

Bowling Green State University
The Center for Family and Demographic Research
<http://www.bgsu.edu/organizations/cfdr>
Phone: (419) 372-7279 cfdr@bgsu.edu

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**MOTHER-CHILD RELATIONSHIP QUALITY FROM PRESCHOOL TO ADOLESCENCE:
VARIATION BY MATERNAL EDUCATION**

Kei Nomaguchi
Department of Sociology
Bowling Green State University
213 Williams Hall
Bowling Green, OH 43403
knomagu@bgsu.edu
Phone: (419) 372-8147 Fax: (419) 372-8306

and

Amira Allen
Department of Sociology
Bowling Green State University
223 Williams Hall
Bowling Green, OH 43403
amirala@bgsu.edu
Phone: (419) 372-2294 Fax: (419) 372-8306

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Mother-Child Closeness and Conflict from Preschool to Adolescence:

Variation by Maternal Education

Abstract

Although much research has examined developmental patterns of parent-child relationship quality, little research examined such patterns following the same parent-child dyads from preschool to adolescence. Using data from the NICHD Study of Early Child Care and Youth Development ($N = 1,121$), we examine mother-child closeness and conflict across seven waves from 4 ½ to 15 years of age. Overall, mother-child relationship quality appears to be best around first grade: mother-child closeness increases from age 4 ½ to kindergarten and mother-child conflict decreases from kindergarten to first grade. From first grade, mother-child closeness decreases to the preschool level by third grade and continues to decline until age 15, and mother-child conflict increases to the preschool level by fifth grade and continues to increase until age 15. Given the parenting gap by parental education, we examine differences in developmental patterns of mother-child closeness and conflict by maternal education. The patterns found for the full sample are replicated for mothers with high school diploma or some college education. Mothers with college degrees or higher show smaller decreases in mother-child closeness from sixth grade to age 15 and smaller increases in mother-child conflict from fifth grade to age 15. Mothers without high school diploma report less closeness and more conflict across almost all seven waves and smaller changes in mother-child closeness across the waves. These differences by maternal education remain after family income, marital status, paid work hours as well as time invariant characteristics such as parenting values and demographic characteristics are controlled for.

Key words: adolescence, longitudinal research, maternal education, middle childhood, mother-child relationship, transition to school

A warm, trusting, emotionally close parent-child relationship is central in shaping children's healthy development (Hartup, 1989). Numerous studies suggest that negativity and lack of emotional closeness in the parent-child relationship are related to children's poor cognitive, emotional, behavioral outcomes across developmental stages from early childhood to adolescence (Brumariu & Kerns, 2010; Laible et al., 2016; National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2004; Pastorelli et al., 2016; Weymouth et al., 2016). Knowledge of general patterns of parent-child closeness and conflict across children's developmental stages is critical to better understand how to help parents and children at different developmental stages. Much research has focused on a specific developmental stage, mostly the transition to adolescence (Steinberg, 2001). Less is known, however, about parent-child closeness and conflict around the transition to school, another developmental milestone for a marked expansion of children's social life (Entwisle, Alexander, & Olson, 2003). Further, past research examining a wider span of stages from early childhood to adolescence has been limited to studies using cross-sectional data (e.g., Luthar & Ciciolla, 2016). The need for empirical work tracking the same parent-child dyads to investigate variation in parent-child closeness and conflict by children's developmental stage has been called for (Shanahan et al., 2007a). The first aim of the present study is to fill in these gaps in prior research, investigating variation by children's developmental stage in parent-child closeness and conflict from 4 ½ to 15 years of age, using panel data from a survey collected in 10 cities in the United States. Following ecological perspectives, which emphasize the need to investigate variation in patterns of parent-child relationship quality by social contexts (Smetana, Campione-Barr, & Metzger, 2006), the second aim of the present analysis is to examine variation in developmental patterns of parent-child closeness and conflict by parental education, an

increasingly important indicator of parental socioeconomic status (SES) (Autor, Katz, & Kearney, 2008; Hout, 2012) and disparities in the nature of parent-child interactions (Altintas, 2016) since the 1990s.

Parent-Child Closeness and Conflict from Early Childhood to Adolescence

Much research has investigated developmental patterns of parent-child closeness and conflict during the transition to adolescence (e.g., Collins, Madsen, & Susman-Stillman, 2002; Granic et al., 2003; Laursen, Coy, & Collins, 1998; Smetana, Campione-Barr, & Metzger, 2006; Steinberg, 2001; Weymouth et al., 2016). Various perspectives posit that parent-child conflict frequency and negative affect increase during this developmental stage in part because of an increase in the gap between children's desire for autonomy and parents' willingness to grant it (Gao & Cummings, 2019; Steinberg, 2001). Psychoanalytic perspectives emphasize adolescents' innate developmental needs for greater emotional and physical independence from parents (Putnick et al., 2010). Other research focuses on the role of physical and physiological changes during the onset and the progression of puberty (Marceau, Ram, & Susman, 2015). Ecological perspectives emphasize the role of changes in children's social interactions and interpersonal relationships: children increasingly spend more time with peers and adults—i.e., teachers, coaches—outside of their parents' reach during the transition to adolescence (Gao & Cummings, 2019; Smetana, Campione-Barr, & Metzger, 2006). As children's social world expands, children gain more independence from parents and seek to negotiate rules that set by their parents regarding curfews, socializing, and how to spend their free time, which can result in more frequent parent-child disagreements and children's negativity toward parents (Gao & Cummings, 2019; Steinberg, 2001). Empirical studies generally suggest increases in conflict and decreases in

closeness in the parent-child relationship during the transition to adolescence, approximately around 11 to 14 years (Granic et al., 2003; Marceau, Ram, & Susman, 2015; McGue et al., 2005), though some studies found that these changes started earlier around 7 to 9 years of age (Shanahan et al., 2007a, 2007b). For example, following 4th grade boys in the Oregon Youth Study for five years, Granic and colleagues (2003) showed that parent-adolescent conflict over chores, school problems, allowances, or curfews increased rapidly from 11-12 years old to 13-14 years old, stayed high at 15-16 years, and went down to the level of 11-12 years old or earlier by ages 17-18. Using a sample of twins in Minnesota, McGue and colleagues (2005) found that adolescents' perceptions of conflict with parents increased and warmth with parents decreased from age 11 to age 14.

The transition to elementary school (i.e., kindergarten and first grade) is another major developmental milestone that involves distinct changes in children's daily routine and notable expansions of children's social world (Entwisle, Alexander, & Olson, 2003; Rimm-Kaufman & Pianta, 2000). How these changes affect the parent-child relationship has rarely been examined, however. As Entwisle and colleagues (2003) put it, during this transition, children move from being a "home child" to being a "school child" (p. 230). When starting elementary school, most children begin to spend more time away from home than they did during preschool years (Hofferth & Sandberg, 2001). Mothers spend less time directly interacting with their children than they did when children were younger and instead spend more time planning and monitoring their children's academic progress and relationships with peers and teachers (Kalil, Ryan, & Corey, 2012; Meier et al., 2018). The decrease in the amount of parent-child time, changes in forms of parenting, and the expansion of children's lives beyond the family indicate that children clearly gain independence from their parents during the transition to elementary school. As we

discussed earlier, research suggests that parent-child conflict is stemmed from the gap between children's desire for autonomy and the actual level of autonomy children are granted (Gao & Cummings, 2019; Steinberg, 2001). On the basis of this idea, we expect that mother-child conflict declines, while mother-child closeness increases during the child's transition to elementary school—i.e., during kindergarten and first grade years—when children's independence from parents in daily life increases.

Another gap in the past research is the lack of study which describes age patterns of parent-child closeness and conflict from early childhood to adolescence following the same parent-child dyads (Shanahan et al., 2007a). A few studies used cross-sectional data to examine variation in parent-child relationship quality by children's developmental stage. Using a sample of parents with children under 23 years of age from the 1987 National Survey of Families and Households, a national representative sample of U.S. adults, Nomaguchi (2012) compared parents' perceptions of overall quality of their relationship with each of their children across four groups of parents by the oldest child's age: ages 0-4, 5-12, 13-17, and 18-22. The results showed that parent-child relationship quality was highest among parents with children under age 5, lower among parents with elementary school-age children, and lowest among parents with teens. Using a sample of well-educated mothers collected through an online survey between 2005 and 2010, Luthar and Ciciolla (2016) compared child negativity in the mother-child relationship, measured as mothers' reports of their children's rudeness and distancing behavior, by the oldest child's age: infant, preschool, elementary school age, high school, and adult. Child negativity was lowest among mothers with infants or mothers with adult children and highest among mothers with middle schoolers. The average score for child positivity toward mothers was highest among mothers with preschoolers while it was lowest among mothers with middle schoolers. Using the

2010, 2012, and 2013 American Time Use Survey Well-being Module, Meier and colleagues (2018) found that mothers with children ages 6-12 and 13-17 reported feeling more stressed while spending time with children than mothers with younger children. In all, findings of these studies suggest that parent-child relationship quality is best when children are younger than school-age, while it is most difficult when children are middle-school age or teenage.

These studies, however, regard early (ages 5-8) and late (ages 10-12) elementary school ages as the same developmental stage, whereas these are two different developmental stages in terms of children's desire and capacity to be independent (Collins, Madsen, & Susman-Stillman, 2002). As we discussed in the previous sections, early elementary school years—kindergarten and first grade—may be a period when children gain autonomy from their parents, which may affect the parent-child relationship positively, whereas children in late elementary school years—e.g., fifth graders—may already be showing resistance toward their parental control (Shanahan et al., 2007a, 2007b). Research using panel data with more detailed measures of child's developmental stage was needed.

Variation by Parental Education

The second goal of this paper is to examine variation in parent-child closeness and conflict by parental education. Past research has focused on family income as an indicator of SES that influences children's developmental outcomes (e.g., Bassok et al., 2016; Reardon, 2013). There are a few reasons why we focus on variation by parental education, however. Since the 1990s, the economic returns to college degrees, or the wage gap between adults with and without 4-year college degrees, have increased (Autor, Katz, & Kearney, 2008; Hout, 2012). College graduates have become more likely to marry each other than those without college

degrees (Schwartz & Mare, 2005) and are more likely than those without college degrees to stay married (Aughinbaugh, Robles, & Sun, 2013). These trends have resulted in increasing household income advantages for parents with a 4-year college degree compared with those with less education (McLanahan, 2004). In short, a 4-year college degree has become a key indicator of economic conditions of families with children.

More relevant to the current study is that education has a strong influence on parenting and the nature of parent-child interactions (Carr & Pike, 2012; Dubow, Boxer, & Huesmann, 2009; Hoff, 2006; Hoff, Laursen & Tardif, 2002; Kalil, Ryan, & Corey, 2012; Lareau, 2003; NICHD ECCRN, 2004). Parenting style shapes the parent-child relationship quality (Steinberg, 2001). Studies have found that authoritarian (also called traditional) parenting, which emphasizes the importance of respect for and obedience to parental authority, is related to higher parent-child conflict than authoritative (also called progressive) parenting (Dixon, Graber, & Brooks-Gunn, 2008). Parents with higher levels of education are more likely than parents with lower levels of education to be responsive to children's developmental needs in an age-appropriate manner (NICHD ECCRN, 2004) and adjust child-rearing time allocations around their children's age-graded developmental needs (Kalil, Ryan, & Corey, 2012). For a discipline strategy, parents with college degrees are more likely to reason with children than punishing or threatening to punish children (Hoff, 2006). Further, parents with college degrees are more likely than parents with less education to believe that autonomy or independent decision-making is important for children to learn to prepare themselves for life (Kohn, 1969; Nomaguchi & Milkie, 2019). Although these differences in parenting by education levels were already observed in the 1960s (Kohn, 1969; Kohn & Schooler, 1973), the education gap in parental involvement in childrearing has increased since the 1990s, as research shows that parents with college degrees have been more likely than

parents without college degrees to spend time directly interacting with children (Altintas, 2016; Dotti Sani & Treas, 2016), attesting to an increasing importance of education gap in parent-child relationships.

Qualitative research has eloquently illustrated these quantitative findings. In her ethnographic research with families with children ages 9 to 10, Lareau (2003) found that parents with college degrees tended to treat their children as conversation equals, coach them to participate in adult conversations, discipline them through reasoning, and allow them to negotiate rules for their interests. In contrast, parents without college degrees tended to use directives and physical punishments, demand children's respect and obedience to parental authority, and emphasize the separation between the adult's and the child's worlds. Similar patterns were found in Nelson's (2010) ethnographic study on mothers with adolescents, which illustrated that mothers with college or advanced degrees emphasized the importance of open communication, minimizing the generational gap, and being flexible with rules and expectations for their teenage children. In contrast, mothers without college degrees emphasized that they as parents should remain authority figures and that it was important for them to establish concrete rules and impose consequences for violations of these rules.

Explanations for the education gap in parenting behavior—more sensitive, more consistent, less harsh, and more egalitarian—vary. First, education is related to economic resources. A family process perspective contends that parental education influences parent-child relationships through the effects of financial strain: Financial strain leads to parenting stress and ineffective parenting, making adults unable to provide warm interaction, consistent monitoring, and patient reasoning (Conger et al., 2010). Second, education is related to better verbal skills to express emotions, provide reasons for inappropriate behaviors, and let children negotiate (Hoff,

2006; Lareau, 2011). Third, parents with higher levels of education are more likely to have professional occupations themselves or have friends and family members who have professional occupations (Hout, 2012). People who have professional occupations are more likely than people with nonprofessional occupations to value children's autonomy or ability to think for oneself more than children's obedience to authority (Kohn, 1969; Nomaguchi & Milkie, 2019). Notably, studies have pointed out that parental education has a more consistent effect on parenting than family income or parental occupation (Kohn, 1969; Weininger, Lareau, & Conley, 2015).

In sum, past research suggests that parents with college degrees are more likely than parents with less education to emphasize the importance of children's autonomy in decision making, treat children as conversation equals, and let children to negotiate rules with them (Hoff, 2006; Kohn, 1969; Lareau, 2003; Nelson, 2010; NICHD ECCRN, 2004; Nomaguchi & Milkie, 2019). Given that these parenting values and practices tend to foster closer and less conflictual parent-child relationships (Dixon, Graber, & Brooks-Gunn, 2008), parents with college degrees may experience a less pronounced increase in parent-child disagreements during early childhood or adolescence when parent-child disagreements and conflict tend to increase due to increases in children's desire to be more independent from their parents.

The Present Study

The first goal of the present analysis is to examine variation in parent-child closeness and conflict from preschool (4 ½ years old) to adolescence (15 years old), using panel data from U.S. large survey data. We focus on the mother-child relationship because data for the father-child relationship in the survey were limited. We expect that mother-child conflict decrease and mother-child closeness increase during the transition to kindergarten and first grade when

children's time spent away from mothers increase rapidly (Entwisle, Alexander, & Olson, 2003; Hofferth & Sandberg, 2001; Meier et al., 2018), which indicate children gain more autonomy from mothers than before (Hypothesis 1a). We also expect that mother-child conflict increases and mother-child closeness decreases around sixth grade (11 to 12 years old) and age 15, the developmental period when, as their social world expands, children begin to seek to negotiate rules with parents regarding curfews, socializing, and how to spend their free time, which result in more frequent mother-child disagreements (Granic et al., 2003; Marceau et al., 2015) (Hypothesis 1b). Further, we examine variation in these patterns by maternal education. On the basis of past research suggesting that mothers with college degrees are more likely than mothers with less education to treat children as conversational equals and grant children a sense of decision-making autonomy, we expect that increases in mother-child conflict and decreases in mother-child closeness during the transition to adolescence are less pronounced for mothers with college degrees or higher than mothers without college degrees (Hypothesis 2).

Method

Data

Data were drawn from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). The SECCYD is a longitudinal study of 1,364 children and their families. The study began in 1991 when families of newborns were recruited from hospitals in 10 cities in 9 states in the United States (NICHD ECCRN, 2005). The SECCYD was designed to study the association between children's early child care experiences and developmental outcomes. The first phase of the study was conducted by the Quantitative Systems Laboratory at Vanderbilt University and the second, third, and

fourth phases were conducted by RTI International (see the Eunice Kennedy Shriver National Institute of Child Health and Human Development, <https://www.nichd.nih.gov/research/supported/seccyd/overview>, for more information about the study). Because of the use of secondary analysis of publicly available existing data, the current project was found exempt by the xxxx University Human Subjects Review Board (340925-3) on July 1, 2013. The name for the larger project was Parent-Child Relationship Quality from Preschool to Adolescent Years.

Although it involved a diverse sample of children in various locations in the United States, the SECCYD was not a nationally representative sample of children and their mothers. Because disadvantaged groups, including mothers under 18 years old, mothers not fluent in English, mothers with substance abuse problems, and families who lived in dangerous neighborhoods, were not included in the study, families in the SECCYD were more economically advantaged than their counterparts in the general U.S. population, as reflected in a higher maternal education level, fewer Hispanic immigrants, and a higher family income level (NICHD ECCRN, 2005). Still, the SECCYD had a unique advantage that served the purpose of the present study well. No other study with a sample of mothers with diverse background characteristics collected the information about mother-child closeness and conflict across preschool to adolescent years using the same set of questions.

For the current study, we used seven waves, including 54 months, kindergarten, first, third, fourth, fifth, sixth grades, and age 15, when the SECCYD asked mothers the same set of questions to ask mothers about their relationships with the focal child for seven ages from 4 ½ years to 15 years, which provided invaluable data for the current analysis. We decided not to use the second-grade and fourth-grade surveys, because there were many missing cases. Of the 1,364

children and their mothers who initially participated in the study, there were 1,078 mothers at 4 ½ years, 1,046 mothers in kindergarten (K), 1,010 mothers in first grade (G1), 1,009 mothers in third grade (G3), 988 in fifth grade (G5), 988 in sixth grade (G6), and 932 in 15 years who were re-interviewed. We selected the cases in which mothers participated in two or more waves of interviews ($N = 1,121$), as suggested for pooled time-series analyses (Allison, 2009; Johnson, 1995). As mentioned earlier, data for the father-child relationship in the SECCYD were limited, in part because it collected information about residential fathers only, while approximately one-fifth of children did not live with their biological fathers. Thus we decided to focus on the mother-child relationship.

Basic demographic characteristics of mothers in the analytical sample are presented in Table 1. The average age of mothers at birth of the focal child was 28.5 years old with a range from 18 to 46 years. Approximately 81% of mothers were non-Hispanic White, and 39% had a bachelor's degree or higher. Those who remained in the analytical sample were more likely than those who dropped out to be married, White, and more educated (data not shown). Thus, the findings presented here may underestimate the experiences of mother-child closeness and conflict among mothers with lower levels of education and unmarried mothers. For variables with missing cases, we conducted multiple imputation using PROC MI in SAS (Allison, 2001).

[Table 1 about here]

Measures

Mother-child relationship quality was a time-varying variable (age 4 ½, K, G1, G3, G5, G6, and age 15) measured as mothers' reports using items from the Adult-Child Relationship Scale (ACRS). The scale has been widely used in previous research (e.g., Malmberg & Flouri, 2011; Marceau, Ram, & Susman, 2015; Trentacosta et al. 2011). *Mother-child conflict* was the

average of seven items ($\alpha = .78, .82, .84, .84, .83, .85, .87$ for age 4 ½, K, G1, G3, G5, G6, and age 15, respectively), including: (a) My child and I always seem to be struggling with each other; (b) My child easily becomes angry at me; (c) My child remains angry or is resistant after being disciplined; (d) Dealing with my child drains my energy; (e) When my child is in a bad mood, I know we're in for a long and difficult day; (f) My child's feelings toward me can be unpredictable or can change suddenly; and (g) My child is sneaky or manipulative with me.

Response categories were: 1 = *definitely does not apply*, 2 = *not really*, 3 = *neutral*, 4 = *applies somewhat*, 5 = *definitely applies*. Although this measure could be called mothers' perception of children's negativity in the mother-child relationship, we chose to call it mother-child conflict following prior research (e.g., Marceau, Ram, & Susman, 2015; Trentacosta et al. 2011).

Mother-child closeness was the average of seven items ($\alpha = .66, .73, .73, .65, .74, .76, .81$ for age 4 ½, K, G1, G3, G5, G6, and age 15, respectively), which included: (a) I share an affectionate, warm relationship with my child; (b) If upset, my child will seek comfort from me; (c) My child values his/her relationship with me; (d) When I praise my child, he/she beams with pride; (e) My child spontaneously shares information about himself/herself; (f) It is easy to be in tune with what my child is feeling; and (g) My child openly shares his/her feelings and experiences with me. Response categories were: 1 = *definitely does not apply*, 2 = *not really*, 3 = *neutral*, 4 = *applies somewhat*, 5 = *definitely applies*.

Child developmental stage was measured as seven waves of the SECCYD, including age 4 ½, K, G1 (reference), G3, G5, G6, and age 15.

Maternal education was the highest level of schooling mothers had in the baseline interview (at one month) and was measured as five dummy variables including less than high

school, a high school diploma, some college education, a 4-year college degree (reference), and an advanced degree.

We included three time-varying background characteristics as control variables. *Maternal marital status* should be controlled for as it is related to maternal education (McLanahan, 2004) and, some research suggests, is related to mothers' parenting stress and quality of interactions with children (Beck et al., 2010). It was a time-varying variable measured as three dummy variables including married (reference), cohabiting, and single. *Mother's weekly paid work hours* is also related to maternal education (McLanahan, 2004) and is related to mothers' time spent with children, especially before children entered school (Hsin & Felfe, 2014). It was measured based on mothers' self-report of current employment hours. We controlled for *family income*, a composed variable by NICHD ECCRN, to isolate the effects of financial resources from maternal education.

In supplemental analyses, we included interaction terms between maternal parenting values and developmental stages to examine whether variation in developmental patterns of parent-child relationship by maternal education would remain significant. *Maternal traditional (or authoritarian) parenting values* were measured as the sum of 22 items asked in the baseline interview ($\alpha = .90$) (e.g., "Children should always obey the teacher", "The most important thing to teach children is absolute obedience to parents"; 1 = *strongly disagree* to 5 = *strongly agree*). This is a subset of the Parental Modernity Scale of Child-rearing and Education Beliefs (Schaefer & Edgerton, 1985). The scale ranged from 22 to 110. In supplemental analyses (not shown), we examined a measure of mothers' progressive (or authoritative) parenting values. The association between the progressive parenting values scale and mother-child closeness or conflict was weaker than the association between the traditional parenting values scale and mother-child

closeness or conflict. We thus decided to use the traditional parenting values scale rather than the progressive values scale.

Analytical Plan

We first described mean scores for mother-child closeness and conflict, respectively, by developmental stages measured as the seven waves from age 4 ½ to age 15, for the full sample and by maternal education. Then, for multivariate analyses, we used pooled time series models for longitudinal data (Allison, 2009; Johnson, 1995). The seven waves (age 4 ½, K, G1, G3, G5, G6, age 15) of data were pooled, which resulted in $N = 7,847$ observations. Whereas a random-effect model examined variations across individuals, a fixed effects model examines the within-person variation while controlling for time-invariant unmeasured characteristics including basic demographic characteristics, such as gender and race/ethnicity, and other unobserved characteristics like personality traits (Allison, 2009). We conducted Hausman tests to determine whether the estimates in random versus fixed effects were significantly different (Allison, 2009). The Hausman tests of differences in the coefficients between random-effects and fixed-effects models were significant for all models (data not shown), suggesting the need for fixed effects models (Allison, 2009). Three models were examined. Model 1 examined differences in mother-child conflict by developmental stage. Model 2 tested differences by maternal education including interaction terms between developmental stage and maternal education. Model 3 added time-varying control variables—marital status, weekly workhours, and annual family income—to see whether the variation by maternal education would remain significant after controlling for these three time-varying characteristics. Pearson correlations between predictor and outcome variables are presented in Appendix Table 1.

Results

Descriptive Results

The first column of Table 2 presents descriptive statistics for mother-child closeness and conflict for the total sample and by developmental stage. The average mother-child closeness score increased from 4 ½ years of age to kindergarten and first grade ($M = 4.66, 4.75,$ and $4.76,$ respectively); then decreased to the age 4 ½ level at third grade ($M = 4.66$) and continued to decrease through fifth grade, sixth grade, and 15 years ($M = 4.58, 4.55,$ and $4.29,$ respectively). Differences in mean scores across waves were significant except for those between age 4 ½ and third grade and between kindergarten and first grade. In sum, mother-child closeness was highest at kindergarten and first grade and lowest at age 15, followed by sixth grade.

As for mother-child conflict, the average score decreased from age 4 ½ to first grade ($M = 2.36$ and 2.17 respectively), but then increased from first grade throughout third and fifth grades, and reached beyond the age 4 ½ level at age 15 ($M = 2.50$). Differences were significant except for between age 4 ½ and kindergarten, fifth grade, and sixth grade respectively, between third and fifth grades, and between fifth and sixth grade. Mother-child conflict was lowest at first grade followed by third grade, and highest at age 15 followed by age 4 ½.

The patterns of differences in the average mother-child closeness and conflict scores across seven waves from 4 ½ to 15 years of age varied by maternal education (Table 2). We first looked at mother-child closeness, which are shown in Figure 1. All education levels, except for mothers with less than a high school degree, showed variations by children's developmental stage in mother-child closeness found for the full sample—i.e., it increased from age 4 ½ to first grade and decreased steadily after first grade until age 15 when it reached the lowest score. For mothers with less than a high school diploma, the average child closeness changed little from 4

½ years to sixth grade, but decreased from sixth grade to age 15. Another notable difference by maternal education in patterns of mother-child closeness by children's developmental stage is that the declines in mother-child closeness at sixth grade and age 15 were less steep for mothers with college degrees than mothers with a high school diploma, some college education, or advanced degrees.

[Table 2 and Figure 1 about here]

Differences by maternal education were more apparent in developmental patterns of mother-child conflict (Figure 2). Notably, mothers with college degrees or advanced degrees reported lower levels of child conflict than mothers with lower levels of education at age 4 ½ as well as sixth grade and age 15, the developmental stages when mother-child conflict tended to be higher in the full sample. In other words, variation by developmental stage in mother-child conflict was smaller for mothers with college degrees or higher than mothers with high school diploma or some college education. The average mother-child conflict was higher for mothers without a high school diploma compared with mothers with a high school diploma or more throughout children's developmental stages from preschool to age 15 except for kindergarten.

[Figure 2 about here]

Multivariate Results

Now using fixed-effects models of pooled time series analyses, we tested whether differences in the average mother-child closeness and conflict scores across seven waves from 4 ½ years to 15 years of age were significant and whether education gaps in differences in those scores were significant. First we examined mother-child closeness (Table 3). Model 1, which included developmental stages only, was similar to the bivariate association and was used as the

base-line model. We chose first grade as the reference because, as seen in Table 2, mother-child closeness was highest at this age.

Model 2 included interaction terms between children's developmental stages and maternal education to examine variation in the effects of developmental stages by maternal education. Note that the main effects of maternal education were not in the model because fixed-effects models examine changes within individuals and thus only time-varying variables can be in the model (Allison, 2009). We used 4-year college graduates as the reference group. The interaction between age 15 and high school diploma ($b = -.110, p < .05$), the interaction between sixth grade and some college ($b = -.100, p < .01$), and the interaction between age 15 and advanced degrees ($b = -.105, p < .05$) were significant and the signs were negative. These findings suggest that mothers with college degrees experienced a smaller decline in closeness with children at age 15 compared with mothers with high school diploma and mothers with advanced degrees. The interaction between sixth grade and some college was significant and the sign was negative ($b = -.100, p < .01$), which suggested that mothers with college degrees experienced a smaller decline in closeness with children when children were sixth graders compared with mothers with some college education. The interaction between age 15 and less than high school diploma was significant and the sign was positive ($b = .146, p < .05$). This suggested that mothers without high school diploma experienced a smaller decline in closeness with children when children were sixth graders compared with mothers with college degrees.

Model 3 controlled for three time-varying variables—mothers' marital status, weekly work hours, and family income. Single motherhood was negatively related to child closeness, whereas weekly work hours and family income were not related to child closeness. Controlling for these variables, the interaction between age 15 and mothers' less than high school diploma

became non-significant. The interaction between sixth grade and high school diploma became significant ($b = -.136, p < .01$). Other significant interaction terms stayed significant. The smaller decrease in mother-child closeness at sixth grade and age 15 for mothers with college degrees compared with mothers with high school diploma, and mother with advanced degrees, remained after controlling for time-varying marital status, paid work hours, and family income. In all, Model 3 suggests that mothers with college degrees experienced a smaller decline in closeness with children when children were sixth graders compared with mothers with high school diploma or some college education with medium effect sizes ($f = .24$ and $.26$ respectively; Cohen, 1988); and when children were age 15 compared with mothers with high school diploma or advanced degrees with medium ($f = .25$) and small ($f = .19$) effect sizes respectively.

[Table 3 about here]

Next we examined the same set of fixed-effects regression models for mother-child conflict (Table 4). Model 1 examined the association between developmental stage and mother-child conflict and Model 2 examined educational gradients in the association. Again, we used 4-year college graduates as the reference group. The interaction between age 4 ½ and high school diploma was significant ($b = .167, p < .05$). This means that the higher mother-child conflict at age 4 ½ than at first grade was greater for mothers with a high school diploma than mothers with college degrees. Mother-child conflict at age 4 ½ was higher for mothers with a high school diploma than mothers with college degrees, and mother-child conflict declined significantly from age 4 ½ to first grade for mothers with a high school diploma, while a decline in mother-child conflict was less for mothers with college degrees as well as other education groups. The interactions between age 15 and less than high school diploma ($b = .280, p < .05$), high school diploma ($b = .221, p < .05$), and some college ($b = .317, p < .001$) were significant, respectively.

These findings suggest that the higher mother-child conflict at age 15 compared with first grade was more pronounced for mothers with lower levels of education than for mothers with college degrees. That is, the increase in mother-child conflict at age 15 was less pronounced for mothers with college degrees than mothers with lower levels of education. Similarly, the interaction terms between sixth grade and high school diploma ($b = .178, p < .05$) and some college ($b = .202, p < .01$) were significant, respectively. These findings suggest that the higher level of mother-child conflict at sixth grade compared with first grade was less pronounced for mothers with college degrees compared with mothers with a high school diploma or some college education. When three time-varying variables were controlled for (Model 3), the significant interactions changed little. One exception is that the interaction between sixth grade and less than high school diploma became significant ($b = .281, p < .01$). The smaller increases in mother-child conflict at sixth grade and age 15 for mothers with college degrees compared with mothers with a high school diploma or some college education remained significant after controlling for time-varying marital status, paid work hours, and family income. Altogether, Model 3 suggested that mothers with college degrees experienced a smaller increase in conflict with children compared with mothers with less than high school diploma, high school diploma, or some college education when children were sixth graders with medium effect sizes ($f = .32, .25, \text{ and } .24$ respectively) as well as when children were age 15 with medium effect sizes ($f = .27, .26, \text{ and } .33$ respectively).

[Table 4 about here]

Supplemental Analysis

Our main conceptual foundation for educational variation in mother-child relationship quality was differences in parenting values on children's autonomy by education. In supplemental analyses, we examine whether the educational gradient in mother-child closeness

and conflict found earlier would disappear when parenting values were held constant. We first compared means for traditional parenting values between each pair of the five education groups (not shown). The mean score for traditional parenting values was 74.15 ($SD = 13.03$) for mothers with less than high school diploma, 67.65 ($SD = 12.98$) for mothers with high school diploma, 61.49 ($SD = 13.28$) for mothers with some college education, 51.95 ($SD = 11.46$) for mothers with college degrees, and 47.15 ($SD = 11.60$) for mothers with advanced degrees. Differences across education levels were significant at $p < .001$ level. Then we examined fixed-effects models where we added interaction terms between each developmental stage and maternal traditional parenting values to Model 3 in Tables 3 and 4 (Appendix Table 2). For mother-child closeness, none of the interaction terms between developmental stages and traditional parenting values were significant. Controlling for these interaction terms, the interactions between sixth grade and high school diploma ($b = -.106, p < .05$) and between age 15 and high school diploma ($b = -.166, p < .01$), and between sixth grade and some college ($b = -.111, p < .01$) remained significant. Further, the negative interaction between fifth grade and some college became significant ($b = -.039, p < .01$). These suggest that the education gap in the decline in mother-child closeness—i.e., smaller declines in mother-child closeness for mothers with college degrees or higher than mothers with less education—at grade 6 and age 15 would exist even after controlling for the interaction effects of developmental stages and parenting values.

Turning to mother-child conflict, none of the interaction terms between developmental stages and traditional parenting values were significant. Controlling for these interaction terms, the interaction between age 4 ½ and less than high school diploma was no longer significant. This suggests that the higher mother-child conflict at age 4 ½ for mothers without high school diploma was largely because they tended to have traditional (or authoritarian) parenting values,

which tend to be related to more mother-child conflict (Steinberg, 2001). Yet, the positive interactions between six grade or age 15 and less than high school, high school, and some college remained significant. The positive interaction between fifth grade and some college became significant ($b = .145, p < .05$). These results suggest that the education gap in the increases in mother-child conflict—i.e., smaller increases in conflict among mothers with college degrees or more compared with mothers with less education— during the transition to adolescence (i.e., sixth grade and age 15) found earlier remain significant even after controlling for developmental variation by parenting values.

Discussion

The present study examined mother-child closeness and conflict from 4 ½ years to 15 years of age to address the call for research using longitudinal data to investigate variation in mother-child closeness and conflict across developmental stages from early childhood to adolescence. In particular, we paid special attention to mother-child closeness and conflict during the transition to elementary school, which research rarely examined. Given the growing literature that has documented an increasing gap in parenting by education, we also examined variation by maternal education in developmental patterns of mother-child closeness and conflict.

Mother-Child Closeness and Conflict from Early Childhood to Adolescence

The findings suggest that mother-child relationship quality appears to be best around first grade. Mother-child closeness increases from age 4 ½ to kindergarten and stays high at first grade, whereas mother-child conflict decreases from kindergarten to first grade. These patterns are somewhat different from a conclusion drawn from past findings, which suggested that mothers' perception of mother-child relationship quality was best when children were

preschoolers or younger (Luthar & Ciciolla, 2016; Meier et al., 2018; Nomaguchi, 2012). These prior studies, however, did not examine differences in mother-child relationship quality before and after the child's transition to elementary school. Also, these studies did not separate early elementary school years from late elementary school years. Our findings suggest that early and late elementary school years are two distinct developmental stages for parent-child relationships, which may deserve more attention. In contrast, for the transition to adolescence, consistent to prior findings, mother-child relationship quality is most difficult during adolescence, when mother-child closeness becomes lower and conflict becomes higher than they were at age 4 ½, which is also consistent to prior findings (Luthar & Ciciolla, 2016; Nomaguchi, 2012). In all, the current findings suggest the merits of future research investigating patterns of mother-child relationship quality from preschool to adolescence, especially during the transition to the elementary school, and early and late elementary school years separately, using a representative sample of more recent cohorts of children and their mothers.

Variation by Maternal Education

Another main finding is that there is variation in developmental patterns of mother-child relationship quality from 4 ½ to 15 years of age by maternal education. Our findings suggest that mothers with college degrees experience more stability in mother-child closeness and conflict across children's developmental stages, with a smaller increase in conflict and a smaller decrease in closeness at sixth grade and 15 years of age, compared with mothers with a high school diploma or some college education. In contrast, mothers without a high school diploma experience less closeness and greater conflict with their children almost all seven waves from 4 ½ to 15 years. Mothers without high school diploma experienced a largest improvement in mother-child relationship quality around the transition to elementary school, largely because of

more difficult mother-child relationship quality when children are 4 ½ years old. The findings of the present analysis add to prior findings that middle-school years, starting at sixth grade, are a stressful period for mothers, but particularly for mothers without college degrees with children's increased negativity and decreased positivity toward them. These findings of the educational gradient in mother-child closeness and conflict have a theoretical implication, which supports the premise of the ecological perspectives that parent-child relationship quality is shaped by contextual factors (Smetana, Campione-Barr, & Metzger, 2006). Because poor mother-child relationship quality has negative consequences for the well-being of children (e.g., Brumariu & Kerns, 2010; Pastorelli et al., 2016), the findings of the disparities in developmental patterns in mother-child relationship quality by maternal education have practical implications for the inequalities in the well-being of children by parental education, adding to current policy debates on the growing family inequalities by parental education (McLanahan, 2004; Putnam, 2015).

Limitations and Future Directions

The present analysis has limitations that future research should address. As discussed earlier, although the SECYYD provided a rare opportunity to examine mother-child closeness and conflict using the same measure from preschool to adolescence, the SECYYD is not a representative sample of children in the United States. It included fewer Hispanic immigrants and fewer mothers with less than high school degrees. We were unable to examine racial-ethnic differences due to data limitation. The study focused on the 1991 cohort of children. Future research using a more recent cohort of children and parents is warranted. The findings that, from the child's 4 ½ years to 15 years of age, mother-child relationship quality—mother-child closeness and conflict—is the best around the child's kindergarten and first grade years should be investigated further by future research. In particular, it would be interesting to see whether the

levels are similar between toddler and adolescent years, which we were unable to examine due to data limitations. We also emphasize the importance of investigating whether the same patterns will be observed for father-child clones and conflict. Given that mothers are more likely than fathers to reduce paid work activities to care for children before children start going to school (U.S. Bureau of Labor Statistics, 2019), change in the amount of time children spend with fathers during the transition to school may not be as dramatic as change in the amount of time children spend with mothers.

References

- Allison, P. (2001). *Missing data*. Thousand Oaks, CA: Sage.
- Allison, P. (2009). *Fixed effects regression models*. Thousand Oaks, CA: Sage.
- Altintas, E. (2016). The widening education gap in developmental child care activities in the United States, 1965–2013. *Journal of Marriage and Family*, 78(1), 26-42.
<https://doi.org/10.1111/jomf.12254>
- Aughinbaugh, A. Robles, O. & Sun, H. (2013). Marriage and divorce: patterns by gender, race, and educational attainment. *Monthly Labor Review*, October 2013, U.S. Bureau of Labor Statistics. Retrieved on November 1, 2019 from <https://doi.org/10.21916/mlr.2013.32>.
- Autor, D. H., Katz, L. F., & Kearney, M. S. (2008). Trends in US wage inequality: Revising the revisionists. *The Review of Economics and Statistics*, 90(2), 300-323.
<https://doi.org/10.1162/rest.90.2.300>
- Bassok, D., Finch, J. E., Lee, R., Reardon, S. F., & Waldfogel, J. (2016). Socioeconomic gaps in early childhood experiences: 1998 to 2010. *AERA Open*, 2(3), 1-22.
<https://doi.org/10.1177/2332858416653924>
- Beck, A. N., Cooper, C. E., McLanahan, S., & Brooks-Gunn, J. (2010). Partnership transitions and maternal parenting. *Journal of Marriage and Family*, 72(2), 219-233.
<https://doi.org/10.1111/j.1741-3737.2010.00695.x>
- Brumariu, L. E., & Kerns, K. A. (2010). Parent–child attachment and internalizing symptoms in childhood and adolescence: A review of empirical findings and future directions. *Development and psychopathology*, 22(1), 177-203.
<https://doi.org/10.1017/S0954579409990344>

- Carr, A & Pike, A. (2012). Maternal scaffolding behavior: Links with parenting style and maternal education. *Developmental psychology*, 2, 543-551. <https://doi.org/10.1037/a0025888>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Second Edition. Hillsdale, NJ: Lawrence Erlbaum.
- Collins, W. A., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Children and parenting* (pp. 73-101). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, 72(3), 685-704. <https://doi.org/10.1111/j.1741-3737.2010.00725.x>
- Dixon, S. V., Graber, J. A., & Brooks-Gunn, J. (2008). The roles of respect for parental authority and parenting practices in parent-child conflict among African American, Latino, and European American families. *Journal of Family Psychology*, 22(1), 1-10. <https://doi.org/10.1037/0893-3200.22.1.1>
- Dotti Sani, G. M., & Treas, J. (2016). Educational gradients in parents' child-care time across countries, 1965–2012. *Journal of Marriage and Family*, 78(4), 1083-1096. <https://doi.org/10.1111/jomf.12305>
- Dubow, E. F., Boxer, P., & Huesmann, L. R. (2009). Long-term effects of parents' education on children's educational and occupational success: Mediation by family interactions, child aggression, and teenage aspirations. *Merrill-Palmer quarterly*, 55(3), 224 – 249. [10.1353/mpq.0.0030](https://doi.org/10.1353/mpq.0.0030)

- Entwisle, D. R., Alexander, K. L., & Olson, L. S. (2003). The first-grade transition in life course perspective. In *Handbook of the life course* (pp. 229-250). Springer, Boston, MA.
- Gao, M. (M.), & Cummings, E. M. (2019). Understanding parent–child relationship as a developmental process: Fluctuations across days and changes over years. *Developmental Psychology*, *55*(5), 1046–1058. <https://doi.org/10.1037/dev0000680>
- Granic, I., Hollenstein, T., Dishion, T. J., & Patterson, G. R. (2003). Longitudinal analysis of flexibility and reorganization in early adolescence: A dynamic systems study of family interactions. *Developmental Psychology*, *39*(3), 606-617. <https://doi.org/10.1037/0012-1649.39.3.606>
- Hartup, W. W. (1989). Social relationships and their developmental significance. *American Psychologist*, *44*(2), 120-126. <https://doi.org/10.1037/0003-066X.44.2.120>
- Hoff, E. (2006). How social contexts support and shape language development. *Developmental review*, *26*(1), 55-88. <https://doi.org/10.1016/j.dr.2005.11.002>
- Hoff, E., Laursen, B., Tardif, T., & Bornstein, M. (2002). Socioeconomic status and parenting. *Handbook of parenting Volume 2: Biology and ecology of parenting*, *8*(2), 231-52.
- Hofferth, S.L. & Sandberg, J.F. (2001). How American children spend their time. *Journal of marriage and family*, *63*, 295-308. <https://doi.org/10.1111/j.1741-3737.2001.00295.x>
- Hout, M. (2012). Social and economic returns to college education in the United States. *Annual review of sociology*, *38*, 379-400. <https://doi.org/10.1146/annurev.soc.012809.102503>
- Hsin, A., & Felfe, C. (2014). When does time matter? Maternal employment, children’s time with parents, and child development. *Demography*, *51*(5), 1867-1894. <https://doi.org/10.1007/s13524-014-0334-5>

- Johnson, D. R. (1995). Alternative methods for the quantitative analysis of panel data in family research: Pooled time-series models. *Journal of Marriage and the Family*, 1065-1077. <https://www.jstor.org/stable/353423>
- Kalil, A., Ryan, R., & Corey, M. (2012). Diverging destinies: Maternal education and the developmental gradient in time with children. *Demography*, 49(4), 1361-1383. <https://doi.org/10.1007/s13524-012-0129-5>
- Kohn, M. (1969). *Class and conformity: A study in values*. Homewood, IL: The Dorsey Press
- Kohn, M.L. & Schooler, C. (1973). Occupational experience and psychological functioning: An assessment of reciprocal effects. *American Sociological Review* 38, 97-118. <https://www.jstor.org/stable/2094334>
- Laible, D., Carlo, G., Davis, A. N., & Karahuta, E. (2016). Maternal sensitivity and effortful control in early childhood as predictors of adolescents' adjustment: The mediating roles of peer group affiliation and social behaviors. *Developmental Psychology*, 52(6), 922-932. <https://doi.org/10.1037/dev0000118>
- Lareau, A. (2003). *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.
- Laursen, B., Coy, K. C., & Collins, W. A. (1998). Reconsidering Changes in Parent-Child Conflict across Adolescence: A Meta-Analysis. *Child Development*, 69(3), 817-832. <https://doi.org/10.1111/j.1467-8624.1998.tb06245.x>
- Luthar, S. S., & Ciciolla, L. (2016). What it feels like to be a mother: Variations by children's developmental stages. *Developmental Psychology*, 52(1), 143-154. <https://dx.doi.org/10.1037/dev0000062>

- Malmberg, L. E., & Flouri, E. (2011). The comparison and interdependence of maternal and paternal influences on young children's behavior and resilience. *Journal of Clinical Child & Adolescent Psychology, 40*(3), 434-444.
<https://doi.org/10.1080/15374416.2011.563469>
- Marceau, K., Ram, N., & Susman, E. J. (2015). Development and lability in the parent–child relationship during adolescence: Associations with pubertal timing and tempo. *Journal of Research on Adolescence, 25*(3), 474-489. <https://doi.org/10.1111/jora.12139>
- McGue, M., Elkins, I., Walden, B., & Iacono, W. G. (2005). Perceptions of the parent-adolescent relationship: a longitudinal investigation. *Developmental Psychology, 41*(6), 971 – 984.
- McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography, 41*(4), 607-627. <https://doi.org/10.1353/dem.2004.0033>
- Meier, A., Musick, K., Fischer, J., & Flood, S. (2018). Meier, A., Musick, K., Fischer, J., & Flood, S. (2018). Mothers' and fathers' well-being in parenting across the arch of child development. *Journal of Marriage and Family, 80*(4), 992-1004.
<https://doi.org/10.1111/jomf.12491>
- Nelson, M. K. (2010). *Parenting out of control: Anxious parents in uncertain times*. New York: New York University Press.
- National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN]. (2004). Fathers' and mothers' parenting behavior and beliefs as predictors of children's social adjustment in the transition to school. *Journal of Family Psychology, 18*(4), 628-638. <https://doi.org/10.1037/0893-3200.18.4.628>

- NICHD ECCRN. (2005). *Child care and child development: Results from the NICHD Study of Early Child Care and Youth Development*. New York: The Guilford Press.
- Nomaguchi, K. M. (2012). Parenthood and psychological well-being: Clarifying the role of child age and parent-child relationship quality. *Social Science Research, 41*, 489 – 498.
<https://doi.org/10.1016/j.ssresearch.2011.08.001>
- Nomaguchi, K., & Milkie, M. A. (2019). What should children learn? Americans' changing socialization values, 1986–2018. *Socius: Sociological Research for a Dynamic World, 5*, 1-17. <https://doi.org/10.1177/2378023119879016>
- Pastorelli, C., Lansford, J. E., Luengo Kanacri, B. P., Malone, P. S., Di Giunta, L., Bacchini, D., ... & Tapanya, S. (2016). Positive parenting and children's prosocial behavior in eight countries. *Journal of Child Psychology and Psychiatry, 57*(7), 824-834.
<https://doi.org/10.1111/jcpp.12477>
- Putnick, D. L., Bornstein, M. H., Hendricks, C., Painter, K. M., Suwalsky, J. T., & Collins, W. A. (2010). Stability, continuity, and similarity of parenting stress in European American mothers and fathers across their child's transition to adolescence. *Parenting: Science and Practice, 10*(1), 60-77. <https://doi.org/10.1080/15295190903014638>
- Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership, 70*(8), 10–16.
- Rimm-Kaufman, S. E., & Pianta, R. C. (2000). An ecological perspective on the transition to kindergarten: A theoretical framework to guide empirical research. *Journal of Applied Developmental Psychology, 21*(5), 491-511. [https://doi.org/10.1016/S0193-3973\(00\)00051-4](https://doi.org/10.1016/S0193-3973(00)00051-4)

- Schaefer, E., & Edgerton, M. (1985). Parental and child correlates of parental modernity. In I. E. Sigel (Ed.), *Parental belief systems: The psychological consequences for children* (pp. 287-318). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Schwartz, C. R., & Mare, R. D. (2005). Trends in educational assortative marriage from 1940 to 2003. *Demography*, *42*(4), 621-646. <https://doi.org/10.1353/dem.2005.0036>
- Shanahan, L., McHale, S. M., Osgood, D. W., & Crouter, A. C. (2007a). Conflict frequency with mothers and fathers from middle childhood to late adolescence: Within- and between-families comparisons. *Developmental Psychology*, *43*, 539-550. <https://doi.org/10.1037/0012-1649.43.3.539>
- Shanahan, L., McHale, S. M., Crouter, A. C., & Osgood, D. W. (2007b). Warmth with mothers and fathers from middle childhood to late adolescence: Within-and between-families comparisons. *Developmental Psychology*, *43*(3), 551-563. <https://doi.org/10.1037/0012-1649.43.3.551>
- Smetana, J. G., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology*, *57*, 255-284. <https://doi.org/10.1146/annurev.psych.57.102904.190124>
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence*, *11*(1), 1-19. <https://doi.org/10.1111/1532-7795.00001>
- Trentacosta, C. J., Criss, M. M., Shaw, D. S., Lacourse, E., Hyde, L. W., & Dishion, T. J. (2011). Antecedents and outcomes of joint trajectories of mother-son conflict and warmth during middle childhood and adolescence. *Child Development*, *82*, 1676-1690. <https://doi.org/10.1111/j.1467-8624.2011.01626.x>

- U.S. Bureau of Labor Statistics (2019). Employment in families with children in 2016. The Economics Daily. Department of Labor. Retrieved on October 30, 2019 from <https://www.bls.gov/opub/ted/2017/employment-in-families-with-children-in-2016.htm>
- Weininger, E. B., Lareau, A., & Conley, D. (2015). What money doesn't buy: Class resources and children's participation in organized extracurricular activities. *Social Forces*, *94*(2), 479-503. <https://doi.org/10.1093/sf/sov071>
- Weymouth, B. B., Buehler, C., Zhou, N., & Henson, R. A. (2016). A meta-analysis of parent–adolescent conflict: Disagreement, hostility, and youth maladjustment. *Journal of Family Theory & Review*, *8*(1), 95-112. <https://doi.org/10.1111/jftr.12126>

Table 1. Descriptive Statistics for Background Characteristics ($N = 1,121, 7,847$ observations)

Sample characteristics (time invariant):		
Mothers' age at the birth of the study child, $M (SD)$	28.5	(5.5)
Mothers' race/ethnicity, %		
White	80.9	
Black	11.7	
Hispanic	4.5	
Other	2.9	
Girl, %	49.4	
First child, %	45.4	
Mothers' education at the birth of the study child, %		
Less than high school	8.3	
High school diploma	19.8	
Some college	33.0	
College degree	22.9	
Advanced degree	16.0	
Traditional parenting values at the birth of the study child, $M (SD)$ [Range: 22 to 110]	59.3	(15.1)
Control variables (time-varying):		
Mothers' marital status, %		
Married	75.9	
Cohabiting	5.7	
Single	18.4	
Mothers' weekly work hours, $M (SD)$	1.8	(1.2)
Family income, time varying, $M (SD)$	76.3	(76.4)

Table 2. Mean (SD) Mother-Child Closeness and Conflict Scores by Child's Developmental Stage for the Full Sample and by Maternal Education ($N = 1,121, 7,847$ observations)

	Full sample 100.0%	Less Than High School Diploma 8.3%	High School Diploma 19.8%	Some College 33.0%	College Degree 22.9%	Advanced Degree 16.0%
Mother-Child Closeness						
4 ½ years	4.66 (0.34) ***filor	4.51 (0.44) p	4.62 (0.35) ***fjnr	4.67 (0.31) ***fkor	4.70 (0.32) **dlor	4.70 (0.33) **fkor
K	4.75 (0.34) cilor	4.57 (0.56) r	4.75 (0.34) cilor	4.76 (0.31) cilor	4.77 (0.31) ahlor	4.80 (0.24) cilor
G1	4.76 (0.32) cilor	4.64 (0.52) mr	4.75 (0.31) cilor	4.78 (0.30) cilor	4.77 (0.29) bhlor	4.78 (0.26) bhlor
G3	4.66 (0.36) ***flor	4.52 (0.44) q	4.62 (0.42) ***fjnr	4.67 (0.33) ***for	4.69 (0.32) ***fjmr	4.69 (0.30) ***fjor
G5	4.58 (0.41) ***cfjnr	4.48 (0.52) p	4.53 (0.46) ***afgr	4.60 (0.39) ***bfhnr	4.63 (0.37) ***cfgr	4.60 (0.35) ***bfgr
G6	4.55 (0.43) ***cfir	4.45 (0.48) *	4.52 (0.49) ***bfhnr	4.53 (0.44) ***cfikr	4.62 (0.35) ***cfgr	4.56 (0.42) ***cfir
15 years	4.29 (0.55) ***cfilo	4.34 (0.55) ***afhl	4.22 (0.63) ***cfilo	4.29 (0.54) ***cfilo	4.35 (0.47) ***cfilo	4.25 (0.54) ***cfilor
Mother-Child Conflict						
4 ½ years	2.36 (0.74) ***gr	2.67 (0.82) **dq	2.44 (0.76) ***	2.32 (0.73) ***nr	2.31 (0.73) *	2.26 (0.65) *
K	2.34 (0.84) ***mr	2.39 (0.90) amq	2.34 (0.88) **q	2.31 (0.83) ***nr	2.36 (0.87) ***	2.33 (0.73) ***q
G1	2.17 (0.84) cfilor	2.35 (0.94) bgjnq	2.15 (0.86) cegkor	2.15 (0.86) cfilor	2.19 (0.82) fgjmp	2.13 (0.75) fr
G3	2.30 (0.86) *aor	2.63 (0.87) *	2.27 (0.86) *amq	2.30 (0.86) ***or	2.27 (0.89) *	2.24 (0.81) p
G5	2.34 (0.86) ***mr	2.64 (0.84) *	2.31 (0.82) ***q	2.37 (0.90) ***r	2.27 (0.88) *	2.25 (0.76) *
G6	2.40 (0.89) ***dijr	2.68 (0.88) **dq	2.43 (0.89) ***i	2.46 (0.90) ***ber	2.26 (0.89) *	2.27 (0.81) *
15 years	2.50 (0.92) ***cfilo	2.80 (0.86) **ehk	2.52 (0.93) ***eil	2.61 (0.91) ***cfo	2.31 (0.93) *	2.37 (0.87) ***q

Note. K = kindergarten, G1 = first grade, G3 = third grade, G5 = fifth grade, G6 = six grade.

Differences from first grade are significant at * $p < .05$; ** $p < .01$; *** $p < .001$.

Differences from age 4 1/2 are significant at ^a $p < .05$; ^b $p < .01$; ^c $p < .001$.

Differences from kindergarten are significant at ^d $p < .05$; ^e $p < .01$; ^f $p < .001$.

Differences from third grade are significant at ^g $p < .05$; ^h $p < .01$; ⁱ $p < .001$.

Differences from fifth grade are significant at ^j $p < .05$; ^k $p < .01$; ^l $p < .001$.

Differences from sixth grade are significant at ^m $p < .05$; ⁿ $p < .01$; ^o $p < .001$.

Differences from age 15 are significant at ^p $p < .05$; ^q $p < .01$; ^r $p < .001$.

Table 3. Fixed-Effects Time Series Regression Models to Predict Mother-Child Closeness ($N = 1,121, 7,847$ observations)

	Model 1		Model 2		Model 3	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Developmental stage ^a						
4 ½ years	-.100	.014***	-.066	.029	-.057	.028*
Kindergarten	-.010	.014	-.004	.029	.006	.029
Third grade	-.103	.014***	-.092	.029	-.093	.029**
Fifth grade	-.177	.014***	-.158	.029	-.160	.029***
Sixth grade	-.214	.014***	-.157	.029	-.145	.029***
15 years	-.470	.014***	-.424	.031	-.415	.030***
Developmental stage x maternal education ^a						
4 ½ years x less than HS diploma			-.033	.058	-.053	.058
Kindergarten x less than HS diploma			-.043	.058	-.066	.061
Third grade x less than HS diploma			.007	.060	-.001	.060
Fifth grade x less than HS diploma			.043	.059	.017	.061
Sixth grade x less than HS diploma			.007	.058	-.044	.060
15 years x less than HS diploma			.146	.060*	.100	.062
4 ½ years. x HS diploma			-.069	.043	-.075	.042
Kindergarten x HS diploma			-.004	.043	-.012	.043
Third grade x HS diploma			-.037	.043	-.019	.043
Fifth grade x HS diploma			-.063	.044	-.061	.043
Sixth grade x HS diploma			-.081	.043	-.105	.043*
15 years x HS diploma			-.110	.047*	-.136	.045**
4 ½ years x some college			-.044	.038	-.055	.037
Kindergarten x some college			-.019	.038	-.031	.038
Third grade x some college			-.012	.038	-.014	.038
Fifth grade x some college			-.024	.039	-.024	.038
Sixth grade x some college			-.100	.038**	-.111	.038**
15 years x some college			-.060	.041	-.077	.041
4 ½ years x advanced degree			-.022	.045	-.033	.044
Kindergarten x advanced degree			.026	.045	.018	.045
Third grade x advanced degree			-.005	.046	.003	.045
Fifth grade x advanced degree			-.020	.046	-.008	.045
Sixth grade x advanced degree			-.051	.046	-.052	.045
15 years x advanced degree			-.105	.050*	-.105	.046*
Marital status ^a						
Cohabiting					-.050	.027
Single					-.046	.019*
Weekly work hours					.010	.005
Family income					5.E-05	1.E-04

* $p < .05$; ** $p < .01$; *** $p < .001$. ^aOmitted reference groups are first grade, developmental stage x college degree, married.

Table 4. Fixed-Effects Time Series Regression Models to Predict Mother-Child Conflict ($N = 1,121, 7,847$ observations)

	Model 1		Model 2		Model 3	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Developmental stage ^a						
4 ½ years	.192	.025***	.122	.052*	.124	.051*
Kindergarten	.169	.025***	.166	.052**	.162	.052**
Third grade	.136	.026***	.107	.053*	.101	.052
Fifth grade	.172	.026***	.108	.053*	.103	.053
Sixth grade	.224	.026***	.110	.053*	.080	.053
15 years	.331	.027***	.147	.056**	.143	.056*
Developmental stage x maternal education ^a						
4 ½ years x less than HS diploma			.204	.105	.178	.105
Kindergarten x less than HS diploma			-.112	.105	-.133	.110
Third grade x less than HS diploma			.146	.108	.176	.108
Fifth grade x less than HS diploma			.132	.107	.149	.110
Sixth grade x less than HS diploma			.167	.105	.281	.108**
15 years x less than HS diploma			.280	.121*	.250	.116*
4 ½ years. x HS diploma			.167	.077*	.164	.076*
Kindergarten x HS diploma			.014	.077	-.004	.077
Third grade x HS diploma			.041	.078	.068	.077
Fifth grade x HS diploma			.070	.079	.075	.078
Sixth grade x HS diploma			.178	.078*	.223	.078**
15 years x HS diploma			.221	.085*	.235	.081**
4 ½ years x some college			.058	.068	.061	.067
Kindergarten x some college			.008	.068	-.001	.068
Third grade x some college			.040	.069	.041	.069
Fifth grade x some college			.123	.069	.126	.069
Sixth grade x some college			.202	.069**	.217	.069**
15 years x some college			.317	.069***	.308	.072***
4 ½ years x advanced degree			.011	.081	.010	.080
Kindergarten x advanced degree			.039	.082	.061	.081
Third grade x advanced degree			-.021	.082	-.019	.081
Fifth grade x advanced degree			-.002	.083	-.005	.082
Sixth grade x advanced degree			-.003	.083	.007	.082
15 years x advanced degree			.084	.096	.044	.089
Marital status ^a						
Cohabiting					.056	.050
Single					.081	.037*
Weekly work hours					-.017	.009
Family income					5.E-04	2.E-04

* $p < .05$; ** $p < .01$; *** $p < .001$. ^aOmitted reference groups are first grade, developmental stage x college degree, married.

Figure 1. Average Mother-Child Closeness Score by Child Developmental Stage and Maternal Education

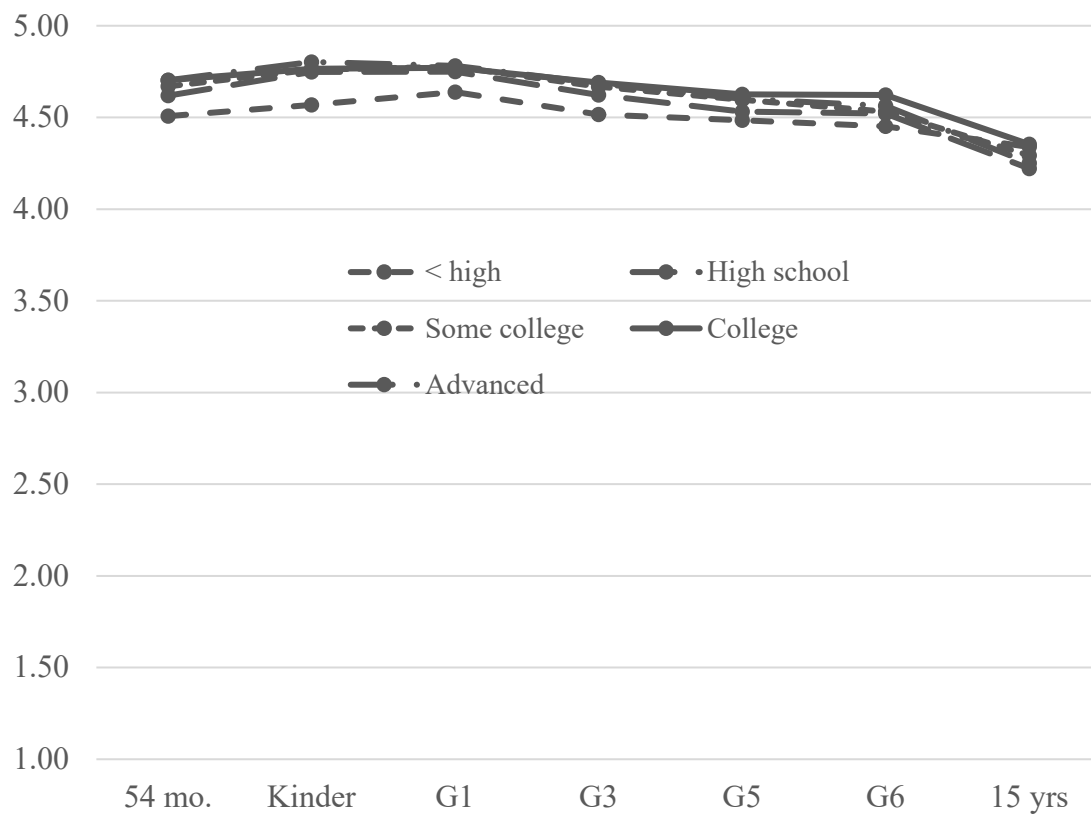
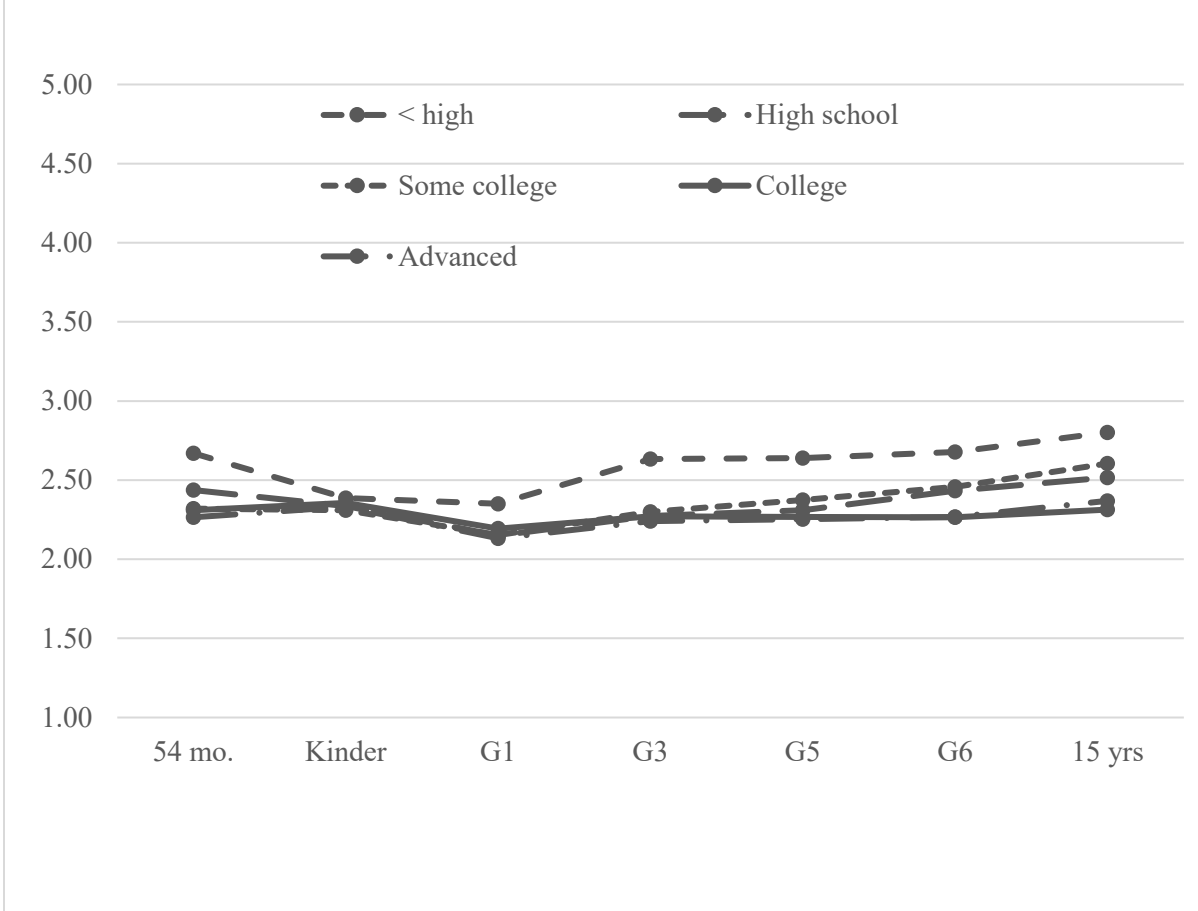


Figure 2. Average Mother-Child Conflict Score by Child Developmental Stage and Maternal Education



Appendix Table 1. Pearson Correlations Between Predictors and Outcomes (N = 1,121, 7,847 observations)

	Less than high school	High school	Some college	College degree	Advanced degree	Traditional parenting style	Married	Cohabiting	Single	Work hours	Family income
Mother-child closeness											
4 1/2 years	-.13***	-.06***	.02	.07***	.06***	-.19***	.08***	-.03**	-.07***	.00	.09***
Kindergarten	-.16***	.00	.02	.02*	.07***	-.16***	.12***	-.06***	-.09***	.01	.08***
First Grade	-.11***	-.02	.04**	.02	.03*	-.09***	.09***	-.03**	-.08***	.05***	.03**
Third Grade	-.11***	-.05***	.02	.05***	.04**	-.07***	.08***	-.04***	-.07***	.01	.05***
Fifth Grade	-.07***	-.06***	.02	.06***	.02	-.03*	.08***	-.08***	-.04***	.00	.06***
Sixth Grade	-.07***	-.03**	-.03*	.09***	.01	-.09***	.09***	-.05***	-.07***	.02	.05***
15 years	.03**	-.05***	.00	.05***	-.02*	-.01	.04**	-.04**	-.02	.00	.04***
Mother-child conflict											
4 1/2 years	.12***	.05***	-.04**	-.04**	-.06***	.13***	-.10***	.05***	.08***	-.02	-.13***
Kindergarten	.02	.00	-.02	.01	.00	-.02	-.03**	.02	.02*	-.03*	-.03**
First Grade	.06***	-.01	-.02	.01	-.02	.04	-.05***	.03*	.04**	-.05***	-.09***
Third Grade	.11***	-.02	.00	-.02	-.03**	.04**	-.03*	.00	.03*	-.06***	-.07***
Fifth Grade	.10***	-.02	.03*	-.05***	-.04***	.03*	-.04**	.01	.04**	-.04**	-.10***
Sixth Grade	.09***	.02	.05***	-.08***	-.06***	.10***	-.09***	.04**	.08***	-.04**	-.10***
15 years	.08***	.02	.08***	-.10***	-.06***	.06***	-.07***	.05***	.05***	-.05***	-.10***

* $p < .05$; ** $p < .01$; *** $p < .001$.

Appendix Table 2. Fixed-Effects Time Series Regression Models to Predict Mother-Child Closeness and Conflict ($N = 1,121, 7,847$ observations)

	Mother-Child Closeness		Mother-Child Conflict	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Developmental stage ^a				
4 ½ years	.047	.064	.046	.116
Kindergarten	.085	.065	.353	.118**
Third grade	-.143	.065*	.174	.118
Fifth grade	-.241	.066***	.207	.119
Sixth grade	-.151	.066*	.052	.119
15 years	-.520	.067***	.193	.123
Developmental stage x maternal education ^a				
4 ½ years x < HS diploma	-.011	.062	.144	.113
Kindergarten x < HS diploma	-.035	.065	-.051	.117
Third grade x < HS diploma	-.024	.065	.212	.116
Fifth grade x < HS diploma	-.019	.065	.196	.118
Sixth grade x < HS diploma	-.046	.065	.269	.117*
15 years x < HS diploma	.070	.070	.247	.120*
4 ½ years. x HS diploma	-.044	.045	.142	.081
Kindergarten x HS diploma	.011	.046	.055	.083
Third grade x HS diploma	-.034	.046	.089	.083
Fifth grade x HS diploma	-.086	.046	.107	.084
Sixth grade x HS diploma	-.106	.046*	.215	.084*
15 years x HS diploma	-.166	.050**	.262	.086**
4 ½ years x some college	-.036	.038	.048	.069
Kindergarten x some college	-.016	.039	.034	.071
Third grade x some college	-.023	.039	.055	.071
Fifth grade x some college	-.039	.040**	.145	.072*
Sixth grade x some college	-.111	.040*	.212	.072**
15 years x some college	-.094	.041	.315	.076***
4 ½ years x advanced	-.043	.044	.015	.080
Kindergarten x advanced	.011	.045	.044	.081
Third grade x advanced	.008	.045	-.026	.081
Fifth grade x advanced	.000	.046	-.014	.082
Sixth grade x advanced	-.051	.046	.009	.082
15 years x advanced	-.082	.046	.034	.084
Developmental stage x maternal traditional parenting values ^a				
4 ½ years x traditional values	-.002	.001	.002	.002
Kindergarten x traditional values	-.002	.001	-.004	.002
Third grade x traditional values	.001	.001	-.001	.002
Fifth grade x traditional values	.002	.001	-.002	.002
Sixth grade x traditional values	.003	.002	.001	.002
15 years x traditional values	.003	.002	-.001	.002

Control variables

Marital status^a

Cohabiting	-.056	.026*	.052	.047
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Single	-.044	.019*	.079	.035*
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Weekly work hours	.008	.005	-.014	.009
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Family income	.000	.000	.000	.000*
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* $p < .05$; ** $p < .01$; *** $p < .001$. ^aOmitted reference groups are first grade, developmental stage x college degree, married.