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Developmental Trajectories of Marriage, Coparenting, and Parenting Stress for Parents of Adolescents and Young Adults with Intellectual Disability

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DEVELOPMENTAL TRAJECTORIES OF MARRIAGE, COPARENTING, AND PARENTING STRESS FOR PARENTS OF ADOLESCENTS AND YOUNG ADULTS WITH INTELLECTUAL DISABILITY

by

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ABSTRACT

This study assessed marital quality, coparenting, and parenting stress over time for parents of children with intellectual disability by creating developmental trajectories from longitudinal data. Both mothers and fathers (N = 152 couples), with children ages 6-18 at the first wave, evaluated their relationship and parenting stress on up to 4 occasions over a 14-year period. The study provided separate models of change over time for mothers and fathers which showed that marital quality, coparenting, and parenting stress are dynamic relationship constructs that changed during the child's development. Overall, marital quality was found to follow a curvilinear pattern, with declines when children were adolescents and increases as children entered young adulthood. Positive coparenting increased linearly over time for mothers and fathers, and

negative coparenting declined linearly for mothers. With an emphasis on transition periods in the family life cycle, trajectories included indicators of the child's development to allow for periods of discrete change in the trajectories based on the child's entrance into adolescence and young adulthood. The child's entrances into these developmental periods were associated with changes in levels of marital quality and coparenting for mothers only. Patterns for stress over time depended on the parent reporting, with mothers reporting decreases in parent and family problems over time and a quadratic trend for pessimism, with initial growth in reported pessimism followed by declines as the children exited adolescence. Fathers, however, did not report significant changes for parent and family problems and perceived increases in pessimism with time. The study also assessed how support in the marital and coparenting roles with time is associated with levels of parenting stress. Marital quality consistently predicted lower levels of parent and family problems for both parents, but findings for associations between marital quality and pessimism, and coparenting with both types of stress, varied depending on the parent reporting.

INDEX WORDS: Intellectual disability, Marital quality, Coparenting, Parenting stress

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1 INTRODUCTION

The family system over time

The family life cycle can be described as the family moving through time as the structure of the family system, and patterns of interaction between family members, develop in response to normative transitions and unexpected events (McGoldrick & Carter, 2003; McGoldrick, Heiman, & Carter, 1993). The first major developmental transition for a beginning system occurs when two individuals come together as a couple to form their own system. According to family systems theory, a spouse subsystem forms based on supportive and complimentary patterns of behavior in the relationship which, at this stage, form the basis for evolving patterns as the system moves through time (Minuchin, 1974; Montgomery & Fewer, 1988). As couples have children, healthy systems develop clear generational boundaries and a vertical power structure that differentiates the parental or "executive" subsystem from children. Within the boundaries of the parental subsystem, parents can develop relationships with children and effectively manage the tasks of raising a family while protecting the marital relationship from the effects of child-related stressors (McHale, Kuersten-Hogan, & Rao, 2004; Minuchin, 1974). The quality of the couple's relationship and their ability to parent together have implications for the functioning of the individual members of the couple as well as the rest of the family system. A satisfying marital relationship has been linked to a general sense of well-being, whereas marital distress and divorce have been linked to declines in emotional well-being, social support, and physical health for parents (Barrett, 2000; Graham, Christian, & Kiecolt-Glaser, 2006; Simon & Marcussen, 1999; Waite, Luo, & Lewin, 2009; Williams, 2003). Marital quality and the parenting relationship are also related to parenting skills, the parent-child relationship, and the

emotional and behavioral functioning of children (Almeida, Wethington, & Chandler, 1999; Feinberg, 2003; Howes & Markman, 1989).

Family life cycle theory (Duvall, 1957) proposes a common set of normative challenges and transitions that are associated with parenting. Systems typically experience the greatest amount of stress at normative transition points in the life cycle, such as the addition of children, children entering adolescence, young adult children leaving home, and aging parents (McGoldrick et al., 1993). The initial renegotiation of boundaries as children enter the system can place stress on the couple subsystem, resulting in conflict over child-rearing responsibilities and strain on the marital relationship (McGoldrick & Carter, 2003; McGoldrick et al., 1993; Twenge, Campbell, & Foster, 2003). As children develop and family roles change, boundaries must be clear, yet permeable enough to accommodate necessary shifts in family patterns (Minuchin, 1974; Montgomery & Fewer, 1988). Although boundaries are constantly renegotiated, the next major developmental task occurs when children reach adolescence and parents must alter their role in response to the child's growing need for independence (McGoldrick et al., 1993). In addition to stress caused by the renegotiation of boundaries, the onset of puberty and subsequent pubertal development for children is related to declines in marital satisfaction for the parents over time (Whiteman, McHale, & Crouter, 2007). The next defining stage, and the longest stage in the family life cycle, is centered on transitioning young adult children out of the home (McGoldrick & Carter, 2003). Although this stage requires shifting the parental role as children obtain their independence, it is associated with some benefits for the marital relationship including more enjoyment of time spent with one's spouse and transient increases in marital satisfaction (Gorchoff, John, & Helson, 2008; VanLaningham, Johnson, & Amato, 2001).

Although all families must adapt to changes and negotiate stress in the system, transitional points highlighted in family life cycle theories are generally based on normative patterns of child development. Yet, a distinction between normative and non-normative transitions and events is essential in a life-course view of families, as these challenges have different implications for stress and coping over time (Parke, 1998; Seltzer & Ryff, 1994). For example, the addition of children and their maturation are normative transitions for typical families, thus, the stress generated from these transitions may not have the same negative implications for the marital relationship as unexpected events such as economic hardships or injury or illness of a family member. Researchers hypothesize that the predictability of normative transitions helps families set realistic expectations about the event (Karney & Bradbury, 1995; Parke, 1998; Seltzer & Ryff, 1994). Thus, families may be more vulnerable to the unanticipated stress generated by non-normative, unexpected events. Because fewer families experience these non-normative transitions, compared to normative transitions, they are less likely to receive social support during the transition and the families have fewer social models of family adaptation to guide their responses (Seltzer & Ryff, 1994).

To date, the research is limited to addressing how a non-normative event, such as the birth of a child with a disability, and subsequent non-normative childcare, affect the marital relationship and parenting roles over time. That is, in addition to daily caregiving stressors, parents of children with intellectual disability must manage stress generated from children's difficulty completing developmental transitions within a normative time frame. However, despite the changing nature of challenges for these parents, most studies of family functioning use cross-sectional designs to study child care demands and parents' functioning at one point in time, typically young childhood (Baker, Blacher, Crnic, & Edelbrock, 2002; Dyson, 1991; Essex &

Hong, 2005; Paczkowski & Baker, 2007; Plant & Sanders, 2007; Roach, Orsmond, & Barratt, 1999; White & Hastings, 2004). Thus, it is unclear from the current literature how marital quality and parenting support change over time. Therefore, the purpose of this investigation is to describe parents' marital quality, coparenting relationship, and stress associated with raising children with intellectual disability as the children transition through adolescence and into young adulthood, periods that have typically been ignored in the literature. Two types of stress will be considered: strains for parents and the family as a whole and pessimism related to the child's future. Transition periods will be emphasized since the entrances into adolescence and young adulthood are likely particularly salient times that highlight the child's difficulties in meeting typical expectations of these stages (Olshansky, 1962; Wikler, Wasow, & Hatfield, 1981). Although mutual support between spouses in their roles as marital partners and parents is correlated with parents' experiences of stress (Floyd, Costigan, & Phillippe, 1997; Kersh, Hedvat, Hauser-Cram, & Warfield, 2006), research has not considered how the relationship between mutual support and stress might change with different phases of the family life cycle. Thus, the investigation will also examine how changing satisfaction in these subsystems is related to the experience of stress over time.

Coparenting

Parents' ability to work together to manage the stressors associated with parenting is addressed by the construct of the coparenting alliance. This construct evolved from Minuchin's (1974) description of the executive subsystem formed by two partners working together to manage family life. More recent theory and research have identified the primary components of coparenting to include solidarity and support among partners, levels of dissonance, antagonism, undermining behaviors, division of child care labor, and direct involvement with the children

(Feinberg, 2003; McHale, 1995; McHale, Kuersten-Hogan, & Rao, 2004; Van Egeren & Hawkins, 2004). Studies show that the partner's satisfaction with support in these areas is more important than the actual division of child-care related tasks (Essex & Hong, 2005; Simmerman, Blacher, & Baker, 2001). Although coparenting between partners is mainly studied in families transitioning to parenthood with the birth of their first child (McHale et al., 2004), these skills seem critical for managing lifelong stressors related to raising a child with a disability, including managing the adolescent and young adult transitions.

For married or cohabitating couples, coparenting specifically describes aspects of the relationship involved in parenting and does not cover other aspects of adult partner relationships such as intimacy, companionship, or management of a home and finances (Feinberg, 2003). Thus, coparenting is a distinct concept from marital quality (Floyd, Gilliom, & Costigan, 1998; Rogers & White, 1998; Van Egeren & Hawkins, 2004). Yet, it is likely that coparenting dynamics and marital quality within a relationship mutually influence one another (Floyd et al., 1998; Rogers & White, 1998). Strong marital quality seems to provide a foundation for supportive coparenting and increases confidence in the parenting role for couples new to parenthood (McHale et al., 2004; Weiss, 2002). In turn, coparenting dynamics established early in the child-rearing process are related to marital quality later in the marriage, even more so than initial levels of marital quality (Belsky & Hsieh, 1998; Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004). Similarly, unsupportive coparenting and parenting disagreements are predictive of later marital dissolution, even when initial marital quality is high (Belsky & Hsieh, 1998; Block, Block, & Morrison, 1981). Coparenting, as opposed to marital quality, is also more strongly associated with other parenting experiences, such as feelings of efficacy and accomplishment in the parenting role (Floyd et al., 1998; Weiss, 2002).

Parenting a child with an intellectual disability

Coparenting seems particularly important for parents of children with intellectual disability as these children require extensive caretaking over the life course. Intellectual disability is defined by global deficits in intellectual functioning and corresponding limitations to adaptive functioning in areas such as daily living skills, communication, health and safety, social skills, and functional academic skills (Joy, Lord, Green, & Fein, 2003). These limitations in cognitive and adaptive functioning require extra effort and support from parents to teach new skills and manage behavior. Parents experience stress related to characteristics of the child such as behavior problems, level of disability, and adaptive functioning, and parents of children with intellectual disability report spending more time addressing care demands than comparison parents, demands that include supervision, teaching activities, direct care, management of behavior, and advocating for their child (Baker et al., 2002; Baker, Blacher, Kopp, & Kraemer, 1997; Plant & Sanders, 2007; White & Hastings, 2004). Many studies assessing parenting stress focus on child behavior problems because children with disabilities exhibit more problem behavior than nondisabled children and these problems have been linked to high levels of parenting stress in both populations (Baker et al., 2005, 2002; Kersh et al., 2006; Nachshen & Minnes, 2005; Paczkowski & Baker, 2007; Plant & Sanders, 2007). Parenting a child with a disability is also related to financial strains, less time spent in social and leisure activities, and lower rates of employment than other parents, particularly for mothers (Baker et al., 2002, 1997; Seltzer & Krauss, 2001).

The extra time spent in caregiving tasks, the level of daily stress, and characteristics of the child with intellectual disability are associated with the quality of the marital relationship (Stoneman & Gavidia-Payne, 2006). Many studies within this population focus on the influence

of behavior problems, with inconsistent results depending on the parent reporting. For mothers, a combination of cross-sectional studies shows that child behavior problems are negatively related to marital quality at all stages of child development (Essex & Hong, 2005; Floyd & Zmich, 1991; Kersh et al., 2006). Yet, findings are somewhat mixed when considering fathers' reports from the same studies, with some studies finding associations with child behavior and marital quality (Essex & Hong, 2005; Floyd & Zmich, 1991) and others showing no significant relation (Kersh et al., 2006). Although these studies did not consider fathers' daily involvement with the child, it is possible that involvement in childcare plays a role in the association between child characteristics and marital quality for fathers. The present study will address inconsistencies in mothers' and fathers' reports by exploring several issues that have not been addressed in previous research, including possible differences between mothers and fathers in overall levels and trajectories of marital quality over time.

Although inconsistencies exist between studies, research shows that coparenting and parenting confidence are also influenced by the unique parenting experiences associated with raising a child with intellectual disability. Parents of young children with intellectual disability report less parenting competence and more restrictions in the parenting role than comparison parents (Roach et al., 1999). When considering child characteristics, some studies show that parents of elementary school-aged children with disabilities who perceive more problem behaviors report more negativity in their parental role than parents who report fewer behavior problems (Kersh et al., 2006; Plant & Sanders, 2007).

Despite consistent evidence for additional caregiving demands in this population and strains in the marital and parenting relationships based on child characteristics, discrepancies occur between studies investigating parents' stress. Many studies show that, compared to other

parents, parents of children with disabilities report greater child-related stress but do not show greater difficulties on more general measures of well-being such as depression or physical health (Baker et al., 2005; Bristol, Gallagher, & Schopler, 1988; Seltzer, Greenberg, Floyd, Pettee, & Hong, 2001). Yet other studies do find greater difficulties in general areas of functioning (Baker et al., 2002; Blacher, Lopez, Shapiro, & Fusco, 1997; Nachshen & Minnes, 2005; Roach et al., 1999; Weiss, 2002), including a meta analysis finding mothers of individuals with a disability likely to report higher levels of depression than other mothers (Singer, 2006). Despite discrepancies in studies assessing general well-being for parents, studies specifically assessing parenting stress, such as daily caregiving demands, consistently show higher levels of child-related stress for parents of children with intellectual disability than comparison parents (Baker et al., 2005, 2002; Bristol et al., 1988; Roach et al., 1999). These comparison studies usually focus on one point in time, typically early childhood or later in life caregiving. However, a small number of longitudinal studies show that the nature of stress changes over time for these parents (Glidden & Schoolcraft, 2003; Hauser-Cram et al., 2001), based on the child's needs, the accumulation of constant daily stressors, and parents' ability to increasingly match accommodations to the child's needs.

Studies assessing stress and caregiving demonstrate a "resilient-disruption" pattern in which families evidence disruptions and strains in family functioning while also showing signs of resiliency and successful adaptation to their child's unique needs (Costigan, Floyd, Harter, & McClintock, 1997). One sign of this resilient-disruption pattern may be seen in the family's use of accommodation strategies and support services. The need for accommodations shows that family members perceive stress that needs to be managed, yet the ability to make successful accommodations that preserve family functioning highlights resiliency. Studies show that this

balance between the level of disruption to family functioning and families' use of positive strategies changes with time. For example, in a longitudinal study of children with developmental disabilities through age 11, Keogh, Garnier, Bernheimer, and Gallimore (2000) found that the impact of the child with a disability on the family's daily routine remained constant across time and that the intensity of accommodations, including time and resources required, did not change over time. Yet, the types of accommodations families made in terms of daily routine, family roles, and seeking support outside of the home grew increasingly varied as children aged. For example, parents of older children looked to the community for recreational activities more than parents of younger children. Associations between child characteristics and accommodations also increased, highlighting the families' ability to match supports to the child's changing needs. Thus, the same types of demands when children were very young, compared to when they were school aged, were responded to differently. It is possible that this increasing ability to adapt to the child's needs may correspond to later decreases in parent and family stress.

Studies assessing stress that consider the child's stage of development show that childhood is a particularly hard time for parents as they learn to make necessary accommodations, but that parents of adolescents report less stress, which may be related to parents gaining skill in their unique parenting role over time. A longitudinal study of children through age 10 found linear increases in stress related to the child's characteristics (adaptability, demandingness, mood, behavior) and stress in the parent role, including decreased feelings of competence and well-being (Hauser-Cram et al., 2001). However, these increases in parent and child-related stress do not appear to continue through adolescence. In a cross-sectional study, Orr, Cameron, Dobson and Day (1993) found that parents of children in middle childhood (age 6-12) with developmental delays reported more parenting stress than parents of preschoolers or

adolescents. Consistent with this finding, a meta-analysis of research on mothers' depression when raising a child with an intellectual or developmental disability found a significant difference in effect sizes between studies of parents of adult children and parents of children in early to middle childhood (Singer, 2006). Although this difference is only based on one comparative study that included mothers of adults, findings show that mothers of adults are more similar to comparison groups on depression than mothers of younger children. It is notable that the authors only found one study focused on mothers of adult children and, notably, no studies with mothers of adolescents. Although findings from these studies indicate variability in stress and adaptation based on the child's stage of development, longitudinal studies are needed to confirm the trajectory of stress past the childhood years, particularly focused on adolescence.

Parenting and the family life cycle

Although the pattern of general decreases in stress over time illustrates parents' adaptation to raising a child with intellectual disability, major transition points, such as entering adolescence, likely disrupts the family system and parenting roles. The focus of parents' concerns also likely changes based on the development of the child and the family system. Although adolescence is a period that has typically been neglected in previous research addressing families of individuals with intellectual disability, research with parents of nondisabled adolescents highlights the challenges of this period for parents.

Adolescence is a developmental stage in which change occurs gradually over time as children transition to meeting more typically adult expectations in terms of cognitive, psychological, social, and physical development (Lerner & Galambos, 1998; Petersen, 1988). Skills acquired in adolescence typically allow adolescents to increase independence from parents in decision making, develop an individual identity, develop intimate relationships, and progress

towards future independent living (McElhaney, Allen, Stephenson, & Hare, 2009; McGoldrick et al., 1993). Signaled by the onset of puberty, patterns in the family system change as the parent-child relationship transforms and parents realign boundaries to adapt to the adolescent's development (McGoldrick & Carter, 2003; Paikoff & Brooks-Gunn, 1991; Petersen, 1988). The transition often leads to higher levels of parent-child conflict, although this increase in conflict is not typically long lasting (Hill, Holmbeck, Marlow, Green, & Lynch, 1985a, 1985b; Paikoff & Brooks-Gunn, 1991). In addition to changes for the individual and family, the environment also changes for adolescents with school transitions into middle school and high school. Thus, physical maturation, indicated by the onset of puberty, and school transitions often serve as two key markers of the beginning of adolescence (Graber & Brooks-Gunn, 1996; Seltzer & Ryff, 1994). That is, the transitions in individual physical and cognitive maturation, the family system, peer relationships, and school environment tend to co-occur, so that studies can use pubertal development as the index of the larger set of transitions that occur in adolescence (Graber, Nichols, & Brooks-Gunn, 2010; Graber, Petersen, & Brooks-Gunn, 1996). Therefore, the present study will consider the child's pubertal status as an indicator of the adolescent transition to assess the impact of this period on parent functioning.

The developmental tasks of adolescence pose particular challenges for individuals with intellectual disability and their families. Parents must learn how to help their child mange some of the typical aspects of this transition as well as navigate issues specific to their disability. Individuals with intellectual disability must also navigate physical changes associated with the onset of puberty, but without the same corresponding level of growth in cognitive and social-cognitive skills seen with nondisabled adolescents. Thus, adolescents with intellectual disability may not achieve typical milestones of adolescence in the cognitive, social, and behavioral

domains (Baker et al., 1997). In adolescence, the discrepancy between the individual's physical appearance and limitations in cognitive and adaptive functioning grows, and it may be harder for the adolescent to participate in age-appropriate activities, with psychological and social implications (Baker et al., 1997; Parmenter, Harmon, Yazbeck, & Riches, 2007). Contextually, the adolescent must also manage school transitions in a school and social environment that may be unsupportive and unaccommodating to the adolescent's needs (Parmenter et al., 2007). Additionally, individuals with intellectual disability are more likely to develop internalizing and externalizing problems, and puberty is associated with the onset of psychological disorders, causing more concerns and challenges for parents (Einfeld, Ellis, & Emerson, 2011; Einfeld & Tonge, 2007; Emerson, 2003; McIntyre, Blacher, & Baker, 2002; Pfeiffer & Baker, 1994). However, the majority of previous research has failed to address parents' functioning during this challenging time.

Despite the inability of adolescents with intellectual disability to reach the same expectations for independence as nondisabled adolescents, the few studies addressing parenting practices in these families show that families do make accommodations to their child's changing needs. Similar to patterns seen in family relationships with non-disabled children, parents decrease the level of commands issued to adolescents with intellectual disability, compared to younger children, who in turn, respond with increased compliance and involvement in family discussions (Costigan et al., 1997; Floyd et al., 1997). Parents also report that adolescents demonstrate higher adaptive functioning skills and less need for parent management (Floyd & Gallagher, 1997). Nevertheless, there are unique features of family relationships in this population, such as a higher level of parental directiveness in family discussions than seen in comparison families, paired with the decreases in warmth and playfulness that were seen in all

families as children aged (Floyd et al., 1997). Overall, findings show that adolescents with intellectual disabilities do show developmental progress in terms of requiring less care from parents but continue to require many supports as compared to typically developing adolescents.

The unique trajectory of development for adolescents with disabilities likely leaves many questions for parents who must struggle to figure out what family accommodations and boundaries are appropriate. This situation, in particular, likely requires a supportive coparenting relationship for the parents. Similar to the transient effects of pubertal onset on family functioning for nondisabled adolescents, parents likely improve their ability to manage their adolescent child throughout this transition. However, longitudinal research is needed to address these assumptions about families' resiliency over time. Despite possible resiliency, what may become increasingly stressful for parents at this stage is concern for the child's future. At this stage, the adolescent's need for continued support, which becomes increasingly divergent from nondisabled adolescents, causes parents to realistically appraise their child's abilities and begin to establish corresponding plans for their future (Baker et al., 1997). Thus, concern and pessimism for the future may grow even as parents' perceptions of strain for themselves and the family improve.

Transitioning out of adolescence and into young adulthood for the individual with intellectual disability is likely another stressful transition for the parents, since similar to the start of adolescence, the child's difficulty achieving normative developmental milestones has implications for parents' functioning (Seltzer & Ryff, 1994). For parents of nondisabled children, their child's entrance into young adulthood signals the beginning of the "launching phase" of the family life cycle when parents launch their children out of the home (McGoldrick et al., 1993). Typical expectations for the adult child at this stage of the life cycle include independent living,

obtaining employment, financial independence from parents, responsible decision making, and entering into a new relationship with parents as an equal (Arnett, 2001; McGoldrick et al., 1993). Parents of individuals with intellectual disability face unique worries about future independence and long-term care for their child (Floyd & Gallagher, 1997). Many young adults with intellectual disability live in their parents' home, few gain financial independence, and traditional employment is uncommon (Carr, 2005; Floyd, Costigan, & Piazza, 2009; Seltzer, Greenberg, et al., 2001). Although some individuals with intellectual disability attain typical markers of adulthood such as independent living, employment, involvement with peer social networks, and starting a family of their own, they tend to have more difficulty in these roles than their nondisabled peers (Richardson & Koller, 1996). Thus, parents remain very involved with their adult children, even if they live out of the home, continuing to provide care and remaining in frequent contact (Floyd et al., 2009; Seltzer, Greenberg, Krauss, & Hong, 1997; Seltzer, Krauss, Hong, & Orsmond, 2001).

With all the expectations that typically accompany young adulthood and the family's launching phase, a concern for the child's future, and what happens when the parents can no longer provide care, becomes prominent at this time (Blacher, 2001). Despite parents' reports of concern for the future and the decreased availability of support services in adulthood (Floyd & Gallagher, 1997), one study of adolescents and young adults with autism spectrum disorder did not find a relationship between the end of high-school and mothers' pessimism about their child's future or change in pessimism over two time points spanning 1.5 years (Lounds, Seltzer, Greenberg, & Shattuck, 2007). However, among the individuals leaving high school during the study, over half of the sample was enrolled in college or employed, despite two-thirds of the sample also meeting criteria for intellectual disability. The achievement of individuals in this

study seems to differ from other studies assessing this stage, which may have implications for the mothers' reports of pessimism. The present study will include data that were used in a previous study by Floyd et al. (2009) examining young adulthood for individuals with mild and moderate intellectual disability. In this sample, only one young adult was in college and one-third of the sample was employed. It is expected that pessimism will increase as children enter young adulthood and transition out of formal schooling, and, that by assessing pessimism over a greater span of time, changes will be evidenced.

Although the initial transition into young adulthood has the potential to cause strain for parents, studies also show signs of resiliency as families learn to adapt to the challenges of this stage of the family life cycle. A study of parents' perceptions of adulthood found that most parents endorsed that their child had reached adulthood, despite their child's difficulty achieving typical milestones, highlighting the parents' ability to reframe tasks of this stage to goals that were attainable for their child. Parents in the study tended to focus on skills their child gained rather than on their limited abilities (Floyd et al., 2009). It is also possible that pessimism will decrease after the initial disruption to the family system brought on by this transition. For example, some families complete the launching stage by transitioning all children out of the home, including a move to a residential setting for the child with intellectual disability. In these families, mothers report decreased pessimism and caregiving burden after the child's move (Seltzer et al., 1997; Seltzer, Krauss, et al., 2001). Additionally, mothers' reports of emotional involvement with their children increased over time (Seltzer, Krauss, et al., 2001). Thus, despite expected strains due to the disruption of family roles and questions about the future at the beginning of the young adult transition, families likely find their own unique way to manage this transition based on the continued needs of their child.

Marital quality and coparenting support

Even though parents of children with disabilities report more caregiving stress than parents of nondisabled children, stress does not consistently correlate with general well-being or family functioning (Baker et al., 2005; Dyson, 1991). Inconsistencies between studies addressing stress may be related to the support parents receive, in terms of instrumental support in caregiving as well as emotional support. Support from one's partner is a key form of social support that helps many families successfully adapt to the challenges of raising a child with a disability. Informal support from a spouse or other family members is more beneficial for parent well-being than formal, professional support, and families increase their reliance on these informal supports, compared to formal supports, as children age (Keogh et al., 2000; White & Hastings, 2004). Support in the marital relationship is related to positive coping skills, lower levels of stress, and satisfaction with parenting experiences (Friedrich, Wilturner, & Cohen, 1985; Kersh et al., 2006). Floyd et al. (1998) found that marital quality was related to supportive coparenting, which, in turn, predicted increased parenting confidence over time. These relationships remain, despite challenges presented by the child. Simmerman et al. (2001) found that mothers' satisfaction with father's assistance with caregiving predicted marital adjustment above and beyond the child's problem behaviors. On the other hand, Bristol et al. (1985) found that incongruence between the current level of support received from one's partner and the expectations for support from the partner was the best predictor of negative adaptation in these families.

Despite the importance of the marital and coparenting relationships for parent well-being, little is known about the nature and quality of these relationships for parents of children with intellectual disability. Although there are some inconsistencies between studies, and only cross-

sectional studies exist, marital quality seems to be relatively similar to comparison groups. Some studies do not find differences in marital adjustment between parents of young children with developmental delays and comparison groups (Baker et al., 2005, 2002) whereas others find that parents of children with developmental disabilities report lower levels of marital quality (Bristol et al., 1988). Floyd and Zmich (1991) found that parents of children with intellectual disability engaged in more negative marital interactions than comparison parents, but that there were no differences in their reports of marital quality. The authors concluded that couples likely attribute negative aspects to expected parenting stress and family strains, an interpretation which allows them to preserve their sense of marital satisfaction and highlights resilience in the system. A meta-analysis found that parents of children with disabilities reported lower marital adjustment, compared to other parents, but the effect size for the difference was small (Risdal & Singer, 2004). Additionally, the meta-analysis included parents of children with autism spectrum disorders and physical disabilities, disabilities that may have different influences on marital quality than raising a child with intellectual disability. Thus, despite discrepancies, differences between groups seem relatively small, and studies show that parents of children with intellectual disability typically have positive marital relationships (Stoneman & Gavidia-Payne, 2006). Although even fewer studies have evaluated coparenting, one study found that parents of children with intellectual disability did not differ from comparison groups in their perceptions of this relationship (Floyd & Zmich, 1991).

Although previous research has failed to address how marital quality evolves over time specifically for parents of individuals with intellectual disability, longitudinal research shows that, in general, marital quality diminishes over time for couples with and without children (Hirschberger, Srivastava, Marsh, Cowan, & Cowan, 2009; Karney & Bradbury, 1997;

Umberson, Williams, Powers, & Chen, 2005; Vaillant & Vaillant, 1993; VanLaningham et al., 2001). Even though this general trend persists, the few studies evaluating marital quality for parents of older children confirm that the presence of these children is related to parents' marital quality throughout the lifespan, though the impacts differ at different points in time (McGoldrick et al., 1993; Rogers & White, 1998). The importance of considering the developmental stage of the child is evidenced by studies showing a negative association between pubertal development and parents' marital satisfaction, and that the rate of decline in satisfaction and increase in negative experience slows after children leave the home (Umberson et al., 2005; VanLaningham et al., 2001; Whiteman et al., 2007). Even less is known about coparenting over time, but it is likely that the restructuring of parental roles in response to the child's development causes strains during transition periods, particularly at the start of adolescence (McGoldrick & Carter, 2003; McGoldrick et al., 1993; Parke, 1998).

Marital quality for parents of children with intellectual disability likely follows a similar course to that of parents of children without disabilities, although discrepancies may exist based on the child's development due to the different implications of transition periods for these families. For example, it is unclear if the rate of decline in marital quality will slow for parents of young adult children if these parents never complete the launching phase and experience a household without children. Individuals with intellectual disability are more likely to be living in their home as adults, compared to nondisabled adult children (Seltzer, Greenberg, et al., 2001), and the presence of an adult child in the home has been associated with low levels of marital satisfaction for parents of nondisabled children (Umberson et al., 2005). Even for adults with disabilities that do move out of the parents' home, the caregiving role for parents continues throughout the lifespan (Seltzer et al., 1997; Seltzer, Krauss, et al., 2001). Thus, due to the

unique nature of parenting experiences for this population, there is a need for studies such as this that specifically describe marital trajectories for this population.

Although there are some discrepancies between studies, evidence also exists for differences in marital stability (parents remaining together) over time for parents of children with disabilities compared to parents of nondisabled children. Although marital quality and stability are related, data suggest that having children has the effect of decreasing marital quality while increasing stability (Heaton, 1990), although these effects are less clear for parents of children with disabilities. Hartley, Baker, Seltzer, Floyd, Orsmond, et al. (2010) found that until age 8, the risk for divorce in families of children with an autism spectrum disorder (ASD) was similar to comparison families. However, after this age, parents of children with ASD continued to be at a high-risk for divorce throughout the child's adolescent and young adulthood stages, whereas risk for comparison parents decreased. This pattern is consistent with interpretations that ongoing caregiving demands cause strains for parents that persist over time. However, another study did not find differences in divorce rates between parents of children with and without disabilities during their early years of parenting or during the parents' middle-age (Seltzer, Greenberg, et al., 2001). This study will also consider marital stability over time when assessing marital quality to address inconsistencies in the current literature.

Since previous research on coparenting over time is limited, both in disability and nondisability samples, it is harder to draw conclusions on how this will look over time for parents of children with intellectual disability. In addition to a lack of longitudinal studies, the majority of cross-sectional studies fail to consider coparenting in parents of children past the preschool years, with the exception of a limited number of studies on post-divorce coparenting and the relationship between coparenting and specific child outcomes (Barzel & Reid, 2011;

Feinberg, Kan, & Hetherington, 2007; Maccoby, Depner, & Mnookin, 1990). One study, novel in both age range and focus on parents of individuals with intellectual disability, demonstrated that the association between coparenting and marital quality exists with older children (Floyd et al., 1998), although this study did not look at how coparenting changed based on the age of the child. Information on coparenting at different stages of child development is available from a cross-sectional study comparing the coparenting relationship of parents of preschoolers and parents of preadolescents. The authors found that parents of preschoolers evidenced significantly higher levels of cooperation (discussions about the child, sharing opinions on parenting issues) than parents of preadolescents (Margolin, Gordis, & John, 2001). The authors suggested that ratings of cooperation might be higher in parents of preschoolers since this group requires more everyday parenting coordination then older, more independent children. Although a significant difference was found between child age groups, longitudinal research is needed to evaluate whether the findings reflect a decline that occurs with coparenting over time or whether findings reflect a process specific to parenting preschoolers.

Purpose

The purpose of this study is to assess the longitudinal course of the marital relationship and parenting roles over time, particularly across the transitions through the child's adolescence and into young adulthood, for parents with non-normative childcare experiences associated with raising a child with intellectual disability. The investigation uses lifespan development theory, including notions about the family life cycle, to examine longitudinal trajectories of development. The extant research literature fails to provide information on how marital quality and parenting relationships change over time for these families, or how support in marital and parenting roles relates to parenting stress over time. Thus, the first goal of this study is to create

growth trajectories to detail the course of marital quality, coparenting, and child-related stress for mothers and fathers over time. The study also examines the expectation that parents experience increased difficulty in their marital and coparenting relationships as they navigate their child's transitions through adolescence and into young adulthood. A second goal of the study is to assess how marital quality and coparenting affect parenting stress across the life course.

Hypotheses

Hypothesis 1

Cross-sectional research on marital quality for parents of individuals with intellectual disability shows similarities between these parents and parents of nondisabled children. Based on longitudinal studies of the general population showing that marital quality declines over time, particularly as the couple's children enter adolescence, marital quality was predicted to show a similar longitudinal decline over time for parents of children with intellectual disability. Highlighting the influence of non-normative transitions on family functioning as described in family life cycle theories, the upturns in marital quality that are typically seen in normative samples as children leave home were not expected to occur for parents of older children with intellectual disability. Thus, the pattern over time was predicted to decline linearly. Similarly, due to mutual influences between the marital and coparenting relationships, we hypothesized that coparenting would show the same longitudinal pattern of declining quality, thus, with positive aspects of coparenting decreasing and negative dimensions increasing over time. Since predictions for coparenting are based on limited evidence from past research, it is also possible that the course of coparenting will diverge from marital quality, highlighting the need to consider these constructs separately.

Hypothesis 2

Based on family life cycle theory and challenges associated with parenting children with disabilities, the family transition into raising an adolescent with an intellectual disability, followed by the transition into young adulthood, were predicted to evidence periods of elevated strain by causing discontinuity in the trajectories of marital quality and coparenting. Specifically, in addition to predicted general declines for marital quality and the general coparenting alliance, the entrance to adolescence, marked by the onset of puberty, and young adulthood, marked by the ending of formal schooling, were predicted to be negatively associated with the parent relationship variables, causing a drop in the elevation of these trajectories. A positive association was predicted between spouse criticism and transition periods, with parents evidencing a higher level of criticism following the transition period.

Hypothesis 3

Cross sectional research suggests that resiliency and adaptation increase for these families over time. Thus, parents' perceptions of stress for themselves and strains on the family were predicted to decrease over time as parents learn to adapt to the unique caregiving needs of their child and gain skill in their parenting role. However, parents' levels of pessimism and concern for their child's future were expected to increase over time. A curvilinear trajectory for pessimism also was assessed based on findings that pessimism decreases after parents adapt to this transition by either launching children out of the home or making plans for their future.

Hypothesis 4

Based on cross-sectional studies showing that support in the marital and coparenting relationships predicts lower levels of parenting stress, marital quality and coparenting over time

were predicted to affect parents' reports of stress and pessimism. Increases in marital quality and positive coparenting were expected to predict lower levels of stress.

2 METHODS

Longitudinal Design Overview

Data from this study came from a longitudinal investigation of family interactions and adaptation in families of individuals with intellectual disability spanning 14 years with four data collection points. The original study employed an overlapping-cohort design in which families were divided into cohorts based on the time of their recruitment into the study and the age of the child with intellectual disability. The design uses cross-sectional information on age as well as longitudinal changes over time to construct developmental trajectories. Families were included in this study if they participated in at least one time point over the 4 waves. Most of the families (87%) were recruited for the investigation at time 1, but some additional families entered the study at time 3. All participants were sought out at time 4 to participate, including those that may have dropped out of the study after the first or second time point. There was an 18-month gap between waves 1 and 2, a 3-year gap between the 2nd and 3rd waves, and a 9-year gap between the 3rd and final waves (figure 1). Please see Tables 1 and 2 for more complete information on the number of families that participated at each wave and how many of these families completed multiple time points.

The design provides data on multiple cohorts of families with children in middle childhood through their early twenties, with the oldest cohort also providing data through the late twenties. Cohort A is composed of 90 families who were originally recruited at time 1 and had a 6-11 year old child at that time. At time 1, the majority of these families provided data on family

functioning before the adolescent transition, and, depending on the child, provided data on functioning before or after the entry to adolescence at times 2 and 3. At the fourth time point, these participants were transitioning to young adulthood. The second cohort, Cohort B, is composed of 81 families with an adolescent (aged 12-18) at the original time 1 recruitment. These participants transitioned through adolescence at times 1, 2 and 3, with some having begun the young adult transition by wave 3. All of these participants had completed school by time 4. The final cohort, Cohort C, is composed of 29 families recruited at T3 with children aged 6-15 years old. Younger participants from Cohort C transitioned from childhood to adolescence by time 4, and those who were already in adolescence at the time of recruitment completed the adult transition by T4 (see Figure 2). Over the span of the entire study, the children ranged in age from 6-31.

Participants

Families of school-aged children with a mild or moderate intellectual disability were originally identified through public school systems, community groups, and agencies that served these families within 100 miles of the research headquarters. These families were mailed letters describing the project. A total of 200 of these families initially participated, 152 of which were included in the sample for the present study. All of the children with disabilities had been assessed through the school systems within 3 years of the recruitment with standardized tests of intellectual and adaptive functioning. Individualized Education Plans (IEP) reports were obtained from the schools to confirm that the children met diagnostic criteria for mild or moderate intellectual disability. In the sample for the current investigation, 102 of the target children have a diagnosis of mild intellectual disability and 50 are diagnosed with moderate intellectual disability. The diagnostic criteria for intellectual disability include below average general

intellectual functioning that is accompanied by limitations in adaptive functioning in at least 2 areas. Individuals with mild intellectual disability have IQ scores ranging from 50-55 to approximately 70; individuals with moderate intellectual disability have IQ scores ranging from 35-40 to 50-55. Both groups showed deficits in adaptive functioning (American Psychiatric Association, 2000). Over the course of the study, 39 of the 152 target children moved out of the family home. Additionally, 52 target children were identified as having significant behavior problems at study entry based on the clinical cut-off scores on the externalizing factor of the Child Behavior Checklist, Parent Report (Achenbach, 1991).

For the parents, the current sample consists of 152 adult heterosexual couples (N= 138 married couples, N = 14 cohabitating couples) that were in a relationship during at least one time point. At the original recruitment, 115 couples were in a relationship and another 16 couples who were not in a relationship at that time were included in subsequent waves after entering a married or cohabitating relationship. The remaining couples entered the study at wave 3. In 16 of the couples, one partner (N =14 fathers & N = 2 mothers) did not complete questionnaires during one of the waves; this primarily occurred at time 4 when the parents were mailed questionnaires. At the first time point that participants completed as a couple (depending on the time of recruitment and relationship status) the average relationship duration was 11.24 years (SD = 7.92). Eighty-seven of the couples were in their first marriage, and 65 couples included at least one partner who was previously married. These 65 couples include couples who remarried before starting the study, and some before having the target child, as well as the 16 couples who entered a relationship during the course of the study and were included in the sample. The sample includes 4 step-mothers and 49 step-fathers. Twenty-eight couples who provided marriage and parenting data during at least one time point reported that they were separated or divorced at a

later time point. Information on relationship quality was not available once the relationship was terminated. Similarly, if an individual remarried during the course of the study, only data with the original partner from earlier time points were included. Further information on the family characteristics is given in Table 3.

Measures

Marital Quality

Marital quality was assessed with the Dyadic Adjustment Scale (DAS; Spanier, 1976) which was completed by both partners at each time point. The scale addresses multiple aspects of marital adjustment and is widely used in research on marital relationships (Piotrowski, 1999). The 32-item measure produces scores on 4 subscales: Dyadic Consensus, Dyadic Satisfaction, Dyadic Cohesion, and Affectional Expression, as well as a total score on the Total Dyadic Adjustment Scale. The measure assesses shared activities, agreement on various issues, affection, happiness, and commitment to the relationship through yes/no questions and Likert scales. This study uses the Total Dyadic Adjustment score as a global measure of marital satisfaction. The internal consistency coefficients (Cronbach's alpha) have been found to exceed .70 on all of the subscales and the alpha reliability for the Total Dyadic Adjustment Scale is .96 (Spanier, 1976). In this sample, Cronbach's alphas from wave 3 (the only wave with item level data available for all measures) were .94 for both mothers and fathers on the Total Dyadic Adjustment Scale. The average scores at each wave, as well as correlations among this measure and the other primary measures, are presented in Tables 4 – 9.

Coparenting

Mothers and fathers completed the Family Experiences Questionnaire (FEQ; Frank, Jacobson, & Avery, 1988) during the first 3 time points to assess spouses' perceptions of

coparenting with their partner. The full Family Experiences Questionnaire is a 133 item measure, with items rated on 4-point Likert scale ranging from "strongly disagree" to "strongly agree," forming 11 factor-analytically derived subscales. This study will focus on two subscales that were administered at the three time points, the General Alliance subscale and the Denigrated Spouse subscale, which measures spouse criticism. Both scales have been used in previous research to assess coparenting (Floyd et al., 1998; Floyd & Zmich, 1991; Van Egeren & Hawkins, 2004) and specifically focus on how the partners parent together. Other scales assessing aspects specific to the individual parent such as gratification from their parenting role, confidence, and specific child-rearing skills were not administered at all time points and are not relevant to this study. The General Alliance subscale consists of 32 items assessing positive aspects of coparenting such as perceptions of support in the parenting role, mutual respect, satisfaction with shared parenting responsibilities, and agreement on child-related issues (e.g., "When I feel at my wits end as a parent my spouse gives me the extra support I need"). The Spouse Criticism subscale (10 items) assess negative dimensions of coparenting such as perceptions of criticism and disapproval from the partner and behaviors that undermine their parental role (e.g., "My spouse makes me look like a 'bad person' in the eyes of our children). The scales from this sample showed strong internal consistency for General Alliance, alpha = .96 mothers and alpha = .95 fathers, and Denigrated Spouse, alpha = .87 mothers and alpha = .89 fathers.

Parenting Stress

To assess stress and care demands, mothers and fathers completed The Questionnaire on Resources and Stress (QRS; Holroyd, 1987) during the first three time points. At the fourth time point, a shorter version of the form adapted by Friedrich, Greenberg & Crnic (1983) was given to

mothers only. The QRS was specifically developed to measure stress associated with raising a child with a disability or chronic illness and the original form, along with various short forms, is frequently used with families of individuals with intellectual disability (Crnic, Friedrich, & Greenberg, 2002; Dyson, 1991; Floyd & Gallagher, 1997; Saloviita, Itälinna, & Leinonen, 2003; Saloviita et al., 2003). The QRS includes 285 T/F items evaluating multiple areas of possible stress. The Friedrich short form contains 52 items from the original QRS forming four factor analytically derived scales: Parent and Family Problems, Pessimism, Child Characteristics, and Physical Incapacitation. The short form total score was significantly correlated with the QRS total score (r = .99, p <.001) and the internal reliability coefficient (Kuder-Richardson) was .95 (Friedrich et al., 1983).

This study focuses on two factors to address parenting stress and pessimism for the child's future. The Parent and Family Problems factor consists of 20 items assessing the respondents' perception of problems for themselves as well as stress and inconveniences for other family members and the family as a whole (e.g., "the constant demands to care for [my child] limit growth and development of someone else in our family"). At wave 4, an item from Friedrich's version was unintentionally omitted from the scale created for data collection. For consistency, the 19 item version with the omitted item was used to compare scores across time. The 19 and 20 item versions from times 1-3 were highly correlated (r > .99 at all 3 points for mothers and fathers). The Pessimism factor consists of 11 items measuring the parents' concerns about the child's future and opportunities for independent functioning (e.g., "I worry about what will happen to [my child] when I can no longer take care of him/her"). The internal consistency coefficient for the parent and family problems factor is alpha = .80 for mothers and fathers. On the pessimism factor, alpha = .74 for mothers, and alpha = .70 for fathers.

Puberty Status

At time 4, mothers completed a retrospective questionnaire assessing the onset of puberty for their child with a disability. An accelerated rate of growth is typically the first indicator of the beginning of puberty and age at menarche is one of the most typically used and easily identified indicators for females (Parent et al., 2003). The questionnaire asked mothers for the child's age when he/she gained the most height/went through a growth spurt for males and females, and the beginning of menstruation for females. Mothers were also asked to endorse how certain they were of the age provided for each question with a 3-point Likert scale ranging from "uncertain" to "completely certain." Of the 104 mothers who completed this measure at time 4, 33 mothers endorsed that they were "uncertain" and 71 mothers reported that they were either "certain" or "completely certain" of the date they provided for when their child reached the specific indicators. Another 12 mothers indicated that they were uncertain of the date and did not answer the questions for the age that their child reached puberty.

Developmental History

A comprehensive form assessing the child's developmental milestones, health history, school placements and accommodations, and diagnoses was administered in interview format when the family entered the study. A briefer interview was conducted to update the form with any changes to educational history and diagnoses at follow-up time points. At time 4, parents completed a written form with questions regarding the target's child educational placements, job history, and changes to living arrangements. This information was used to ensure that children later diagnosed with autism (n = 5) were not included in the study and construct information on the timing of high-school graduation.

Procedure

During the 1st-3rd data collection points, each family completed two sessions lasting approximately two hours. Sessions were conducted by graduate and undergraduate students in psychology and took place in the family's home, typically one week apart. At time 4, one parent, typically the mother, completed a 60-minute phone interview and both parents were mailed a packet of questionnaires. Research assistants scanned returned measures for incomplete or inaccurate responses and called participants if necessary to complete missing responses. Families received small financial rewards for their participation at each time point.

Analytical Strategy

Growth trajectories were analyzed using Hierarchical Linear Modeling (HLM) using the HLM 6 computer program (Raudenbush, Bryk, Cheong, & Congdon,, 2004). HLM creates growth trajectories to model change over time. The "within-subjects," or Level-1, model represents individual change over time and the "between-subjects," or Level 2, model allows the intercept and slope of the Level-1 model to vary between individuals (Bryk & Raudenbush, 1987; Singer & Willett, 2003). This study will focus on Level-1 growth models to focus specifically on change over time in the relationship variables for parents of individuals with intellectual disability. HLM is ideal for the current longitudinal data because it allows for uneven spacing between waves and variation in the number of waves completed by participants (Singer & Willett, 2003). HLM also allows for unbalanced data in models for dyadic data and can still include data from a couple when one partner is missing data points (Lyons & Sayer, 2005; Raudenbush, Brennan, & Barnett, 1995).

For hypotheses addressing the nature of marital quality and coparenting, the models for both partners were combined based on the method described in Raudenbush et al., (1995) for

analyzing change over time with matched pairs. Thus, the "within-subjects" models become "within-couples" models, treating two individuals as nested within the couple. Level-1 models describe change over time for each partner with gender specific intercept and slope terms (Lyons & Sayer, 2005; Raudenbush et al., 1995). Raudenbush et al.'s (1995) method has been used by many researchers investigating outcomes for couples (Barnett, Raudenbush, Brennan, Pleck, & Marshall, 1995; Hauser-Cram et al., 2001; Kurdek, 1999; Lyons & Sayer, 2005; Powers, Pietromonaco, Gunlicks, & Sayer, 2006; Pruchno, Wilson-Genderson, & Cartwright, 2009) because the model demonstrates how partners may change differently over time while accounting for the interdependency in partners scores (Lyons & Sayer, 2005). Since separate scores for each partner are obtained in the same model, generalized multivariate hypothesis tests can be conducted within the HLM program to test whether the differences between mothers' and fathers' intercept and slope terms are significant as recommended by Lyons & Sayer (2007) and Raudenbush et al. (1995).

Dyadic unconditional growth models (Level-1 models) were created to model a couple's change over time in marital quality and coparenting. In order to assess time in relation to the child's development, the age of the child with intellectual disability was included as the measure of time at Level-1. Ages were centered on the average age of the child at the first wave (11.40 years) to improve interpretations of the intercepts for growth models. Only linear changes over time were hypothesized for marital quality, nevertheless, the centered term for age was squared and entered in the Level-1 model to explore possible quadratic growth trajectories as suggested in non-disability samples. Although HLM typically requires 4 or more waves of data to estimate quadratic effects, the range of ages represented in the overlapping cohort design also allowed for

the construction of this model with coparenting to test whether or not a significant quadratic effect may exist.

Models allowing for discontinuous within-couple change were used to address the influence of transition periods. Models tested for shifts in elevation at transition points based on methods outlined by Singer & Willet (2003) by including a binary, time-varying variable at Level-1 that indicated whether or not children had passed a transition point for each wave that the family participated. Depending on the age of the child with intellectual disability and the number of time points completed, some families may only contribute data to levels before or after a transition. The pubertal timing questionnaire was used as the marker of the pubertal transition. If a divorced, single parent participated at time 4, the pubertal measure was still used from these families although the parents' other measures were not included. Since the questionnaire on pubertal timing was not available for all participants (either because the family did not participate in T4 or participated but did not complete this questionnaire), EM (expectation-maximization) Estimation was used to impute missing scores for 48 of the participants. EM Estimation is a preferred method for estimating missing values that uses the associations between all relevant variables to impute missing scores (Acock, 2005). The entrance to young adulthood was primarily marked by age 22, when individuals with intellectual disability typically complete school. In some cases (n = 24), when data from parent interviews clearly indicated an earlier graduation date, that age was used.

To address the third and fourth hypotheses, growth trajectories were created to demonstrate the pattern of stress over time and the influence of marital quality and coparenting. Since mothers and fathers completed stress measures at a different number of time points, these models were not matched, but rather, constructed separately for women and men. Unconditional

growth models were first used to assess parent and family problems and pessimism over time before predictors were added. The following models included marital quality and the general alliance (in separate models) as time-varying predictors of stress. The main effects of the predictor variables describe the influence of changes in marital quality and coparenting on the level of parenting stress. These predictors are entered at Level-1 because they change with time, and vary within-individuals, in addition to varying between-individuals (Singer & Willett, 2003).

A preliminary series of models was tested to find the best fit for the pattern over time (linear versus quadratic). The error terms for the intercept and slope were set to vary at random in the linear models. All analyses used full maximum likelihood estimation (FML) as FML provides deviance statistics, similar to the residual sums of squares in regression, that describe the fit of the entire model (random and fixed effects) (Singer & Willet, 2003). Since FML has the potential to underestimate variance components with small, unbalanced data (varying number of waves completed per person) (Singer & Willet, 2003), models were also estimated using restricted maximum likelihood estimation (RML). The fixed effects estimated with FML and RML were nearly indistinguishable, thus, only the results of FML are presented.

In the model building, results showed that there was not enough variance in couples' change over time on the outcome variables to justify entering predictors at Level-2. The variance components for the intercept and slope terms from each model are shown in the tables displaying the findings. These variables measure residual variation that remains after accounting for change over time. Significant variation indicates that variability remains which may be explained by unaccounted predictor variables that can be entered at Level-2 (Sayer & Klute, 2005; Singer & Willett, 2003). The insignificant variance components in most models are likely due to the limited number of participants that participated in multiple waves. Therefore, it was concluded

that less complex, more parsimonious models that only included variables at Level-1 would produce the most accurate findings. Since Level-2 models allow researchers to account for group differences based on static variables, exploratory models with level-2 predictors of interest are presented in Appendix 1 as suggestions for variables that may influence the parents' relationship and should be considered in future research. The findings in Appendix 1 should be interpreted with caution as the imbalanced nature of the data (variation in the number of participants at each wave, limited number of participants completing multiple waves) has the possibility to produce inaccurate estimates.

3 RESULTS

Descriptive statistics for marital stability

Twenty-eight couples reported a divorce over the course of the study. Although their data were not included post-divorce, data for these couples were retained in the models before the divorce. ANOVA's showed that couples that reported a divorce had significantly lower income levels ($F(151) = 4.15$, $p = .04$), lower education levels ($F(151) = 4.13$, $p = .04$), and a shorter marital duration at study entry ($F(151) = 5.01$, $p = .03$), than couples who remained married. Although the number of couples that divorced was small, mothers who were married at time 1 and later divorced ($n = 23$) reported significantly lower levels of marital quality at time 1 than those who remained married ($F(113) = 4.22$, $p = .04$). There were not significant differences on the other outcome variables or for fathers' marital quality. At time 2, the number of mothers in the group that later divorced is notably small ($n = 9$) but mothers who later divorced reported significantly lower marital quality ($F(78) = 17.64$, $p = .001$) and general alliance scores ($F(74) = 18.32$, $p = .001$) and higher levels of spouse criticism ($F(74) = 15.21$, $p = .001$) and parent and

family problems (F(71) = 5.26, p =. 02) at Time 2 than those who remained married. At time 3, the n = 8 mothers who later divorced reported significant lower levels of marital quality (F(71) = 4.94, p = .03) and higher levels of spouse criticism (F(70) = 6.32, p = .02) than continually married mothers. Overall, results show that mothers who later divorced reported lower levels of marital quality and more difficulty in the coparenting relationship than mothers who remained with their partners. For fathers, significant differences between the two groups were not found on any of the variables assessed; however, given the small samples size for couples that later divorced, it is possible that ANOVA's did not detect weaker differences that may be apparent in a larger sample.

Marital Quality and Coparenting Over Time

The first hypothesis proposed that marital quality and scores on the general parenting alliance would decline linearly over time, and spouse criticism in coparenting would increase over time for both mothers and fathers. The models for the first hypothesis are as follows:

Marital Quality:

Level-1 (within-couple) model:

$$Y\ (\text{Marital Quality})_{ti} = \pi_{1i}\,(\text{MOM}_i) + \pi_{2i}\,(\text{DAD}_i) + \pi_{3i}\,(\text{MOM*(Child Age} - 11.40)_{ti}) + \pi_{4i}\,(DAD*(\text{Child Age} - 11.40)_{ti}) + \pi_{5i}\,(\text{MOM*(Child Age} - 11.40^2)_{ti}) + \pi_{6i}\,(\text{DAD*(Child Age} - 11.40^2)_{ti}) + e_{ti}$$

Coparenting :

Level-1 (within-couple) model:

$$Y\ (\text{Coparenting scale})_{ti} = \pi_{1i}\,(MOM_i) + \pi_{2i}\,(DAD_i) + \pi_{3i}\,(MOMtime_{ti}) + \pi_{4i}\,(DADtime_{ti}) + e_{ti}$$

Note: The time variable is constructed in the same manner for both models (centered on child age) but the variable name has been shortened in this model and all presented after this for a clearer presentation.

At Level-1, MOM and DAD are binary indicator variables for each partner and their associated coefficients (π_{1i} and π_{2i}) represent the intercepts (mean score on the outcome variable at 11.40) for mothers and fathers. The slope estimates (π_{3i} and π_{4i}) represent the average rates of change for mothers and fathers. The level of curvature is represented by π_{5i} and π_{6i} for mothers and fathers. Output from models also provides variance components that represent the heterogeneity around the average scores, for intercept and rate of change, for mothers and for fathers. The chi-square statistic for each variance component, presented in the results tables, assesses whether or not the variance is significantly different from zero (Sayer & Klute, 2005). HLM also provides deviance statistics for each model, as an estimate of fit between the model and the data, which become interpretable when compared between models (Singer & Willet, 2003). Since a linear model and a quadratic model were run to estimate marital quality, this test comparing the deviance statistics is included in the results to assess whether adding the quadratic term reduces model deviance, thus providing a better fit to the data.

Marital quality was predicted to decline over time for both mothers and fathers. Results of the linear model showed marital quality did not evidence significant change over time for mothers ($\pi_{3i} =$ -.04, *ns*) or fathers ($\pi_{4i} =$ -.10, *ns*). However, model testing found that a quadratic model was a better fit for the data, despite predictions for a linear decline with time, with a significant reduction in model deviance when moving from a linear to a quadratic model ($\chi^2 =$ 33.00, $p =$ .01). Table 10 presents the quadratic growth coefficients for this model, along with the *t* statistic testing for statistical significance of these parameters. When the quadratic term was added to the model, a significant negative slope was found for fathers, with a trend towards significance for mothers and significant quadratic effect for both partners. The quadratic trends are displayed in Figure 3, which shows that marital quality initially declined for parents of pre-

adolescent and adolescent children then followed an upturn when children neared young adulthood. Thus, the hypothesis that the effects would be linear for this sample was not supported. Instead, the couples followed a more typical curvilinear trend. Multivariate hypothesis tests conducted with the HLM program revealed that the average levels of marital quality when children were pre-adolescents (intercepts) and the trajectories for change (linear and curvilinear slope estimates) were not significantly different for mothers and fathers (intercept: $\chi^2 = .14$, *ns*; slope: $\chi^2 = .5$, *ns*; curvature: $\chi^2 = .26$, *ns*).

Additional analyses, with only the couples that remained married throughout the course of the study (N = 128), were run to address whether or not the upturn remained once couples that left the study due to divorce were removed from the sample. Results, presented in table 11, show that both the linear decline with time and curve remained significant for fathers. For mothers, the linear term was not significant and there was a trend for the quadratic term. When compared to results for the combined sample of continuously married couples and those that later divorced, continuously married mothers did not report as steep of a decline in marital quality during the child's adolescence, but still evidenced an increase as children neared young adulthood. Results suggest that the upturn found in marital quality over time is not accounted for by less satisfied couples leaving the study due to divorce.

The HLM results for the general parenting alliance are given in Table 12. There were significant slopes for both the mothers and the fathers, but contrary to expectations, the slope was positive in both cases, which indicated that the general alliance increased linearly over time. Although a similar pattern over time was evidenced for both parents, the overall level (intercept) and degree of the slope were significantly different for the mothers and fathers (intercept: $\chi^2 = 25.88$, $p = .001$; slope: $\chi^2 = 4.49$, $p = .001$). As shown in Figure 4, there was a bit of a cross over,

so that fathers were somewhat higher when children were young, but mothers showed more positive growth over time.

Spouse criticism was predicted to increase over time for both parents. Contrary to expectations, mothers evidenced a significant negative slope for this variable, indicating that this form of negative coparenting was reduced over time. However, the trajectory for fathers was generally flat (Table 12). Similar to findings on the general alliance scale, overall levels for mothers and fathers when children were preadolescents (i.e., the intercepts) and the trajectory of change (i.e., the slopes) for the parent were significantly different (intercept: $\chi^2 = 3.85$, $p = .04$; slope: $\chi^2 = 8.30$, $p = .004$). As shown in Figure 5, a complementary pattern as shown with the general parenting alliance was evidenced for spouse criticism, where the fathers are generally flat and the mothers report improvements in the form of reduced negativity.

Overall, in regards to hypothesis 1, the findings showed little support for the hypothesized trajectories. Marital quality evidenced a curvilinear pattern and, in contrast to the expected linear decline with time, marital quality only declined when children were preadolescents and adolescents and began to turn upwards as children neared young adulthood. The general alliance showed improvements, rather than predicted decrements, over time. Spouse criticism also changed in a different direction than expected for mothers with declines over time, rather than increases, and fathers did not evidence significant change with time.

Influence of transition periods on marital quality and coparenting

The second hypothesis predicted that transition periods would evidence discrete points in the trajectories of marital quality and coparenting with changes in the elevation of the trajectories. Even though a curvilinear trend was found for marital quality, discontinuous models require the trajectory before and after the event to be parallel, thus creating piecewise linear

models (Willett, Singer, & Martin, 1998). Thus, only terms for linear change were entered in these models. The models for the 2nd hypothesis are as follows:

Y (Parent Relationship Variable)$_{ti}$ = π_{1i} (MOM_i) + π_{2i} (DAD_i) + π_{3i} ($MOMtime_{ti}$) + π_{4i} ($DADtime_{ti}$) + π_{5i} (MOM * Child Pubertal Status) + π_{6i} (DAD * Child Pubertal Status$_{ti}$) + e_{ti}

The coefficients in this model are interpreted in a similar manner to the models presented earlier for the dyadic analyses. Similar models were run for graduation date, with pubertal status and graduation date serving as binary indicator variables. The intercepts for each parent are interpreted as the level of the outcome variable at child age 11.40, before puberty or graduation from high school (when the indicator variable equals 0). The coefficients associated with the transition indicator for each parent ($\pi_{5i\ and}\ \pi_{6i}$) represent the average difference over time of the outcome variable before and after the transition. Since only 13 participants graduated before or at wave 3, the final data collection point for coparenting, only the indicator for pubertal timing was tested in the models for discrete change in coparenting.

Preliminary ANOVA's found that those parents who endorsed that they were uncertain of when their child entered puberty on the puberty measure provided significantly older ages for when their daughter began menstruating than parents who indicated that they were certain of the date. Significant differences on the report of when the growth spurt occurred were not found. To evaluate where this difference might influence the findings, exploratory preliminary analyses included a level-2 predictor for certainty about puberty onset. The certainty variable was not significant at level-2 and was not retained in further models.

In the discrete models for pubertal onset and marital quality, the hypothesis stated that the level of marital quality would be lower after children entered puberty. Expectations that the transition to puberty would influence marital quality were met only for mothers. As shown in

Table 13 & Figure 6, mothers reported lower levels of marital quality after the child began puberty. The child's graduation from high school was also expected to negatively influence the level of marital quality. Contrary to expectations, high school exit was associated with a significant increase in the elevation of marital quality for mothers only (Table 14, Figure 7). Findings for fathers' were not significant.

Puberty was also expected to evidence shifts in the trajectory for the general alliance and spouse criticism scales. Similar to findings for marital quality, significant findings were only found for mothers. Consistent with expectations, a significant negative finding for the puberty variable when predicting the general alliance indicated that mothers reported lower levels of parenting alliance after pubertal onset (Table 15, Figure 8). As shown in Table 16 & Figure 9, a significant positive coefficient for the puberty indicator variable in the spouse criticism variable indicated that mothers reported higher levels of spouse criticism following puberty.

Trajectory of parenting stress over time and the influence of marital quality and coparenting

As noted earlier, since mothers and fathers differed in their number of time points in which parenting stress was assessed, separate models were created for mother and fathers. First, unconditional growth models were created for each parent to model change over time, then marital quality and coparenting were entered as time-varying predictors. Consistent with the strategy used in Raudenbush et al. (1995) marital quality and coparenting were within-person centered at Level-1, to highlight the influence of individual change over time. Within-person centering involves computing the deviation of each individual's score at each occasion from their individual mean; these deviation scores then represent within-person fluctuations in the relationship variables over time.

Unconditional growth models:

$Y\ (\text{mothers' stress scale})_{ti} = \pi_{0i} + \pi_{1i}\ (\text{Child age} - 11.40_{ti}) + e_{ti}$

$Y\ (\text{fathers' stress scale})_{ti} = \pi_{0i} + \pi_{1i}\ (\text{Child age} - 11.40_{ti}) + e_{ti}$

Parent relationship variables as time-varying predictors:

$Y\ (\text{mothers' stress scale})_{ti} = \pi_{0i} + \pi_{1i}\ (\text{Child age} - 11.40_{ti}) + \pi_{2i}\ (\text{parent relationship variable}_{ti}) + e_{ti}$

$Y\ (\text{fathers' stress scale})_{ti} = \pi_{0i} + \pi_{1i}\ (\text{Child age} - 11.40_{ti}) + \pi_{2i}\ (\text{parent relationship variable}_{ti}) + e_{ti}$

In the unconditional growth models, π_0 represents the intercept of the change trajectory and π_1 represents the slope of the change trajectory. In the models with time-varying predictors, π_{2i} represents the expected increase in stress for a unit increase in either marital quality or coparenting, controlling for the effect of child age. Including a time-varying variable alters the interpretation of the other Level-1 parameters so that the intercept is now based on average levels of all the time-varying variables in the model (child age and marital quality or coparenting) and the slope shows change over time by child age when controlling for the effects of the time-varying variable (Singer & Willett, 2003). In fathers' models, in which only 3 waves of data were available, the time-varying variables were fixed, meaning that a residual term was not included that would allow the effects of the variable to vary at random, since models did not have sufficient data to estimate additional variance components required for the residual term. Therefore, the time-varying variables were constrained to have the same effect across individuals (Singer & Willet, 2003).

Reports of stress on the parenting and family problems scale were predicted to decline over time for both parents, whereas pessimism was predicted to increase with time. Expectations for the trajectory of parent and family problems were met only for mothers, who evidenced a significant negative slope indicating declines with time (Table 17, Figure 10). The slope term for fathers was insignificant, indicating that the trajectory was generally flat (Figure 11). The pessimism scale was predicted to increase over time. Since mothers completed this measure at all four waves, a possible quadratic trend was also explored in the models. Consistent with expectations, fathers' reports of pessimism increased with time indicated by a significant positive linear slope (Table 18, Figure 13). A curvilinear pattern was found to be the best representation of change over time for mothers, with a significant reduction in model deviance moving from the linear to the quadratic models ($\chi^2 = 14.23$, $p = .01$). As shown in figure 12, mothers' reports of pessimism initially increased followed by a downturn as children neared young-adulthood.

When including the parent relationship variables as time-varying predictors, positive changes in marital quality and coparenting were predicted to be associated with decreases in the average level of parent and family problems. Consistent with expectations, changes in martial quality over time were significantly negatively associated with mothers' and fathers' reports of parent and family problems indicating that increases in marital quality were associated with decreased levels of parent and family problems (Table 17, Figures 14 & 15). Fit statistics comparing the level of deviance between the unconditional growth models (change over time without predictors) to the models with marital quality as a predictor indicated that there was significant reduction in deviance after adding marital quality as a time-varying predictor for mothers ($\chi^2 = 20.05$, $p = .001$) and fathers ($\chi^2 = 20.05$, $p = .001$).

For coparenting, the expectation that changes in coparenting would also be associated with decreased levels of parent and family problems was met only for fathers. As shown in Table 17 and Figure 16, there was a significant negative association between the general alliance and fathers' parent and family problems indicating that increases in coparenting were associated with lower levels of parent and family problems. Fit statistics confirmed that adding coparenting to the model for fathers significantly reduced model variance (χ^2 = 25.05, p = .001). For mothers, the association between coparenting and parent and family problems was not significant.

Similar predictions were made for pessimism, with changes in marital quality and coparenting predicted to be negatively associated with change in the levels of pessimism. Expectations were met only for mothers' reports of marital quality. As shown in table 18 and figure 17, mothers' marital quality was significantly negatively associated with mothers' pessimism, indicating that positive change in marital quality was associated with decreased levels of pessimism. Goodness of fit statistics confirmed that adding marital quality as a predictor significantly reduced model deviance (χ^2 = 15.90, p = .01). Findings for fathers' marital quality and pessimism as well as coparenting for both parents were insignificant.

Table 1. Number of Participants Completing Each Measure by Wave

	Number of Participants					
Measure	Mother DAS	Father DAS	Mother FEQ	Father FEQ	Mother QRS	Father QRS
Wave 1	114	115	114	115	111	110
Wave 2	79	77	75	73	70	69
Wave 3	72	69	71	69	72	68
Wave 4	73	66	-	-	72	-
Total measures across waves	338	327	260	257	325	247

Note: Blank spaces indicate that the measure was not given at that wave. Discrepancies in numbers completed exist between gender and measures when the participant's partner did not participate in that wave, specific measures were not able to be scored, or participants completed some measures during one of the home visits and did not finish remaining measures.

Table 2. Number of Data Points Completed by Participants for Each Measure

	Number of Participants					
Measure	Mother DAS	Father DAS	Mother FEQ	Father FEQ	Mother QRS	Father QRS
1 Data Point	61	55	58	56	59	60
2 Data Points	25	28	29	30	28	29
3 Data Points	33	36	48	47	38	43
4 Data Points	32	27	-	-	24	-

Note: Blank spaces indicate that the measure was not given at that wave.

Table 3. Sample Characteristics

Mean no. children in the home	2.84 (1.22)
Gender of the child with ID	54% Female
Parental status-mothers	97% Biological parent
	3% Step-parent
Parental status-fathers	68% Biological parent
	32% Step-parent
Average age of mothers	37.97 (7.04)
Average age of fathers	40.53 (8.33)
Annual family income	$32, 684 (22,504) Median = $26,000
Mother education (years)	13.32 (2.12)
Father education (years)	13.27 (2.43)
Mother Ethnicity	90% Caucasian
	6% African American
	2% Hispanic
	2% Mixed racial background/other
Father Ethnicity	91% Caucasian
	5% African American
	2% Hispanic
	2% Mixed racial background/other

Note: Family demographic data taken from the first wave that partners completed the study.

Table 4. Means and Standard Deviations for Mothers

	DAS	Alliance	Criticism	Family Problems	Pessimism
Time 1	112.52 (16.93)	2.72 (.39)	2.02 (.38)	4.99 (3.18)	5.18 (2.64)
Time 2	110.47 (18.01)	3.08 (.50)	1.76 (.50)	4.63 (2.96)	5.33 (2.82)
Time 3	107.01 (19.15)	3.01 (.49)	1.79 (.50)	4.53 (4.06)	5.64 (2.40)
Time 4	116.66 (19.27)	-	-	3.61 (3.87)	4.77 (2.70)

Table 5. Means and Standard Deviations for Fathers

	DAS	Alliance	Criticism	Family Problems	Pessimism
Time 1	111.38 (17.46)	2.88 (.31)	2.06 (.34)	4.23 (3.23)	4.54 (2.80)
Time 2	110.92 (16.61)	3.19 (.40)	1.86 (.41)	4.23 (3.31)	4.92 (2.78)
Time 3	107.52 (17.27)	3.19 (.40)	1.94 (.50)	4.00 (3.55)	5.76 (2.54)
Time 4	115.66 (18.81)	-	-	-	-

Table 6. Correlations between Measures at Time 1.

	DAS	Alliance	Criticism	Family Problems	Pessimism
DAS	-	**.52**	**-.52**	**-.27**	-.12
Alliance	**.32**	-	**-.68**	-.19	.01
Criticism	**-.43**	**-.58**	-	**.20**	-.03
Family Problems	**-.35**	**-.22**	**.26**	-	**.50**
Pessimism	**-.22**	-.08	.13	**.49**	-

Note. Mothers' correlations are shown in the top half and fathers' correlations in the bottom half.
Note. Correlations significant at $p \leq .05$ are shown in bold.

Table 7. Correlations between Measures at Time 2.

	DAS	Alliance	Criticism	Family Problems	Pessimism
DAS	-	**.77**	**-.72**	**-.55**	-.05
Alliance	**.51**	-	**-.90**	**-.42**	-.04
Criticism	**-59**	**-.78**	-	**.36**	.03
Family Problems	**-.50**	**-.40**	**.44**	-	**.46**
Pessimism	**-.23**	**-.31**	**.36**	**.62**	-

Note. Mothers' correlations are shown in the top half and fathers' correlations in the bottom half.
Note. Correlations significant at $p \leq .05$ are shown in bold.

Table 8. Correlations between Measures at Time 3.

	DAS	Alliance	Criticism	Family Problems	Pessimism
DAS	-	**.71**	**-.54**	**-.34**	**-.29**
Alliance	**.62**	-	**-.81**	**-.24**	-.17
Criticism	**-.70**	**-.80**	-	.21	.08
Family Problems	**-.48**	**-.55**	**.58**	-	**.41**
Pessimism	**-.50**	**-.47**	**.53**	**.55**	-

Note. Mothers' correlations are shown in the top half and fathers' correlations in the bottom half.
Note. Correlations significant at $p \leq .05$ are shown in bold.

Table 9. Correlations between Measures at Time 4.

	DAS	Family Problems	Pessimism
DAS	-	**-.24**	-.12
Family Problems		-	**.39**
Pessimism			-

Note. Correlation shown only for mothers since fathers only have one measure at T4.
Note. Correlations significant at $p \leq .05$ are shown in bold.

Table 10. Hierarchical Linear Modeling Results for Marital Quality

	Marital Quality					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	110.82***	.47	75.34	111.22***	.39	80.10
Linear Slope (change)	-.44^	.26	-1.67	-.66*	.31	-2.10
Quadratic Slope (change)	.05*	.02	2.06	.05*	.02	2.20
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	247.23	232.62***		193.94	197.67***	
Linear Slope	1.34	1.79		2.03	4.13	
Quadratic Slope	.11	.01		.15	.02	

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.

Table 11. Marital Quality with Continuously Married Couples

	Marital Quality					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	112.91***	1.43	78.91	112.42***	1.40	80.36
Linear Slope (change)	-.36	.28	-1.28	-.69*	.30	-2.26
Quadratic Slope (change)	.04^	.02	1.71	.06*	.02	2.56
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	180.26	233.82***		162.57	196.02***	
Linear Slope	2.64	74.25**		3.31	56.02	
Quadratic Slope	.02	64.29*		.02	53.43	

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.

Table 12. Hierarchical Linear Modeling Results for Coparenting

	General Alliance					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	2.87***	.04	79.73	3.03***	.03	104.05
Slope (change)	.03***	.01	3.92	.01*	.30	2.05
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.12	230.66***		.07	169.93**	
Slope	.001	93.66^		.001	88.84	
	Spouse Criticism					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	1.89***	.04	53.08	1.96***	.03	62.39
Slope (change)	-.02*	.01	-2.36	-.001	.01	-.02
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.11	285.58***		.07	169.72***	
Slope	.002	113.35**		.003	103.53*	

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.

Table 13. Hierarchical Linear Modeling Results for Marital Quality and Puberty Status

	Marital Quality					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	112.23***	145	77.33	111.50***	1.42	78.41
Linear Slope (change)	.32	.21	1.56	-.12	.27	-.46
Puberty	-4.87*	2.19	-2.22	.03	2.49	.01
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	202.76	164.50***		185.24	128.57***	
Linear Slope	1.61	64.61**		4.48	61.31**	
Puberty	77.77	40.20		209.70	48.62^	

^ p < .10, p<.05, **p<.01, ***p<.001.
Note: All estimations of fixed effects are reported with robust standard errors.

Table 14. Hierarchical Linear Modeling Results for Marital Quality and Graduation

	Marital Quality					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	111.39***	1.50	74.58	111.41***	1.49	74.61
Linear Slope (change)	-.46^	.24	-1.91	-.40	.24	-1.64
Graduation	7.48*	3.28	2.29	5.07	3.18	1.60
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	253.17	183.01***		243.22	201.28***	
Linear Slope	1.82	66.28**		1.89	44.02	
Graduation	257.29	49.79^		239.17	36.29	

^ p < .10, p<.05, **p<.01, ***p<.001.
Note: All estimations of fixed effects are reported with robust standard errors.

Table 15. Hierarchical Linear Modeling Results for General Alliance and Puberty

	General Alliance					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	3.06***	.08	36.78	3.04***	.03	103.82
Linear Slope (change)	.04***	.01	4.62	.01*	.01	2.10
Puberty	-.16*	.06	-2.35	-	-	-
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.10	14.60		.07	31.88*	
Linear Slope	.001	18.92		.001	18.70	
Puberty	.01	14.31		-	-	

^ p < .10, p<.05, **p<.01, ***p<.001.
Note: All estimations of fixed effects are reported with robust standard errors.
Note: Given the number of parameters estimated in these models, insignificant terms for discrete change were not included in the final models. For fathers, the estimate for puberty was β = -.003, SE = .05, *ns* when included in a model that required mothers' puberty estimate to be fixed.

Table 16. Hierarchical Linear Modeling Results for Spouse Criticism and Puberty

	Spouse Criticism					
	Mothers			Fathers		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	1.70***	.09	19.31	1.96***	.03	63.61
Linear Slope (change)	-.03**	.10	-3.36	.001	.01	.10
Puberty	.15*	.06	2.34	-	-	-
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.26	16.19		.07	30.59*	
Linear Slope	.003	27.55*		.003	47.34*	
Puberty	.09	17.89		-	-	

^ p < .10, p<.05, **p<.01, ***p<.001.

Note: All estimations of fixed effects are reported with robust standard errors.

Note: Given the number of parameters estimated in these models, insignificant terms for discrete change were not included in the final models. For fathers, the estimate for puberty was β .05, SE = .06, *ns* when included in a model that required mothers' puberty estimate to be fixed.

Table 17. Hierarchical Linear Modeling Results for Parent and Family Problems

Model	Mothers Parent and Family Problems			Fathers Parent and Family Problems		
Unconditional Growth:	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	5.01***	.28	18.18	4.21***	.26	16.39
Slope (change)	-.10***	.03	-3.38	-.04	.06	-.72
MQ as Level-1 Predictor:						
Intercept	5.03***	.28	18.24	4.28***	.26	16.69
Slope	-.10***	.03	-3.79	-.08	.06	-1.40
Marital Quality	-.05**	.02	-2.89	-.09***	.02	-5.48
CP as Level-1 Predictor:						
Intercept	4.97***	.28	17.79	4.22	.26	16.17
Slope	-.11^	.06	-1.91	-.01	.06	-.11
General Alliance	-.62	.59	-1.06	-1.42*	.63	-2.26
	Mothers			Fathers		
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Unconditional Growth						
Intercept	7.36	374.66***		5.39	215.61***	
Slope	.02	136.99***		.02	85.33	
MQ at Level-1						
Intercept	7.51	216.85***		5.56	244.88***	
Slope	.01	74.51		.03	94.83*	
Marital Quality	.003	53.78		-	-	
CP at Level-1						
Intercept	7.31	237.73***		5.66	206.47***	
Slope	.001	87.32		.02	82.95	
General Alliance	-	-		-	-	

^ p < .10, p<.05, **p<.01, ***p<.001 Note: Mothers and Fathers were run in separate models
Note: All estimations of fixed effects are reported with robust standard errors.
Note: Variance components are not included for the coparenting scales since variance was constrained on these variables.

Table 18. Hierarchical Linear Modeling Results for Pessimism

Model	Mothers Pessimism			Fathers Pessimism		
Unconditional Growth:	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	5.30***	.21	25.44	4.87***	.22	21.84
Linear Slope (change)	.08	.05	1.49	.15**	.04	3.42
Quadratic Slope	-.01*	.003	-2.40	-	-	-
MQ as Level-1 Predictor:						
Intercept	5.31***	.21	25.43	4.88***	.22	21.73
Linear Slope	.07	.05	1.41	.13**	.05	2.93
Quadratic Slope	-.007*	.003	-2.36	-	-	-
Marital Quality	-.03*	.01	-2.34	-.02	.02	-1.31
CP as Level-1 Predictor:						
Intercept	5.32***	.23	23.14	4.88***	.23	21.65
Linear Slope	.09	.06	1.49	.16**	.05	3.34
Quadratic Slope	-.005	01	-.54	-	-	-
General Alliance	.75	.62	1.21	-.70	.60	-1.16
	Mothers			Fathers		
Variance Components	Estimate	Chi-Square		Estimate	Chi-Square	
Unconditional Growth						
Intercept	3.32	122.47***		4.20	191.03***	
Linear Slope	.10	56.19		3.11	85.50	
Quadratic	.0002	42.40		-	-	
MQ at Level-1						
Intercept	3.74	155.80***		4.29	193.61***	
Linear Slope	.02	90.33**		.003	84.15	
Quadratic Slope	.001	59.14		-	-	
Marital Quality	-	-		-	-	
CP at Level-1						
Intercept	3.60	168.69***		4.36***	195.65	
Linear Slope	.03	77.77		.002	83.63	
Quadratic Slope	-	-		-	-	
General Alliance	-	-		-	-	

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.
Note: Mothers and Fathers were run in separate models

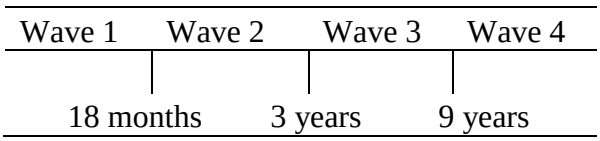

Figure 1. Data Collection Timeline.

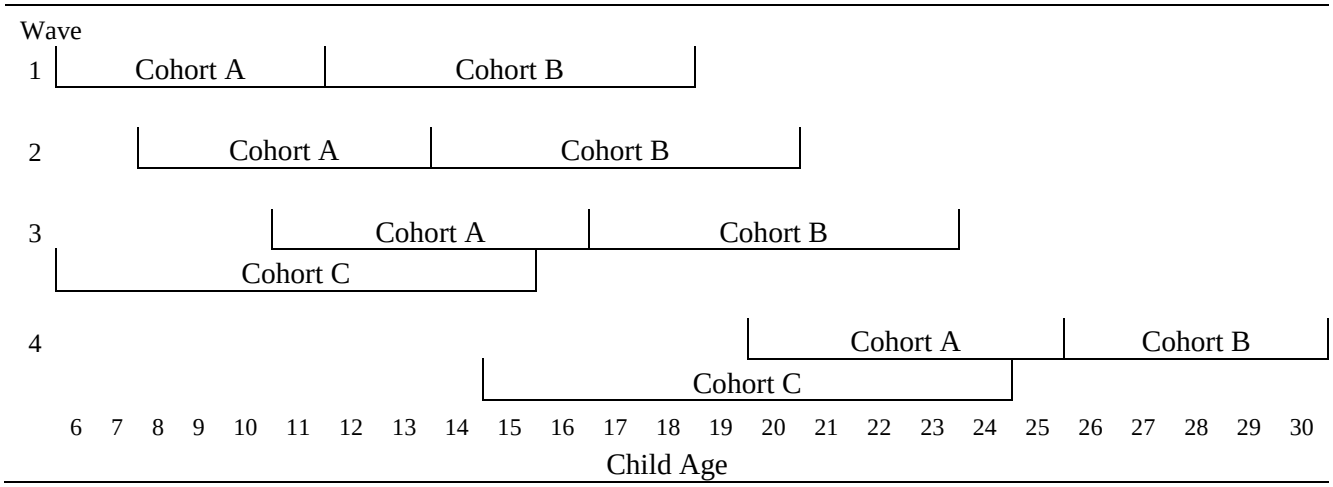

Figure 2. Overlapping Cohort Design.

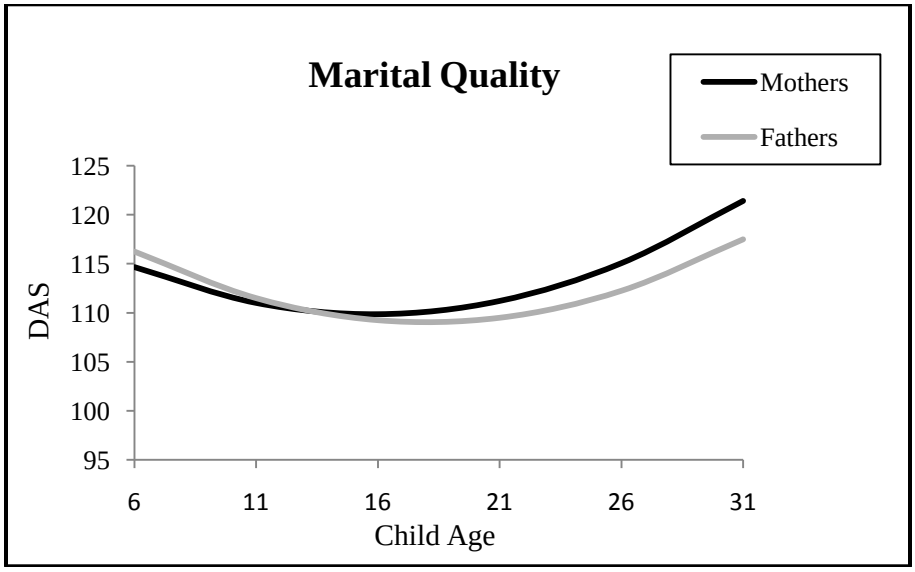

Figure 3. Quadratic Growth Trajectory for Marital Quality.

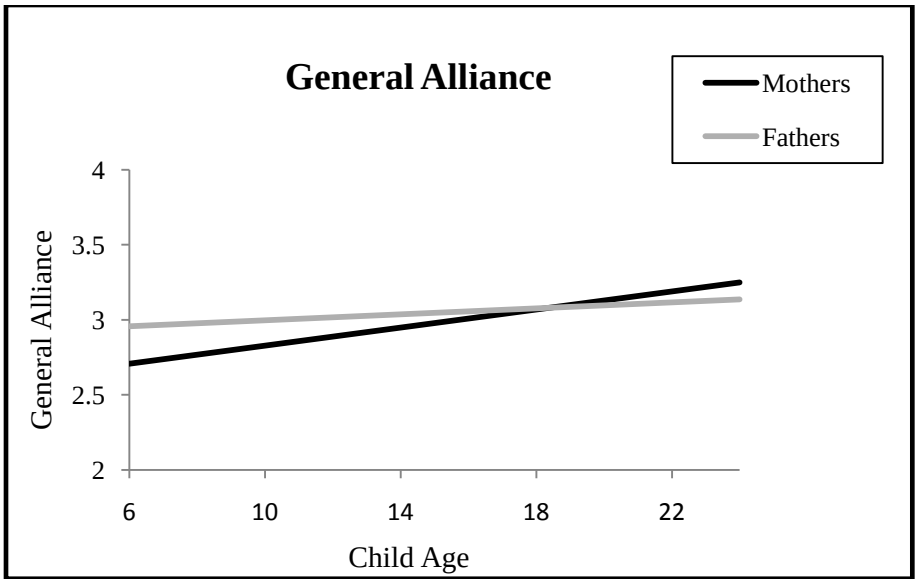

Figure 4. Growth Trajectory for General Alliance.

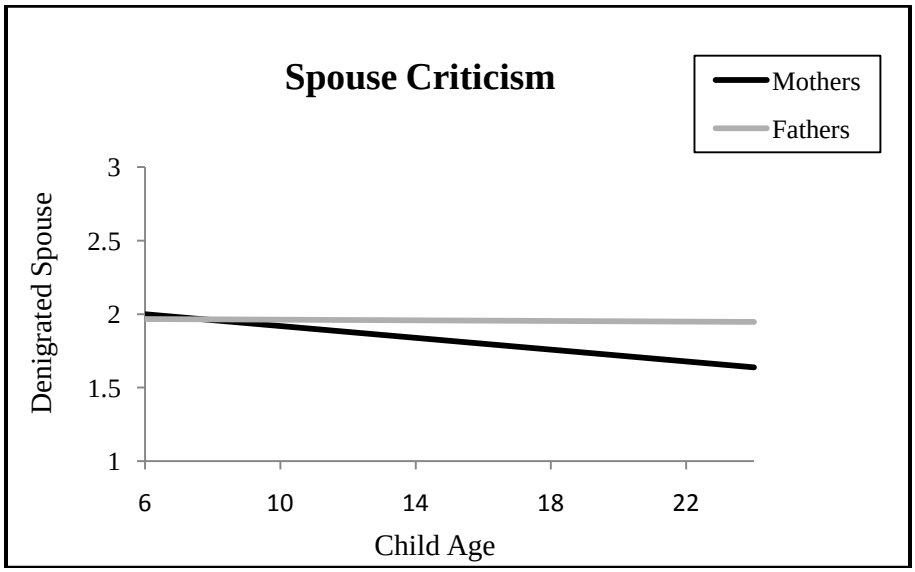

Figure 5. Growth Trajectory for Spouse Criticism.

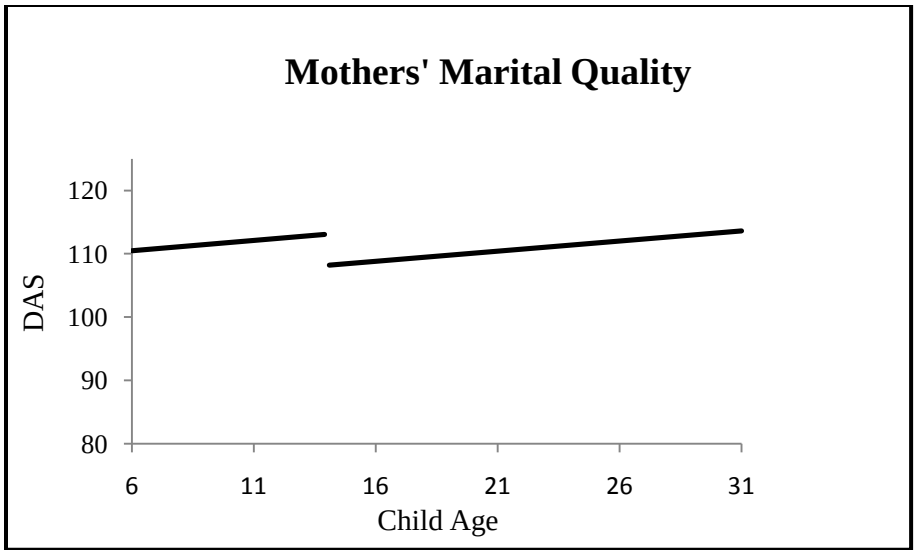

Figure 6. Growth Trajectory with Pubertal Status Predicting Mothers' Marital Quality Based on the Average Age of Pubertal Onset for this Sample.

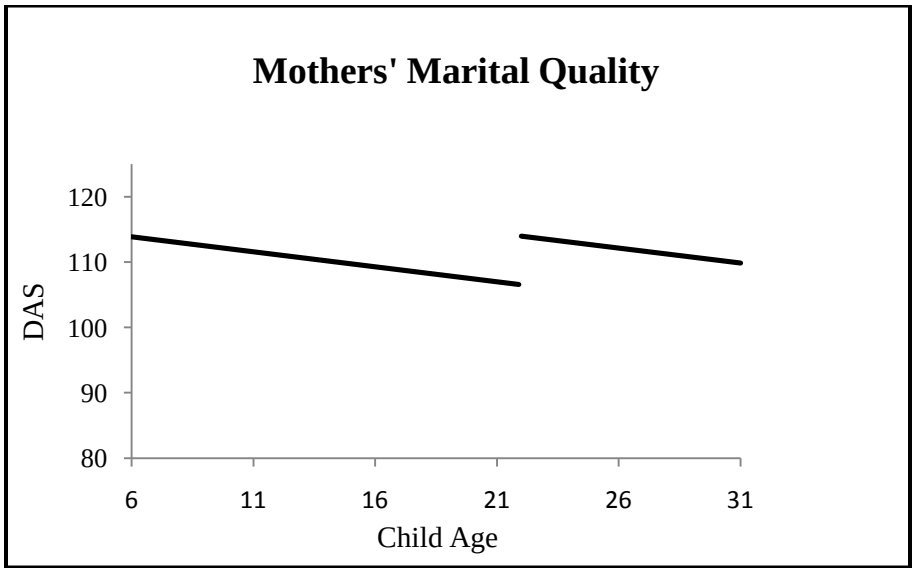

Figure 7. Growth Trajectory with Graduation Date Predicting Mothers' Marital Quality Based on the Modal Age for Graduation.

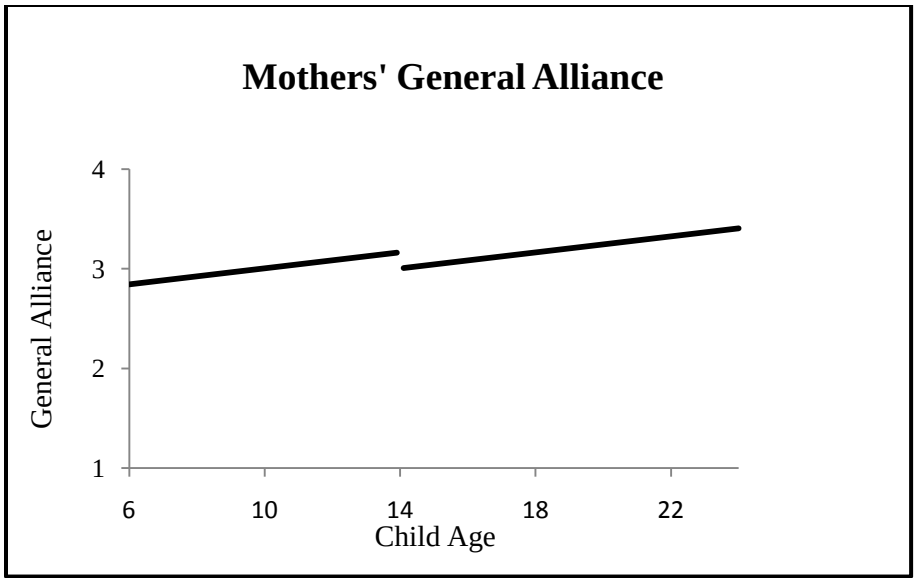

Figure 8. Growth Trajectory with Pubertal Status Predicting Mothers' General Alliance Based on the Average Age of Pubertal Onset for this Sample.

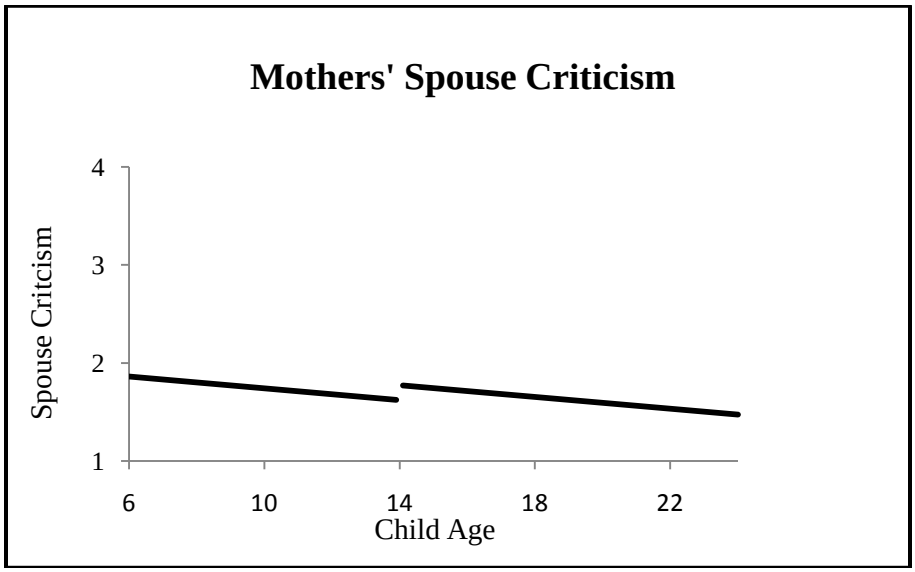

Figure 9. Growth Trajectory with Pubertal Status Predicting Mothers' Spouse Criticism Based on the Average Age of Pubertal Onset for this Sample.

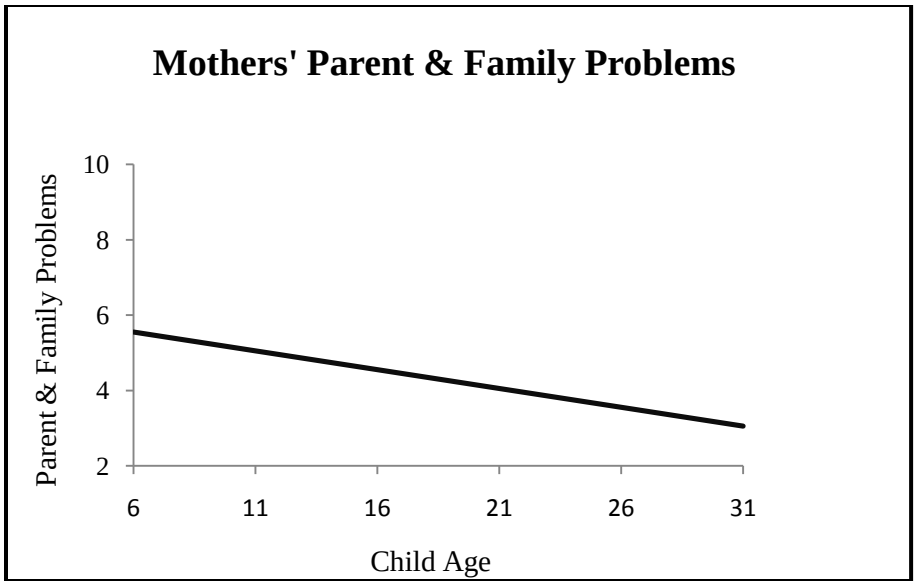

Figure 10. Growth Trajectory for Mothers' Parent and Family Problems.

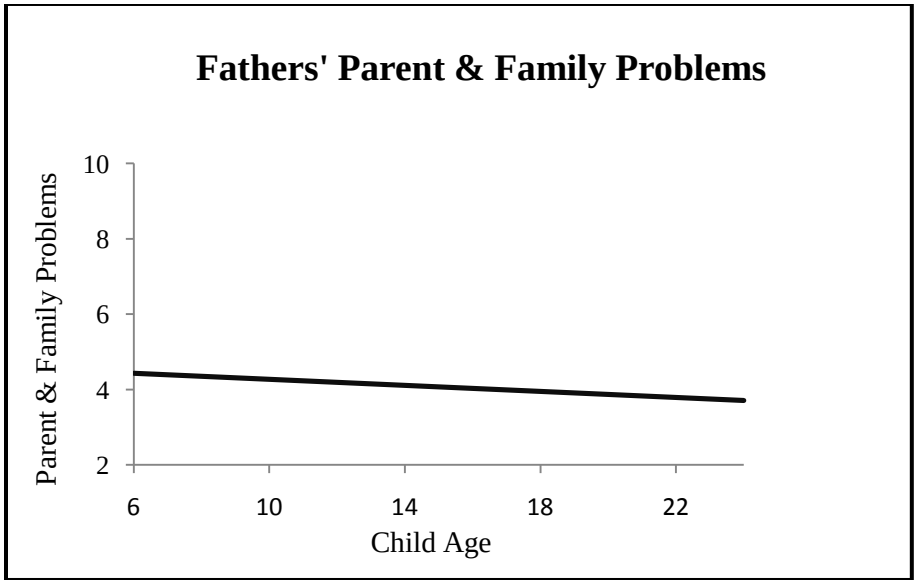

Figure 11. Growth Trajectory for Fathers' Parent & Family Problems.

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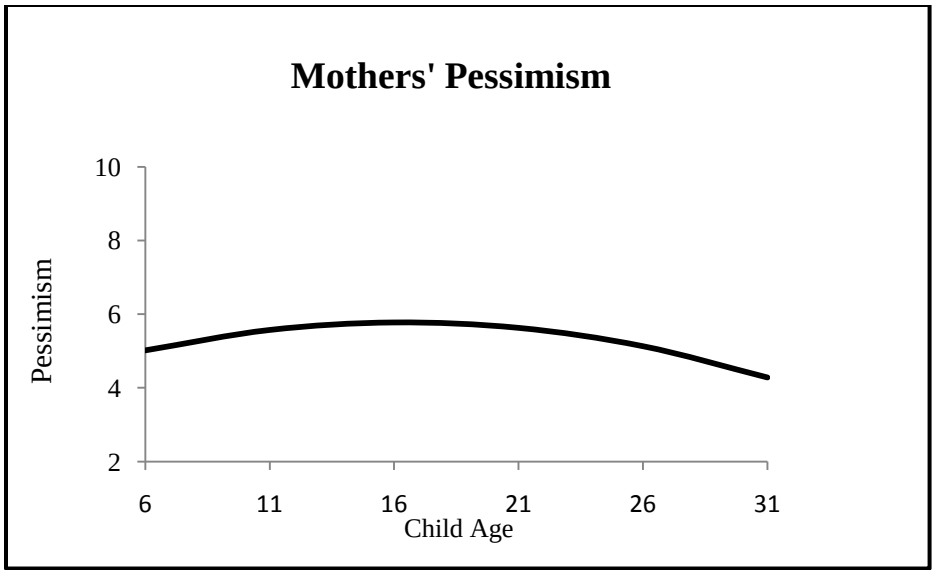

Figure 12. Growth Trajectory for Mothers' Pessimism.

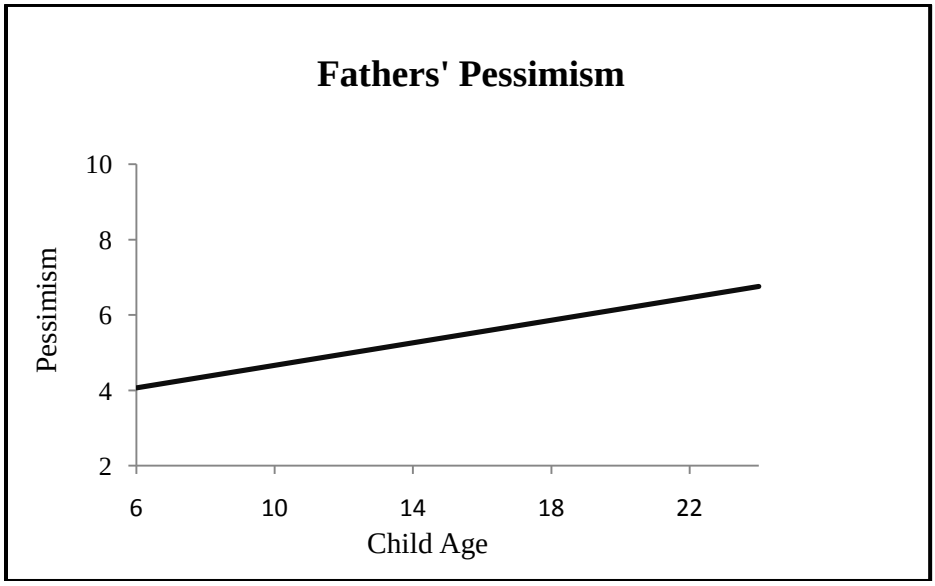

Figure 13. Growth Trajectory for Fathers' Pessimism.

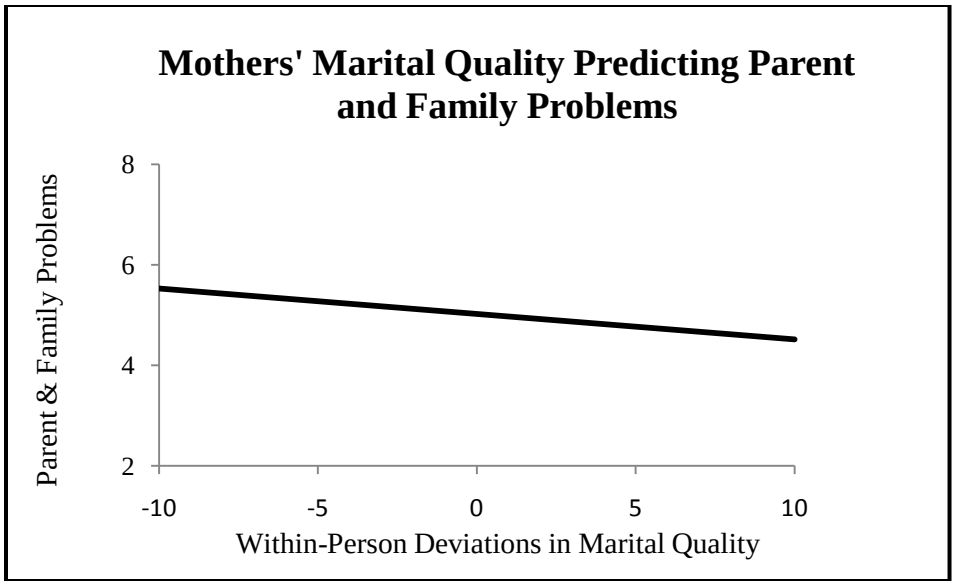

Figure 14. Mothers' Marital Quality Predicting Mothers' Parent and Family Problems.

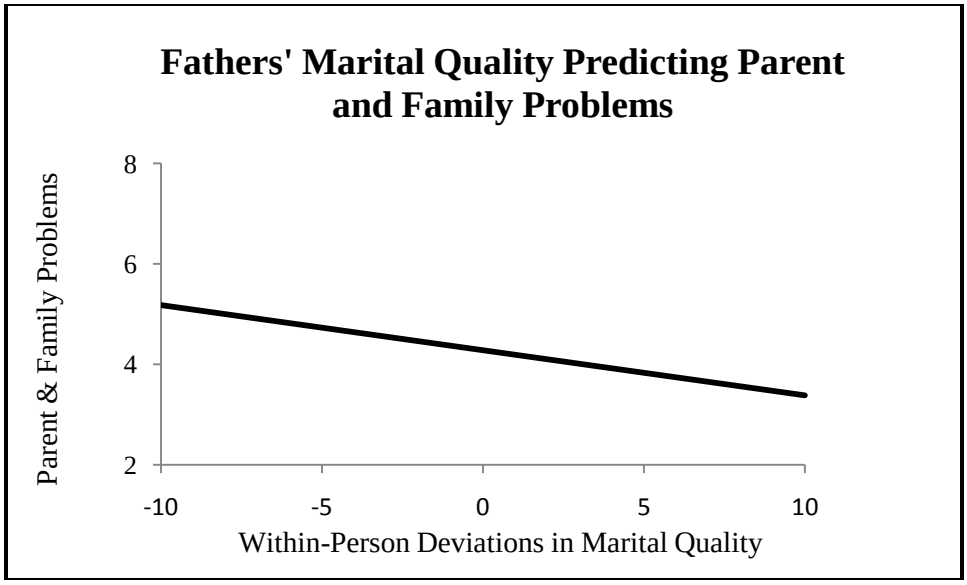

Figure 15. Fathers' Marital Quality Predicting Fathers' Parent and Family Problems.

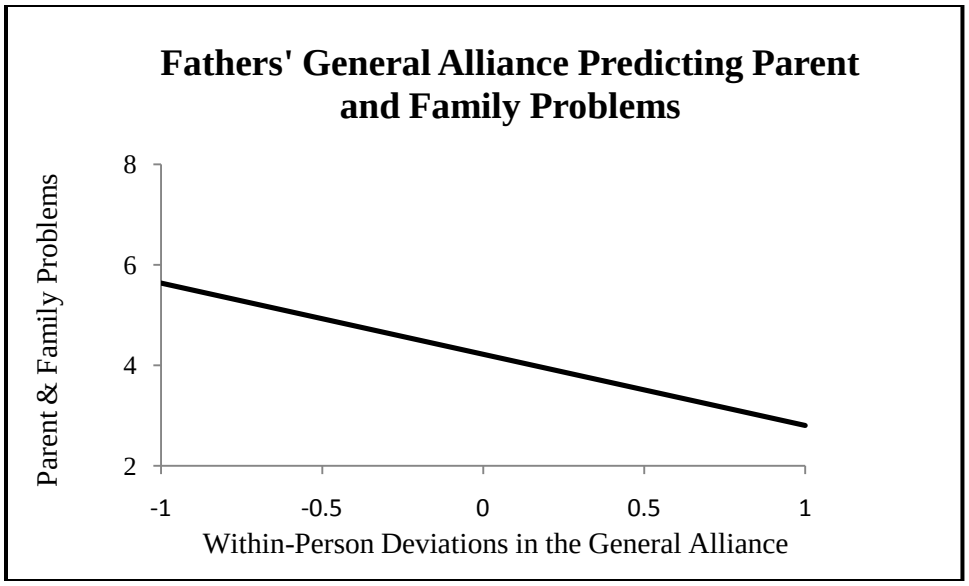

Figure 16. Fathers' General Alliance Predicting Fathers' Parent and Family Problems.

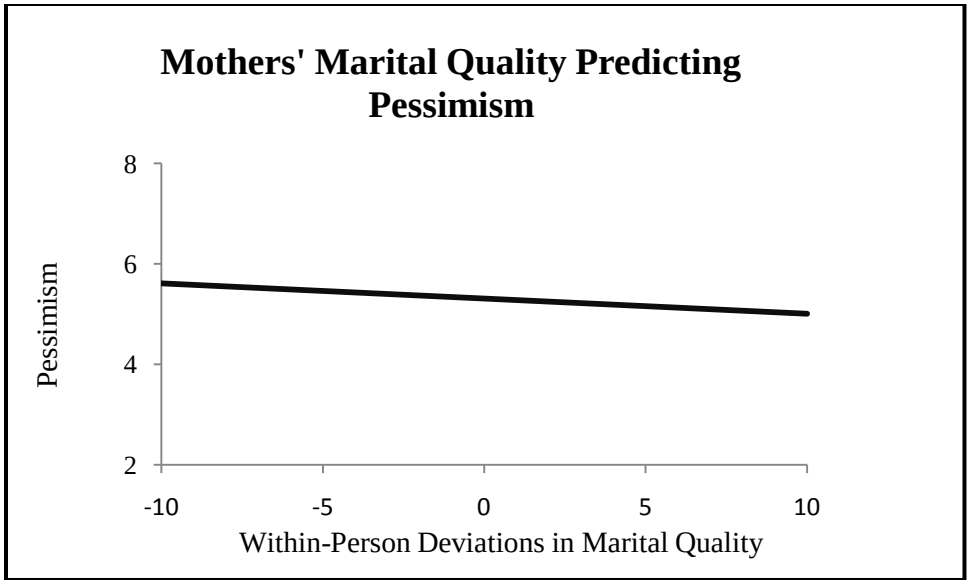

Figure 17. Mothers' Marital Quality Predicting Mothers' Pessimism.

4 DISCUSSION

The purpose of this study was to examine parents' marital functioning and coparenting over time, through different phases of the family life cycle, for parents who experience non-normative parenting challenges in the form of raising a child with intellectual disability. The specific goal was to describe the longitudinal course of marital quality and coparenting in relation to the age of the child with intellectual disability. The longitudinal analysis also explored differences in the level of marital quality and coparenting at major transitions periods in the family life course, consistent with the tenets of family life cycle theory. Another primary goal was to assess stress over time, specifically with the intention of examining how positive changes in marital and coparenting relationships are related to stress. This study is unique in describing longitudinal models of marriage and coparenting over time for this population over such a long span of ages for the offspring with intellectual disability. It also is unique in examining changes in the parents' relationships across the children's developmental stages. This longitudinal evaluation demonstrated both similarities between mothers and fathers as well as specific differences, particularly when looking at associations with the child's developmental stage.

Marital Quality and Coparenting Over Time

Contrary to expectations for a linear decline with time, marital quality followed a curvilinear pattern over time for both mothers and fathers. Parents reported declining marital quality when children were preadolescents and adolescents, but there was an upturn in the scores for both parents as children neared young adulthood. On average, couples reported levels of marital quality across time that remained within the range of satisfied couples in the normative group for the Dyadic Adjustment Scale (Spanier, 1976), suggesting that the initial declines likely represent mild declines in degree of marital satisfaction, rather than a qualitative transformation

from a happy to an unhappy marriage. This pattern is similar to the pattern that occurs for parents of typically developing children, who also show a decline in marital quality during their children's adolescence and increases in marital quality after completing the launching phase when all children have left the home (Gorchoff et al., 2008; Hagen & DeVries, 2004; Whiteman et al., 2007). Results are also consistent with cross-sectional studies showing relatively similar levels of marital quality between these groups for parents of preschool and school-aged children (Baker et al., 2005, 2002; Floyd & Zmich, 1991; Risdal & Singer, 2004). Given that only 39 adult offspring left the home in this sample, and previous research has shown that active parenting persists in these populations, even if children leave home (Floyd et al., 2009; Seltzer et al., 1997; Seltzer et al., 2001), this study adds to the literature by showing that the upturn also exists with the couples that remained together in this study despite continued caregiving demands.

The associations between transition phases and marital quality provide further information on mothers' developmental trajectories and show different ways to model change over time. For mothers only, the transition to adolescence predicted stress in the marriage in a way that was consistent with expectations. That is, the mothers reported lower levels of marital quality following the child's pubertal onset. These findings for the mothers are consistent with previous research with parents of typically developing children and research on the unique stressors for parents of adolescents with intellectual disability (Baker et al., 1997; Parmenter et al., 2007; Whiteman et al., 2007). High school exit was associated with a change in marital quality for mothers; however, the change in level was not in the expected direction, with mothers reporting higher levels of marital quality after the child's graduation. This overall pattern, with a drop in the level of marital quality at adolescence, and a higher level of marital quality post high

school graduation, is consistent with the findings for a curvilinear pattern in the continuous quadratic model. However, the findings seem in contrast to the number of studies focusing on stressful events during this transition (Blacher, 2001; McGoldrick et al., 1993; Seltzer & Ryff, 1994). In light of these earlier findings, it is likely that parents in the present study did indeed experience this transition as stressful, yet the stress was not harmful to the marital relationship. Other studies have also shown that, despite the number of stressors associated with high school exit and the transition out of school services, resiliency is also demonstrated in other family relationships. For example, Lounds et al. (2007) found that mothers' depression and view of the relationship with their child improved when their young adult with autism exited high school. Thus, despite possible difficulties associated with this transition, relationships within family systems may do well.

The upturn in marital quality for both parents, and the positive association between high school exit and marital quality for mothers, raises questions about the relative importance of meeting the expectations of the launching phase for parents of individuals with intellectual disability. The launching phase is primarily defined by launching children out of the home, yet parents evidenced increases in marital quality as children entered young adulthood despite the majority of adult offspring in this sample remaining in the family home. This pattern indeed differs from research with other families that clearly shows that the critical event is launching, not just having children enter adulthood. That is, when children enter adulthood but fail to launch, parents' marriages are less satisfying than when launching occurs (Gorchoff et al., 2008; Umberson et al., 2005; White & Edwards, 1990). The effect of adult offspring launching on marital quality is explained by parents' ability to re-focus their attention on nurturing their couple relationship once all of the children are out of the home. Research with parents of

typically developing children shows that the demands of the parenting role, including role strain, time demands, and opportunities for child-related disagreements, can impinge on couples' time together and their ability to focus on maintaining positive marital communication and activities that enhance satisfaction (Gorchoff et al., 2008; Twenge et al., 2003). Couples report greater enjoyment of their time spent with one another after children leave the home, which has been found to mediate the relationship between children launching and increased marital quality (Gorchoff et al., 2008). It is possible that parents of children with intellectual disability are also able to refocus the marriage and experience greater relationship quality later in the marriage even when the child does not leave home. Even though parents of individuals with intellectual disability may not have more time to devote to their partner given continued caregiving demands, it is the increase in the quality of time spent together, rather than an increase in time devoted to the marital relationship, that seems to be the primary predictor of marital quality at this time (Gorchoff et al., 2008). Perhaps by the time the child enters young adulthood, parents have established their roles in caregiving, how they accomplish this together, and how to respond to the child's needs, thus allowing for more freedom to enjoy the marital relationship.

Parental expectations may also play a role in the findings, which suggest that the presence of an adult child in the home does not seem to have the same negative effect on marital quality for parents of individuals with intellectual disability. Consistent with family life cycle theory, parents of typically developing children report more strains associated with an adult child in the home when the child fails to meet other typical expectations for this stage. For example, parents report more conflict with an adult child in the home when the child is unemployed or financially dependent on parents, which increases dissatisfaction with the living arrangement (Aquilino & Supple, 1991). However, compared to parents of typically developing children,

parents of individuals with disabilities have likely planned for having an adult child in the home (Freedman, Krauss, & Seltzer, 1997). Thus, although the child's failure to launch violates typical expectations for this phase, it is likely consistent with the family's expectations. This interpretation is also consistent with previous research showing that parents of young adults with intellectual disability adjust the typical definitions of adulthood to better correspond with their child's abilities. For example, Floyd et al. (2009) found that parents reported that their child had reached adulthood, based on their increases in independent thinking and maturity, despite not reaching the outwardly identifiable markers typically reported with the launching phase.

The pattern for coparenting showed some consistency with the later upturn in marital quality but also suggests different developmental patterns for these constructs. The consistent increase in the general alliance, as reported by both parents, and decline in spouse criticism, as reported by mothers, suggests that parents are able to maintain a positive working relationship as coparents despite the declines in marital quality that occurred when children were preadolescents and adolescents. Additionally, for mothers, the drop in the general alliance and higher levels of spouse criticism following the pubertal transition is consistent with the association between pubertal onset and marital quality and highlights the interrelatedness among these constructs. These findings are consistent with past studies that have conceptualized marital quality and coparenting as related, yet separate constructs (Feinberg, 2003; Floyd et al., 1998; Rogers & White, 1998; Van Egeren & Hawkins, 2004) and are also consistent with research on coparenting after divorce, which indicates that an effective coparenting relationship can persist even when the marriage dissolves (Dush, Kotila, & Schoppe-Sullivan, 2011). Of course, for couples who experience severe marital distress and conflict as they approach divorce, the negative "sentiment override" that pervades the spouses' feelings for each other also leads to negative coparenting

(Dush et al., 2011; Kitzmann, 2000; Margolin et al., 2001). However, the small, gradual declines in marital satisfaction in the context of a generally satisfying marriage that occurred for the couples in this study likely does not set the stage for coparenting problems. In fact, the trend for steady growth in the general alliance that occurs despite dips in marital quality is consistent with research showing that the focus on children and parenting during the childrearing years draws attention away from the marriage (Gorchoff et al., 2008; Twenge et al., 2003). Additionally, like marital quality, average levels of coparenting were similar to reports from parents of typically developing children in previous research (Cole, Woolger, Power, & Smith, 1992; Van Egeren, 2004) further suggesting that relationships within these families are generally functioning similar to families of typically developing children.

The overall pattern found, for an upturn in marital quality, growth in the general alliance, and a positive association between high school exit and mothers' marital quality, suggest that families become better at managing unique circumstances associated with disability with time. That is, perhaps the type of resilience suggested by the resilient-disruption hypothesis (Costigan et al., 1997), which proposes that families can show both strains but also signs of resiliency and successful adaption to raising a child with intellectual disability, can actually increase over time as families have more experience in coping with this stress. This study suggests that families did experience strains, in the form of decreasing marital quality, and a discrete drop for mothers, as children approached adolescence, however marital quality increased towards young adulthood. This idea is consistent with the pattern found by Neff and Broady (2011) showing that couples who experienced more stress earlier in the marriage evidenced greater resiliency to future stressors, including the transition to parenthood, than couples who experienced less stressful life events. Similarly, by the stage of marriage and parenthood assessed in this study, it is possible

that families have already found ways to adapt to the unique stressors of raising a child with an intellectual disability and that perceptions of marital quality are resilient to these parenting stressors.

Interpretations regarding family adaption in the later years of parenting are further supported by research comparing mothers of adults with intellectual disability to mothers of adults with mental illness. Studies show that the mothers of adults with intellectual disability report better coping strategies, lower levels of frustration in parenting, and increased gratification in the parenting role compared to mothers of adult children with mental illness (Greenberg, Seltzer, & Greenley, 1993; Seltzer, Greenberg, & Krauss, 1995). Since the onset of mental illness is usually later in the life course, these findings also suggest that parents fare better when they have time to adjust to the needs of their child and develop appropriate coping strategies in response to additional stressors. However, studies have also shown that parents of individuals with intellectual disability have poorer physical health when approaching old age than comparison parents (Seltzer, Floyd, Song, Greenberg, & Hong, 2011). Thus, it is possible that the effects of stress associated with caring for a child with intellectual disability are seen in other areas and as parents continue to age. Yet, as suggested by this study, parents are doing well in their marital and coparenting relationships.

Gender Differences in Perceptions of Coparenting and the Influence of Child Transitions

The evaluation of coparenting over time differed for mothers and fathers, suggesting that parents have different experiences of this component of their relationship. Although mothers and fathers demonstrated a relatively similar pattern of positive growth in the coparenting alliance, the fathers reported higher levels of positive coparenting than mothers early on, before the children reached adolescence, and the mothers showed a greater increase in positive growth over

time. This situation in which the mothers' perceptions of a positive alliance, which consists of ratings of support and coordination as coparents, are somewhat lower than fathers when children are young is consistent with previous studies of coparenting with school-age children. The mother-father difference has been attributed to relatively greater caregiving burden on mothers than fathers (Floyd & Zmich, 1991). Previous studies have shown that mothers tend to take on more responsibilities for childcare than fathers, even more so in families that include a child with a disability (Beitel & Parke, 1998; Bristol et al., 1988; Feinberg, 2003; Konstantareas & Homatidis, 1992; Lounds & Seltzer, 2007; Rowbotham, Carroll, & Cuskelly, 2011). However, the increasingly positive reports by mothers, in terms of perceived increases in the alliance and decreases in criticism received from their spouse, indicates that mothers become more satisfied with fathers as parenting partners over time and that fathers are likely becoming better parents and coparents with time.

In the present study, although fathers perceive better positive coparenting in the form of greater teamwork and agreement over time, they perceive that the level of criticism from their wives maintains. The findings suggest that positive and negative dimensions of coparenting should be considered as separate, but related, constructs, rather than as opposing ends of a spectrum of coparenting quality, as suggested by previous research (Feinberg, 2003; McHale, 1995). The findings for growth in perceptions of the alliance without corresponding declines in criticism are similar to other somewhat paradoxical findings for spouse criticism and father involvement. For example, previous research has found that fathers involvement in caretaking is related to increases in observed spouse criticism when both partners actively engage with the child (Jia & Schoppe-Sullivan, 2011). Mothers' criticism of their partners' parenting abilities may be related to mothers' identification with their role as the primary caregiver (Jia & Schoppe-

Sullivan, 2011; Schoppe-Sullivan, Brown, Cannon, Mangelsdorf, & Sokolowski, 2008) which may lead to more confidence in their own parenting abilities, given their level of interaction with the child, than confidence in their spouse's abilities. Therefore, even though fathers perceive growth in teamwork, agreement, and parenting coordination, as assessed by the general alliance, they may continue to perceive that their partner doubts their abilities and criticizes their parenting skills. It is also possible that as fathers and mothers better coordinate parenting with time, as shown in the general alliance growth, the presences of fathers in parenting allows more opportunities for criticism. For example, if fathers primarily support the family outside of the home, mothers may indicate concern regarding time away from home but not necessarily criticize the fathers' specific parenting skills. Since the limited research on father involvement and criticism is with parents of very young children, future research should consider the level of father involvement and the role this plays in coparenting over time with both parents of typically developing children and parents of children with disabilities. Additionally, since this study included 49 stepfathers, it is possible that factors associated with the stepparent role, including the relationship with their stepchild, the duration of the parent-child relationship, and how long parents have been coparenting together, may also play a role in gender differences in perceptions of parenting and may be helpful to also consider in future research.

Overall, the associations between the child's transitions and the parents' relationship functioning were significant only for the mothers. For mothers, these findings were consistent across the domains of marital quality, positive coparenting, and spouse criticism. This set of findings may also be related to mothers greater level of involvement in childcare compared to fathers (Beitel & Parke, 1998; Bristol et al., 1988; Feinberg, 2003; Konstantareas & Homatidis, 1992; Lounds & Seltzer, 2007; Rowbotham et al., 2011) and are consistent with other findings

showing differences between mothers and fathers in the relationship between marital functioning and transition periods. For example, Whiteman et al. (2007) found that mothers reported negative changes in marital functioning when both their first and second born children entered puberty, but fathers only reported negative changes when their first born entered puberty. The authors attributed this finding to mothers' greater investment in the parenting role and daily level of interactions with their adolescents, compared to fathers. Although it is possible that the presence of older children may also play a role in the findings of this study, and should be considered in future research, the transition process is likely different for a child with intellectual disability. Therefore, these findings for a stronger relationship between the child's transitions and the mothers' perceptions of their relationship with their partner are also likely related to mothers' time spent in caregiving and identification with the parent role. It is also possible that, similar to differences in coparenting, parenting as a stepparent may affect the association between transitions and the marital and parenting relationship, and it is possible that including stepfathers in the sample had the potential to influence findings. Future research should consider step-parenting when assessing the influence of transition periods.

Findings that the child's transitions influences parent functioning and other relationships in the family system, such as the marital relationship, are consistent with the ideas in family life cycle theory that the child's development, and parents' response to these developmental changes, influences other relationships in the family system (McGoldrick et al., 1993). One interpretation of the association between pubertal onset and marital functioning is that a negative spillover occurs from higher levels of conflict in the parent-child relationship and from the adolescent's negative mood (Whiteman et al., 2007). If mothers spend a greater amount of time interacting with the adolescent on a daily basis, they may be more susceptible to this negative spillover and

perceive negativity the marital and coparenting relationship. Although previous research has primarily focused on stressors at the end of high school, findings for a jump in mothers' marital satisfaction suggest positive and adaptive responses at this time. Perhaps mothers, who may have invested more time and effort into caring for the child and preparing them for this transition, feel a greater reward from their efforts and their child's efforts. Future research with a comprehensive view of parent functioning at the entrance to young adulthood, including transition stressors as well as positive benefits for families, will be helpful in better understanding parent functioning at this time.

Parenting Stress over Time

Findings showed that the two types of parenting stress that were assessed, i.e., strains for parents and the family system and pessimism about the child's future, demonstrate opposing patterns of change over the life course. As expected, mothers reported decreased parent and family problems over time, consistent with the rationale that they are better able to accommodate their child's needs with time, both inside the family and with external supports (Costigan et al., 1997; Floyd et al., 1997; Keogh et al., 2000). Also as expected, although parent and family problems declined over time for mothers, their concern with their child's future grew until children neared young adulthood and then showed a decline. The decline is again consistent with the propositions that there are improvements in family adaptation and stress management with time and that the anticipation for adult care produces more anxiety and concern then actually making plans for the adult's future (Lounds et al., 2007; Setzer et al., 2001). Although this study did not assess whether or not parents had established plans for their child's future, parents have likely planned for the end of school services and future living by young adulthood. Thus, mothers report decreases in pessimism after their child enters young adulthood. The expected

patterns did not emerge, however, for the fathers. Fathers did not show the same decreases in stress as did mothers with time, reporting somewhat stable levels of parent and family problems and increases in pessimism that did not level off. Although the course of these variables differed for mothers and fathers, levels of stress were, on average, similar to previous research with families of children with disabilities when using the Questionnaire on Resources and Stress, and relatively higher than reports from parents of typically developing children, particularly in the area of pessimism (Sanders & Morgan, 1997). This comparison suggests that, despite improvements, these families do continue to experience more parenting stress than has been reported in studies including typically developing children.

Although the majority of studies on parenting stress and accommodations mainly include only mothers' perceptions, the few studies available with both parents find gender differences in perceptions of stress and stress management, which may explain the differing patterns found in this study. There are also gender differences in factors that influence parents' perceptions of child-related stress. Mothers have been described as "expert copers" (Lounds & Seltzer, 2007) when caring for a child with intellectual disability, which may explain mothers' improvements in reports of stress over time since the use of coping strategies are related to reduced perceptions of burden (Kim, Greenberg, Seltzer, & Krauss, 2003). Also, mothers are more likely to report stress related to daily caregiving activities whereas fathers report more concern about the family finances and their career (Knussen & Sloper, 1992; Lounds & Seltzer, 2007). Thus, it is possible that mothers' accommodations to the child's needs over time, and their improved ability to manage the child's needs for care result in lower stress levels despite consistent involvement with the child. Fathers may lack this sense of mastery for childcare and all of the associated responsibilities. Regarding pessimism, a significant curvilinear pattern was not found, however,

this may be due to difficulty capturing a curve with only three waves of data and the truncated age range for children caused by not having the fourth wave for fathers. Findings from the present study show a divergence in perspectives for mothers and fathers, and, along with previous findings for higher reports of pessimism for fathers compared to mothers (Brubaker, Engelhardt, Brubaker, & Lutzer, 1989), suggest the need to better understand the nature and consequences of these differing points of view. It may also be the level of involvement, and greater awareness of support opportunities and long-term care options (Heller, Hsieh, & Rowitz, 1997), that helps mother to perceive lower levels of pessimism when the child is a young adult. In contrast, if fathers' financial concerns do not improve with time, especially when considering the costs about long-term care and financially providing for their child in the future, their continued growth in pessimism may be an outcome. However, more research is needed to clarify fathers' stress over time and explore possible explanations for the differing pattern between mothers and fathers.

Marital Quality and Coparenting as Predictors of Perceptions of Stress

Consistent with the research hypothesis, positive growth in marital quality for mothers and fathers was associated with their reports of decreased levels of stress in the form of parent and family problems as well as decreased levels of pessimism for mothers. Findings are consistent with previous cross-sectional studies showing associations between positive marital quality and stress (Friedrich et al., 1985; Kersh et al., 2006), and extend previous findings by showing that positive change in marital quality, regardless of overall level, is associated with change in stress. This study is unique in assessing the change in marital quality over time and shows that it is not just how happy couples are, as assessed in previous studies, but the pattern of growing happiness, as opposed to declining happiness, that predicts lower levels of parent and

family problems. Findings have implications for the assessment of marital quality for long-term marriages and highlight the importance of taking a longitudinal perspective. That is, it is important to understand whether the partners perceive marital quality as improving or declining, not just current level. Therefore, future research should consider these factors with longitudinal assessment or at least assess couples perceptions of change if conducting cross-sectional research.

There was less support for the hypothesized association between the coparenting alliance and child-related stress. Positive growth in the parents' coparenting relationship was only significantly associated with perceptions of parent and family problems for the fathers, but not mothers, and was not associated with pessimism for either parent. A lack of findings for pessimism may be related to the specific aspect of stress assessed, since this measure focuses on specific concern for the child's future rather than family impact. Parents' perceptions of stress in this area are likely dependent on characteristics of the child, such as level of intellectual disability and adaptive functioning, and the age of the child, and, thus, are likely not as influenced by marital quality and coparenting. However, it is interesting that the relationship between coparenting growth and change in levels of parent and family problems was significant only for fathers. It may be that fathers, who spend less time in child-care than mothers, and may have less mastery in this area, are more reliant on growth in this area for feeling that family stress is manageable. The lack of significant findings for mothers in this area seems inconsistent with findings from this study and previous research showing associations between marital quality and stress, and between coparenting and other parenting experiences, such as parenting confidence and parent-child relationship quality (Feinberg & Kan, 2008; Floyd et al., 1998; Kersh et al., 2006; Weiss, 2002). Since it was growth in coparenting that was assessed in the

present case, it is possible that overall levels of this feature, as assessed in previous research, may be relatively more important than the rate of change for mothers. That is, improvements in coparenting might not reduce stress until the quality of coparenting reaches an effective level. Furthermore, growth in marital satisfaction may be a stronger predictor than growth in coparenting for mothers since satisfaction in the marital relationship provides more balance in the form of a respite from parenting demands. Since previous research addressing the coparenting relationship and family stress is limited, more research is needed to better understand the role of coparenting support and changes in this domain over time for mothers and fathers of children with intellectual disability.

Limitations and Future Implications

Several methodological points should be considered when interpreting the results regarding growth trajectories and the influence of the child's transitions. First, the number of participants that completed more than one wave of data is relatively small, meaning that findings should be interpreted with caution. Particularly in the HLM analyses that were limited to 3 waves of data, the limited number of subjects who contributed data at all three waves may have affected the level of within-group variation and, consequently, the accuracy of variance components (Singer & Willet, 2003). Since few studies have examined how marital quality, coparenting, and parenting stress change with time based on the age of the child, particularly for this population, replication is needed in order to confirm that the current findings are generalizable. Thus, future research could focus on replicating these results with a larger sample size.

In addition to a larger sample size, more waves of data would also be helpful in confirming the patterns for change found in this study. Specifically, whereas the current findings showed an upturn in marital quality, past research with parents of typically developing children

has found that the upturn at the launching phase is transient, and that the pattern for a general decline persists, but at a reduced rate (Umberson et al., 2005; VanLaningham et al., 2001). Other studies did not find a decline after the launching phase, but showed that rates became stable rather than continuing to increase (Gorchoff et al., 2008). Therefore, future research following parents of individuals with intellectual disability into later years of marriage will be needed to confirm whether the curved pattern persists. Additionally, for both parents' coparenting reports and for the fathers' stress reports, the model testing found that change over time was best represented by a linear model, and tests for a quadratic term were insignificant. Although there was a sufficient number of waves of data for the mothers to detect quadratic trends unambiguously, the quadratic model with the 3 waves available for the fathers should be considered tentative. Similarly, for evaluating the impact of transition periods, the limited number of waves only allowed for evaluating differences in levels of marriage and coparenting before and after a transition, but not assessing changes in slope at these transitions. Future research should consider whether or not a change in the slope exists, in addition to differences in levels, after a transition. Similar limitations exist in the models assessing the association between martial quality and coparenting over time and reports of stress over time. Since it is possible that the associations found in this study may differ based on the child's development, future research should also consider the association between parents' relationship functioning and the slope of child-related stress.

Another consideration when interpreting the influence of transition points is the assessment of puberty and high school graduation. Puberty was assessed with retrospective reports, which leaves great room for measurement error. Thirty-three parents reported that they were uncertain of the date provided, and preliminary analyses showed that these parents were

more likely to report an older age of menstruation for the their daughters, compared to parents who were more certain of the date. Previous research has provided good evidence for the validity of retrospective self-reports of menarche from normative samples (Bean, Leeper, Wallace, Sherman, & Jagger, 1979; Damon, Damon, Reed, & Valadian, 1969), however parent report, as used in this study, has the potential to be less accurate. Additionally, parents' report of boys' pubertal onset has the potential to be relatively inaccurate due to difficulty assessing the occurrence of a growth spurt. Similarly, high school graduation was used as a marker of the young adult phase and this marker was primarily determined based on the participant's age because high school graduation information was not available for all participants. There are likely participants, other than the 24 identified by additional data, who graduated before age 22. Thus, measurement error also exists for this marker in terms of likely estimating a later date than actually occurred for some participants.

A methodological limitation that should be noted as it has the potential to affect estimates of change over time includes inconsistencies between the fourth wave and the previous waves. The fourth time point occurred 9 years after time 3 and data were collected with different methods than were used in previous waves. Measures were completed during home visits in the first three time points but parents were mailed the questionnaires after completing a phone interview at wave 4. It is possible that completing questionnaires through the mail, rather than with researchers present in the home, and the order in which measures were completed, may have altered responding on the measures. Additionally, the questionnaire used to assess parent stress was altered for the fourth time point. The full measure of the Questionnaire on Resources and Stress was given at the first three time points, and a short-form version was provided to mothers at the fourth wave. It is possible that items were included in the longer version that

influenced parents' perceptions when answering questions that may lead to different responses when those items were removed. Although mothers' scores on the parent and family problem and pessimism scales at time four were significantly correlated with the corresponding scales from the first three time points, it is possible that the altering of the presentation affected reliability.

One strength of this investigation is that it included married couples that later separated or divorced. Doing so likely provided a broader range of marital functioning than would have occurred using only couples who remained married throughout the study. However, the inclusion of these couples al so posed challenges for the interpretation of the findings. The loss of data from couples after a divorce leads to nonrandom missing data, since couples who later divorced likely evidenced declining scores on the variables assessed, particularly marital quality, and scores on variables such as marital quality are related to why the data are missing. This is a problem that exists in all longitudinal studies of marital quality. Different studies have used different methods to address the issue. For example, previous longitudinal studies using HLM (i.e., Huston et al., 2001; Karney and Bradbury 1997; Kurdek 1999) have included whether or not a couple divorced over the course of the study as a level-2, between-couples, variable. However, since divorce is likely an outcome of the processes assessed, especially change in marital quality, including divorce as a predictor poses problems for interpretation of effects as controlling for divorce means controlling out variance represented by distressed marriages. Therefore, this study chose to include couples who remained together and those that later divorced, without controlling for later divorce, in order to accurately represent marital quality without removing the effects of less satisfying marriages. Given that unhappy couples who divorced were truncated from the sample at the later assessment, the results showing upturns in

marital quality might have occurred because the remaining sample included only relatively happier couples. To assess if the upturn was accurate, and not just a result of the unhappy couples leaving the sample, follow-up analyses were run with only the continuously married couples. The findings indicated that the upturn is not primarily accounted for by unhappy couples leaving the sample and helps to address concerns related to including these couples in the sample.

This sample included a mixture of long-term intact marriages, marriages heading towards divorce, and relatively newer second marriages that included a step-parent. The variation in marital durations has the potential to influence the trajectories, even when based on the child's age, which adds variance to the patterns of change that is not accounted for in the prediction models. For the 65 couples in a second marriage, these earlier marriages, which likely represent more distressed marriages, were not represented in the sample. Thus, by only including marriages of parents that have children age 6 or older, it is possible that findings for initial levels of marital quality, and overall levels, are somewhat more positive than may be seen in the population. Although future research may want to explore the trajectories over time and associations between variables based on the different types of marriages, it is likely that the nature of marital quality and coparenting, and impact of these on parenting stress, is consistent across the different marriages. Despite concerns related to including a variety of couples, the inclusion of couples in second marriages and those that later divorce is important for the ecological validity of this study.

Finally, the primary focus of this paper was to provide information on marital quality, coparenting, and parenting stress for parents of individuals with intellectual disability. Given the lack of longitudinal studies assessing these constructs for families of individuals with intellectual

disability, the goal of this study was to assess change over time for these families. Providing information on how these patterns may look different within this population of parents was outside of the scope of this paper and the available data. However, future research may build on this study by considering other factors, such as characteristics of the child with intellectual disability, that may influence the level and trajectory of these variables, as well as the interaction between martial quality and coparenting with parenting stress. Exploratory analyses were conducted that considered the influence of between-couple differences based on background variables and child characteristics. Findings suggested that factors such as the level of child behavior problems, parent educational level, and parent age may explain variability in marital quality, coparenting, and parenting stress over time. Given the limits of this data set, these finding should be interpreted with caution and are included as an appendix as suggestions for variables to consider in future research.

Additionally, this investigation did not consider factors such as family size or the birth order of the child with intellectual disability in the analyses looking at parent functioning over time or the discrete change models assessing the influence of transition periods. This limitation might be critical for understanding transitions for the family as a whole. That is, these transitions also occurred for other siblings who, for example, may be transitioning outside of the home at the time of this research. Defining the transitions solely on the basis of the child with intellectual disability failed to consider this broader context. Future research may also want to consider the presence of siblings and the stage of other children in the home when representing the family life cycle. Additionally, the quality of the relationships between the individual with intellectual disability and siblings, and sibling involvement in caregiving, likely plays a role in parent functioning over time. Since previous research has shown that mothers experience less burden

when a sibling helps in the provision of care (Seltzer, Begun, Seltzer, & Krauss, 1991), sibling involvement may be an important consideration for future research, particularly for parents' perceptions of stress over time.

Summary

In conclusion, the results highlight the resiliency in parents' marital quality, coparenting, and stress over time when raising a child with intellectual disability. Despite years of nonnormative parenting experiences and initial declines in marital quality, parents showed improvements in marital quality and coparenting with time. Indeed, the pattern for marital quality over time found in this study is similar to findings from previous research with parents of typically developing children. Growth in these areas, particularly martial quality, was also a predictor of parents' perceptions of family stress associated with the caregiving responsibilities of raising a child with intellectual disability. Results also supported the importance of considering the developmental stage of the child with intellectual disability, both when modeling parent functioning continuously by the child's age and in discrete change models highlighting the onset of transition periods. This study is novel in the range of ages represented for the individual with intellectual disability and in the stages of parenting in a longitudinal model. The study also adds to the literature by considering perceptions of both mothers and fathers, highlighting areas of similarities and differences, and by modeling parent functioning based on the child's development. The findings also pose interesting research questions for future investigations regarding adaptive processes related to the preservation of marital quality in the later years of parenting and the role of gender differences in parenting responsibilities, perceptions of coparenting, stress over time, and the association between coparenting and stress.

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APPENDIX

Results for exploratory models including between-person predictors at Level-2

Due to the level of imbalance in the data for this study, all of the main findings presented were the product of Level-1 linear and quadratic growth models without Level-2 predictors. The results of the models presented below that include predictors at Level-2 should be interpreted with caution as the level of imbalance may produce inaccurate estimates for the influence of Level-2 predictor variables. These models are primarily presented as suggestions for future research in which the accuracy of the suggested findings can be further explored. The additional models were run on the linear or quadratic growth trajectories for marital quality, coparenting, and parenting stress, without the inclusion of time-varying predictors, in order to present the most parsimonious models given the limitations of the data.

Exploratory predictor variables and covariates were entered at Level-2 to predict between-person variations in the intercepts, which are the predicted scores on the relationship variables at child age 11.40. Between-person variables were not entered for slope due to the limited number of participants completing multiple waves. Whether or not the target child had significant behavior problems was included as a between-couple variable. Other child characteristics including level of intellectual disability (mild vs. moderate) and gender were also tested at Level-2. Family demographic variables and recruitment group (recruited at original recruitment, recruited at wave 3) were tested as possible control variables. Characteristics of the parents' relationship that were tested as possible covariates included marital duration at study entry, whether or not it is the first marriage for each parent, parental status (step-parent vs. biological parent), and average age of the partners when they entered the study. Covariates with

significant effects predicting the intercept were retained in the models when necessary to control for these effects before assessing the effect of Level-2 variables of interest.

The models are as follows:

Marital Quality:

Level-1 (within-couple) model:

$$Y\ (\text{marital quality})_{ti} = \pi_{1i}(\text{MOM}_{ti}) + \pi_{2i}\ (\text{DAD}_{ti}) + \pi_{3i}\ (\text{MOMtime}_{ti}) + \pi_{4i}\ (\text{DADtime}_{ti}) + \pi_{5i}(\text{MOMtime}_{ti})^2 + \pi_{6i}(\text{DADtime}_{ti})^2 + e_{ti}$$

Level-2 (between-couple) model:

$$\pi_{1i} = \beta_{10} + \beta_{11}\ (\text{Parent education}) + \beta_{12}\ (\text{Parent age}) + \beta_{13}\ (\text{Child behavior problems}) + r_{1i}$$
$$\pi_{2i} = \beta_{20} + \beta_{21}\ (\text{Parent education}) + \beta_{22}\ (\text{Parent age}) + \beta_{23}\ (\text{Child behavior problems}) + r_{2i}$$
$$\pi_{3i} = \beta_{30} + r_{3i}$$
$$\pi_{4i} = \beta_{40} + r_{4i}$$
$$\pi_{5i} = \beta_{50} + r_{5i}$$
$$\pi_{6i} = \beta_{60} + r_{6i}$$

Coparenting:

Level-1 (within-couple) model:

$$Y\ (\text{coparenting scale})_{ti} = \pi_{1i}(MOM_{ti}) + \pi_{2i}\ (DAD_{ti}) + \pi_{3i}\ (MOMtime_{ti}) + \pi_{4i}\ (DADtime_{ti}) + e_{ti}$$

Level-2 (between-couple) model:

$$\pi_{1i} = \beta_{10} + \beta_{11}\ (\text{Cohort}) + \beta_{12}\ (\text{Parent education}) + r_{1i}$$
$$\pi_{2i} = \beta_{20} + \beta_{21}\ (\text{Cohort}) + \beta_{22}\ (\text{Parent education}) + r_{2i}$$
$$\pi_{3i} = \beta_{30} + r_{3i}$$
$$\pi_{4i} = \beta_{40} + r_{4i}$$

Parenting Stress:

Level-1 (within-person) model:

$$Y\ (\text{mother or father stress scale})_{ti} = \pi_{0i} + \pi_{1i}\ (\text{time}) + e_{ti}$$

Level-2 (between-person) model:

$$\pi_{0i} = \beta_{00} + \beta_{01}\ (\text{ID level}) + \beta_{02}\ (\text{Child behavior problems}) + r_{0i}$$
$$\pi_{1i} = \beta_{10} + r_{1i}$$

The Level-1 coefficients become outcome variables at Level-2. Level-2 specifies the population average for the intercept (β_{10} for mothers and β_{20} for fathers in the combined models and β_{00} in the individual models) as it varies across couples based on covariates and child behavior problems (Raudenbush et al., 1995; Singer & Willett, 2003). In the combined models, Level-2 variables are either the same for each partner (i.e., level of child behavior problems) or are an average of the mothers' and fathers' scores (i.e., parent education), consistent with the suggested methods for matched-pairs analyses (Lyons & Sayer, 2005; Raudenbush et al.,1995). A preliminary series of models was tested to identify which covariate and predictor variables significantly influenced the intercepts of the trajectories. Results are presented in Tables 19-23.

Table 19. Exploratory Hierarchical Linear Modeling Results for Marital Quality

	Marital Quality					
	Mothers			Fathers		
Level-1 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	110.82***	.47	75.34	111.22***	.39	80.10
Linear Slope (change)	-.44^	.26	-1.67	-.66*	.31	-2.10
Quadratic Slope (change)	.05*	.02	2.06	.05*	.02	2.20
Level- 2 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	113.49***	1.67	68.38	113.64***	1.67	64.68
Parent Education	1.77*	.67	2.62	.94	.65	1.27
Parent Age	.38*	.20	.19	.37*	.18	2.06
Child Behavior	-6.85*	2.83	-2.41	-5.63*	2.68	-2.11
Linear Slope	-.50^	.26	-1.89	-.75*	.32	-2.30
Quadratic Slope	.04*	.02	2.06	.06*	.03	2.23
Variance Components (Level-2)	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	205.32	178.50***		172.43	171.25***	
Linear Slope	2.00	69.55*		4.25	57.16	
Quadratic Slope	.01	57.69		.02	57.32	
Goodness of Fit						
Deviance Level-1 Model	5327.14					
Deviance Level-2 Model	5303.20					
Deviance change (χ^2)	23.94**					

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.

Table 20. Exploratory Hierarchical Linear Modeling Results for General Alliance

	General Alliance					
	Mothers			Fathers		
Level-1 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	2.87***	.04	79.73	3.03***	.03	104.05
Slope (change)	.03***	.01	3.92	.01*	.30	2.05
Level- 2 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	2.84***	.04	81.06	2.99***	.03	107.94
Cohort	.34*	.14	2.45	.43***	.08	5.66
Parent Education	.05***	.01	3.75	.05***	.01	5.00
Slope	.04***	.01	4.31	.02	.01	2.58
Variance Components (Level-2)	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.10	232.72***		.05	158.48***	
Slope	.04	97.67*		.001	91.68	
Goodness of Fit						
Deviance Level-1 Model	410.15					
Deviance Level-2 Model	371.51					
Deviance change (χ^2)	38.64***					

^ p < .10, p<.05, **p<.01, ***p<.001
Note: All estimations of fixed effects are reported with robust standard errors.

Table 21. Exploratory Hierarchical Linear Modeling Results for Spouse Criticism

	Spouse Criticism					
	Mothers			Fathers		
Level-1 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	1.89***	.04	53.08	1.96***	.03	62.39
Slope (change)	-.02*	.01	-2.36	-.001	.01	-.02
Level- 2 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	1.91***	.04	47.32	1.94***	.03	59.92
Cohort	-.27*	.12	-2.26	-.40***	.09	-4.57
Parent Education	-.05***	.01	-3.78	-.04*	.01	-2.79
Child Behavior	.05	.07	.67	.17**	.06	2.88
Slope	-.02*	.01	-2.92	-.004	.01	-.54
Variance Components (Level-2)	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	.10	283.50***		.05	157.37***	
Slope	.002	113.56**		.002	104.12*	
Goodness of Fit						
Deviance Level-1 Model	421.73					
Deviance Level-2 Model	380.47					
Deviance change (χ^2)	41.26***					

^ p < .10, p<.05, **p<.01, ***p<.001

Note: All estimations of fixed effects are reported with robust standard errors.

Table 22. Exploratory Hierarchical Linear Modeling Results for Parent and Family Problems

Stress Variable	Mothers Parent and Family Problems			Fathers Parent and Family Problems		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	t
Intercept (status at 11.40)	5.01***	.28	18.18	4.21***	.26	16.39
Slope (change)	-.10***	.03	-3.38	-.04	.06	-.72
Level- 2 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	4.10***	.31	13.07	3.27***	.25	12.99
Child Behavior	2.49***	.48	5.14	2.54***	.52	4.90
Slope	-.09**	.03	-3.26	-.04	.05	-.74
Variance Components (Level 2)	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	5.76	317.14***		3.97	172.08***	
Slope	.02	133.18**		.02	83.92	
Goodness of Fit						
Deviance Level-1 Model	1634.79			1224.69		
Deviance Level-2 Model	1612.01			1190.40		
Deviance change (χ^2)	22.78***			25.29***		

^ p < .10, p<.05, **p<.01, ***p<.001

Note: All estimations of fixed effects are reported with robust standard errors.

Note: Models for mothers and fathers were run separately.

Table 23. Exploratory Hierarchical Linear Modeling Results for Pessimism

Stress Variable	Mothers Pessimism			Fathers Pessimism		
Fixed Effects	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	5.36***	.21	25.44	4.87***	.22	21.84
Slope (change)	-.03	.03	-1.30	.15**	.04	3.42
Level- 2 Model	Coefficient	SE	*t*	Coefficient	SE	*t*
Intercept (status at 11.40)	5.45***	.30	18.32	5.15***	.40	12.99
ID Level	-.72*	.34	-2.12	-1.23	.45	-2.75
Child Behavior	1.12**	.37	3.00	1.46	.42	3.46
Slope	-.03	.02	-1.27	.14	.04	3.05
Variance Components (Level 2)	Estimate	Chi-Square		Estimate	Chi-Square	
Intercept	3.26	231.61***		3.30	180.34***	
Slope	.02	134.78**		.01	87.31^	
Goodness of Fit						
Deviance Level-1 Model	1499.43			1135.76		
Deviance Level-2 Model	1488.39			1118.80		
Deviance change (χ^2)	11.04**			16.96***		

^ p < .10, p<.05, **p<.01, ***p<.001 Note: All estimations of fixed effects are reported with robust standard errors.
Note: Models for mothers and fathers were run separately.