

Regular Article

Trajectories of mother-child and father-child relationships across middle childhood and associations with depressive symptoms

Jia Yan, Sarah J. Schoppe-Sullivan and Xin Feng

Department of Human Sciences, Ohio State University, Columbus, OH, USA

Abstract

Using a family systems perspective, we examined the trajectories of father-child and mother-child closeness and conflict across Grades 1, 3, 4, 5, and 6, and their associations with child depressive symptoms across middle childhood among 685 families in the Eunice Kennedy Shriver National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (SECCYD). Father-child and mother-child relationship conflict increased, whereas relationship closeness decreased from Grades 1 to 6. Girls with more slowly increasing father-child conflict, and more slowly decreasing father-child closeness, were at lower risk for depressive symptoms. Boys with more slowly increasing mother-child conflict were at lower risk for depressive symptoms. These findings highlight the important roles of both father-child and mother-child relationships in children's emotional adjustment during middle childhood.

Keywords: child depressive symptoms, father-child relationships, middle childhood, parent-child closeness, parent-child conflict

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During the middle childhood years, emotional adjustment difficulties can interfere with children's development and portend lifelong struggles with mental health (Dunn & Goodyer, 2006; Kasen, Cohen, Skodol, Johnson, & Brook, 1999). Depressive symptoms, in particular, may affect the accomplishment of important developmental tasks (e.g., succeeding in school, building healthy relationships with peers) via their associations with chronic physical distress (Pinquart & Shen, 2011) and other psychological and behavioral difficulties (e.g., anxiety, attention-deficit/hyperactivity disorder, conduct problems; Garber & Rao, 2014). Depressive symptoms in middle childhood also predict increased risk for adulthood psychiatric disorders (Kasen et al., 1999), including depression (Dunn & Goodyer, 2006; Rutter, Kim-Cohen, & Maughan, 2006).

The estimated rate of clinical depression in middle childhood is 2.8% (Garber & Rao, 2014); however, significant numbers of children experience depressive symptoms in the middle childhood years: around 10% of children in middle childhood reported being sad and depressed (Angold & Costello, 2001). Compared with the large amount of research on depressive symptoms in adolescence and emerging adulthood, however, depressive symptoms in middle childhood have received less attention. Uncovering the antecedents of depressive symptoms in middle childhood is critical to intervention efforts to preserve and enhance children's mental health.

According to theory and research, high-quality parent-child relationships are key to children's emotional adjustment (DeKlyen & Greenberg, 2016; Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012). In fact, a vast body of literature has documented links between parent-child relationships and child depressive symptoms and related outcomes (DeLay, Hafen, Cunha, Weber, & Laursen, 2013; Hazel, Oppenheimer, Technow, Young, & Hankin, 2014). Middle childhood is underrepresented, however, in the literature on the roles of parent-child relationships in children's mental health. During this period, parent-child relationships continue to play a significant role in children's development, even as children begin to spend more time with peers and less time with family members (Kobak, Rosenthal, & Serwick, 2005). Moreover, little of this work has approached the development of children's adjustment problems from a family systems perspective, even though this perspective has much to offer to understanding the development of psychopathology, including the consideration of parent and child gender (Palkovitz, Trask, & Adamsons, 2014).

The purpose of this study was to use a family systems perspective to examine the trajectories of parent-child relationship closeness and conflict and their associations with child depressive symptoms across middle childhood. This study made several important advances over past work, including examining the role of father-child relationships together with mother-child relationships, assessing both closeness and conflict in parent-child relationships, and using a longitudinal design with multiple informants.

Depressive symptoms in middle childhood

One reason that depressive symptoms in middle childhood have received less research attention may be the assumption that

Author for correspondence: Jia Yan, Department of Human Sciences, The Ohio State University, 1787 Neil Avenue, 135 Campbell Hall, Columbus, OH 43210; Email: yan.775@osu.edu

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middle childhood is a less vulnerable (or “calm”) period between two periods with rapid and dramatic physical and social cognitive growth: early childhood and adolescence. Important developmental changes do take place in middle childhood, however, and may explain the risk for depressive symptoms in this period.

In middle childhood, children often have the first encounter with, and become increasingly exposed to, hormone fluctuations (Richardson, 2005), anxiety-eliciting social evaluation, and social comparison in the school context (Skinner & Welborn, 1997). Twenge and Nolen-Hoeksema (2002) conducted a meta-analysis with 310 studies that used the Children’s Depression Inventory (CDI; Kovacs, 1992), one of the most frequently used tools to measure child depressive symptoms in community samples. They found that among the 61,424 children aged between 8 and 16 years, boys rated themselves as more depressed at age 12 than at any other age. Girls’ CDI scores also increased at 12 years old (Twenge & Nolen-Hoeksema, 2002).

Parent-child relationships and child adjustment in middle childhood

According to attachment theory, high-quality parent-child relationships enhance the development of children’s mental health (Bowlby, 1982). On the other hand, low-quality parent-child relationships can shape the emergence of developmental psychopathology through the formation of cognitive and emotional expectancies (DeKlyen & Greenberg, 2016). Children may internalize their positive or negative relationships with parents and caregivers into “internal working models” that frame children’s expectations toward self and others. Children with lower parent-child relationship quality may hold negative beliefs or “maladaptive schemas” (Roelofs, Lee, Ruijten, & Lobbstaal, 2011) that position them at higher risk of experiencing depressive symptoms.

Although children’s internal working models show consistency across development, the quality of parent-child relationships over time continues to matter for children’s mental health (Vaughn et al., 2016). Children who have better relationships with their parents may have fewer depressive symptoms because they can obtain greater support from parents when facing emotional problems. The positive interactions, perceptions of acceptance, and feelings of being valued derived from a higher quality parent-child relationship can also protect children against depressive symptoms by promoting the development of mental health (Branje, Hale, Frijns, & Meeus, 2010). Indeed, across multiple studies, more supportive and less conflictual parent-child relationships were associated with lower levels of depressive symptoms and decreased risk for depression (Branje et al., 2010; DeLay et al., 2013; Hazel et al., 2014; Sheeber, Hops, Alpert, Davis, & Andrews, 1997; Stice, Ragan, & Randall, 2004).

Two important aspects of parent-child relationship quality are conflict and closeness. Parent-child conflict refers to parent-child interaction involving “behavioral opposition” or “overt disagreement” (Laursen, Coy, & Collins, 1998). Patterns of father-son, father-daughter, mother-son, and mother-daughter relationship conflict vary during adolescence (Laursen, Coy, & Collins, 1998). Parent-child conflict is comorbid with multiple childhood disorders, including but not limited to attention-deficit/hyperactivity disorder, oppositional defiant disorder, and conduct disorder (Burt, Krueger, McGue, & Iacono, 2003). Parent-child closeness, on the other hand, is a positive feature of parent-child relationships and is defined by how much the parent and child “affect” and “are affected” by one another (Laursen &

Collins, 2004). Close parent-child dyads show trust, intimacy, interdependence, and affection to each other. Parent-child closeness can buffer the effect of negative life events on adolescent depressive symptoms (Ge, Natsuaki, Neiderhiser, & Reiss, 2009).

Yet, the focus on parent-adolescent relationships and adolescent depressive symptoms limits generalizability to other developmental periods. Parent-child relationships undergo meaningful changes during middle childhood. Attachment behaviors become fewer and subtler compared with early childhood: children less frequently, urgently, and overtly seek physical proximity with their parents (Kerns, Tomich, & Kim, 2006; Mayseless, 2005). Increasingly, parent-child relationships function as mutual rather than unidirectional relationships (Mayseless, 2005). Children also begin to develop important relationships outside of their families (Steele & Steele, 2005). During middle childhood and adolescence, children’s psychological needs for autonomy and individuality increase (Wray-Lake, Crouter, & McHale, 2010). In response to children’s increasing desire for autonomy, relationship closeness with parents may decrease, and conflict may arise. Nonetheless, parent-child relationships remain vital for children’s development during middle childhood (Kobak et al., 2005).

The value of a family systems perspective

Most studies of the associations between parent-child relationships and child developmental psychopathology only examined mother-child relationships or aggregates of father- and mother-child relationships (see Bögels & Phares, 2008, for a review). Accumulating empirical evidence does suggest that paternal characteristics are associated with child psychopathology, including depressive symptoms (see DeKlyen & Greenberg, 2016, for a review); however, father-child relationships, which are important components of the family system and fundamental to the experiences of many children, have been largely ignored (to name two exceptions, Branje et al., 2010; Hazel et al., 2014).

According to family systems theory (Palkovitz et al., 2014), fathers and mothers have different roles in family systems, and therefore in their children’s lives. Fathers and mothers also have distinct interaction patterns with children, and these distinct roles and patterns lead children to form different expectations for mothers and fathers. Thus, children experience relationships with fathers and mothers differently, and therefore father-child relationships may have effects on children’s development that are distinct from effects of mother-child relationships. Empirical evidence supports family systems principles regarding distinctions between father-child relationships and mother-child relationships. Early research showed that compared with father-child relationships, mother-child relationships were characterized by greater emotional expressions (both positive and negative) and more conflictual interactions (Bronstein, 1984; Russell & Russell, 1987). Such findings make sense given the greater amount of shared time (Lam, McHale, & Crouter, 2012) and more communication about emotions and feelings (Russell & Russell, 1987) between mothers and children, which potentially provide mother-child dyads more sources of conflict as well as greater opportunities to foster closeness. Lam et al. (2012) found that from age 8 to 12, family social time decreased, whereas the “one-on-one” time each parent spent with children increased. Their findings suggest that during middle childhood mothers and fathers are more often interacting with children separately, which provides the opportunity for more differentiated effects of father-child and mother-child relationships.

Family systems theory also emphasizes the roles of child and parent gender and their combinations: mother-son, father-son, mother-daughter, and father-daughter dyads. Sons and daughters are likely to learn different scripts through social learning from fathers and mothers (Palkovitz et al., 2014). Empirical evidence also supports this hypothesis. Branje et al. (2010) found that greater adolescent-reported father-child relationship quality predicted boys' fewer depressive symptoms, whereas greater mother-child relationship quality predicted both boys' and girls' fewer depressive symptoms. A recent meta-analysis (Weymouth, Buehler, Zhou, & Henson, 2016) showed that the gender of the adolescent has an effect: parent-child relationship conflict (regardless of gender of the parent) was more strongly associated with girls' than boys' maladjustment. Weymouth et al. (2016) did not examine whether the interaction between parent and child gender made a difference in the association, however.

In middle childhood, the gender difference in depression is not yet pronounced. If anything, girls have lower rates of depression than boys (Angold, 2008); however, in adolescence, girls are at greater risk of depression (Garber, 2006). This shift happens around 12 years old (Angold, 2008); thus, the developmental processes of boys' and girls' depression may differ in middle childhood. In our study, child depressive symptoms are measured at Grade 6 (i.e., around 11–12 years of age) when this shift happens. Mother- and father-child relationship quality may differentially predict boys' and girls' depressive symptoms (Avison & McAlpine, 1992). Moreover, combinations of parent and child gender (i.e., mother-son, father-son, mother-daughter, and father-daughter dyads) might be particularly important to this shift in child vulnerability to depressive symptoms for boys and girls.

We do not yet have a full understanding of how father-child and mother-child relationships predict child depressive symptoms uniquely. Our knowledge of the roles of parental in conjunction with child gender in such associations is also limited. In light of family systems theory (Palkovitz et al., 2014) and findings from Branje et al. (2010) and Lam et al. (2012), the associations between parent-child relationships and child depressive symptoms in middle childhood may differ across different combinations of parent and child gender.

The current study

The current study used data from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). In prior research using this sample, researchers have found that parental closeness buffers against associations between higher teacher conflicts and children's lower engagement in school (Heatly & Votruba-Drzal, 2017), and that mother-child relationship quality at Grade 3 predicts children's school engagement at Grade 5 (Perdue, Manzeske, & Estell, 2009). In addition, less close and more conflictual mother-child relationships were predictive of greater sleep problems in Grades 3–6 (Bell & Belsky, 2008), and faster increases in father-child and mother-child conflict, as well as faster decreases in father-child closeness, predicted greater engagement in sexual behaviors by age 15 (McElwain & Bub, 2015). To our knowledge, no prior research using this sample has addressed the questions pursued in the current study.

Our primary goal in this study was to examine the longitudinal associations of parent-child relationships with child depressive symptoms over middle childhood. We tested the following hypothesis: The growth factors (intercepts and slopes) of father-

child and mother-child relationships will explain unique variance in child depressive symptoms. Specifically, we expected that greater intercepts and slopes of parent-child conflict would predict higher child depressive symptoms, whereas higher intercepts and slopes of parent-child closeness would predict lower child depressive symptoms. We also aimed to gain a better understanding of the roles of parent and child gender in these associations via two exploratory questions: (a) Is the predictive power of father- and mother-child relationships on child depressive symptoms equal or different? (b) Is the association between parent-child relationships and child depressive symptoms equal or different across child gender?

Several constructs were controlled in the analyses to help rule out alternative explanations. Control variables included socioeconomic status (SES), parent depressive symptoms, and child behavior problems measured at the beginning of middle childhood (at Grade 1). These variables were included because of their established associations with both parent-child relationships and child depressive symptoms to better test whether parent-child relationships per se are associated with child emotional adjustment. Children who are from higher SES families, who have fewer behavior problems at the first grade, and those who are raised by less depressed parents may experience better relationship quality with parents (Hagan, Roubinov, Alder, Boyce, & Bush, 2016) and fewer depressive symptoms (Hammen, Hazel, Brennan, & Najman, 2012). Because father- and mother-child relationships are correlated constructs (Hazel et al., 2014), models simultaneously examining the parent-child relationships of mothers and fathers enable more comprehensive understanding of the associations between parent-child relationships and child depressive symptoms and more effectively rule out alternative explanations (Cummings, George, Koss, & Davies, 2013).

Method

Participants

Data were drawn from the NICHD Study of Early Child Care and Youth Development (SECCYD). Participating families ($N = 1,364$) were recruited shortly after the birth of the target child in 1991 at 10 locations across the United States and were followed from 1 month postpartum to 15 years of age in the 4 phases of study. For a detailed description of the recruitment and sampling procedures, see NICHD Early Child Care Research Network (2004). The current study used data at 5 time points (Grades 1, 3, 4, 5 and 6) in Phases 2 and 3. Among the 1,364 families, we focused only on those with coresident biological fathers and mothers to control for parental residence status. Families that responded at least once to the residence status for both fathers and mothers and never indicated nonresidence status were included. These inclusion criteria resulted in a final sample of 685 families.

A total of 345 study children (50.4%) were boys, and 340 (49.6%) were girls. A majority of mothers identified their child as either white ($n = 617$; 90.1%) or black ($n = 32$; 4.7%). Mothers' age ranged from 18 to 46 years ($M = 30.00$, $SD = 5.03$). Fathers' age ranged from 19 to 48 years (mean [M] = 31.67, standard deviation [SD] = 5.37). A total of 353 mothers (51.5%) and 356 fathers (52%) had at least a bachelor's degree; 663 mothers (96.8%) and 656 fathers (95.8%) had graduated from high school or had a GED. At Grade 1, the income-to-needs ratio ranged from .10 to 21.29 ($M = 4.66$, $SD = 3.12$). Of note, a 1 on the

income-to-needs ratio indicated poverty level, 2 indicated threshold of low income, and 3 indicated threshold of middle class. Thus, the average family in this sample was middle class.

Procedures

At all five time points (Grades 1, 3, 4, 5, and 6), both fathers and mothers rated their relationships (i.e., conflict and closeness) with the study child. At Grade 6, children provided information on their depressive symptoms. At Grade 1, mothers reported on children's internalizing and externalizing problems, which were included as covariates. Mothers reported the child's gender and ethnicity and both parents' ages and educational background at the hospital right after childbirth, when the families were first recruited to participate. Income-to-needs ratio at Grade 1 was also reported by mothers. Fathers and mothers independently rated their depressive symptoms at Grade 1.

Measures

Parent-child relationships

Fathers and mothers reported their beliefs about their relationship with the study child on the 15-item short form of the Child-Parent Relationship Scale (Pianta, 1992). Of the 15 items, 8 asked about parent-child relationship closeness (e.g., "I share an affectionate, warm relationship with my child"). The other seven items asked about relationship conflict (e.g., "My child easily becomes angry at me"). The parents were instructed to rate each item on a 1 to 5 Likert scale, with 1 = *definitely does not apply* and 5 = *definitely applies*. The internal consistencies ranged between .76 to .86 for parent-child conflict, and between .65 and .82 for parent-child closeness (see Table 1 for α of parent-child relationship in each grade). Of note, 1 of the 15 items (i.e., "My child is uncomfortable with physical affection") had low correlations with other items and was removed to increase the internal consistency of the closeness scale.

Child depressive symptoms

Children reported their own depressive symptoms on the 10-item short form of the CDI (Kovacs, 1992). For each item, children were asked to choose which one of the three sentences best applied to them during the past two weeks (e.g., "I am sad once in a while," "I am sad much of the time," and "I am sad all the time"). The selection of the sentence was scored on a 0–2 scale, with higher scores representing more severe depressive symptoms. In this sample, this scale showed good internal consistency ($\alpha = .77$). The mean score on this scale in the current sample was 1.28 ($SD = 2.11$). Of the 617 children who responded to this measure, 105 had scores at or above the cutoff score of 3; therefore, 17% of the sample was identified as depressed (Allgaier et al., 2012).

Covariates

Child behavior problems¹

At Grade 1, mothers completed the 113-item Child Behavior Checklist (Achenbach, 1991). Mothers were asked to rate a series of behaviors on a 0–2 Likert-type scale, with 0 = *not true of the*

child and 2 = *very true of the child*. Thirty-five items assess children's externalizing behaviors (e.g., "argues a lot"), whereas 32 items assess children's internalizing behaviors (e.g., "cries a lot"). This measure showed strong psychometric properties in previous research (Achenbach, 1991).

Parental depressive symptoms

Both fathers and mothers reported on their own depressive symptoms on the 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977) with a 4-point Likert scale (1 = *less than once a week*; 4 = *5–7 days a week*). This measure asks about how the participants felt in the past week, in terms of depressed affect (e.g., "I felt sad"), positive affect (e.g., "I enjoyed life"), somatic and retarded activity (e.g., "My sleep was restless"), and interpersonal distress (e.g., "People were unfriendly to me"). After reverse-coding items regarding positive affect, a total score was computed and the internal consistencies were .86 and .89 for fathers and mothers, respectively. The mean score on this scale was 7.01 ($SD = 7.42$) for mothers and 6.98 ($SD = 6.56$) for fathers. Of the 633 and 587 fathers and mothers who responded to this measure, 73 mothers and 57 fathers had scores at or above the cutoff score of 16; therefore, 12% of mothers and 10% of fathers were identified as depressed (Radloff, 1977).

SES

SES was estimated by the income-to-needs ratio and maternal education level. The income-to-needs ratio was defined and computed using mother-reported annual household income divided by the federal poverty threshold per family size. Mother-reported years of schooling was used as the indicator of maternal education level.

Analytic plan

We performed latent growth curve analysis with maximum likelihood estimation in Mplus 7.11 (Muthén & Muthén, 1998–2012) to simultaneously examine both intra- and interindividual changes in mother-child and father-child relationships (i.e., closeness and conflict) over time. In preliminary analyses, for each parent-child relationship dimension (i.e., closeness and conflict), we first fitted parallel process models to examine the initial levels and rates of change in father-child and mother-child relationships. We then compared the trajectories of father-child and mother-child relationships by adding equality constraints and examining the results of χ^2 difference tests. Next, in hypothesis testing, we examined how the growth trajectories of mother-child and father-child relationships predicted child depressive symptoms with the coefficients of intercepts and slopes of both father-child and mother-child relationship trajectories freely estimated. In a further step, we constrained the effects of father-child and mother-child trajectories to be equal in predicting child depressive symptoms (Exploratory question 1). For all these analyses, we conducted a multigroup analysis with child gender as the grouping variable to test the moderating effect of child gender (Exploratory question 2).

Model χ^2 statistics with its degrees of freedom and p values, root mean square error of approximation (RMSEA; Browne & Cudeck, 1993) and its 90% confidence interval (CI), Bentler comparative fit index (CFI; Bentler, 1990), and standardized root mean square residual (SRMR) of each model, as recommended by Kline (2015), were reported to evaluate the model fit. RMSEA values < .01, .05, and .08 indicated excellent, close, and reasonable fit, respectively (Browne & Cudeck, 1993). CFI values

¹We also tested models with teachers' reports of child behavior problems at Kindergarten and Grade 1 included as covariates. Results showed that the models were not changed by controlling for teacher ratings of problem behaviors; thus, we maintained the more parsimonious models.

Table 1. M, SD, missing rates, and ranges of the study variables

	<i>N</i>	Missing Rate	Minimum	Maximum	<i>M</i>	<i>SD</i>	α
F-Conflict G1	587	14.30	7.00	29.00	14.02	4.75	.76
F-Conflict G3	587	14.30	7.00	31.00	14.70	5.01	.79
F-Conflict G4	541	21.00	7.00	33.00	14.75	5.19	.82
F-Conflict G5	583	14.90	7.00	34.00	15.58	5.20	.81
F-Conflict G6	560	18.20	7.00	29.00	15.62	5.37	.83
M-Conflict G1	637	7.00	7.00	33.00	15.07	5.91	.84
M-Conflict G3	633	7.60	7.00	32.00	15.92	6.01	.85
M-Conflict G4	625	8.80	7.00	35.00	15.80	5.93	.84
M-Conflict G5	629	8.20	7.00	33.00	16.21	5.82	.83
M-Conflict G6	624	8.90	7.00	33.00	16.33	6.20	.86
F-Closeness G1	586	14.50	2.00	35.00	32.25	2.48	.70
F-Closeness G3	586	14.50	15.00	35.00	31.04	3.12	.75
F-Closeness G4	539	21.30	19.00	35.00	30.87	3.32	.77
F-Closeness G5	581	15.20	17.00	35.00	30.12	3.47	.79
F-Closeness G6	560	18.20	11.00	35.00	30.40	3.54	.82
M-Closeness 1S	637	7.00	2.00	35.00	33.48	2.01	.70
M-Closeness G3	632	7.70	2.00	35.00	32.75	2.24	.65
M-Closeness G4	625	8.80	18.00	35.00	32.65	2.46	.70
M-Closeness G5	628	8.30	21.00	35.00	32.26	2.62	.73
M-Closeness G6	624	8.90	1.00	35.00	32.06	2.83	.79
Child Depression G6	617	9.90	0.00	19.00	1.28	2.11	.77
Int. Problems G1	637	7.00	33.00	73.00	47.77	8.68	—
Ext. Problems G1	637	7.00	3.00	78.00	47.48	9.33	—
Income-to-Needs Ratio	622	9.20	0.10	21.29	4.66	3.12	—
Maternal Education	685	0.00	7.00	21.00	15.08	2.32	—
Maternal Depression	633	7.60	0.00	44.00	7.01	7.42	.89
Paternal Depression	587	14.30	0.00	42.00	6.98	6.56	.86

Note: Ext = externalizing; F = father; G = grade; Int = internalizing; M = mother.

> .90 and .95 were considered as indicators of good and excellent fit, respectively (Hu & Bentler, 1999). SRMR values < .08 were indicative of a good fit (Hu & Bentler, 1999).

Results

Preliminary analyses

Table 1 shows the *M*, *SD*, missing rates, and ranges of the variables and covariates. The nonsignificant results of Little's missing completely at random test suggested that data were missing completely at random [$\chi^2(2,123) = 2,154.22, p = .31$]. Missing data were handled with full information maximum likelihood estimation, as recommended by Enders and Bandalos (2001) for conditions when missing data are ignorable (i.e., missing completely at random or missing at random). The zero-order correlations of all study variables and covariates can be found in Table 2.

Two parallel process models were fitted to model the linear change in father- and mother-child conflict and closeness. Preliminary analysis suggested linear trajectories for mother-

child/father-child relationships. Two latent variables were created for each construct: an intercept, to represent initial levels; and a slope, to represent rates of change over time. The factor loadings for intercepts were fixed to 1 at all 5 time points, whereas the factor loadings for slopes were fixed to 0 at grade 1, 8 at grade 3, 11 at grade 4, 15 at grade 5, and 19 at grade 6.² The trajectories were first estimated separately for boys and girls, and subsequently combined because boys and girls did not differ in any growth parameters according to the results of χ^2 difference tests.

Parent-child conflict

The model for father-child and mother-child conflict demonstrated a reasonable fit to the data, $\chi^2(40) = 101.20, p < .001$; RMSEA = .05 (90% CI = .04, .06); CFI = .99; SRMR = .03. The observed and predicted trajectories of father-child and

²The average time lag between Grades 2 and 3 data collection was 9 months, instead of 1 year. The slope loadings were therefore fixed to 0, 8, 11, 15, and 19 to reflect the true intervals between time points. Each unit in the factor loading for the slope represented a 3-month interval.

Table 2. Zero-order correlations of the study variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. F-Conflict G1														
2. F-Conflict G3	.63**													
3. F-Conflict G4	.60**	.68**												
4. F-Conflict G5	.56**	.66**	.71**											
5. F-Conflict G6	.52**	.63**	.69**	.71**										
6. M-Conflict G1	.29**	.38**	.39**	.37**	.39**									
7. M-Conflict G3	.29**	.44**	.41**	.37**	.40**	.68**								
8. M-Conflict G4	.30**	.43**	.48**	.42**	.43**	.69**	.79**							
9. M-Conflict G5	.29**	.41**	.46**	.48**	.46**	.64**	.70**	.75**						
10. M-Conflict G6	.29**	.39**	.42**	.41**	.50**	.63**	.69**	.73**	.76**					
11. F-Closeness G1	-.31**	-.25**	-.24**	-.22**	-.27**	-.15**	-.12**	-.15**	-.17**	-.17**				
12. F-Closeness G3	-.24**	-.31**	-.31**	-.27**	-.29**	-.11**	-.14**	-.17**	-.16**	-.17**	.54**			
13. F-Closeness G4	-.22**	-.25**	-.37**	-.28**	-.32**	-.18**	-.15**	-.22**	-.21**	-.17**	.62**	.62**		
14. F-Closeness G5	-.22**	-.28**	-.32**	-.34**	-.33**	-.13**	-.13**	-.18**	-.24**	-.20**	.52**	.61**	.64**	
15. F-Closeness G6	-.20**	-.27**	-.37**	-.30**	-.42**	-.17**	-.18**	-.19**	-.26**	-.25**	.47**	.57**	.66**	.60**
16. M-Closeness 1S	-.04	-.11**	-.14**	-.11*	-.17**	-.34**	-.25**	-.24**	-.19**	-.18**	.18**	.13**	.20**	.22**
17. M-Closeness G3	-.05	-.17**	-.14**	-.15**	-.17**	-.25**	-.32**	-.28**	-.28**	-.28**	.10*	.15**	.14**	.19**
18. M-Closeness G4	-.07	-.14**	-.17**	-.19**	-.20**	-.29**	-.31**	-.35**	-.30**	-.29**	.10*	.14**	.19**	.20**
19. M-Closeness G5	-.05	-.12**	-.16**	-.18**	-.20**	-.21**	-.22**	-.23**	-.31**	-.29**	.15**	.17**	.20**	.29**
20. M-Closeness G6	-.06	-.10*	-.14**	-.14**	-.20**	-.29**	-.28**	-.27**	-.25**	-.35**	.11*	.15**	.19**	.22**
21. Child Dep G6	.06	.11*	.12**	.14**	.19**	.07	.07	.09*	.14**	.18**	-.01	-.04	-.09	-.04
22. Int. Problems G1	.17**	.15**	.19**	.15**	.21**	.44**	.29**	.34**	.31**	.34**	-.08	.01	-.03	-.06
23. Ext. Problems G1	.29**	.30**	.34**	.34**	.36**	.68**	.53**	.56**	.51**	.51**	-.15**	-.12**	-.15**	-.12**
24. M-Depression G1	.05	.07	.08	.09*	.10*	.29**	.21**	.25**	.23**	.28**	-.03	-.05	.00	-.02
25. F-Depression G1	.33**	.28**	.32**	.31**	.36**	.08	.09*	.14**	.14**	.18**	-.27**	-.19**	-.23**	-.20**
26. M-Education	-.07	-.02	.00	-.05	-.08*	-.02	-.07	-.09*	-.07	-.10*	.02	.08	.07	.07
27. ITN Ratio G1	-.09*	-.04	-.06	-.05	-.11*	-.05	-.06	-.11**	-.09*	-.11**	.08	.04	.07	.10*

Variables	15	16	17	18	19	20	21	22	23	24	25	26
16. M-Closeness 1S	.25**											
17. M-Closeness G3	.18**	.50**										
18. M-Closeness G4	.20**	.55**	.63**									
19. M-Closeness G5	.29**	.47**	.60**	.62**								
20. M-Closeness G6	.26**	.43**	.55**	.61**	.65**							
21. Child Depression G6	-.16**	-.03	-.07	-.01	-.08*	-.14**						
22. Int. Problems G1	-.05	-.23**	-.16**	-.13**	-.11**	-.12**	.09*					
23. Ext. Problems G1	-.16**	-.26**	-.20**	-.23**	-.13**	-.16**	.10*	.57**				
24. M-Depression G1	-.07	-.16**	-.12**	-.15**	-.08	-.13**	.12**	.27**	.29**			
25. F-Depression G1	-.24**	-.05	.00	-.05	-.04	-.06	.11**	.10*	.10*	.17**		
26. M-Education	.07	-.04	.04	.03	.03	.02	-.03	-.03	-.16**	-.19**	-.13**	
27. ITN Ratio G1	.07	-.02	-.01	.08	.04	.02	-.04	-.08*	-.17**	-.15**	-.10*	.43**

Note: Dep = depressive symptoms; Ext = externalizing; F = father; G = grade; Int = internalizing; ITN ratio = income-to-needs ratio; M = Mother; * $p < .05$, ** $p < .01$.

mother-child conflict are shown in Figure 1a. Greater intercept of mother-child conflict was associated with greater intercept ($r = .49, p < .001$) and slope ($r = .19, p = .01$) of father-child conflict, whereas the intercept of father-child conflict was not significantly associated with the slope of mother-child conflict ($r = -.06, p = .44$). Thus, for families in which mothers perceived more conflict with their children at Grade 1, father-child conflict tended to be higher at Grade 1 and to increase faster over middle childhood. When mother-child conflict increased faster, father-child conflict tended to increase faster as well ($r = .43, p = .005$). The intercept of mother-child conflict was higher than that of father-child conflict ($\Delta\chi^2(1) = 22.00, p < .001$). Although mother-child relationships were characterized by greater conflict initially, the rate of change in parent-child relationship conflict did not differ between fathers and mothers ($\Delta\chi^2(1) = 2.50, p = .11$).

Parent-child closeness

The model for father-child and mother-child closeness also demonstrated a reasonable fit to the data, $\chi^2(39) = 72.42, p < .001$, RMSEA = .04 (90% CI = .02, .05), CFI = .99, SRMR = .07. The observed and predicted trajectories of father-child and mother-child closeness are shown in Figure 1b. Greater intercept of mother-child closeness was associated with greater intercept ($r = .24, p < .001$) and slope ($r = .22, p = .001$) of father-child closeness, whereas the intercept of father-child closeness was not significantly associated with the slope of mother-child closeness ($r = .005, p = .94$). Thus, for families in which mothers felt closer with their children at Grade 1, father-perceived closeness with their children tended to be also higher at Grade 1, and declined more slowly over middle childhood. When mother-child closeness declined faster, father-child closeness declined faster as well ($r = .23, p = .006$). The intercept of mother-child closeness was higher than that of father-child closeness [$\Delta\chi^2(1) = 12.34, p < .001$], and the slope of father-child closeness was lower than that of mother-child closeness [$\Delta\chi^2(1) = 18.41, p < .001$]. Thus, mother-child closeness was higher and declined more slowly than father-child closeness.

Hypothesis testing: parent-child relationships and child depressive symptoms

To test the hypothesis, the two aspects of parent-child relationships (i.e., conflict and closeness) were examined in separate models because testing them in the same model was not feasible because of model complexity. For each aspect, a multigroup model was tested to examine the association between parent-child relationship and child depressive symptoms for boys and girls. A series of χ^2 difference tests were conducted comparing boys and girls, and also comparing the effects of father- and mother-child relationships on boys' and girls' depressive symptoms. Based on the results of χ^2 difference tests (see the following section for details), we constrained the coefficients of father-child and mother-child relationship trajectories, as well as the initial level of mother-child conflict on child depressive symptoms, to be equal across the two groups. The covariates (i.e., maternal education, income-to-needs ratio, child externalizing and internalizing behaviors, maternal and paternal depressive symptoms) were included but are not shown in Figures 2 and 3 because they were nonsignificant. The error terms and correlations among predictors were also included in the analyses but omitted in Figures 2 and 3. The significant path estimates and the associated tests for the differences in path estimates by parent and child gender are

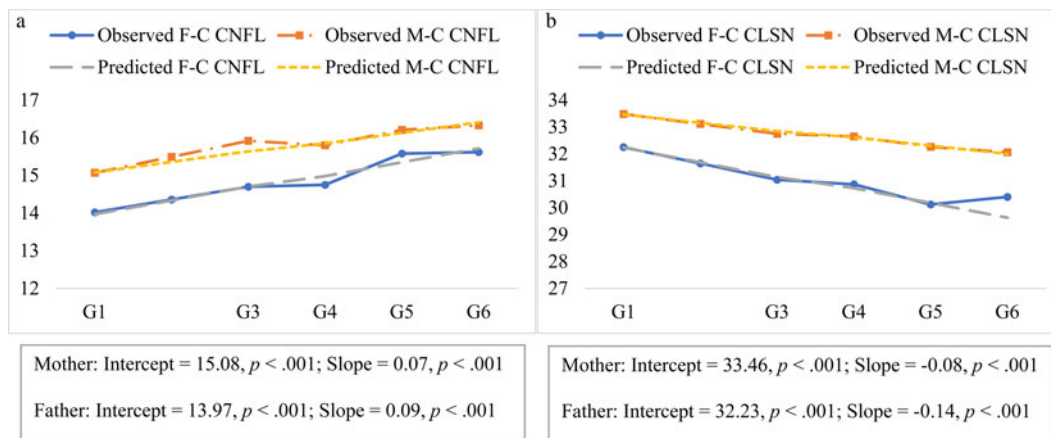


Figure 1. Predicted and observed trajectories of parent-child conflict (a) and parent-child closeness (b). Note: F-C = Father-Child; M-C = Mother-Child; CNFL = Conflict; CLSN = Closeness; G1 = Grade 1; G3 = Grade 3; G4 = Grade 4; G5 = Grade 5; G6 = Grade 6.

summarized in Table 3. The path estimates, standard errors, and p values for the associated tests can be accessed from the online supplementary materials (Online Tables 1 and 2).

Parent-child conflict

As shown in Figure 2, a greater increase in father-child conflict predicted girls' higher depressive symptoms. A faster increase in father-son conflict predicted fewer depressive symptoms in boys. Father-child conflict at Grade 1 was not associated with girls' depressive symptoms. A greater increase in mother-child conflict was associated with boys' (but not girls') higher depressive symptoms. Father-child and mother-child conflict at Grade 1 were not predictive of child depressive symptoms. A χ^2 difference test confirmed that the paths from father-child conflict slope to child depressive symptoms differed across child gender [father-child conflict slope: $\beta_{boy} = -.31$, $\beta_{girl} = .45$, $\Delta\chi^2(1) = 7.6$, $p = .006$], whereas other paths did not.

We next tested the differences between mothers and fathers. For boys, the paths from parent-child conflict slope, but not intercept, to depressive symptoms differed by parent gender [slope for boys: $\beta_{father} = -.31$, $\beta_{mother} = -.41$, $\Delta\chi^2(1) = 9.53$, $p = .002$]. For girls, neither the intercept nor the slope of father-daughter and mother-daughter conflict were different in predicting girls' depressive symptoms.

Parent-child closeness

As shown in Figure 3, a slower decrease in father-child closeness predicted girls' fewer depressive symptoms. Results of a χ^2 difference test confirmed that the paths from all the growth factors of parent-child closeness to child depressive symptoms differed across child gender [father-child closeness intercept: $\beta_{boy} = -.14$, $\beta_{girl} = .44$, $\Delta\chi^2(1) = 11.83$, $p < .001$; father-child closeness slope: $\beta_{boy} = -.06$, $\beta_{girl} = -.63$, $\Delta\chi^2(1) = 14.81$, $p < .001$; mother-child closeness intercept: $\beta_{boy} = .49$, $\beta_{girl} = -.07$, $\Delta\chi^2(1) = 7.17$, $p = .01$; mother-child closeness slope: $\beta_{boy} = -.47$, $\beta_{girl} = .16$, $\Delta\chi^2(1) = 4.60$, $p = .03$].

The differences between mothers and fathers were then tested. For both boys and girls, the paths from parent-child closeness slope and intercept to child depressive symptoms differed by parent gender [slope for boys: $\beta_{father} = -.06$, $\beta_{mother} = -.47$, $\Delta\chi^2(1) = 7.00$, $p = .008$; intercept for boys: $\beta_{father} = -.14$, $\beta_{mother} = .49$, $\Delta\chi^2(1) = 8.30$, $p = .004$; slope for girls: $\beta_{father} = -.63$, $\beta_{mother} = .16$, $\Delta\chi^2(1) =$

7.65 , $p = .006$; intercept for girls: $\beta_{father} = .44$, $\beta_{mother} = -.07$, $\Delta\chi^2(1) = 10.40$, $p = .001$].

Discussion

The aim of this study was to strengthen understanding of the associations of parent-child relationship closeness and conflict with child depressive symptoms across middle childhood. By examining the role of father-child relationships together with mother-child relationships and by using a family systems perspective that prompted us to closely examine the roles of parent and child gender, this study made important advances over past work. Overall, we found that the trajectories of parent-child relationships were predictive of child depressive symptoms, with father-child relationships especially important to girls' depressive symptoms, and mother- and father-child relationships important for boys' depressive symptoms. These findings highlight the important roles of both father-child and mother-child relationships in children's emotional adjustment during middle childhood.

Parent-child relationships and child depressive symptoms

The trajectories of father-child relationships predicted both boys' and girls' depressive symptoms after taking into account the trajectories of mother-child relationships. In particular, higher depressive symptoms for girls were predicted by greater rates of increase in father-daughter conflict, whereas higher depressive symptoms for boys were predicted by slower increase in of father-son conflict. The rates of decrease in father-daughter closeness also predicted girls' depressive symptoms. When father-daughter closeness decreased faster, girls reported higher levels of depressive symptoms. The associations between mother-child relationships and child depressive symptoms were less consistent and less salient when father-child relationships were controlled. Greater rates of increase in mother-child conflict predicted boys' but not girls' greater depressive symptoms. Moreover, the trajectories of mother-child closeness were not associated with the depressive symptoms of either boys or girls after taking into account trajectories of father-child closeness. These findings are generally consistent with the growing literature on the association between parent-child relationships and child depressive

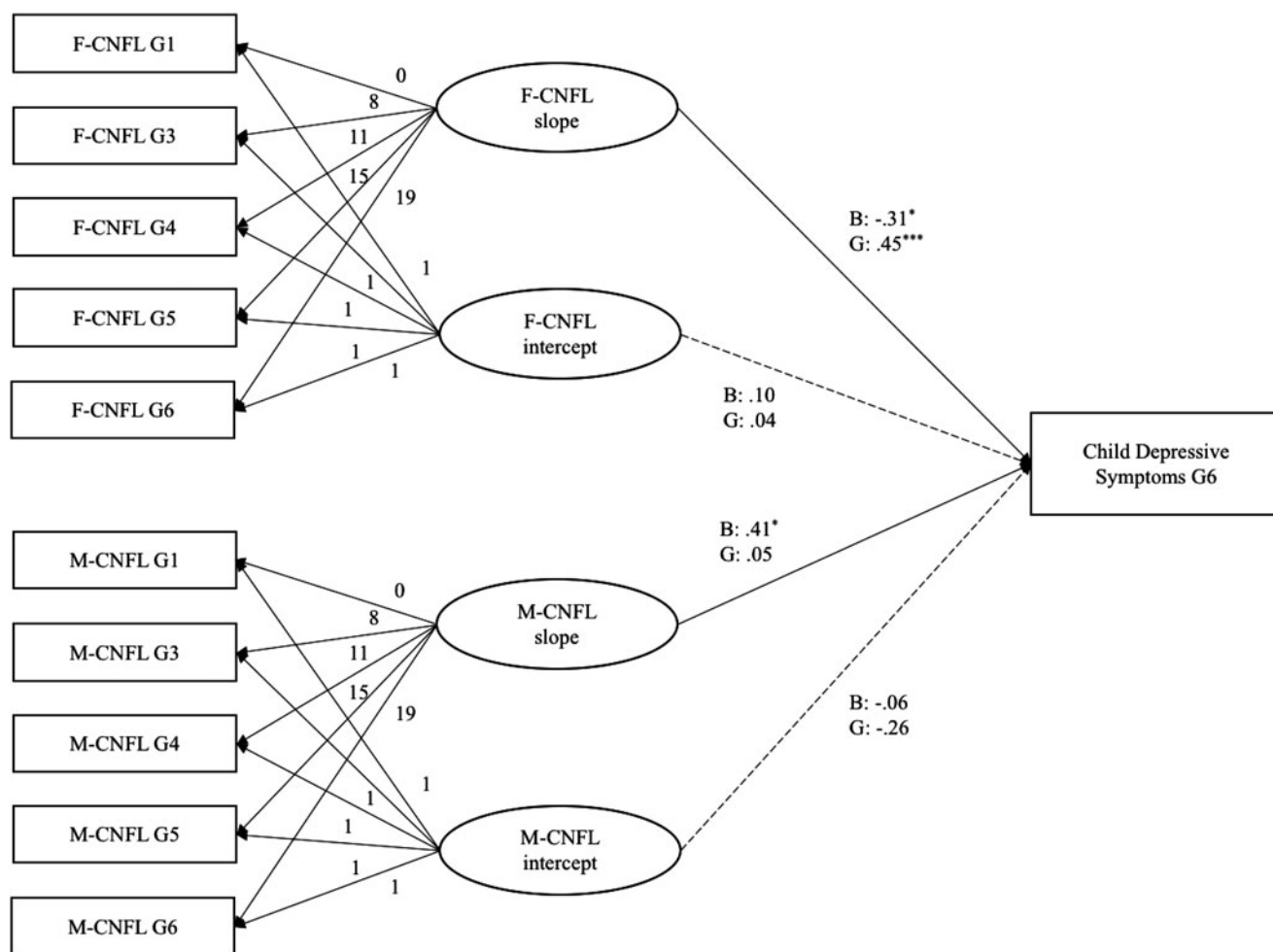


Figure 2. Final standardized path estimates for boys and girls in the model of trajectories of parent-child conflict predicting child depressive symptoms. *Note:* * $p < .05$, *** $p < .001$. Solid lines represent significant paths for either boys or girls or both. Dotted lines represent nonsignificant paths for either boys or girls. $\chi^2(164) = 279.37$, $p < .001$, RMSEA = .05 (90% CI = .04, .05), CFI = .98, SRMR = .03. $R^2 = .18$ and $.24$ for boys and girls, respectively. Covariates: maternal education, income-to-needs ratio at grade 1; child internalizing behaviors at Grade 1; child externalizing behaviors at Grade 1; maternal depressive symptoms at Grade 1; paternal depressive symptoms at Grade 1. B, boys; F-CNFL = father-child conflict; G = girls; G1 = Grade 1; G3 = Grade 3; G4 = Grade 4; G5 = Grade 5; G6 = Grade 6; M-CNFL = mother-child conflict.

symptoms (e.g., Branje et al., 2010; DeLay et al., 2013; Hazel et al., 2014). It was somewhat surprising that slower increases in father-son conflict were associated with greater depressive symptoms for boys; however, it could be that increases in father-son conflict, in particular, are normative during middle childhood and reflect fathers' greater involvement with their sons, which could be a positive aspect of the father-child relationship that we did not directly assess in the current study.

The findings underscore the utility of a family systems perspective for research in developmental psychopathology (Minuchin, 1988). Fathers and mothers have different roles in family systems, and the gender of children also matters. Fathers and mothers often interact with their daughters and sons in distinct ways. Sons and daughters may also learn different scripts from observations of paternal and maternal behaviors (Palkovitz et al., 2014); therefore, fathers and mothers are likely to make differential contributions to boys' and girls' emotional adjustment, consistent with our findings.

Altogether, these findings are consistent with attachment theory and emphasize the role of high-quality parent-child relationships in promoting the development of children's mental health

(Bowlby, 1982). Children may internalize their relationships and interactions with parents, which shape children's expectations toward the world. From high-quality parent-child relationships, children obtain emotional support, positive interactions, perceptions of acceptance, and being valued that protect against developing depressive symptoms. Lower parent-child relationship quality, indicated by greater conflict and less closeness during middle childhood than is typical, may lead to the formation of "maladaptive schemas" (Roelofs et al., 2011) that are associated with higher risk of experiencing depressive symptoms.

Mother- and father-child relationships during middle childhood

Our examination of the trajectories of father-child and mother-child conflict and closeness revealed increasing trends for parent-child conflict and decreasing trends for parent-child closeness from Grades 1–6. This is not surprising considering children's increasing needs for autonomy and independence during middle childhood (Wray-Lake et al., 2010). Moreover, adolescents also experience growing conflict intensity and declining intimacy with their parents (Laursen, Coy, & Collins, 1998; McGue,

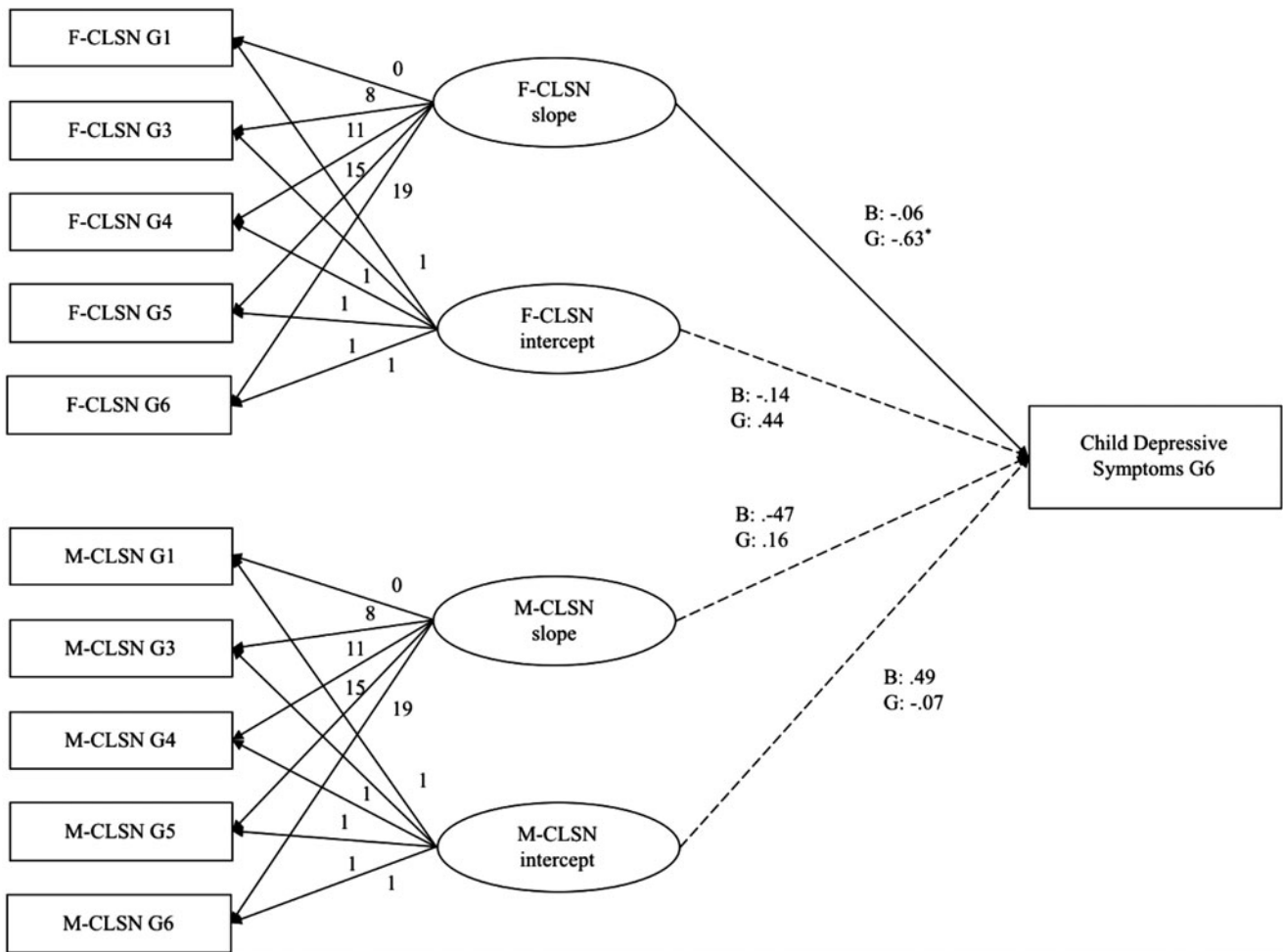


Figure 3. Final standardized path estimates for boys and girls in the model of trajectories of parent-child closeness predicting child depressive symptoms. *Note:* * $p < .05$. Solid lines represent significant paths for either boys or girls or both. Dotted lines represent nonsignificant paths for either boys or girls. $\chi^2(163) = 256.93$, $p < .001$, RMSEA = .04 (90% CI = .03, .05), CFI = .97, SRMR = .08. $R^2 = .21$ and $.39$ for boys and girls, respectively. Covariates: maternal education, income-to-needs ratio at Grade 1; child internalizing behaviors at Grade 1; child externalizing behaviors at Grade 1; maternal depressive symptoms at Grade 1; paternal depressive symptoms at Grade 1. B, boys; F-CLSN = father-child closeness; G = girls; G1 = Grade 1; G3 = Grade 3; G4 = Grade 4; G5 = Grade 5; G6 = Grade 6; M-CLSN = mother-child closeness.

Ilkins, Walden, & Iacono., 2005). Our findings are therefore consistent with previous findings on the trajectories of parent-adolescent relationships, but show that these patterns originate earlier, in middle childhood.

We also compared the trajectories of father-child relationships with mother-child relationships, finding that mother-child relationships were closer but also more conflictual than father-child relationships during middle childhood. This is consistent with extant literature on parent-adolescent relationships (Bronstein, 1984; Hosley & Montemoyor, 1997; Russell & Russell, 1987). Because mother-child dyads interact more frequently (Lewis & Lamb, 2003), share more time together, and communicate about feelings more often than father-child dyads (Lam et al., 2012), there might be more opportunities for closeness and more sources of conflict within mother-child dyads. We also found that although conflict between father-child and mother-child dyads increased at a similar rate, father-perceived closeness declined faster than mother-perceived closeness. Future research should further explore the mechanism underlying the steeper decline in father-child closeness. Perhaps father-child relationships are more susceptible to the declines in shared activities (e.g., “rough

and tumble play”) over middle childhood (Paquette, 2004), whereas mothers might continue to be involved in their children’s lives in ways (e.g., disclosure) that decline more slowly than shared parent-child activities.

Interdependencies across parent-child relationships were also revealed. When mothers perceived their relationships with their children as more conflictual or closer to start with, fathers also perceived their relationships with children as more conflictual or closer accordingly. Moreover, when mother-child conflict increased faster, father-child conflict increased faster, and when mother-child closeness decreased more slowly, father-child closeness also decreased more slowly. Thus, consistent with the family systems principles that family relationships are interdependent (Sameroff, 1994) and the family functions as a “complex, integrated whole” (Minuchin, 1988), father-child and mother-child relationships may change in synchrony.

Additionally, when mother-child conflict was initially higher, father-child conflict increased faster; however, the initial level of father-child conflict was not associated with the rate of increase in mother-child conflict. Similarly, higher initial levels of mother-child closeness were associated with greater change in father-child

closeness, whereas initial levels of father-child closeness were not associated with change in mother-child closeness. These findings suggest that father-child relationships may change as a function of mother-child relationships, but not vice versa. This is consistent with previous findings suggesting that, compared with the effect of father's marital satisfaction and coparenting behaviors on mother's parenting, father's parenting is more susceptible to mother's satisfaction and behaviors (Pedro, Ribeiro, & Shelton, 2012). In other words, mothers appear to "set the tone" for parenting within the family. Fathers may also observe maternal behaviors and model mothers when interacting with their children (Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008).

Limitations

The current study had several limitations. Child depressive symptoms were measured at a single time point at Grade 6, and not at Grade 1. There may be reciprocal relations between child depressive symptoms and parent-child relationship quality, and because depressive symptoms were only assessed at one time point in middle childhood, we were unable to definitively establish the directions of effects. We did control for child internalizing and externalizing behaviors at Grade 1 because these variables were available; however, it would be ideal to take into account prior levels of child depressive symptoms had that been possible. In addition, because the goal of this study was to examine the roles of both father-child and mother-child relationships in child adjustment, we focused on families with biological fathers and mothers who coresided with the target children. Unfortunately, we did not have enough data on nonresidential fathers³ to conduct group comparisons between residential and nonresidential fathers. The majority of the NICHD sample in general, and this subsample in particular, included European American, highly educated, and middle- to upper-class families. These features may limit the generalizability of our findings to populations other than European American families with biological residential fathers and relatively high socioeconomic status.

We also examined parent-child closeness and conflict in separate models. Testing them in the same model was not feasible because of the model complexity and lack of convergence; however, these constructs are interdependent. By testing them in separate models, we could not examine the unique effect of one construct above and beyond the other one. Finally, parent-child relationships were assessed with self-reports by parents, which might introduce subjective bias. No observational data or children's perspective on parent-child relationships were collected in the NICHD SECCYD during middle childhood. Future research is encouraged to consider children's perspectives and include more objective observational assessments of parent-child relationships and representational measures to improve the causal validity of the results (e.g., Manchester Child Attachment Story Task; Green, Stanley, Smith, & Goldwyn, 2000).

Contributions

Despite these limitations, the current study contributed to the literature in several notable ways. It was among the first to study the trajectories of parent-child relationships with five time points and

their longitudinal associations with children's depressive symptoms in middle childhood. Results highlight the importance of examining associations of changes in parent-child relationships with child adjustment from a developmental perspective. This study also expanded knowledge on a frequently neglected family relationship in the extant literature: the father-child relationship. Examining the roles of father-child and mother-child relationships together within the same model and further considering child gender provided insights on fathers' and mothers' unique contributions to boys' and girls' depressive symptoms. Moreover, two aspects (i.e., conflict and closeness) instead of a single overall measure were used to better characterize the multifaceted nature of parent-child relationships. In addition, parent-child relationships were reported by fathers and mothers, whereas child depressive symptoms were reported by children, which avoided single-reporter bias and thus yielded more trustworthy findings.

Conclusions

The current study highlights the significant roles both father-child and mother-child relationships play in child emotional adjustment in middle childhood. In two-parent families, father-child and mother-child relationships may exert differential impact on boys' and girls' social and emotional adjustment. Future research on parent-child relationships including fathers as well as mothers and taking a family systems perspective is encouraged, so that the interactive roles of parent and child gender in the associations between parent-child relationships and child adjustment can be better understood. It is also important to understand the origins of children's mental health earlier in development, so that preventive efforts can be made to protect children's mental health at earlier stages, thereby allowing children to accomplish important developmental tasks, avoid psychopathology, and experience well-being and success into adulthood. Intervention and prevention programs focused on lowering depressive symptoms among children in middle childhood are encouraged to focus on improving parent-child relationship quality. Practitioners who work with girls from families similar to those in the current study are advised to pay particular attention to father-daughter relationship quality.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S0954579418000809>

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³Among the families in which fathers participated in data collection at least once, only 14, 32, 38, 51, and 52 fathers were nonresident fathers at Grades 1, 3, 4, 5, and 6, respectively.

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