  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘        ⇔     ⇔     ⇔           ⇔     ⇔
       164  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇘       □⇩⇩⇩⇘ ⇔           ⇔     ⇔
       189  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘ □⇩⇘       ⇔        ⇔           ⇔     ⇔
       171  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘ □⇩⇘       ⇔        ⇔           ⇔     ⇔
       172  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘ □⇩⇩⇩⇩⇩⇩⇩⇘      ⇔           ⇔     ⇔
       177  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘         ⇔           ⇔     ⇔
       163  ⇩⇩⇩⇩⇩✗⇩⇩⇩⇘                   ⇔           ⇔     ⇔
       186  ⇩⇩⇩⇩⇩⇘  □⇩⇩⇩⇩⇘             ⇔           ⇔     ⇔
       190  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘     □⇩⇩⇩⇩⇩⇩⇘          ⇔           ⇔     ⇔
       168  ⇩⇩⇩⇩⇩✗⇩⇩⇩⇘    ⇔        ⇔      ⇔           ⇔     ⇔
       184  ⇩⇩⇩⇩⇩⇘   □⇩⇩⇩⇩⇘    ⇔        □⇩⇩⇩⇩⇩⇘   ⇔     ⇔
       159  ⇩⇩⇩⇩⇩⇩⇩⇩⇘          ⇔        ⇔      ⇔     ⇔
       167  ⇩⇩⇩⇩⇩✗⇩⇩⇩⇘          ⇔        ⇔      ⇔     ⇔     ⇔
       192  ⇩⇩⇩⇩⇩⇘   ⇔          ⇔        ⇔      ⇔     ⇔     ⇔
       175  ⇩⇩⇩⇩⇩✗⇩⇩⇩⇕⇩⇩⇩⇩⇘     ⇔        ⇔      ⇔     ⇔     ⇔
       185  ⇩⇩⇩⇩⇩⇘   ⇔     ⇔      □⇩⇩⇩⇩⇩⇘   ⇔      ⇔     ⇔     ⇔
       165  ⇩✗⇩⇩⇩⇘   ⇔     ⇔      ⇔     ⇔      ⇔     ⇔     ⇔
       169  ⇩⇘ ⇔     ⇔     ⇔      ⇔     ⇔      ⇔     ⇔     ⇔
       158  ⇩⇩⇩✗⇩⇕⇩⇩⇩⇘     □⇩⇩⇩⇘ ⇔      ⇔     ⇔      ⇔     ⇔
       187  ⇩⇩⇩⇘ ⇔     ⇔     ⇔     ⇔     ⇔      ⇔     ⇔
       178  ⇩⇩⇩⇩⇩⇘         ⇔     ⇔     ⇔     ⇔      ⇔
       174  ⇩✗⇩⇩⇩⇩⇩⇩⇩⇩⇘     ⇔     ⇔     ⇔      □⇩⇩⇘ ⇔      ⇔     ⇔
       182  ⇩⇘    □⇩⇩⇩⇘   □⇩⇩⇩⇘    ⇔  ⇔     ⇔      ⇔     ⇔
       173  ⇩⇩⇩✗⇩⇩⇩⇘   ⇔        ⇔  ⇔  ⇔      □⇩⇩⇩⇩⇩⇘   ⇔
       195  ⇩⇩⇩⇘  □⇩⇩⇩⇘    ⇔        ⇔ □⇩⇘    ⇔        ⇔
       180  ⇩⇩⇩⇩⇩⇩⇘        ⇔        ⇔  ⇔      ⇔        ⇔
       170  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘      ⇔  ⇔      ⇔           ⇔
       191  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘ ⇔      ⇔           ⇔
       162  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘     ⇔           ⇔
       102  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘         ⇔        ⇔
       112  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘       □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘  ⇔        ⇔
       125  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘    ⇔     ⇔        ⇔
        98  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩⇩⇘      ⇔     ⇔        ⇔
       113  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘    □⇩⇩⇩⇩⇩⇩⇩⇩⇘   ⇔        ⇔
       106  ⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇘    ⇔     ⇔  ⇔     ⇔        ⇔
       109  ⇩⇩⇩⇩⇩⇩⇩⇘      □⇩⇩⇩⇩⇩⇩⇩⇘   ⇔  ⇔     ⇔        ⇔
       115  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘      ⇔ □⇩⇩⇩⇘        ⇔
       110  ⇩✗⇩⇘              ⇔  ⇔           ⇔
       120  ⇩⇩⇘ □⇩⇩⇩⇩⇩⇘            ⇔  ⇔           ⇔
       130  ⇩⇩⇩⇘    □⇩⇘            ⇔  ⇔           ⇔
       103  ⇩⇩⇩✗⇩⇘   ⇔  ⇔          ⇔  ⇔           ⇔
       108  ⇩⇩⇩⇘ □⇩⇩⇩⇘ □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘       ⇔     ⇔           ⇔
       118  ⇩⇩⇩✗⇩⇘    ⇔        ⇔        □⇩⇘     ⇔
       122  ⇩⇩⇩⇘     ⇔        ⇔        ⇔     ⇔
       107  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇘        ⇔           ⇔        ⇔
       104  ⇩⇩⇩⇩⇩✗⇩⇘            □⇩⇘     ⇔           ⇔
       111  ⇩⇩⇩⇩⇩⇘ □⇩⇩⇩⇩⇩⇘     ⇔  ⇔           ⇔           ⇔
       116  ⇩⇩⇩⇩⇩✗⇩⇘     ⇔        ⇔  ⇔           ⇔           ⇔
       131  ⇩⇩⇩⇩⇩⇘     ⇔        ⇔  ⇔           ⇔           ⇔
       117  ⇩✗⇩⇘     ⇔        ⇔  ⇔           ⇔           ⇔
       124  ⇩⇘ ⇔        □⇩⇩⇩⇩⇩⇩⇩⇘ ⇔           ⇔           ⇔
       129  ⇩⇩⇩⇕⇩⇘     ⇔        ⇔        ⇔           ⇔
```
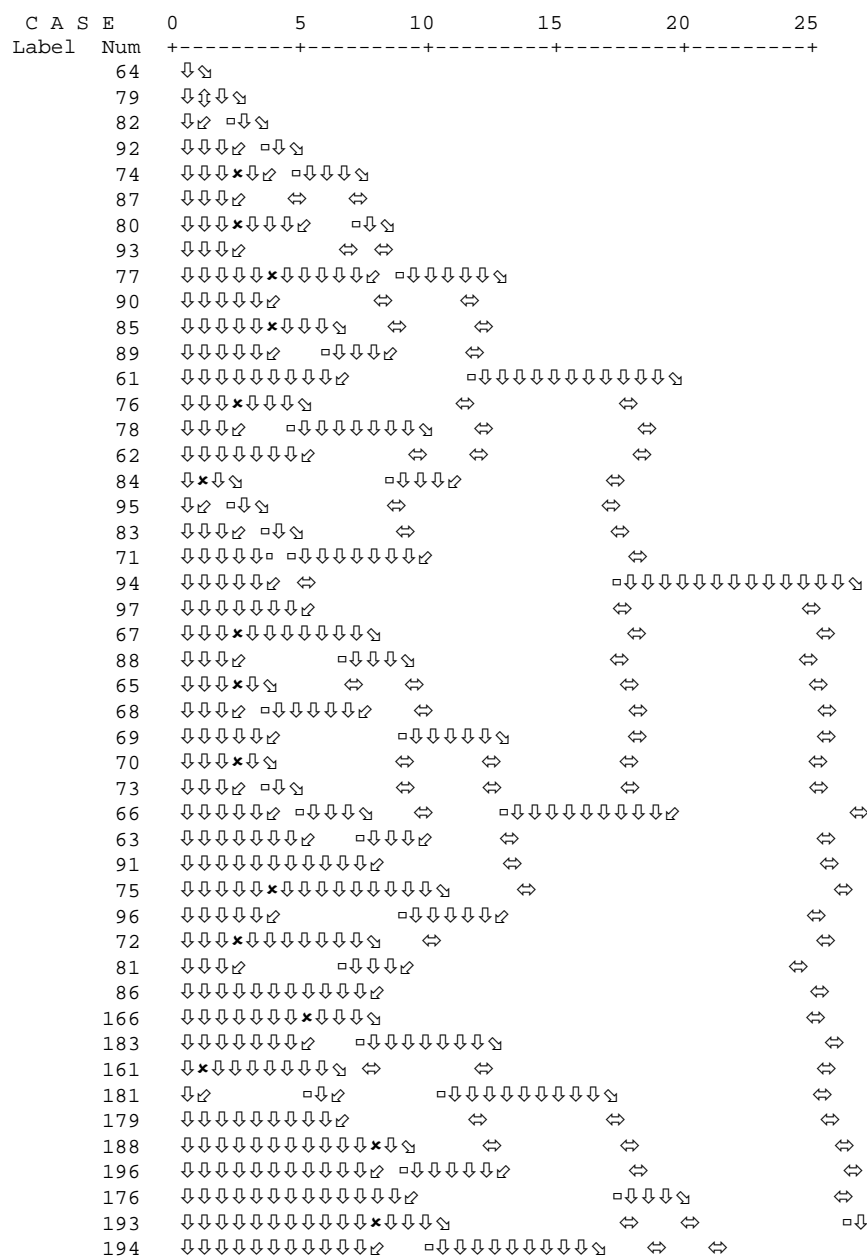
```
C A S E      0         5        10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
       101   ⇩⇩⇩↙ □⇩⇩⇩↘    ⇔          □⇩⇩⇩⇩⇩⇩⇩⇩⇩↙              ⇔
       121   ⇩⇩⇩⇩⇩↙   □⇩⇩⇩□        ⇔                    ⇔
       127   ⇩⇩⇩⇩⇩⇩⇩⇩↙     ⇔          ⇔                     ⇔
       105   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙        ⇔                        ⇔
       119   ⇩⇩⇩⇩⇩✕⇩⇩⇩↘          ⇔                         ⇔
       123   ⇩⇩⇩⇩⇩↙    □⇩↘        ⇔                        ⇔
        99   ⇩⇩⇩⇩⇩⇩⇩✕⇩↙ □⇩↘        ⇔                       ⇔
       126   ⇩⇩⇩⇩⇩⇩⇩↙    ⇔ □⇩⇩⇩⇩⇩⇩⇩⇩⇩□                       ⇔
       114   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙ ⇔       ⇔                          ⇔
       128   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙        ⇔                            ⇔
       100   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙                              ⇔
       134   ⇩⇩⇩✕⇩⇩⇩↘                                ⇔
       141   ⇩⇩⇩↙   □⇩⇩⇩⇩⇩⇩↘                              ⇔
       139   ⇩⇩⇩⇩⇩✕⇩↙      ⇔                              ⇔
       151   ⇩⇩⇩⇩⇩↙        □⇩⇩⇩⇩⇩↘                         ⇔
       133   ⇩✕⇩⇩⇩⇩⇩⇩↘      ⇔     ⇔                         ⇔
       153   ⇩↙      □⇩⇩⇩⇩↙     ⇔                           ⇔
       142   ⇩⇩⇩✕⇩↘   ⇔       ⇔                             ⇔
       147   ⇩⇩⇩↙ □⇩⇩⇩↙      □⇩⇩⇩↘                         ⇔
       136   ⇩⇩⇩⇩⇩↙          ⇔     ⇔                        ⇔
       143   ⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩⇩↘ ⇔     ⇔                         ⇔
       150   ⇩⇩⇩⇩⇩⇩⇩↙        ⇔ ⇔                            ⇔
       140   ⇩⇩⇩⇩⇩✕⇩⇩⇩⇩↘        □⇩↙   ⇔                        ⇔
       152   ⇩⇩⇩⇩⇩↙     ⇔        ⇔      ⇔                     ⇔
       132   ⇩✕⇩↘       □⇩⇩⇩⇩⇩⇩⇩↙     ⇔                        ⇔
       157   ⇩↙ □⇩↘    ⇔         □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘         ⇔
       138   ⇩⇩⇩↙ □⇩↘   ⇔             ⇔          ⇔       ⇔
       155   ⇩⇩⇩⇩⇩↙ □⇩⇩⇩↙        ⇔           ⇔       ⇔
       154   ⇩⇩⇩⇩⇩⇩⇩↙          ⇔           ⇔       ⇔
       145   ⇩⇩⇩⇩⇩✕⇩⇩⇩⇩↘          ⇔           ⇔       ⇔
       149   ⇩⇩⇩⇩⇩↙      □⇩⇩⇩⇩⇩⇩⇩⇩↘     ⇔        ⇔       ⇔
       135   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙        ⇔    ⇔        ⇔       ⇔
       148   ⇩⇩⇩⇩⇩⇩✕⇩↘        □⇩⇩⇩↙      ⇔       ⇔
       156   ⇩⇩⇩⇩⇩⇩↙ □⇩↘        ⇔          ⇔      ⇔
       144   ⇩⇩⇩⇩⇩⇩⇩⇩↙ ⇔       ⇔           ⇔      ⇔
       146   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙            ⇔         ⇔
       137   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙              ⇔       ⇔
         1   ⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩↘          ⇔         ⇔
         7   ⇩⇩⇩⇩⇩↙       ⇔         ⇔       ⇔
        52   ⇩✕⇩⇩⇩↘      □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘    ⇔        ⇔
        58   ⇩↙   □⇩↘    ⇔        ⇔         □⇩⇩⇩⇩⇩⇩⇩⇩⇩↙
         2   ⇩⇩⇩⇩⇩↙ □⇩⇩⇩⇩⇩↙        ⇔         ⇔
        20   ⇩⇩⇩⇩⇩⇩⇩↙          ⇔         ⇔
        21   ⇩✕⇩⇩⇩⇩⇩⇩⇩⇩↘        □⇩⇩⇩⇩↘     ⇔
        43   ⇩↙       ⇔         ⇔       ⇔      ⇔
        19   ⇩⇩⇩✕⇩↘    □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘  ⇔      ⇔      ⇔
        36   ⇩⇩⇩↙ □⇩⇩⇩↘ ⇔         ⇔    ⇔     ⇔     ⇔
        56   ⇩⇩⇩⇩⇩↙    □⇩↙       □⇩⇩⇩↙   ⇔     ⇔
        40   ⇩⇩⇩⇩⇩⇩⇩⇩↙          ⇔       ⇔     ⇔
        34   ⇩⇩⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘ ⇔      ⇔     ⇔
        46   ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙          □⇩↙    ⇔      ⇔
        15   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩↙          ⇔      ⇔
```

```
C A S E        0         5        10        15        20        25
Label  Num    +---------+---------+---------+---------+---------+
        32    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙                    ⇔         ⇔
         8    ⇩⇩⇩✗⇩↖                          ⇔         ⇔
        41    ⇩⇩⇩↙ ▫⇩⇩⇩⇩⇩⇩⇩↖                  ⇔         ⇔
         5    ⇩⇩⇩⇩⇩↙          ⇔                ⇔         ⇔
         3    ⇩⇩⇩✗⇩⇩⇩⇩↖   ▫⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↖     ▫⇩⇩⇩⇩⇩↙
        33    ⇩⇩⇩↙     ⇔    ⇔           ⇔         ⇔
        17    ⇩✗⇩⇩⇩↖    ▫⇩⇩⇩↙            ⇔         ⇔
        37    ⇩↙    ▫⇩↖ ⇔             ⇔         ⇔
        38    ⇩⇩⇩⇩⇩↙ ▫⇩↙              ⇔         ⇔
         6    ⇩⇩⇩⇩⇩⇩↙                ⇔         ⇔
        28    ⇩↖                     ⇔         ⇔
        39    ⇩⇩⇩↖                   ⇔         ⇔
        13    ⇩↙ ▫⇩↖                 ⇔         ⇔
        44    ⇩⇩⇩↙ ▫⇩⇩⇩↖             ⇔         ⇔
        51    ⇩⇩⇩⇩⇩↙    ⇔            ⇔         ⇔
        23    ⇩✗⇩↖     ▫⇩⇩⇩⇩⇩↖       ⇔         ⇔
        55    ⇩↙ ▫⇩↖ ⇔      ⇔        ⇔         ⇔
        30    ⇩✗⇩↙ ▫⇩↖ ⇔       ⇔        ▫⇩⇩⇩⇩⇩↙
        60    ⇩↙   ⇔ ▫⇩↙       ⇔        ⇔
        16    ⇩⇩⇩⇩⇩↙ ⇔        ▫⇩⇩⇩↖       ⇔
        47    ⇩⇩⇩⇩⇩⇩↙          ⇔    ⇔    ⇔
        22    ⇩⇩⇩⇩⇩⇩⇩✗⇩↖       ⇔    ⇔    ⇔
        57    ⇩⇩⇩⇩⇩⇩↙ ⇔        ⇔    ⇔    ⇔
        29    ⇩✗⇩↖    ▫⇩⇩⇩⇩⇩↙    ⇔       ⇔
        31    ⇩↙ ▫⇩⇩⇩⇩⇩▫      ▫⇩⇩⇩⇩⇩⇩⇩▫
        24    ⇩⇩⇩↙    ⇔         ⇔       ⇔
        12    ⇩⇩⇩⇩⇩⇩⇩⇩↙         ⇔       ⇔
        49    ⇩✗⇩⇩⇩↖            ⇔       ⇔
        53    ⇩↙    ▫⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↖ ⇔      ⇔
        26    ⇩⇩⇩⇩⇩↙          ⇔   ⇔     ⇔
         9    ⇩✗⇩⇩⇩⇩⇩↖          ▫⇩↙    ⇔
        25    ⇩↙     ▫⇩⇩⇩⇩⇩↖       ⇔    ⇔
        27    ⇩⇩⇩⇩⇩⇩↙     ▫⇩⇩⇩↙
        35    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙          ⇔
        45    ⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩↖         ⇔
        48    ⇩⇩⇩⇩⇩↙        ⇔         ⇔
        14    ⇩✗⇩⇩⇩↖         ▫⇩⇩⇩⇩⇩↖     ⇔
        50    ⇩↙ ▫⇩⇩⇩⇩⇩⇩↖ ⇔      ⇔    ⇔
        11    ⇩⇩⇩✗⇩↙      ▫⇩↙     ⇔    ⇔
        42    ⇩⇩⇩↙          ⇔     ▫⇩⇩⇩⇩⇩↙
        59    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙         ⇔
        18    ⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩↖        ⇔
        54    ⇩⇩⇩⇩⇩⇩↙       ▫⇩⇩⇩⇩⇩↙
         4    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩↙
        10    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙
```

APPENDIX C: AVERAGE LINKAGE CLUSTER ANALYSES WITH POSSIBLE OUTLIERS REMOVED

Figure C.1. Dendogram for Mother-Adolescent Average Linkage Cluster Analysis with Possible Outliers Deleted.

```
* * * * * * H I E R A R C H I C A L   C L U S T E R    A N A L Y S I S * * * * * *
 Dendrogram using Average Linkage (Between Groups)

   C A S E     0         5        10        15        20        25
  Label  Num   +---------+---------+---------+---------+---------+
          69
         186
          73
         165
          99
         169
         171
         145
         184
         161
          74
         173
         114
         157
           8
          60
         118
         160
          84
         195
          41
          51
         115
          30
         108
          92
         104
         191
         113
         148
          71
         117
          89
         102
         179
          64
         130
          54
         121
          57
         146
         168
         143
         183
          94
```

```
 C A S E     0         5        10        15        20        25
Label   Num  +---------+---------+---------+---------+---------+
        152  ⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩↘      ⇔              ⇔         ⇔
        153  ⇩⇩⇩↙        □⇩⇩⇩⇩⇩↙              ⇔         ⇔
         85  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙                ⇔         ⇔
         46  ⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘        ⇔          ⇔
        129  ⇩⇩⇩⇩⇩↙                 ⇔       ⇔        ⇔
        112  ⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩↘          □⇩⇩⇩⇩⇩⇩⇩↙      ⇔
        135  ⇩⇩⇩⇩⇩⇩⇩↙   □⇩⇩⇩⇩↘       ⇔          ⇔
          2  ⇩⇩⇩⇩⇩✗⇩↘    ⇔        ⇔         ⇔         ⇔
        106  ⇩⇩⇩⇩⇩↙  □⇩⇩⇩↘      □⇩⇩⇩⇩↙              ⇔
         10  ⇩⇩⇩⇩⇩⇩↙            ⇔              ⇔
         26  ⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩↘ ⇔                  ⇔
        133  ⇩⇩⇩⇩⇩⇩⇩↙        □⇩↙              ⇔
         16  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩↘ ⇔              ⇔
         32  ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙    □⇩↙              ⇔
         14  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙                  ⇔
        174  ⇩✗⇩↘                    □⇩⇩⇩⇩⇩⇩⇩⇩⇩↘
        189  ⇩↙ □⇩⇩⇩⇩↘           ⇔         ⇔
         98  ⇩⇩⇩↙     □⇩⇩⇩↘            ⇔         ⇔
        172  ⇩⇩⇩⇩⇩✗⇩⇩⇩↙   ⇔                ⇔         ⇔
        188  ⇩⇩⇩⇩⇩↙      □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘        ⇔              ⇔
          7  ⇩⇩⇩⇩⇩⇩⇩✗⇩↘   ⇔            ⇔         ⇔         ⇔
         18  ⇩⇩⇩⇩⇩⇩⇩↙ □⇩⇩⇩↙            ⇔         ⇔         ⇔
        124  ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙           ⇔         ⇔         ⇔
         80  ⇩✗⇩⇩⇩⇩↘            ⇔         ⇔         ⇔
         86  ⇩↙     □⇩↘       □⇩⇩⇩⇩⇩⇩↘    ⇔         ⇔
         42  ⇩⇩⇩✗⇩↘ ⇔  ⇔            ⇔      ⇔  ⇔         ⇔
         56  ⇩⇩⇩↙ □⇩↙ □⇩⇩⇩⇩↘        ⇔      ⇔  ⇔         ⇔
        141  ⇩⇩⇩⇩↙    ⇔     ⇔        ⇔      ⇔  ⇔         ⇔
         81  ⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔            ⇔      ⇔  ⇔         ⇔
        116  ⇩⇩⇩✗⇩⇩⇩⇩↘   □⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔   ⇔         ⇔
        170  ⇩⇩⇩↙     □⇩⇩⇩↘ ⇔            ⇔  ⇔         ⇔
        187  ⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔   ⇔            ⇔  ⇔         ⇔
        177  ⇩⇩⇩✗⇩⇩⇩↘     □⇩↙          ⇔  ⇔         ⇔
        180  ⇩⇩⇩↙     □⇩⇩⇩↘ ⇔          ⇔  ⇔         ⇔
        100  ⇩⇩⇩⇩⇩⇩⇩↙    □⇩↙           ⇔  ⇔         ⇔
        193  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙          □⇩↙        ⇔
          5  ⇩⇩⇩⇩⇩✗⇩↘            ⇔         ⇔
        182  ⇩⇩⇩⇩⇩↙ □⇩⇩⇩⇩↘           ⇔         ⇔
         82  ⇩⇩⇩⇩⇩⇩⇩↙     □⇩⇩⇩⇩⇩⇩⇩↘        ⇔         ⇔
        109  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔          ⇔         ⇔
          3  ⇩⇩⇩⇩⇩✗⇩⇩⇩↘      □⇩⇩⇩⇩⇩⇩↘     ⇔         ⇔
        134  ⇩⇩⇩⇩⇩↙   □⇩⇩⇩↘     ⇔      ⇔         ⇔         ⇔
         36  ⇩⇩⇩⇩⇩⇩⇩⇩↙   ⇔      ⇔        ⇔         ⇔         ⇔
        111  ⇩⇩⇩✗⇩⇩⇩↘     □⇩⇩⇩⇩⇩⇩↙     ⇔         ⇔
        125  ⇩⇩⇩↙     □⇩↘   ⇔          ⇔         ⇔
         87  ⇩⇩⇩⇩⇩⇩⇩↙ □⇩⇩⇩↙           ⇔         ⇔
        131  ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙        □⇩⇩⇩⇩⇩⇩⇩↙        ⇔
         15  ⇩⇩⇩✗⇩↘            ⇔              ⇔
        178  ⇩⇩⇩↙ □⇩⇩⇩⇩⇩↘           ⇔          ⇔
        150  ⇩⇩⇩⇩⇩↙    ⇔            ⇔          ⇔
         59  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘    ⇔              ⇔
         23  ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙         ⇔      ⇔              ⇔
```

```
C A S E        0         5        10        15        20        25
Label  Num    +---------+---------+---------+---------+---------+
        72    ⇩⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩↘   ▭⇩⇩⇩⇩⇩↗                    ⇔
       126    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔      ⇔                    ⇔
        97    ⇩⇩⇩✕⇩↘            ▭⇩⇩⇩↙                    ⇔
       194    ⇩⇩⇩↙ ⇔                ⇔                    ⇔
       158    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘            ⇔                    ⇔
        83    ⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩⇩⇩⇩⇩↙                       ⇔
       142    ⇩⇩⇩⇩⇩⇩✕⇩⇩⇩↙                                ⇔
       149    ⇩⇩⇩⇩⇩⇩↙                                   ⇔
        12    ⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩↘                            ⇔
        13    ⇩⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩⇩⇩⇩↘                       ⇔
       176    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘              ⇔
        45    ⇩⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩↘ ⇔          ⇔              ⇔
        55    ⇩⇩⇩⇩⇩⇩⇩⇩↙         ▭⇩↙      ⇔          ⇔
        20    ⇩⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩↘      ⇔          ⇔          ⇔
        77    ⇩⇩⇩⇩⇩⇩↙         ▭⇩⇩⇩⇩⇩↙      ⇔          ⇔
        52    ⇩⇩⇩⇩⇩✕⇩⇩⇩⇩↘      ⇔          ⇔          ⇔
        91    ⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩↙          ⇔          ⇔
        31    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙               ⇔          ⇔
        61    ⇩⇩⇩✕⇩↘                     ⇔          ⇔
        66    ⇩⇩⇩↙ ▭⇩⇩⇩⇩↘                ⇔          ⇔
       139    ⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩⇩↘            ▭⇩⇩⇩↘      ⇔
        25    ⇩⇩⇩⇩⇩⇩⇩⇩⇩✕⇩↙      ⇔          ⇔      ⇔
       122    ⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔          ⇔      ⇔
       138    ⇩✕⇩⇩⇩↘            ⇔          ⇔      ⇔
       147    ⇩↙   ▭⇩↘      ▭⇩⇩⇩⇩⇩⇩↘      ⇔      ⇔      ⇔
        39    ⇩⇩⇩⇩⇩↙ ▭⇩⇩⇩⇩↘ ⇔      ⇔          ⇔      ⇔      ⇔
        95    ⇩⇩⇩⇩✕⇩↙   ⇔   ⇔      ⇔      ⇔          ⇔
       190    ⇩⇩⇩⇩⇩↙   ⇔   ⇔      ⇔      ⇔          ⇔
         4    ⇩⇩⇩↘      ▭⇩⇩⇩↙      ⇔      ⇔      ⇔          ⇔
        58    ⇩⇩⇩⇩↘      ⇔      ⇔      ⇔      ⇔          ⇔
        44    ⇩⇩⇩↙ ▭⇩⇩⇩⇩↘ ⇔      ⇔      ⇔      ⇔          ⇔
       101    ⇩⇩⇩⇩⇩↙      ▭⇩↙      ▭⇩⇩⇩⇩⇩⇩⇩↙   ⇔          ⇔
        19    ⇩⇩⇩⇩⇩⇩⇩⇩✕⇩↙      ⇔          ⇔      ⇔          ⇔
        65    ⇩⇩⇩⇩⇩⇩⇩⇩↙          ⇔          ⇔      ⇔
       127    ⇩✕⇩⇩⇩⇩⇩⇩⇩↘          ⇔          ⇔      ⇔
       159    ⇩↙      ▭⇩⇩⇩⇩⇩⇩⇩⇩↘   ⇔          ⇔      ⇔
        27    ⇩⇩⇩⇩✕⇩⇩⇩↘ ⇔      ⇔          ⇔      ⇔
        43    ⇩⇩⇩⇩⇩↙   ▭⇩↙   ⇔      ⇔      ⇔      ⇔
       132    ⇩⇩⇩⇩⇩⇩⇩⇩⇩▭         ▭⇩⇩⇩↙      ⇔      ⇔
       136    ⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔               ▭⇩⇩⇩⇩⇩⇩⇩⇩↙
        17    ⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩↘      ⇔          ⇔
        93    ⇩⇩⇩⇩⇩⇩⇩↙      ▭⇩⇩⇩⇩↙          ⇔
        67    ⇩⇩⇩⇩⇩⇩✕⇩⇩⇩↘      ⇔          ⇔
       144    ⇩⇩⇩⇩⇩⇩↙   ▭⇩⇩⇩↙          ⇔
       119    ⇩⇩⇩⇩⇩⇩⇩↙               ⇔
        28    ⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩⇩↘            ⇔
        40    ⇩⇩⇩↙      ▭⇩⇩⇩⇩⇩⇩↘         ⇔
        53    ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔      ⇔
        24    ⇩⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩⇩⇩↘   ▭⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘   ⇔
       140    ⇩⇩⇩⇩⇩⇩↙      ⇔      ⇔          ⇔      ⇔
        70    ⇩⇩⇩⇩⇩✕⇩⇩⇩⇩⇩↘      ▭⇩⇩⇩↙          ⇔      ⇔
       154    ⇩⇩⇩⇩⇩↙      ⇔      ⇔               ⇔      ⇔
```

```
C A S E        0         5        10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
        47   ⇩×⇩⇩⇩↘       ▫⇩⇩⇩↙                    ⇔       ⇔
       185   ⇩↙   ▫⇩⇩⇩↘    ⇔                       ⇔       ⇔
        76   ⇩⇩⇩⇩⇩↙     ▫⇩⇩⇩↙                     ⇔       ⇔
        88   ⇩⇩⇩⇩⇩⇩⇩⇩↙                           ⇔       ⇔
        38   ⇩×⇩↘                            ⇔       ⇔
        63   ⇩↙  ▫⇩⇩⇩⇩⇩↘                         ⇔       ⇔
        78   ⇩⇩⇩↙      ▫⇩⇩⇩⇩⇩↘                    ⇔       ⇔
        29   ⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔                  ▫⇩⇩⇩↙
       137   ⇩⇩⇩×⇩⇩⇩↘       ▫⇩⇩⇩⇩⇩⇩⇩↘            ⇔
       181   ⇩⇩⇩↙  ▫⇩↘   ⇔         ⇔       ⇔
       163   ⇩⇩⇩⇩⇩⇩×⇩↙ ▫⇩⇩⇩⇩⇩↙      ⇔              ⇔
       196   ⇩⇩⇩⇩⇩↙   ⇔          ⇔       ⇔
         9   ⇩⇩⇩⇩⇩⇩⇩⇩⇩▫        ▫⇩⇩⇩↘           ⇔
        75   ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙       ⇔       ⇔          ⇔
        37   ⇩⇩⇩⇩⇩⇩⇩×⇩⇩⇩⇩⇩⇩⇩⇩↘     ⇔       ⇔          ⇔
        62   ⇩⇩⇩⇩⇩⇩⇩↙         ⇔       ⇔       ⇔       ⇔
       123   ⇩⇩⇩×⇩↘      ▫⇩⇩⇩⇩⇩↙     ⇔       ⇔
       162   ⇩⇩⇩↙  ⇔           ⇔       ⇔       ⇔
       156   ⇩⇩⇩⇩⇩⇧⇩⇩⇩⇩⇩⇩⇩⇩↘ ⇔           ⇔          ⇔
        11   ⇩⇩⇩⇩⇩↙       ▫⇩⇩↙       ▫⇩⇩⇩⇩⇩⇩⇩↙
         6   ⇩⇩⇩⇩⇩⇩⇩⇩⇩×⇩⇩⇩⇩⇩↙      ⇔
        96   ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙                 ⇔
        48   ⇩⇩⇩×⇩⇩⇩⇩⇩⇩↘                ⇔
        79   ⇩⇩⇩↙     ▫⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘ ⇔
         1   ⇩×⇩⇩⇩⇩⇩↘   ⇔              ⇔   ⇔
        34   ⇩⇩↙    ▫⇩⇩⇩↙         ⇔   ⇔
        21   ⇩⇩⇩×⇩↘  ⇔             ⇔   ⇔
        50   ⇩⇩⇩↙  ▫⇩↙        ▫⇩↙
       167   ⇩⇩⇩⇩⇩↙            ⇔
        22   ⇩⇩⇩⇩⇩×⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘     ⇔
        33   ⇩⇩⇩⇩⇩↙          ⇔      ⇔
        90   ⇩⇩⇩×⇩↘          ⇔      ⇔
       103   ⇩⇩⇩↙ ▫⇩⇩⇩↘       ▫⇩⇩⇩↘
       107   ⇩⇩⇩⇩⇩↙    ▫⇩⇩⇩↘        ⇔
        35   ⇩⇩⇩⇩⇩⇩⇩×⇩↙   ⇔         ⇔
       164   ⇩⇩⇩⇩⇩⇩⇩⇩↙    ▫⇩⇩⇩⇩⇩⇩⇩↙
        68   ⇩×⇩⇩⇩⇩⇩↘     ⇔
       128   ⇩↙    ▫⇩⇩⇩↘ ⇔
       105   ⇩⇩⇩⇩⇩⇩⇩↙  ▫⇩↙
       151   ⇩⇩⇩⇩⇩⇩⇩×⇩⇩⇩↙
       192   ⇩⇩⇩⇩⇩⇩⇩↙
```

Table C.1

Differences in Cluster Membership Between Original Mother-Adolescent Clusters and Mother-Adolescent Clusters with Possible Outliers Deleted

Four-Cluster Solution

Clusters with Possible Outliers Missing

Original Clusters	Harmonious	Uninvolved	Conflictual – Child	Conflictual - Parent	Deleted Dyads	Total
Harmonious	60		8			68
Uninvolved		45			1	46
Conflictual – Child			37		1	38
Conflictual - Parent			11	29	3	43

Five-Cluster Solution

Clusters with Possible Outliers Missing

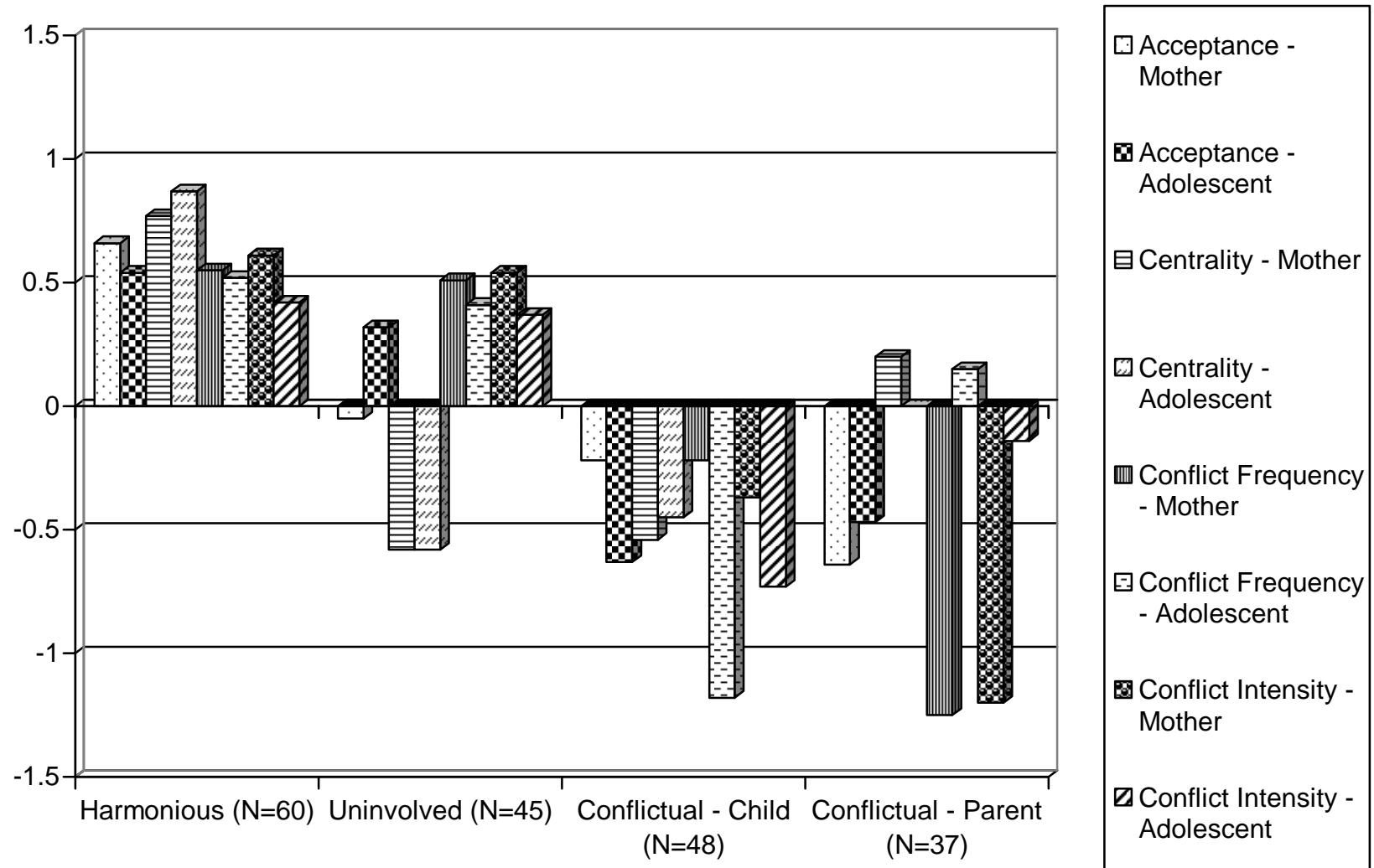| Original Clusters	Harmonious	Uninvolved 1	Uninvolved 2	Conflictual – Child	Conflictual - Parent	Deleted Dyads	Total
Harmonious	60			8			68
Uninvolved 1		24					24
Uninvolved 2			21			1	22
Conflictual – Child				37		1	38
Conflictual - Parent				11	29	3	43

Figure C.2. Profiles of Mother-Adolescent Dyads for the Four-Cluster Solution in Average Linkage Cluster Analysis with Possible Outliers Deleted.
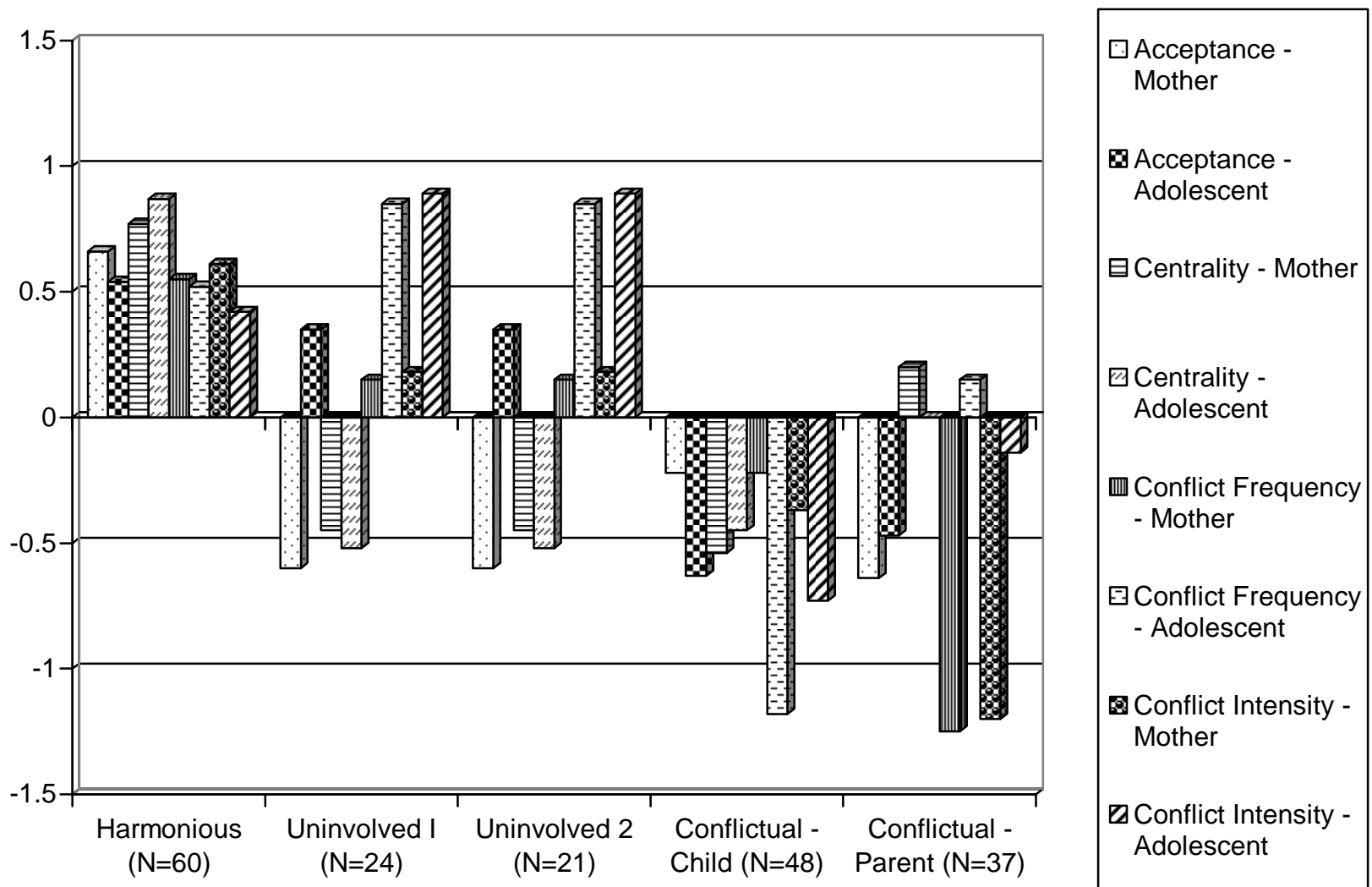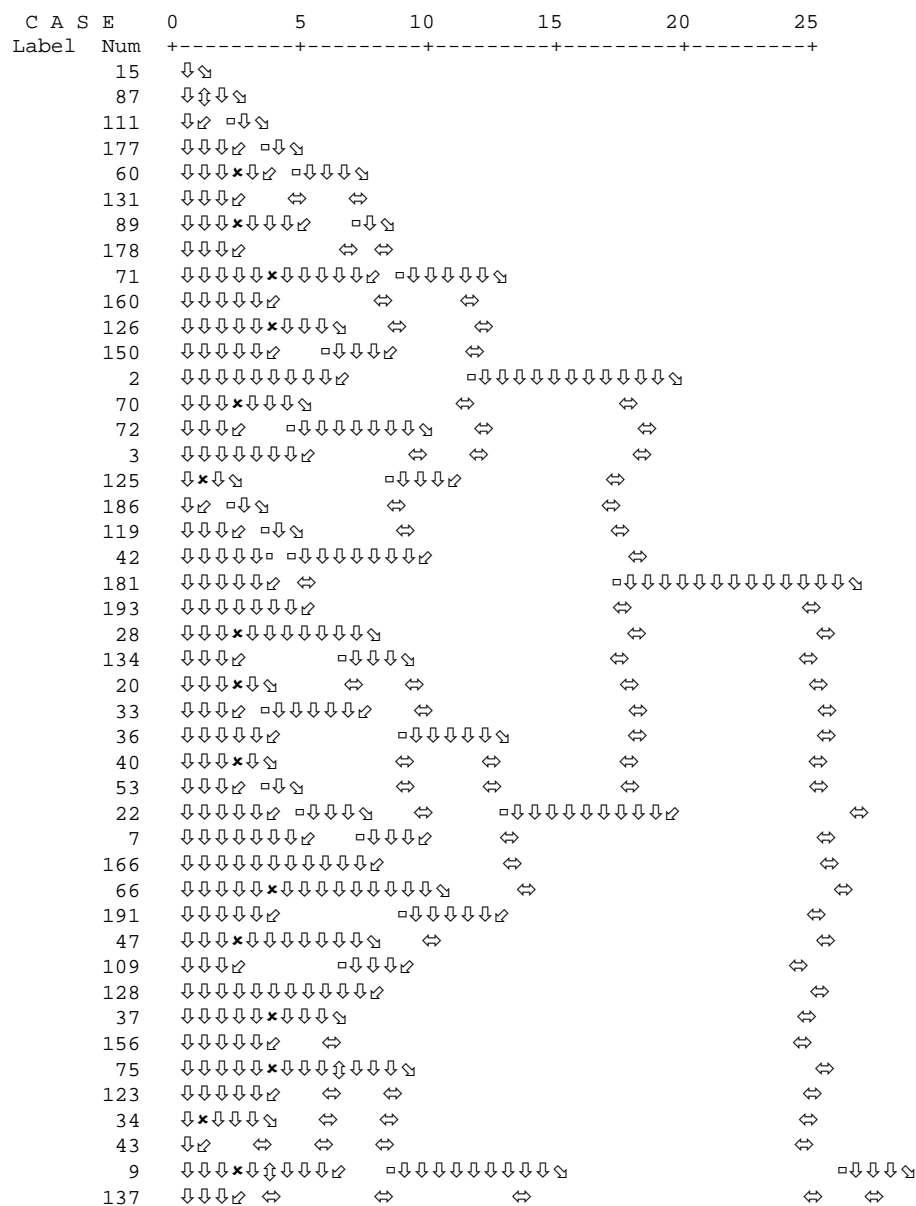
Figure C.3. Profiles of Mother-Adolescent Dyads for the Five-Cluster Solution in Average Linkage Cluster Analysis with Possible Outliers Deleted.

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Figure C.4. Dendogram for Father-Adolescent Average Linkage Cluster Analysis with Possible Outliers Deleted.

```
* * * * * * H I E R A R C H I C A L   C L U S T E R   A N A L Y S I S * * * * * *
 Dendrogram using Average Linkage (Between Groups)

   C A S E      0         5        10        15        20        25
  Label  Num   +---------+---------+---------+---------+---------+
         15
         87
        111
        177
         60
        131
         89
        178
         71
        160
        126
        150
          2
         70
         72
          3
        125
        186
        119
         42
        181
        193
         28
        134
         20
         33
         36
         40
         53
         22
          7
        166
         66
        191
         47
        109
        128
         37
        156
         75
        123
         34
         43
          9
        137
```

```
C A S E      0         5        10        15        20        25
Label  Num  +---------+---------+---------+---------+---------+
        78
        69
        94
        62
       192
        90
        29
       124
       153
        38
        98
        11
        35
        95
        18
        93
        85
       140
       196
        76
       184
       189
        16
        30
       152
        52
        55
        77
         4
        91
        45
        63
       103
        23
        84
       127
       146
        13
       159
       100
       163
        65
       132
       180
        27
        58
       122
       139
        54
        39
        67
       105
```

```
C A S E        0         5         10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
       185
       107
       147
       167
        21
       138
       162
        44
        14
        68
        50
       168
        12
       176
        74
       118
        26
        79
       164
        56
       174
         5
       195
        46
       188
       183
       101
       155
        17
       144
       190
        88
       110
        31
         1
        41
       170
       182
         6
        92
        96
       143
        86
       129
       175
       136
       120
       151
        80
       116
        49
       141
```

```
 C A S E       0         5        10        15        20        25
Label  Num   +---------+---------+---------+---------+---------+
        24   ⇩⇩⇩⇩⇩↙          ⇔                 ⇔       ⇔
         8   ⇩⇩⇩✗⇩⇩⇩⇩↘   ▫⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘    ▫⇩⇩⇩⇩↙
       117   ⇩⇩⇩↙      ⇔   ⇔              ⇔     ⇔
        82   ⇩✗⇩⇩⇩↘  ▫⇩⇩⇩↙              ⇔     ⇔
       130   ⇩↙   ▫⇩↘ ⇔              ⇔     ⇔
       133   ⇩⇩⇩⇩⇩↙ ▫⇩↙              ⇔     ⇔
        32   ⇩⇩⇩⇩⇩⇩↙              ⇔     ⇔
       112   ⇩↘                 ⇔     ⇔
       135   ⇩⇧⇩↘                ⇔     ⇔
        64   ⇩↙ ▫⇩↘               ⇔     ⇔
       145   ⇩⇩⇩↙ ▫⇩⇩⇩↘            ⇔     ⇔
       169   ⇩⇩⇩⇩⇩↙   ⇔            ⇔     ⇔
        99   ⇩✗⇩↘      ▫⇩⇩⇩⇩⇩↘       ⇔     ⇔
       173   ⇩↙ ▫⇩↘  ⇔      ⇔       ⇔     ⇔
       114   ⇩✗⇩↙ ▫⇩↘ ⇔      ⇔       ▫⇩⇩⇩⇩⇩↙
       194   ⇩↙    ⇔ ▫⇩↙      ⇔       ⇔
        81   ⇩⇩⇩⇩⇩↙ ⇔      ▫⇩⇩⇩↘        ⇔
       157   ⇩⇩⇩⇩⇩⇩⇩↙      ⇔   ⇔      ⇔
        97   ⇩⇩⇩⇩⇩⇩⇩✗⇩↘      ⇔   ⇔      ⇔
       179   ⇩⇩⇩⇩⇩⇩⇩↙ ⇔      ⇔   ⇔      ⇔
       113   ⇩✗⇩↘      ▫⇩⇩⇩⇩↘      ⇔
       115   ⇩↙ ▫⇩⇩⇩⇩⇩▫       ▫⇩⇩⇩⇩⇩⇩▫
       102   ⇩⇩⇩↙   ⇔      ⇔    ⇔
        61   ⇩⇩⇩⇩⇩⇩⇩⇩⇩↙      ⇔      ⇔
       161   ⇩✗⇩⇩⇩↘              ⇔      ⇔
       171   ⇩↙   ▫⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↘ ⇔      ⇔
       106   ⇩⇩⇩⇩↙              ⇔ ⇔    ⇔
        51   ⇩✗⇩⇩⇩⇩⇩↘          ▫⇩↙    ⇔
       104   ⇩↙     ▫⇩⇩⇩⇩⇩↘   ⇔      ⇔
       108   ⇩⇩⇩⇩⇩⇩⇩↙     ▫⇩⇩⇩↙       ⇔
       121   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙           ⇔
       148   ⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩⇩↘           ⇔
       158   ⇩⇩⇩⇩⇩↙        ⇔      ⇔
        73   ⇩✗⇩⇩⇩↘      ▫⇩⇩⇩⇩⇩↘      ⇔
       165   ⇩↙   ▫⇩⇩⇩⇩⇩⇩↘ ⇔      ⇔      ⇔
        59   ⇩⇩⇩✗⇩↙       ▫⇩↙      ⇔      ⇔
       142   ⇩⇩⇩↙        ⇔      ▫⇩⇩⇩⇩⇩↙
       187   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙       ⇔
        83   ⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩⇩⇩⇩↘       ⇔
       172   ⇩⇩⇩⇩⇩⇩⇩↙        ▫⇩⇩⇩⇩⇩↙
        10   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩✗⇩⇩⇩↙
        57   ⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩⇩↙
```

Table C.2.

Differences in Cluster Membership Between Original Father-Adolescent Clusters and Father-Adolescent Cluster with Possible Outliers Deleted

Four-Cluster Solution

Clusters with Possible Outliers Missing

Original Clusters	Harmonious	Involved	Uninvolved	Conflictual	Deleted Dyads	Total
Harmonious	60					60
Involved		26				26
Uninvolved			37			37
Conflictual				68	5	73

Five-Cluster Solution

Clusters with Possible Outliers Missing

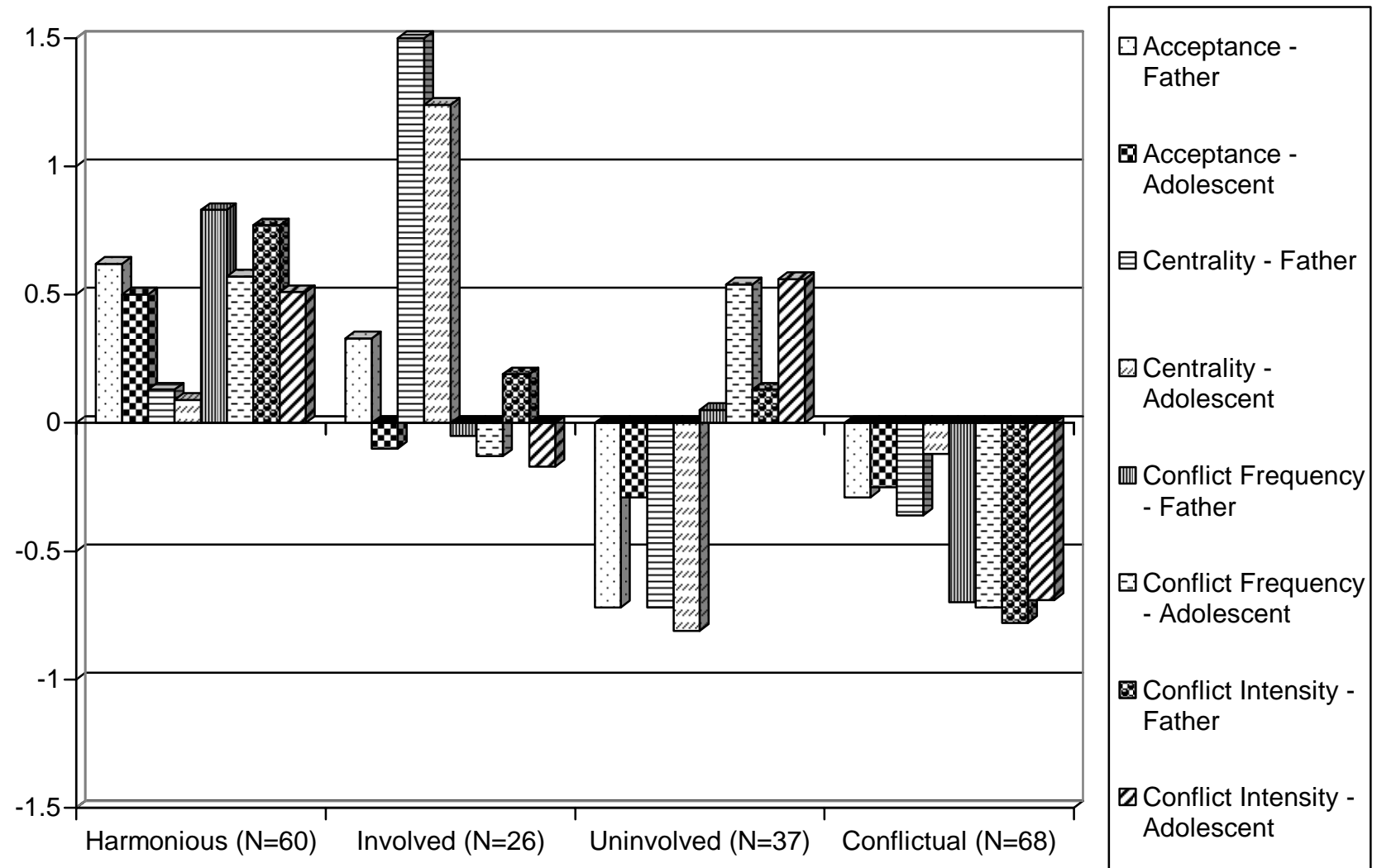| Original Clusters	Harmonious	Involved	Uninvolved	Conflictual – Child	Conflictual - Parent	Deleted Dyads	Total
Harmonious	60						60
Involved		26					26
Uninvolved			37				37
Conflictual – Child				36		3	39
Conflictual - Parent					32	2	34

Figure C.5. Profiles of Father-Adolescent Dyads for the Four-Cluster Solution in Average Linkage Cluster Analysis with Possible Outliers Deleted.
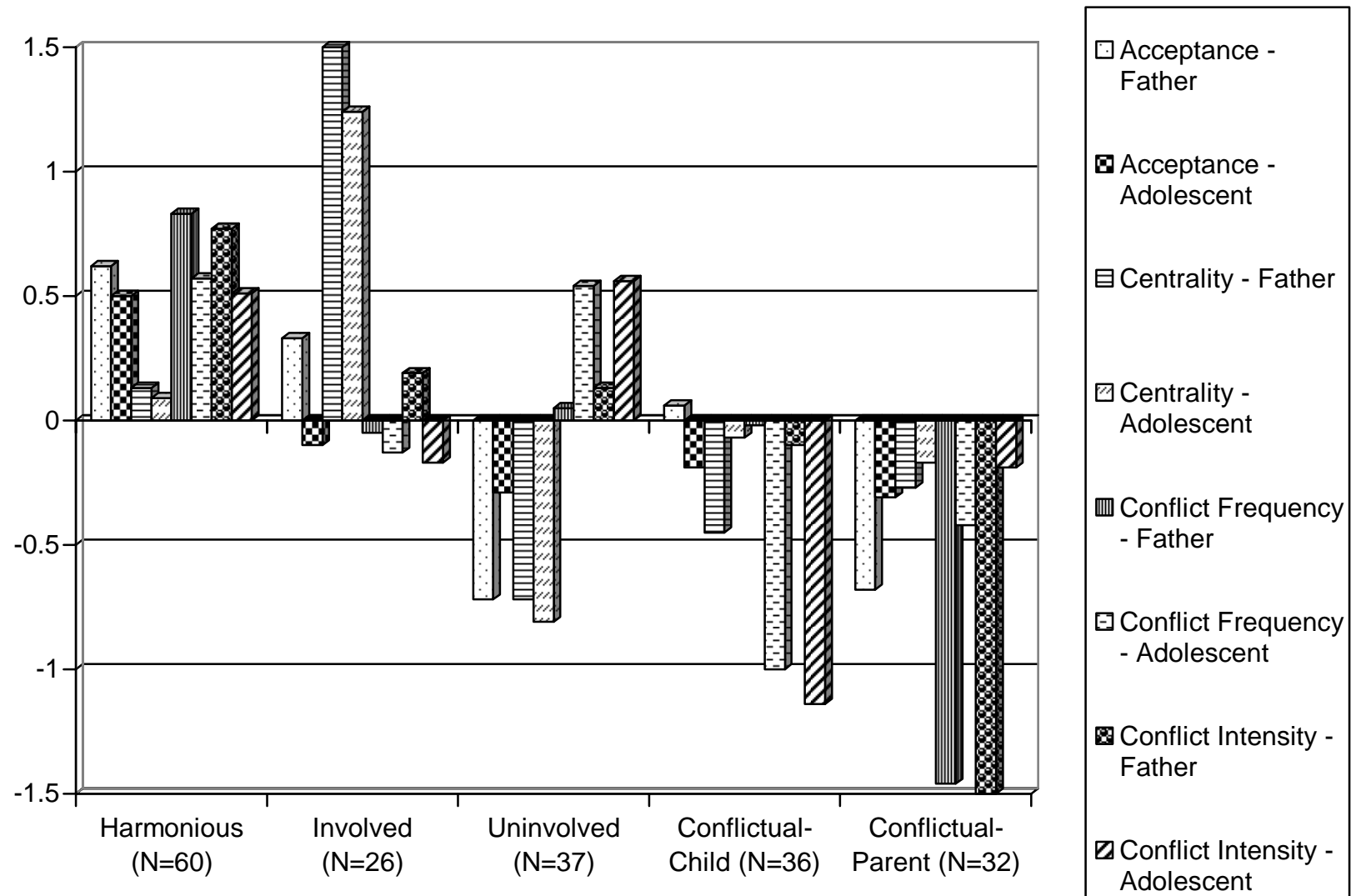
Figure C.6. Profiles of Father-Adolescent Dyads for the Five-Cluster Solution in Average Linkage Cluster Analysis with Possible Outliers Deleted.

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<u>EDUCATION</u>

2004	Ph.D.	Human Development and Family Studies	The Pennsylvania State University
2000	M.S.	Human Development and Family Studies	The Pennsylvania State University
1996	B.A.	Psychology and Philosophy, summa cum laude	Transylvania University; Lexington, KY

<u>SELECTED ACADEMIC HONORS</u>

2003-2004	Drs. Albert and Lorraine Kligman Graduate Fellowship
2003	The Grace M. Henderson Award
1998-1999	The Pennsylvania State University Graduate Fellowship
1992-1996	Transylvania University's William T. Young Scholarship

<u>SELECTED INSTRUCTIONAL ACTIVITIES</u>

Fall 2002	Graduate Instructor	HDFS 418, Family Relationships
Summer 2002	Graduate Instructor	HDFS 239, Adolescent Development
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<u>RESEARCH ACTIVITIES</u>

Fall 1998- August 2004	Research Assistant, Penn State Family Relationships Project, Drs. Ann Crouter and Susan McHale, Co-Principal Investigators

<u>SELECTED PROFESSIONAL ACTIVITIES</u>

2002, 2003	Member, Review Panel, Research and Theory Section of the National Council on Family Relations
2002-2003	Member, HDFS Planning, Programming, Development, and Evaluation Committee
2000-2001	Member, HDFS Graduate Admissions Committee
1999-2000	HDFS Steering Committee Co-Chair (graduate student council)

<u>SELECTED PUBLICATIONS</u>

Head, M. R., Crouter, A. C., & McHale, S. M. (in press). Is parents' work involvement responsive to the quality of relationships with adolescent offspring? *Journal of Family Psychology*.

Crouter, A.C., Tucker, C. J., Head, M. R., & McHale, S. M. (2004). Family time and the psychosocial adjustment of adolescent siblings and their parents. *Journal of Marriage and Family, 66,* 147-162.

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