Teachers, afterschool program staff, and mothers: Relationships with key adults and children's adjustment in early elementary school

Article · October 2020

DOI: 10.1080/10888691.2020.1826321

CITATIONS
5

READS
153

3 authors:

Yangyang Liu
University of California, Irvine
15 PUBLICATIONS **168** CITATIONS
SEE PROFILE

Sandra Simpkins
University of California, Irvine
122 PUBLICATIONS **6,288** CITATIONS
SEE PROFILE

Deborah Lowe Vandell
University of California, Irvine
162 PUBLICATIONS **15,512** CITATIONS
SEE PROFILE

Routledge
Taylor & Francis Group

Applied Developmental Science

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/hads20

Teachers, afterschool program staff, and mothers: Relationships with key adults and children's adjustment in early elementary school

Yangyang Liu , Sandra D. Simpkins & Deborah Lowe Vandell

To cite this article: Yangyang Liu , Sandra D. Simpkins & Deborah Lowe Vandell (2020): Teachers, afterschool program staff, and mothers: Relationships with key adults and children's adjustment in early elementary school, Applied Developmental Science, DOI: 10.1080/10888691.2020.1826321

To link to this article: https://doi.org/10.1080/10888691.2020.1826321

APPLIED DEVELOPMENTAL SCIENCE
https://doi.org/10.1080/10888691.2020.1826321

Teachers, afterschool program staff, and mothers: Relationships with key adults and children's adjustment in early elementary school

Yangyang Liu, Sandra D. Simpkins, and Deborah Lowe Vandell

University of California, Irvine

ABSTRACT

According to bioecological theory, children's experiences in one developmental setting are meaningful for their adjustment in other settings. In the current study, the quality of children's relationships with classroom teachers, afterschool program staff, and mothers in 1st grade (n = 137) were examined in relation to their academic, social-emotional, and behavioral adjustment at school in 2nd grade. Closeness and conflict varied across these three adult-child relationships. Our hypotheses were partially supported such that higher teacher-child conflict in 1st grade related to poorer work habits and cooperation in 2nd grade. More conflict with afterschool staff in 1st grade was associated with lower social self-control and more externalizing behaviors at school in 2nd grade. Closeness was not related to children's adjustment in 2nd grade. These findings highlight the potential negative implications of conflictual relationships with teachers and afterschool staff for children's school adjustment.

In elementary school, children face multiple demands, including performing well on academic tasks, developing appropriate classroom behaviors and strong work habits, and becoming socially competent with peers (Wentzel, 2003). Researchers have defined children's adjustment at school to include their academic, social emotional, and behavioral functioning (Buyse et al., 2009; Ladd, 2003; Pianta et al., 1995). According to bioecological theory, children's relationships with adult caregivers within and outside of school may help foster positive adjustment and prevent negative adjustment in early elementary school (Bronfenbrenner & Morris, 2006). Teacher-child relationships (Pianta, 1999) and mother-child relationships (Contreras et al., 2000) have long been recognized as two central relationships for elementary school children; however, millions of elementary school children in the U.S. also spend a substantial amount of time in afterschool programs interacting with adult staff (Vandell et al., 2015). Yet, little research focuses on the correlates of afterschool staff-child relationships in this significant developmental setting. In the current study, we examine the quality of children's interactions with these three key adults during early elementary school in relation to their adjustment at school one year later.

Using data from the NICHD Study of Early Childcare and Youth Development (SECCYD), our first goal was to examine the variation in terms of closeness and conflict across children's relationships with classroom teachers, afterschool staff, and mothers. Our second goal was to examine the unique linkages between children's closeness and conflict with these three key adults in 1st grade and children's adjustment (i.e., academic performance, social emotional competences, and behavioral problems) at school the following year.

Adult-Child Relationships and Children's Adjustment at School

According to bioecological theory, the interactional processes that transpire between children and individuals in microsystems constitute the proximal processes of development (Bronfenbrenner & Morris, 2006). In addition, bioecological theory posits that children's adjustment in any one microsystem, such as their adjustment at school, is the result of interpersonal processes in that microsystem as well as other microsystems, including families and afterschool programs. As the cornerstone of children's experiences in the school microsystem, teacher-child relationships form

CONTACT Yangyang Liu yangyal@uci.edu School of Education, University of California at Irvine, 401 East Peltason, Irvine, CA 92697.
Supplemental data for this article can be accessed at https://doi.org/10.1080/10888691.2020.1826321.

the developmental infrastructure on which children engage in learning activities and social interactions with peers (Pianta et al., 2003). In addition to teacher-child relationships, scholars have theorized that mother-child relationships and staff-child relationships in afterschool programs have implications for children's adjustment in school (Contreras et al., 2000; Simpkins et al., 2006; Vandell et al., 2005).

Adult-child relationships are multidimensional and include both positive and negative aspects (Harrist et al., 1994; Pianta et al., 2003). Close relationships are characterized by positive behaviors and affect, including open communication, warmth, and support. Close, positive relationships between children and adults are theorized to promote children's school adjustment for multiple reasons. From a socialization perspective, when children and adults share close, positive relationships, adults are more likely to engage in effective role modeling and coaching of positive coping and prosocial behaviors for children (Kliewer et al., 1996). In addition, positive adult-child relationships facilitate fundamental cognitive and social skills, such as effortful control (Eisenberg et al., 2005; Hughes et al., 2008). Furthermore, children who share close relationships with adults are more likely to internalize prosocial values related to academic and interpersonal interactions (Dix, 1991; Grusec & Kuczynski, 1997).

Empirical research supports these claims. Specifically, close teacher-child relationships are associated with children's positive adjustment in school, including better academic performance (Hughes et al., 2008), positive work habits and classroom behaviors (Merritt et al., 2012; Pianta et al., 2012; Yang & Lamb, 2014), and more social skills and prosocial behaviors with peers (Berry & O'Connor, 2010; Merritt et al., 2012). Emerging literature on afterschool programs finds that afterschool staff-child positivity in 1st and 2nd grade is associated with higher academic grades, better social skills, and fewer behavioral problems in school (Pierce et al., 1999; 2010). Research on mother-child closeness and school adjustment provides a more mixed picture. Some studies find that close mother-child relationships are associated with better academic performance (Simpkins et al., 2006), more social competence with peers (Contreras et al., 2000), and fewer behavioral problems (Criss et al., 2003). Findings from other studies, however, suggest that mother-child relational closeness is related to concurrent but not necessarily longitudinal adjustment at school (e.g., Heatly & Votruba-Drzal, 2017; Zhang, 2011).

Pianta (1999) theorized that negative or conflictual qualities of adult-child relationships are also consequential for children's adjustment. Conflictual relationships between children and key adult caregivers are marked by a lack of contingency, frustration, and anger. Conflicts can reduce smooth communication and interactions between adults and children and interfere with the development of basic school-related skills including attention regulation, adaptive coping, and prosocial reasoning (Pianta et al., 2003; Wentzel, 2003).

Extant literature documents the adverse implications of conflictual relationships between children and key adults. Specifically, conflictual relationships between children and teachers are associated with lower academic competence (Buyse et al., 2009; Hamre & Pianta, 2001), poor work habits and classroom engagement (Hamre & Pianta, 2001; Stipek & Miles, 2008; Yang & Lamb, 2014), and elevated aggressive behaviors toward peers (Buyse et al., 2009; Rudasill et al., 2013). Compared with teacher-child conflict, fewer scholars have examined how adult-child conflict outside of school is related to children's adjustment at school. Nevertheless, this limited research finds that negative relationships with afterschool staff and mothers are adversely related to children's academic performance (Pierce et al., 1999; Simpkins et al., 2006), and social competency with peers at school (Criss et al., 2003; Lindsey et al., 2002). Furthermore, when closeness and conflict are examined simultaneously, conflictual relationships are consistently linked to poorer academic, social emotional, and behavioral outcomes whereas closeness is not consistently related to children's adjustment at school (Buyse et al., 2009; Hamre & Pianta, 2001).

Children's Relationships with Multiple Adults

While previous studies illustrate that each adult-child relationship is associated with children's adjustment in elementary school, the literature on these three relationships has largely developed independently (e.g., Contreras et al., 2000; Hamre & Pianta, 2001; Pierce et al., 2010). No study to our knowledge has simultaneously examined children's relationships with all three key adults in relation to their adjustment at school. A few researchers have examined teacher- and mother-child relationships simultaneously to investigate their unique associations with children's adjustment. In one study, parent-child and teacher-child relatedness are uniquely associated with children's school engagement (Furrer & Skinner, 2003), which aligns with the

separate literature on each relationship. However, other studies have found that only teacher-child relationship is associated with children's adjustment when both teacher-child and mother-child relationships are considered (Heatly & Votruba-Drzal, 2017; Silver et al., 2010). For instance, Heatly and Votruba-Drzal (2017) simultaneously examined children's closeness and conflict with teachers and mothers, finding that teacher-child conflict in 1st grade was associated with children's concurrent school engagement whereas mother-child relationship quality was not linked to children's school engagement. These findings suggest that mother-child relationships may not be related to children's school adjustment above and beyond teacher-child relationships. More work is needed to parse out these contradictory patterns and to also account for afterschool staff-child relationships.

As elementary school children spend substantial time in organized educational contexts including schools and afterschool programs, their relationships with adults in these contexts are expected to play an important role in shaping their adjustment in the school setting (Collins et al., 2002). It is not clear if mother-child relationships are associated with children's school adjustment above and beyond adult-child relationships in schools and afterschool programs, as mother-child interactions are more removed from organized educational settings compared with adult-child interactions in the other two settings. In addition, though researchers find that staff-child relationships are associated with children's school adjustment when examined alone (Vandell et al., 2005; Vandell & Posner, 1999), no research to our knowledge has examined the relative importance of afterschool experiences within the broader ecology of child development. One must examine adult-child relationships across multiple microsystems to understand if adult-child relationships in a specific setting are uniquely associated with children's school adjustment beyond relationships with other adults. The Heatly and Votruba-Drzal (2017) study is one of the closest to address these aims. As noted earlier, they examined the relations between teacher-child and mother-child closeness and conflict in 1st grade and children's concurrent adjustment (in 1st grade) with the NICHD SECCYD data, which are the same data utilized in this study. The current study extends this work by also examining afterschool staff-child relationships and the differences in quality across these three adult-child relationships. Moreover, we examined the extent to which these relations were associated with children's school adjustment in the following year while controlling for prior adjustment.

Current Study

Guided by bioecological theory of development, we simultaneously examined children's relationships with classroom teachers, afterschool program staff, and mothers in 1st grade and their associations with children's adjustment at school in 2nd grade. We had two main research goals in the current study. First, we compared the extent to which certain relationships were characterized as having higher or lower closeness and conflict. We expected that adults in these three settings would experience differential levels of closeness and conflict with the same child. Compared with classroom teachers and afterschool program staff, mothers interact with children in a wider number of circumstances over a longer period of time, providing more opportunities for both positive and negative interactions (Collins et al., 1995). As a result, it is expected that mothers would report more closeness *and* more conflict in their relationships with their children than reported by teachers and afterschool program staff.

Second, we examined the extent to which closeness and conflict between children and these three adults in 1st grade were related to children's adjustment at school the following year in 2nd grade. Based on prior empirical research suggesting differential implications of close and conflictual relationships on child development (Hamre & Pianta, 2001; Heatly & Votruba-Drzal, 2017), we hypothesized that conflict with adult caregivers would be particularly relevant for children's problematic adjustment. In addition, prior work on the unique predictive value of teacher-child and mother-child relationships suggests that the association between mother-child relationships and children's school adjustment wains when relationships with teachers and afterschool staff are taken into account.

Method

Participants

Data for the current study were taken from the NICHD Study of Early Child Care and Youth Development (SECCYD), a longitudinal study of a birth cohort of 1,364 children (52% male) and their families from 10 locations across the U.S. For a full discussion of the NICHD SECCYD sampling design, see NICHD Early Child Care Research Network (2005).

Table 1. Participant information.

	Afterschool program sample[a]		Recruitment sample		Difference	
	Mean (%)	*SD*	Mean (%)	*SD*	*p*-value	Effect size
N	137		1364			
Female	51%		48%		.49	.02[b]
Ethnicity						
White	80%		76%		.36	.02[b]
Black	9%		13%		.24	.03[b]
Hispanic	5%		6%		.62	.01[b]
Other	6%		5%		.57	.02[b]
Maternal education	15.18	2.54	14.23	2.51	.00	.42[c]
Double-parent household 6-54 months	.86	.30	.84	.32	.30	.10[c]
Income to needs ratio 6-54months	4.56	3.11	3.60	2.85	.00	.36[c]
Teacher-child closeness	4.34	.65	4.26	.65	.15	.13[c]
Teacher-child conflict	1.56	.72	1.56	.74	.96	.00[c]
Mother-child closeness	4.76	.34	4.76	.32	.89	.01[c]
Mother-child conflict	2.07	.81	2.17	.84	.12	.15[c]
Woodcock-Johnson score 54 months	99.89	11.07	98.00	11.86	.05	.19[c]
Social competence 54 months	3.09	.40	3.08	.41	.89	.01[c]

Note. [a]Afterschool program sample included children who attended five-day-a-week organized afterschool programs in 1st grade.
[b]Cramér's *V* : .10 small effect size, .30 moderate effect size, and .50 large effect size.
[c]Cohen's *d*: .20 small effect size, .50 moderate effect size, and .80 large effect size.

When study children were in 1st grade, the SECCYD investigators purposely selected a subsample of children who attended afterschool programs. Through interviews with mothers, the investigators identified all children ($n = 137$) in the full sample who attended five-day-a-week afterschool programs located in either school or community settings when they were in 1st grade. The SECCYD researchers then contacted and surveyed the afterschool program staff who took the main responsibility of caring for the study child at the program. The multi-informant data on these children used in the current study were reported by children's primary classroom teachers, afterschool program staff, and mothers when children were in 1st grade. Classroom teachers in 2nd grade reported children's adjustment at school.

This sample of 137 children who regularly attended afterschool programs was evenly divided between males and females (51% female) and the majority (80%) were White (Table 1). The average years of mother education was 15 years, with 51% of the mothers having a college degree. This sample of children who regularly attended afterschool programs did not differ from the larger study sample on key characteristics, including gender, ethnic majority/minority status, 2-parent households, children's relationships with teachers and mothers in 1st grade, and prior academic achievement and social competence (see Table 1). However, children in the afterschool sample came from families that had higher level of maternal education ($d = .42$) and higher family income ($d = .36$) compared to mothers in the sample as a whole, which aligns with prior patterns on who is more likely to attend afterschool programs in previous research (Vandell et al., 2015).

Measures

To address the two research aims in the current study, we used data collected from classroom teachers, afterschool staff, and mothers. Detailed information on key variables is presented below. Items included in each measure are presented in the supplementary material.

Adult-child relationship quality in 1st grade

In the spring of 1st grade, classroom teachers, afterschool staff, and mothers reported the quality of their relationship with the study child using an adapted version of the Student-Teacher Relationship Scale (Pianta, 1992). Specifically, the scales consisted of the same set of items that were adapted for each adult caregiver. *Closeness* captured shared affection, warmth, and open communication between adult and child (7 items; e.g., "Study child spontaneously shares information about himself/herself"; "I share an affectionate, warm relationship with study child"; 1 = *Definitely does not apply*, 5 = *Definitely applies*). The closeness scale originally had 8 items but one reverse coded item on physical affection (i.e., "Study child is uncomfortable with physical affection or touch from me") was dropped to improve reliability. *Conflict* captured lack of contingency, negativity, and struggle between adult and child (7 items; e.g., "Study child and I always seem to be struggling with each other"; "Study child is sneaky or manipulative with me";

1 = *Definitely does not apply*, 5 = *Definitely applies*). Items on the relationship scale showed high reliability for both closeness and conflict (closeness: 7 items; α = .87, .86, .79; conflict: 7 items; α = .86, .88, .82, for teachers, afterschool staff, and mothers respectively). For each adult (i.e., teachers, afterschool staff, and mothers), composite scores were created for the closeness and conflict subscales by taking the mean of all items on each subscale, such that higher scores represented more closeness or conflict. Previous research has offered evidence of validity for teacher and mother versions of these scales (Driscoll & Pianta, 2011; McCormick et al., 2017). Past work also has demonstrated validity through associations with children's functioning in the social and behavioral domains including social competency and externalizing behaviors (Driscoll & Pianta, 2011; Hamre & Pianta, 2001; Weaver et al., 2015; Zhang, 2011).

Confirmatory factor analyses with the current sample confirmed that the items loaded well onto the two constructs of closeness and conflict for teachers, afterschool staff, and mothers (factor loadings > .40). In addition, model fit indices also suggested good model fit for all three adult caregivers ($X^2(71) = 131.63$, $p < .001$; CFI/TLI = .931/.912; RMSEA = .081 for teachers; $X^2(69) = 93.12$, $p = .028$; CFI/TLI = .972/.963; RMSEA = .051 for afterschool staff; $X^2(70) = 84.10$, $p = .120$; CFI/TLI = .977/.970; RMSEA = .039 for mothers). We also tested measurement invariance on closeness and conflict to ensure that each scale had similar meaning for the three adult caregivers. Each scale evidenced partial strong invariance; detailed information is presented in Tables S1 and S2 in the supplementary material.

Children's adjustment at school in 2nd grade

Classroom teachers reported children's academic performance, work habits, social skills, and externalizing behaviors in the spring of 2nd grade. The 2nd grade teachers reporting children's outcomes were different than the classroom teachers who reported teacher-child relationships in 1st grade.

Children's *academic performance* and *work habits* were measured using the Mock Report Card (Pierce et al., 1999). Academic performance was rated using 5-point scales (1 = *Below grade level*, 5 = *Excellent*) in six subject areas: reading, oral language, written language, math, social studies, and science. A composite score of academic performance was created by taking the mean score across the six subject areas (α = .92). *Work habits* measured children's work behaviors in the classroom (6 items; α = .95; e.g., "Study child works well independently"; "Study child keeps material organized"; 1 = *Very Poor*, 5 = *Very Good*). A composite score on work habits was created by taking the mean score across all items in the subscale.

Children's social skills were measured using teacher report of The Social Skills Rating Scale (SSRS) (Gresham & Elliott, 1990) that included three subscales: cooperation, assertion, and social self-control. Items on each subscale were measured on a 3-point scale (0 = *Never*, 1 = *Sometimes*; 2 = *Very Often*). *Cooperation* included items such as paying attention to the teacher's instruction and putting away work materials properly (10 items; α = .88). *Assertion* included items such as starting conversations with peers, introducing oneself, and volunteering to help peers with classroom tasks (10 items; α = .86). *Social self-control* included items that focus on how children handle conflicts, such as responding to teasing or peer pressure appropriately, receiving criticisms well, and controlling one's temper (10 items; α = .89). Items within each subscale were averaged to create a composite score on each dimension of cooperation, assertion, and social self-control. Higher scores indicated stronger social skills on the specific dimension.

Children's *externalizing behaviors* were measured using the Teacher Report Form of the Child Behavior Checklist (Achenbach, 1991). For each item, the teacher reported how well the item described the target child currently or within the last two months on 3-point scales (0 = *Not true*, 1 = *Somewhat or sometimes true*, 2 = *Very true*). *Externalizing behaviors* were assessed by 34 items (α = .93). Raw scores were standardized to create T-scores for externalizing behaviors, with a higher score indicating a greater affinity to display delinquent and aggressive behaviors.

Covariates

Omitted variable bias is well documented in the literature as children's family background as well as prior adjustment can both be associated with their relationships with adult caregivers and their adjustment in school. For example, it is well documented in the literature that background characteristics such as gender, maternal education, and race/ethnicity are associated with children's relationships with adults (Jerome et al., 2009) as well as their academic achievement, social and behavioral functioning (Ewing & Taylor, 2009; Miner & Clarke-Stewart, 2008; Pigott & Cowen, 2000). In addition, children's functioning at earlier time points also predicts their subsequent relationships with adult caregivers and their own adjustment (Collins et al., 2017; Hamre & Pianta, 2001; Heatly &

Votruba-Drzal, 2017; Jerome et al., 2009). In order to control for potential omitted variable biases, a range of family- and child-level background indicators were included as covariates in the current study. Background characteristics included child gender (male as reference group), ethnic minority status (White as reference group), and years of mother's education ($M = 15.18$, $SD = 2.54$; Min = 10, Max = 21). Children's academic achievement was measured with Woodcock-Johnson Psycho-Educational Battery-Revised at 54 months, including memory for sentences, incomplete words, picture vocabulary, letter-word Identification, and applied problems. A composite standardized score on Woodcock-Johnson was created to indicate children's academic achievement ($\alpha = .81$). Caregiver-reported social competency in child care at age 54 months was used as indicator of early social skills (α=.89; California Preschool Social Competency Scale; Ladd & Price, 1987).

Missing Data

Among the 137 children who attended afterschool programs, 117 (85%) children had complete data on all adult-child relationships in 1st grade and school adjustment in 2nd grade. No significant differences were found between participants with complete and with missing data on ethnic majority/minority status ($X^2(1) = 3.05$, $p = .08$, $V = .15$) or maternal education ($t(135) = 1.29$, $p = .20$, $d = .30$), teacher-child closeness ($t(130) = 1.12$, $p = .27$, $d = .29$) and conflict ($t(130) = 1.04$, $p = .30$, $d = .25$), staff-child closeness ($t(135) = .22$, $p = .82$, $d = .05$) and conflict ($t(135) = .14$, $p = .89$, $d = .03$), and mother-child closeness ($t(132) = .68$, $p = .50$, $d = .16$), and conflict ($t(132) = 1.15$, $p = .25$, $d = .29$) in 1st grade. However, there were more females with complete data ($X^2(1) = 4.17$, $p = .04$, $V = .17$). To control for potential biases caused by missing data, multiple imputation was used to handle missing data in the current sample ($n = 137$). Following imputation procedures recommended by Enders (2010), we imputed 30 datasets where relationship variables, outcome variables, and covariates were all imputed using multiple chained equations. Imputed datasets were then used in the analyses addressing both research questions.

Plan of Analysis

The first aim of the current study was to compare the level of closeness and conflict across children's relationships with teachers, afterschool staff, and mothers. In order to address this aim, we conducted separate mixed effects regression analysis in STATA 14.0 for closeness and conflict on the imputed data to examine if the level of closeness and conflict differed across teachers, afterschool staff, and mothers. In both models, family- and child-level covariates consisting of child gender, ethnic minority status, maternal education, and children's prior adjustment were included. Following the regression analyses, pairwise mean difference tests were conducted to examine if the level of closeness and conflict were different across adult caregivers.

The second study aim was to assess the unique associations between children's relationships with teachers, afterschool staff, and mothers in 1st grade and their adjustment at school in 2nd grade as reported by their classroom teachers. To address this aim, path analysis model was estimated in M*plus* 8. In the path analysis model, children's relationships with teachers, afterschool staff, and mothers were simultaneously included to examine the unique associations between each relationship indicator and children's adjustment in 2nd grade (see Figure 1 for conceptual model). In the path model, family- and child-level covariates consisting of child gender, ethnic minority status, maternal education, and children's prior adjustment were included. All variables were standardized before being included in the path analysis so the regression coefficients can be interpreted as effect sizes in which a one standard deviation change in an independent variable is associated with a one standard deviation change in a dependent variable. Results from post-hoc power analysis suggested that with the sample size ($n = 137$), we were able to detect associations at or larger than $r = 0.24$ with a power of 0.80 at alpha level of 0.05.

In order to check the robustness of our findings on associations between child-adult relationships and school adjustment, we conducted two sets of additional analyses using path models in M*plus*. In the first robustness check, we reran the path model on 30 imputed datasets that did not impute outcome variables as there is debate about whether imputing missing data on the outcomes biases the analyses in longitudinal studies (Young & Johnson, 2015). In the second robustness check, we ran a separate path model for each adult caregiver. Specifically, teachers, afterschool staff, and mothers were examined in separate path models to examine if significant associations in the joint model were retained. In addition to the two robustness checks, we also examined the sensitivity of our results to potential omitted variable bias

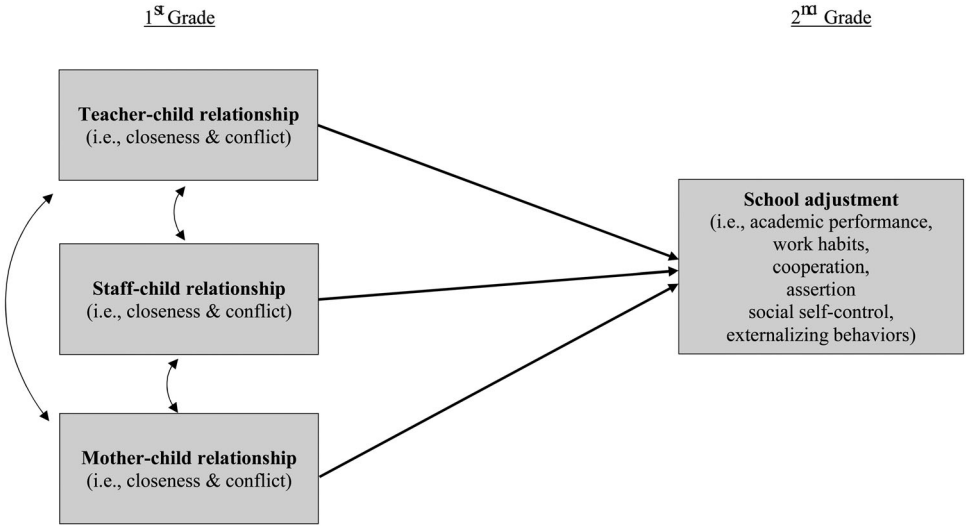

Figure 1. Conceptual model of the relations between adult-child relationships in 1st grade and children's school adjustment in 2nd grade.

Note. Covariates include child gender (male as reference group), ethnic minority status, maternal education, child academic achievement (Woodcock-Johnson score) and social competence at 54 months. Nine dummy variables for data collection sites are also included.

Table 2. Correlation and descriptives of key variables.

		1	2	3	4	5	6	7	8	9	10	11	12
1st Grade relationships													
1.	Teacher-child closeness	–											
2.	Teacher-child conflict	−.17*	–										
3.	Staff-child closeness	.30***	.07	–									
4.	Staff-child conflict	−.18*	.49***	−.19*	–								
5.	Mother-child closeness	.22*	−.18*	.10	−.10	–							
6.	Mother-child conflict	−.07	.26**	−.00	.19*	−.42***	–						
2nd Grade adjustment													
7.	Academic performance	.10	−.24**	.15	−.21*	.02	.05	–					
8.	Work habits	.08	−.38***	.07	−.24**	.15	−.08	.63***	–				
9.	Cooperation	−.01	−.31***	.08	−.14	.11	−.04	.58***	.81***	–			
10.	Assertion	.18*	−.10	.17	−.01	.18*	−.05	.27**	.43***	.48***	–		
11.	Social self-control	−.04	−.30***	.04	−.37***	.20*	−.18	.25**	.46***	.50***	.49***	–	
12.	Externalizing behaviors	.14	.33***	.10	.35***	−.11	.18	−.23*	−.50***	−.52***	−.25**	−.75***	–
	Mean	4.34	1.56	4.13	1.52	4.76	2.07	3.53	3.52	1.56	1.37	1.47	51.82
	SD	0.65	0.72	0.73	0.68	0.34	0.81	0.88	1.08	0.39	0.40	0.39	9.06
	Cronbach's alpha	0.87	0.86	0.86	0.88	0.79	0.82	0.92	0.95	0.88	0.86	0.89	0.93

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

using the coefficient of proportionality method (Dearing & Zachrisson, 2019; Oster, 2019).

Results

Descriptive Statistics

Means, standard deviations, and bivariate correlations for key variables are presented in Table 2. Teachers, afterschool staff, and mothers, on average, reported high levels of closeness ($M = 4.34$, 4.13, and 4.76 respectively) and low levels of conflict with children ($M = 1.56$, 1.52, and 2.07 on a 1-5 scale). As indicated by the bivariate correlations in Table 2, teacher-child closeness in 1st grade was positively related to children's assertion ($r = .18$, $p < .05$) in 2nd grade. Teacher-child conflict in 1st grade was associated with lower academic performance ($r = -.24$, $p < .01$), lower scores on work habits ($r = -.38$, $p < .001$), lower cooperation and social self-control (r's $= -.31$ and $-.30$, $p < .01$) as well as more externalizing behaviors ($r = .33$, $p < .001$) in 2nd grade. Staff-child conflict in 1st grade was related to lower academic performance ($r = -.21$, $p < .05$), lower work habits ($r = -.24$, $p < .01$), lower social self-control ($r = -.37$, $p < .001$), and more externalizing behaviors ($r = .35$, $p < .001$) in 2nd grade. The only significant associations between mother-child relationship in 1st grade and children's school adjustment in 2nd grade was between mother-child closeness and assertion as well as social self-control (r's $= .18$ & $.20$, $p < .05$).

Table 3. Variation in children's closeness and conflict with classroom teachers, afterschool program staff, and mothers in 1st grade.

	Mixed effects regression					
	Closeness			Conflict		
	b	*SE*	*p*	b	*SE*	*p*
Adult caregiver (source of report)	.212	.036	.000	.249	.040	.000
Female	.036	.069	.605	−.003	.091	.978
Ethnic minority	−.130	.090	.149	.134	.118	.257
Maternal education	.030	.016	.062	−.022	.021	.301
Woodcock Johnson score (54 month)	.000	.004	.898	−.001	.005	.798
Social competence (54 month)	.082	.091	.371	−.177	.124	.154

	Pairwise comparison			
	Closeness		Conflict	
	Observed mean	Adjusted mean[1] (95% CI)	Observed mean	Adjusted mean[1] (95% CI)
Teacher-child relationships	4.34	4.24–4.44[a]	1.56	1.44–1.68[a]
Staff-child relationships	4.13	4.03–4.23[b]	1.52	1.40–1.64[a]
Mother-child relationships	4.76	4.66–4.86[c]	2.07	1.94–2.18[b]

Note. [1]Adjusted means are predicted values from regression.
Mixed effects regression was followed with pairwise comparison. Scores with different superscripts are statistically different from each other.

Variation in Adult-Child Relationships

The first study aim was to examine if levels of closeness and conflict differed across children's relationships with teachers, afterschool staff, and mothers. Results of the regression tests are presented in Table 3. As expected, there were significant differences across the three adults' reports of closeness ($b = .212$, $p < .001$) and conflict ($b = .249$, $p < .001$). Results from pairwise difference tests showed that mother-child closeness (95% CI $= 4.66 - 4.86$) was significantly higher than teacher-child closeness (95% CI $= 4.24 - 4.44$), which in turn, was higher than staff-child closeness (95% CI $= 4.03 - 4.23$). In addition, mother-child conflict (95% CI $= 1.94 - 2.18$) was higher than teacher-child and staff-child conflict (95% CI's $= 1.44 - 1.68$, $1.40 - 1.64$ respectively). Both of these findings supported our hypothesis that mother-child relationship would evidence higher closeness and conflict than teacher-child and staff-child relationships.

Associations between Adult-Child Relationships in 1st Grade and Children's Adjustment at School in 2nd Grade

The second study aim was to examine the unique associations between children's relationships with teachers, afterschool staff, and mothers in 1st grade and children's adjustment in 2nd grade classroom. Path model results are presented in Table 4. When adult-child relationships with all three adults were examined simultaneously, children's conflictual relationships with teachers and afterschool staff in 1st grade were both associated with poorer child adjustment in 2nd grade. Specifically, teacher-child conflict in 1st grade was associated with poorer work habits ($ß = -.312$, $SE = .110$, $p = .004$) and less cooperation ($ß = -.282$, $SE = .115$, $p = .014$) in 2nd grade. In addition, children's conflict with afterschool staff in 1st grade was associated with lower social self-control ($ß = -.356$, $SE = .089$, $p < .001$) and more externalizing behaviors in 2nd grade ($ß = .306$, $SE = .093$, $p = .001$). There were several associations that were statistically significant in the bivariate correlations that were no longer statistically significant in the model taking into account all three relationships and the covariates. For example, mother-child closeness was associated with more assertion ($r = .18$, $p < .05$) and social self-control ($r = .20$, $p < .05$) in the bivariate correlations (see Table 2), but mother-child closeness was not related to teacher reported children's adjustment in 2nd grade classrooms when we included children's relationships with teachers and afterschool staff and a range of family and child covariates. In sum, our hypothesis for the relations between teacher-child and staff-child conflict and children's subsequent adjustment were supported in the bivariate correlations and partially supported in the multivariate model. Our hypothesis for closeness of any relationship and mother-child conflict and children's subsequent adjustment were largely not supported in either the correlations or the multivariate model.

Robustness Check

In our first robustness check analysis, we reran the path model on 30 imputed datasets that did not impute the outcome variables. Results from this

Table 4. Children's relationships with classroom teachers, afterschool program staff, and mothers in 1st grade predicting children's adjustment at school in 2nd grade.

	Academic performance ß (*SE*)	*p*	Work habits ß (*SE*)	*p*	Cooperation ß (*SE*)	*p*	Assertion ß (*SE*)	*p*	Social self-control ß (*SE*)	*p*	Externalizing behaviors ß (*SE*)	*p*
Teacher-child closeness	−.050(.082)	.540	−.042(.093)	.649	−.116(.092)	.210	.109(.091)	.233	−.117(.092)	.206	.141(.094)	.134
Teacher-child conflict	−.152(.099)	.126	−.312(.110)**	.004	−.282(.115)*	.014	−.047(.117)	.689	−.046(.113)	.686	.139(.117)	.235
Staff-child closeness	.097(.080)	.225	.046(.088)	.599	.080(.091)	.378	.132(.090)	.143	−.040(.091)	.658	.159(.091)	.080
Staff-child conflict	.004(.088)	.966	−.005(.099)	.958	.098(.098)	.317	.132(.098)	.179	−.356(.089)***	.000	.306(.093)**	.001
Mother-child closeness	.032(.084)	.705	.085(.095)	.369	.056(.093)	.552	.065(.094)	.493	.143(.090)	.113	−.053(.091)	.564
Mother-child conflict	.089(.087)	.305	.024(.097)	.806	.019(.097)	.842	−.013(.096)	.896	−.009(.093)	.925	.020(.094)	.831
Covariates												
Female	.041(.076)	.590	.090(.086)	.296	.056(.086)	.510	−.002(.087)	.977	−.023(.086)	.794	.077(.086)	.368
Ethnic minority	−.089(.079)	.256	−.087(.086)	.307	−.153(.085)	.074	−.044(.086)	.609	−.064(.084)	.445	.138(.086)	.106
Maternal education	.131(.087)	.131	.022(.099)	.823	.135(.099)	.169	.190(.099)	.054	−.011(.094)	.911	−.053(.097)	.584
Woodcock-Johnson score (54 month)	.402(.090)***	.000	.128(.101)	.206	.030(.103)	.773	.045(.099)	.647	.122(.095)	.198	−.095(.098)	.332
Social competence (54 month)	.053(.088)	.546	.169(.103)	.100	.220(.105)*	.036	.162(.101)	.110	.029(.108)	.788	.007(.110)	.950
R^2	.413		.281		.272		.270		.319		.303	

Note. Model fit indices: $X^2(84) = 128.902$, $p = .001$; CFI= .907; SRMR=.073; RMSEA= .062 (90% CI=.040-.083);
Standardized beta coefficients are presented in the table.
*$p<.05$. **$p<.01$. ***$p<.001$.

analysis are presented in Table S3 in the supplementary material. Consistent with our findings from the main analysis, teacher-child conflict in 1st grade was associated with poorer work habits ($ß = -.299$, $SE = .112$, $p = .007$) and less cooperation ($ß = -.268$, $SE = .113$, $p = .018$) in 2nd grade. In addition, children's conflict with afterschool staff in 1st grade was associated with lower social self-control ($ß = -.349$, $SE = .091$, $p < .001$) and more externalizing behaviors in 2nd grade ($ß = .299$, $SE = .094$, $p = .001$). Similar to what we found in the main analysis, the statistically significant bivariate correlations between mother-child relationship and school adjustment were not retained in the multivariate path model.

In our second robustness check analysis, children's relationships with each adult caregiver were examined in a separate path model to examine if significant associations in the joint model were retained. Three path models were estimated. Results from this analysis are presented in Table S4 in the supplementary material. All statistically significant associations in the joint path model were statistically significant in the separate models. In addition, three relations that were not statistically significant in the joint path model in the main analyses were statistically significant in these models that were specific to each relationship. Teacher-child conflict was associated with lower social self-control ($ß = -.241$, $SE = .100$, $p = .017$) and more externalizing behaviors ($ß = .325$, $SE = .099$, $p = .001$); staff-child closeness was associated with more externalizing behaviors ($ß = .219$, $SE = .081$, $p = .007$).

Sensitivity Analysis

We examined the sensitivity of our results to potential omitted variable bias using the coefficient of proportionality method (Dearing & Zachrisson, 2019; Oster, 2019). Results for work habits, cooperation, and social self-control appeared highly robust to potential omitted variables. To nullify the results for work habits, cooperation, and social self-control, omitted variables would need to be 100% to 250% as powerful as the combined effects of the 5 observed covariates and site controls we included in models. Externalizing behaviors appeared more sensitive to potential omitted variables. For externalizing behaviors, omitted variables would need to be at least 50% as powerful, in terms of selection bias, as were the combined selection effects of the 5 observed covariates and site controls we included in models. For complete information on sensitivity analyses, see Table S5 in the supplemental material.

Discussion

Guided by bioecological theory of development (Bronfenbrenner & Morris, 2006) and Pianta's (1999) theorizing of adult-child relationships, the current study examined the quality of children's relationships with classroom teachers, afterschool program staff, and mothers in 1st grade and their associations with children's school adjustment the following year in 2nd grade. First, we examined the variation in children's closeness and conflict with all three key adult caregivers in 1st grade. Second, we assessed the unique associations between closeness and conflict with these three key adults in 1st grade and children's academic, social emotional, and behavioral adjustment a year later when children were in 2nd grade, while controlling for a range of child and family characteristics. Our key findings were as follows: there were lower levels of closeness and conflict in teacher- and staff-

child relationships compared with mother-child relationships. When adult-child relationships were examined in the same model, our hypotheses were partially supported such that 1st grade teacher-child conflict was associated with lower scores on work habits and cooperation in 2nd grade. In addition, staff-child conflict in 1st grade was associated with lower social self-control and more externalizing behaviors in the next school year.

Variation in Children's Relationships with Key Adults

As expected, children's relationships with classroom teachers, afterschool staff, and mothers differed in both closeness and conflict. Specifically, the highest level of closeness was between children and mothers, followed by teachers, and then afterschool staff. In addition, there were higher levels of conflict between children and mothers than between children and teachers or afterschool staff. Although previous research suggests that mother-child relationships provide a foundation for adult-child relationships in other settings (e.g., O'Connor, 2010), findings from the current study suggest that children's relationships with adults from different developmental settings are somewhat unique and context-specific. As is documented in the literature (Collins et al., 1995), compared with teachers and afterschool program staff, mothers and children interact over a longer time across a wider range of activities, which provides more opportunities for closeness and conflict. In addition, we found that children's relationships with adults in more formal educational settings, including school and afterschool programs, are more similar than mother-child relationships in terms of relationship quality. In both school and afterschool programs, adult-child interactions are embedded in organized, structured settings, where adults are the authority figures implementing clear rules in group-based settings. It is possible that children would behave more similarly in these settings than in familial settings.

Associations between Adult-Child Relationships in 1st Grade and Children's Adjustment at School in 2nd Grade

Aligning with previous research on teacher-child relationships (Buyse et al., 2009; Hamre & Pianta, 2001; Heatly &Votruba-Drzal, 2017; Lee & Bierman, 2018; Rudasill et al., 2013), the current study found that children's relationships with their 1st grade classroom teachers were related to their work habits and cooperative behaviors at school one year later when they were in another teacher's class. It is likely that children who share conflictual relationships with their teachers in 1st grade are at greater risk of developing negative learning behaviors, which they may carry to future classrooms. In contrast, we did not find statistically significant associations between teacher-child relationships and children's academic performance in the following year. The null findings on academic outcomes may be due to the small sample size and the lack of statistical power to detect associations that are smaller in size. However, previous research has also documented less consistent associations with teacher-child relationships in the academic domain than in the social and behavioral domains (e.g., Baker, 2006; Buyse et al., 2009). Nevertheless, this lack of findings does not mean that teacher-child relationships are not important for children's academic performance, as conflictual relationships may adversely impact teachers' use of effective instructional practices in the classroom (White, 2013).

Conflict with afterschool program staff in 1st grade was also associated with lower social self-control and higher externalizing behaviors toward peers at school in 2nd grade. Although we were not able to explore possible mechanisms underlying the associations between relationships with afterschool program staff and children's adjustment in school, previous research on afterschool programs provide some potential explanations. Specifically, researchers find that children's relationships with adult staff in afterschool programs can influence children's fundamental social emotional skills that can be easily transferred to classrooms (Larson & Brown, 2007; Smith et al., 2014; Vandell et al., 2005). Extending the existing literature, the current study provides evidence of the unique role staff-child relationships may play in promoting children's school adjustment by taking into account children's relationships with teachers and mothers. Together with previous research (Pierce et al., 1999, 2010), the current study suggests that different developmental settings are interrelated in a way such that children's relationships with staff in afterschool programs have important implications for their adjustment at school (Bronfenbrenner & Morris, 2006).

Different from some previous studies (Pierce et al., 1999, 2010), we did not find associations between staff-child relationships and children's academic performance in school in the following year. This may be due to the fact that the current study examined those associations longitudinally after controlling for other

adult-child relationships, children's prior adjustment, and a host of family characteristics. As can be seen from the bivariate correlation table, staff-child relationships in 1st grade were associated with children's academic performance and work habits in 2nd grade. However, these links disappeared once we controlled for children's prior adjustment and family characteristics in the regression model.

With both classroom teachers and afterschool program staff, conflict was related to children's school adjustment. Consistent with previous research (Hamre & Pianta, 2001; Heatly &Votruba-Drzal, 2017), the current study emphasizes the potential negative implications of adult-child conflict on social emotional and behavioral adjustment (Buyse et al., 2009; Hamre & Pianta, 2001; Lee & Bierman, 2018; Silver et al., 2010). As indicated by developmental theory, children's relationships with key adults in proximal settings lay the foundation for the development of basic social emotional skills such as attentional regulation and self-control (Pianta, 1999). When adults share a conflictual relationship with children, they may use less than optimal socialization strategies when interacting with children. Conflictual relationships between adults and children will also decrease adults' positive modeling of self-regulation skills that are critical for adaptive social and behavioral functioning in school.

In contrast to our findings on conflict, closeness with teachers, afterschool staff, and mothers in 1st grade was not associated with any indicator of children's school adjustment in 2nd grade. These null findings with closeness is surprising in one respect because developmental theory (Pianta, 1999) describes the importance of closeness for children's development. However, previous empirical research that simultaneously examines both closeness and conflict also has found more consistent associations between conflict compared with closeness (Buyse et al., 2009; Hamre & Pianta, 2001; Heatly & Votruba-Drzal, 2017). One explanation of the differential associations is that among community or low-risk samples, conflict with others stands out more as a stressor that can adversely impact children's development. Another possible explanation is that teachers, afterschool staff, and mothers generally reported high levels of relational closeness in the current study. The relatively small variation on the closeness measure also might have limited our ability to find significant associations between this variable and children's school adjustment.

Findings from the current study have important implications for researchers, educators, parents, and policy makers. Though often absent from the literature, children's relationships with afterschool staff are meaningful for children's social emotional and behavioral adjustment in school. These relationships play a role above and beyond teacher-child relationships in the classroom. Therefore, when researchers think about social processes associated with children's adjustment in school, they should not only attend to proximal processes within the classroom. Instead, children's relationships with adults from afterschool programs and the linkages between afterschool programs and classrooms should be considered. Specifically, classroom teachers and afterschool programs staff can work together to create a "system" or "ecology" to promote children's adjustment.

Although mother-child closeness in 1st grade was related to children's having high assertion score and social self-control in 2nd grade in the bivariate correlations, the current study did not find statistically significant associations between mother-child relationships and children's adjustment after we controlled for children's relationships with the other two adult caregivers and a host of family and child characteristics. There are multiple potential explanations for the null findings in the current study. First, from a developmental perspective, the need for supportive relationships with adults from educational institutions such as school and afterschool programs, become increasingly apparent in elementary school children's school success. For parents of children at this age, their roles are geared more toward facilitating children's lives in school. To achieve these specific goals, parents should engage in more school-related behaviors such as homework help and communicating educational expectations that align well with requirements in school (Collins et al., 2002). Though we measured overall relationship quality shared between mothers and children in the current study, parents' school-related behaviors may play a more salient role in children's school adjustment (El Nokali, Bachman, & Votruba-Drzal, 2010; Englund et al., 2004). Second, the sample in the current study was relatively small, which may have limited our ability to detect an association between mother-child relationships and children's school adjustment. Third, though children's relationships with mothers were not directly associated with school adjustment, it does not mean that these relationships are not important. Previous research indicates that parent-child relationships can predict children's school adjustment through its impact on the relationships children build in school (e.g., Heatly & Votruba-Drzal, 2017; O'Connor, 2010).

Limitation and Future Directions

The current study used data from a subsample of NICHD-SECCYD dataset who attended formal five-day-a-week afterschool programs. This subsample was representative of the recruited sample in terms of gender, ethnic distribution, and a range of background characteristics. However, the subsample had higher maternal education and family incomes than the larger NICHD-SECCYD sample. The homogeneity of the analytic sample limits our ability to generalize the findings in the current study to a more diverse populations. For example, although we did not find associations between closeness and children's school adjustment in the current study, such associations could be observed in a different sample. Previous studies found that the presence of close relationships with adults can function as a protective factor in preventing developmental problems for children at greater risk for maladjustment (e.g., Meehan et al., 2003).

Another limitation posed by the sample in the current study is that we could only focus on a relatively small sample of children who attended 5-day-a-week afterschool programs. With the sample size ($n = 137$), we were able to detect associations at or larger than $r = 0.24$ with a power of 0.80 at alpha level of 0.05. This small sample size might have limited our ability to detect small effects that could have been detected in a larger sample. Nevertheless, even with a relatively small sample, our findings are consistent with previous research highlighting the negative implications of relational conflict between children and key adult caregivers (e.g., Hamre & Pianta, 2001; Heatly & Votruba-Drzal, 2017).

The current study is one of the first to explore the issue of interrelatedness across developmental settings by simultaneously examining children's relationships with classroom teachers, afterschool staff, and mothers. We found the presence of interrelatedness such that staff-child relationships were associated with children's school adjustment in the following year. However, limited by data, we were not able to explore how connections are built across settings. As indicated by qualitative research studying older youth, the presence of a connection between school and afterschool programs can make a real difference in youth's development (Hirsch & Wong, 2005). Considering the importance of children's experiences in organized afterschool programs, it would be of great value to examine how connections are built between afterschool programs and schools in promoting children's development.

Conclusion

Using the bioecological systems theory (Bronfenbrenner & Morris, 2006), the current study examined adult-child relationships in 1st grade in relation to children's school adjustment in 2nd grade classrooms, controlling for family background and children's prior adjustment. Aligning with previous studies examining teacher-child relationships, we found that teacher-child conflict was particularly problematic for children's development of social emotional competences. In addition, the findings suggest that staff-child conflictual relationships in afterschool programs may also interrupt the process of positive adjustment in school. We did not find closeness with teachers or afterschool staff to be positively linked to later school adjustment. Also, consistent with some other studies, we found the quality of children's relationships with their mothers to be less related to later adjustment at school.

Findings from the current study support the idea that children develop within interrelated contexts, such that relational processes in afterschool programs have important implications for their adjustment in school. Although educators and researchers may not have considered the role of afterschool programs together with traditional school settings, it is time that stakeholders from schools and afterschool programs communicate with each other to create a system/ecology of positive child development. For both parents and afterschool program providers, findings from the current study highlight the importance of providing high quality experiences in afterschool programs. Afterschool programs are not just place for fun. The quality of relationships children experience in these settings have important implications for their development in other settings.

Funding

A cooperative agreement (5 U10 HD027040) between the study investigators that included Deborah Lowe Vandell and the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) supported the design and data collection of the NICHD Study of Early Child Care and Youth Development (SECCYD) from birth through age 15 years. Analyses for the current study were supported by grants from the Sir John Templeton Foundation under Grant [161089] to Sandra Simpkins, Deborah Lowe Vandell, Nicole Zarrett, & Jacquelynne Eccles and from the Charles Stewart Mott Foundation under Grant [2001-01768.01] to Deborah Lowe Vandell. The content is solely the responsibility of the authors and does not necessarily reflect the official views of the funders. We thank the study participants, families, schools, and afterschool programs for their willingness to participate in this project.

Data availability statement

Data supporting the findings of this study are available from the corresponding author on request.

Teachers, Afterschool Program Staff, and Mothers: Relationships with Key Adults and Children's Adjustment in Early Elementary School

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and Profile* University of Vermont, Department of Psychiatry.

Baker, J. A. (2006). Contributions of teacher–child relationships to positive school adjustment during elementary school. *Journal of School Psychology*, *44*(3), 211–229. https://doi.org/10.1016/j.jsp.2006.02.002

Berry, D., & O'Connor, E. (2010). Behavioral risk, teacher--child relationships, and social skill development across middle childhood: A child-by-environment analysis of change. *Journal of Applied Developmental Psychology*, *31*(1), 1–14. https://doi.org/10.1016/j.appdev.2009.05.001

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.) *Handbook of child development: Vol. 1. Theoretical models of human development.* (6th ed., pp. 793–828)Wiley.

Buyse, E., Verschueren, K., Verachtert, P., & Damme, J. V. (2009). Predicting school adjustment in early elementary school: Impact of teacher-child relationship quality and relational classroom climate. *The Elementary School Journal*, *110*(2), 119–141. https://doi.org/10.1086/605768

Collins, W. A., Harris, M. L., & Susman, A. (1995). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 1. Children and parenting* (pp. 65–90)Erlbaum.

Collins, W. A., Madsen, S. D., & Susman-Stillman, A. (2002). Parenting during middle childhood. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 1. Children and parenting.* (2nd ed., pp. 73–101)Lawrence Erlbaum.

Collins, B. A., O'Connor, E. E., Supplee, L., & Shaw, D. S. (2017). Behavior problems in elementary school among low-income boys: The role of teacher–child relationships. *The Journal of Educational Research*, *110*(1), 72–84. https://doi.org/10.1080/00220671.2015.1039113

Contreras, J. M., Kerns, K. A., Weimer, B. L., Gentzler, A. L., & Tomich, P. L. (2000). Emotion regulation as a mediator of associations between mother–child attachment and peer relationships in middle childhood. *Journal of Family Psychology: JFP: journal of the Division of Family Psychology of the American Psychological Association (Division 43))*, *14*(1), 111–124. https://doi.org/10.1037/0893-3200.14.1.111

Criss, M. M., Shaw, D. S., & Ingoldsby, E. M. (2003). Mother–son positive synchrony in middle childhood: Relation to antisocial behavior. *Social Development*, *12*(3), 379–400. https://doi.org/10.1111/1467-9507.00239

Dearing, E., & Zachrisson, H. D. (2019). Taking selection seriously in correlational studies of child development: A call for sensitivity analyses. *Child Development Perspectives*, *13*(4), 267–273. https://doi.org/10.1111/cdep.12343

Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin*, *110*(1), 3–25. https://doi.org/10.1037/0033-2909.110.1.3

Driscoll, K., & Pianta, R. C. (2011). Mothers' and Fathers' Perceptions of Conflict and Closeness in Parent-Child Relationships during Early Childhood. *Journal of Early Childhood & Infant Psychology*, *7*, 1–24.

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child Development*, *76*(5), 1055–1071. https://doi.org/10.1111/j.1467-8624.2005.00897.x

El Nokali, N. E., Bachman, H. J., Votruba-Drzal, E. (2010). Parent involvement and children's academic and social development in elementary school. *Child Development*, *81*(3), 988–1005. https://doi.org/10.1111/j.1467-8624.2010.01447.x

Enders, C. K. (2010). *Applied missing data analysis.* Guilford Press.

Englund, M. M., Luckner, A. E., Whaley, G. J., & Egeland, B. (2004). Child achievement in early elementary school: Longitudinal effects of parental involvement, expectations, and quality of assistance. *Journal of Educational Psychology*, *96*(4), 723–730. https://doi.org/10.1037/0022-0663.96.4.723

Ewing, A. R., & Taylor, A. R. (2009). The role of child gender and ethnicity in teacher–child relationship quality and children's behavioral adjustment in preschool. *Early Childhood Research Quarterly*, *24*(1), 92–105. https://doi.org/10.1016/j.ecresq.2008.09.002

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in child academic engagement and performance. *Journal of Educational Psychology*, *95*(1), 148–162. https://doi.org/10.1037/0022-0663.95.1.148

Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system*. American Guidance Service.

Grusec, J. E., & Kuczynski, L. E. (1997). *Parenting and children's internalization of values: A handbook of contemporary theory*. John Wiley & Sons Inc.

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, *72*(2), 625–638. https://doi.org/10.1111/1467-8624.00301

Harrist, A. W., Pettit, G. S., Dodge, K. A., & Bates, J. E. (1994). Dyadic synchrony in mother-child interaction: Relation with children's subsequent kindergarten adjustment. *Family Relations*, *43*(4), 417–424. https://doi.org/10.2307/585373

Heatly, M. C., & Votruba-Drzal, E. (2017). Parent- and teacher-child relationships and engagement at school entry: Mediating, interactive, and transactional associations across contexts. *Developmental Psychology*, *53*(6), 1042–1062. https://doi.org/10.1037/dev0000310

Hirsch, B., & Wong, V. (2005). *A place to call home: After-school programs for urban youth*. American Psychological Association and New York: Teachers College Press.

Hughes, J. N., Luo, W., Kwok, O. M., & Loyd, L. K. (2008). Teacher-student support, effortful engagement, and achievement: A 3-year longitudinal study. *Journal of Educational Psychology*, *100*(1), 1–14. https://doi.org/10.1037/0022-0663.100.1.1

Jerome, E. M., Hamre, B. K., & Pianta, R. C. (2009). Teacher–child relationships from kindergarten to sixth grade: Early childhood predictors of teacher-perceived

conflict and closeness. *Social Development*, *18*(4), 915–945. https://doi.org/10.1111/j.1467-9507.2008.00508.x

Kliewer, W., Fearnow, M. D., & Miller, P. A. (1996). Coping socialization in middle childhood: Tests of maternal and paternal influences. *Child Development*, *67*(5), 2339–2357. https://doi.org/10.1111/j.1467-8624.1996.tb01861.x

Ladd, G. W. (2003). Probing the adaptive significance of children's behavior and relationships in the school context: A child by environment perspective. In R. V. Kail (Ed.), *Advances in child development and behavior* (Vol.31, pp. 43–104). Academic Press.

Ladd, G. W., & Price, J. M. (1987). Predicting child social and school adjustment following the transition from preschool to kindergarten. *Child Development*, *58*(5), 1168–1189. https://doi.org/10.2307/1130613

Larson, R. W., & Brown, J. R. (2007). Emotional development in adolescence: What can be learned from a high school theater program? *Child Development*, *78*(4), 1083–1099. https://doi.org/10.1111/j.1467-8624.2007.01054.x

Lee, P., & Bierman, K. L. (2018). Longitudinal trends and year-to-year fluctuations in student-teacher conflict and closeness: Associations with aggressive behavior problems. *Journal of School Psychology*, *70*, 1–15. https://doi.org/10.1016/j.jsp.2018.06.002

Lindsey, E. W., MacKinnon-Lewis, C., Campbell, J., Frabutt, J. M., & Lamb, M. E. (2002). Marital conflict and boys' peer relationships: The mediating role of mother-son emotional reciprocity. *Journal of Family Psychology:*, *16*(4), 466–477. https://doi.org/10.1037/0893-3200.16.4.466

McCormick, M. P., O'Connor, E. E., & Horn, E. P. (2017). Can teacher-child relationships alter the effects of early socioeconomic status on achievement in middle childhood? *Journal of School Psychology*, *64*, 76–92. https://doi.org/10.1016/j.jsp.2017.05.001

Meehan, B. T., Hughes, J. N., & Cavell, T. A. (2003). Teacher-student relationships as compensatory resources for aggressive children. *Child Development*, *74*(4), 1145–1157. https://doi.org/10.1111/1467-8624.00598

Merritt, E. G., Wanless, S. B., Rimm-Kaufman, S. E., Cameron, C., & Peugh, J. L. (2012). The contribution of teachers' emotional support to child social behaviors and self-regulatory skills in first grade. *School Psychology Review*, *41*(2), 141–159. https://doi.org/10.1080/02796015.2012.12087517

Miner, J. L., & Clarke-Stewart, K. A. (2008). Trajectories of externalizing behavior from age 2 to age 9: relations with gender, temperament, ethnicity, parenting, and rater. *Developmental Psychology*, *44*(3), 771–786. https://doi.org/10.1037/0012-1649.44.3.771

NICHD Early Child Care Research Network (2005). (Ed.). *Child care and child development: Results from the NICHD study of early child care and youth development*. Guilford Press.

O'Connor, E. (2010). Teacher–child relationships as dynamic systems. *Journal of School Psychology*, *48*(3), 187–218. https://doi.org/10.1016/j.jsp.2010.01.001

Oster, E. (2019). Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*, *37*(2), 187–204.

Pianta, R. C. (1992). *Student-Teacher Relationship Scale*. University of Virginia.

Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. American Psychological Association.

Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 365–386). Springer.

Pianta, R. C., Hamre, B., & Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds & G. E. Miller (Eds.), *Comprehensive handbook of psychology* (Vol. 7, pp. 199–234). Wiley.

Pianta, R. C., Steinberg, M., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology*, *7*(2), 295–312. https://doi.org/10.1017/S0954579400006519

Pierce, K. M., Bolt, D. M., & Vandell, D. L. (2010). Specific features of after-school program quality: associations with children's functioning in middle childhood. *American Journal of Community Psychology*, *45*(3/4), 381–393. https://doi.org/10.1007/s10464-010-9304-2

Pierce, K. M., Hamm, J. V., & Vandell, D. L. (1999). Experiences in afterschool programs and child adjustment in first-grade classrooms. *Child Development*, *70*(3), 756–767. https://doi.org/10.1111/1467-8624.00054

Pigott, R. L., & Cowen, E. L. (2000). Teacher race, child race, racial congruence, and teacher ratings of children's school adjustment. *Journal of School Psychology*, *38*(2), 177–195. https://doi.org/10.1016/S0022-4405(99)00041-2

Rudasill, K. M., Niehaus, K., Buhs, E., & White, J. M. (2013). Temperament in early childhood and peer interactions in third grade: The role of teacher-child relationships in early elementary grades. *Journal of School Psychology*, *51*(6), 701–716. https://doi.org/10.1016/j.jsp.2013.08.002

Silver, R. B., Measelle, J. R., Armstrong, J. M., & Essex, M. J. (2010). The impact of parents, child care providers, teachers, and peers on early externalizing trajectories. *Journal of School Psychology*, *48*(6), 555–583. https://doi.org/10.1016/j.jsp.2010.08.003

Simpkins, S. D., Weiss, H. B., McCartney, K., Kreider, H. M., & Dearing, E. (2006). Mother-child relationship as a moderator of the relation between family educational involvement and child achievement. *Parenting*, *6*(1), 49–57. https://doi.org/10.1207/s15327922par0601_2

Smith, C., Akiva, T., McGovern, G., & Peck, S. C. (2014). Afterschool quality. *New Directions for Youth Development*, *2014*(144), 31–44. https://doi.org/10.1002/yd.20111

Stipek, D., & Miles, S. (2008). Effects of aggression on achievement: Does conflict with the teacher make it worse? *Child Development*, *79*(6), 1721–1735. https://doi.org/10.1111/j.1467-8624.2008.01221.x

Vandell, D. L., Larson, R., Mahoney, J., & Watts, T. (2015). Children's organized activities. In R. Lerner (Series Ed.), M. H. Bornstein & T. Leventhal (Volume Eds.), *Handbook of child psychology and developmental science (7th ed.): Vol. 4. Ecological settings and processes in developmental systems*. Wiley Inter-Science.

Vandell, D. L., Pierce, K. M., & Dadisman, K. (2005). Out-of-school settings as a developmental context for children and youth. In R. Kail (Ed.), *Advances in child development*. (Vol. 33, pp. 43–77). Elsevier

Vandell, D. L., & Posner, J. (1999). Conceptualization and measurement of child after-school environments. In S. L. Friedman & T. D. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts* (pp. 167–196). American Psychological Association.

Weaver, C. M., Shaw, D. S., Crossan, J. L., Dishion, T. J., & Wilson, M. N. (2015). Parent-child conflict and early childhood adjustment in two-parent low-income families: parallel developmental processes . *Child Psychiatry and Human Development*, *46*(1), 94–107. https://doi.org/10.1007/s10578-014-0455-5

Wentzel, K. R. (2003). School adjustment. In W. Reynolds & G. Miller (Eds.), *Handbook of psychology, Vol. 7: Educational psychology* (pp. 235–258). Wiley.

White, K. M. (2013). Associations between teacher–child relationships and children's writing in kindergarten and first grade. *Early Childhood Research Quarterly*, *28*(1), 166–176. https://doi.org/10.1016/j.ecresq.2012.05.004

Yang, P. J., & Lamb, M. E. (2014). Factors influencing classroom behavioral engagement during the first year at school. *Applied Developmental Science*, *18*(4), 189–200. https://doi.org/10.1080/10888691.2014.924710

Young, R., & Johnson, D. R. (2015). Handling missing values in longitudinal panel data with multiple imputation. *Journal of Marriage and the Family*, *77*(1), 277–294. https://doi.org/10.1111/jomf.12144

Zhang, X. (2011). Parent–child and teacher–child relationships in Chinese preschoolers: The moderating role of preschool experiences and the mediating role of social competence. *Early Childhood Research Quarterly*, *26*(2), 192–204. https://doi.org/10.1016/j.ecresq.2010.09.001