

Article

Parent–Child Dyadic Synchrony, Prosocial and Aggressive Behavior with Peers, and Friendship Quality in Early Adolescence

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Abstract: The present study examined the contribution of mother–child and father–child synchrony to early adolescents’ prosocial and aggressive behavior with peers and friendship quality. Data were collected as part of a cross-sectional study from 185 early adolescents (M age = 12.48, SD = 1.03) and their parents. Separate father–adolescent and mother–adolescent interaction sessions were used to assess three dimensions of synchrony: (a) dyadic synchrony, (b) shared positive affect, and (c) conversational equality. Parents rated adolescents’ prosocial and aggressive behavior toward peers. Adolescents reported the quality of their relationships with their best friends. Regression analyses revealed that both mother–adolescent and father–adolescent shared positive affect were associated with higher parent-rated prosocial behavior, lower parent-rated peer aggression, and higher adolescent self-reported friendship intimacy. Likewise, mother–adolescent and father–adolescent conversational equality were each associated with higher parent-rated prosocial behavior. Only father–adolescent conversational equality was associated with adolescent-reported friendship intimacy. No measure of parent–adolescent dyadic synchrony was associated with adolescent-reported friendship conflict.

Keywords: early adolescence; parent–child; dyadic synchrony; prosocial behavior; peer relationships; aggression; friendship quality



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1. Introduction

Dynamic Systems Theory (DST) highlights the synchronization of biological systems within living organisms as a necessary condition for optimal functioning (Rosenblum et al., 2004; Thelen & Smith, 1998). Theorists have extended this principle to parent–child relationships, arguing that behavioral and emotional synchrony between parent and child represents a state of equilibrium that facilitates both personal and interpersonal functioning (Davis et al., 2017; Feldman, 2007). In the context of parent–child relationships, dyadic synchrony has been identified as a relationship dynamic in which partners display a common focus of attention, reciprocated behavioral and emotional exchanges, and mutual responsiveness (Davis et al., 2017; Harrist & Waugh, 2002). Empirical attention to the developmental benefits of parent–child synchrony has been largely confined to infancy and early childhood, with less focus devoted to dyadic synchrony in parent–adolescent interactions (Birk et al., 2022; Feldman et al., 2013). Thus, questions remain concerning the role of parent–child synchrony in promoting adaptive social, emotional, and psychological outcomes in adolescence (Birk et al., 2022; Harrist & Waugh, 2002).

One area of development that has been identified by both theoretical and empirical evidence as being linked to parent–child dyadic synchrony is children’s relationships with

peers (Feldman et al., 2013; Harrist et al., 1994). Following the broader literature on linkages between parent–child and child–peer relationships, principles from grand theories, such as Attachment Theory and Social Learning Theory, have been used to explain connections between parent–child attachment and the quality of children’s peer relationships (Harrist & Criss, 2021). In the attachment tradition, parent–child dyadic synchrony is a behavioral system that facilitates patterns of social information processing that make aggressive behavior less likely (Criss et al., 2003) and is conducive to establishing intimacy with others (Bauminger et al., 2008). From the Social Learning perspective, engaging in synchronous interaction with parents is hypothesized to provide children with practice for carrying similar turn-taking strategies to relationships with peers (Harrist & Waugh, 2002). However, explicating the connections between parent–child synchrony and child–peer relationships is complicated by the multidimensional nature of children’s peer relationships.

Theoretical and empirical evidence suggests that distinctions must be made between children’s ability to engage in successful social interaction with peers in general and the quality of children’s relationships with specific peers, or friendships (Pedersen et al., 2007). Conceptually, the abilities to engage in prosocial behavior and refrain from aggression have been identified as skills that facilitate adolescents’ social engagement with same-age peers (Eisenberg et al., 2005; Zimmer-Gembeck et al., 2005). In the domain of peer friendships, quality is commonly operationalized as high levels of intimacy and low levels of conflict (Berndt, 2004; Kochendorfer & Kerns, 2020), making it worthwhile to consider each as a unique dimension of friendship quality. A notable gap in the existing literature to date is that no single study has examined both mother–adolescent and father–adolescent synchrony in relation to adolescents’ prosocial behavior with peers, peer aggression, friendship intimacy, and friendship conflict.

It may be that different modalities of synchrony are uniquely related to specific dimensions of functioning at both the peer group and specific friendship levels. One dimension of dyadic synchrony in parent–adolescent relationships identified by empirical evidence is shared positive affect, also studied under such labels as emotional synchrony and emotional reciprocity, a pattern of joint expression of positive emotion that represents partners’ mutual acknowledgment of positive emotional signals (Lee et al., 2017; Thomassin & Suveg, 2014). A second dimension of dyadic synchrony between parent–adolescent dyads is the relative balance in the parent and child’s exchange of verbal communication (Feldman et al., 2013). In the only single study to examine both of these dimensions in relation to adolescent peer relationships (Lindsey et al., 2008), researchers found that mother–adolescent shared positive affect and conversational equality uniquely predicted teacher-rated prosocial behavior, with higher levels of shared positive affect and higher levels of conversational equality being linked to higher teacher-rated prosocial behavior. The present study represents an effort to address the limitations of the previous study by examining father–adolescent synchrony and extending the peer relationship outcomes examined to include peer aggression, friendship intimacy, and friendship conflict.

The primary aim of the current study is to address questions concerning what forms of mother–adolescent and father–adolescent synchrony may be most relevant to particular dimensions of peer relationship functioning. Discrepancies and limitations in past research focusing on particular modalities of synchrony (Feldman et al., 2013; Lindsey et al., 2009), make it unclear if specific forms of synchrony are linked to particular outcomes or if dyadic synchrony more broadly contributes to optimal developmental adjustment. There were four hypotheses guiding the present study: (1) measures of parent–adolescent synchrony would be positively associated with parent reports of adolescent prosocial behavior (Lindsey et al., 2008), (2) parent–adolescent synchrony would be negatively associated with parent reports of adolescent peer aggression (Lindsey et al., 2008), (3) parent–adolescent synchrony would

be positively associated with adolescent-reported intimacy with their best friend (Feldman et al., 2013), and (4) parent–adolescent synchrony would be negatively associated with adolescent-reported conflict with their best friend (Feldman et al., 2013).

2. Materials and Methods

2.1. Participants

Families were recruited from three middle schools in Reading, Pennsylvania. Participating families met the requirement of having a child in sixth grade residing in a home with both parents and who had no chronic illness or physical disability. Of the total number of families contacted during the screening procedure, 185 (78%) gave their consent for participation in the study and visited the laboratory. There were 91 girls and 94 boys who ranged from 11 to 13 years old ($M = 12.34$, $SD = 1.03$) at the time of recruitment. Families were European American ($n = 63$), African American ($n = 51$), Latino ($n = 59$), and biracial ($n = 12$), with 91 girls and 94 boys who ranged from 13 to 14 years old ($M = 13.34$) at the time of recruitment. All parents were married, $M = 15$, ranging from 11 to 32 years. Most families were lower- or upper-middle class, with family median incomes in the \$50,000 to \$59,000 (range = less than \$10,000 to above \$90,000).

2.2. Procedure

The families were greeted on their arrival at the laboratory. Parents consented to their own as well as their child's participation in the study, and separate assent was obtained from the adolescent. After intake and consent procedures, one family member was taken to a separate room, furnished with a desk and chair, to complete questionnaires on their own. The other two family members were taken to an observation room, furnished with comfortable chairs and a table, to participate in an interaction task. After the first interaction task was completed, family members were reorganized so that one family member completed questionnaires while the other two members participated in an interaction task. This procedure was repeated a third time so that observations were collected of mother–adolescent, father–adolescent, and mother–father interaction. The order in which interaction sessions were conducted was counterbalanced across families. Each interaction session was approximately 15 min in duration and was videotaped for later coding. The laboratory visit lasted approximately 1.5 h. For their participation, families were compensated \$55.

2.3. Measures

Family Demographic Indicators. A family demographic survey was completed by parents. Mothers and fathers reported their personal income using a scale from 1 (\$0 to \$9999) through 10 (\$90,000+). A *family income* score was calculated by averaging mothers' and fathers' personal income scores.

2.4. Observations

Parent–adolescent dyads were observed during a discussion task developed by Conger and his colleagues (Conger et al., 1993). Dyads were asked to read and respond to questions regarding family life, day-to-day activities, and relationship issues written on 14 cards numbered and designated to be read by a particular partner who was to begin the discussion of the topic on the card, as indicated by the word mom, dad, or child printed above the question (e.g., Card 2, read by the child, "What do I do with my mother when we spend time together"; Card 13, read by the mother, "What do I usually do when my child gets into trouble for something?"). After 15 min passed, the researcher ended the observation even if the dyad had not completed discussing all 14 cards. A detailed rating system was used to code videotapes of the discussion task for three dimensions of dyadic synchrony.

A detailed rating system was used to code videotapes of the discussion task for three dimensions of dyadic synchrony. A separate team of 4 coders (a total of 12 coders) who were blind to the research questions and had not collected the data used one rating system to code all the videotapes for a particular dimension of dyadic synchrony. Coders underwent 20 h of training and independently coded practice tapes until they achieved 80% agreement with the primary investigator before coding the videotapes of study participants. After they achieved reliability, each coder was randomly assigned 47 tapes to code. Coding fidelity was assessed by randomly assigning approximately 20% of the tapes ($N = 37$ each for mother–child and father–child dyads) to a primary coder (whose ratings were used in the analysis) and a reliability coder and calculating Kappa scores between coders' scores as a measure of reliability.

Parent–adolescent synchrony. A rating scale was used to code each 10 s interval of parent–adolescent interaction for dyadic synchrony based on mutually focused, reciprocal, and responsive exchanges (Lindsey et al., 2008, 2009). A 5-point rating was used, with 5 indicating that parent and adolescent shared the same focus of attention and were responsive to their partner's cues, and 1 indicating that the parent and adolescent did not share a common focus, frequently changed topics abruptly, or one or both partners displayed unresponsiveness. There was a high level of agreement between coders for mother–adolescent, $\kappa = 0.84$, and father–adolescent, $\kappa = 0.88$, dyads. A *mother–adolescent synchrony* and *father–adolescent synchrony* score was created for each dyad by averaging the ratings received across all intervals.

Parent–adolescent shared positive affect. Coders used a dichotomous scoring procedure to record the presence or absence of positive affect for both parent and adolescent in each 10 s interval of interaction (Lindsey et al., 2008). In segments where a particular partner displayed no positive emotion, they received a score of 0, whereas in segments where positive emotion was displayed, the person being scored received a 1. Smiles, chuckles, and/or laughter were behaviors used to identify the presence of positive affect. There was a high level of agreement between coders for mother, $\kappa = 0.84$, father, $\kappa = 0.77$, $\kappa = 0.84$, adolescent with mother, $\kappa = 0.77$, and adolescent with father, $\kappa = 0.80$.

To examine the pattern of emotional expressiveness between parent and adolescent, a *dyadic positive emotional reciprocity* score was created for each mother–adolescent and father–adolescent dyad. These scores were created by identifying the proportion of intervals in which both parent and adolescent expressed positive affect out of the total number of intervals in which positive affect was displayed by either dyad partner.

Parent–adolescent conversational equality. A rating scale was used to code parent–adolescent communication during the discussion task for conversational equality based on the extent to which both partners were equal participants in exchanging verbal information, initiating conversational topics, and responding to questions (Lindsey et al., 2008). Conversational equality was scored in 1 min intervals using a 5-point scale, with 5 indicating equal participation by both parent and adolescent in their conversation together (e.g., one partner listened attentively while the other partner was talking, the partners maintained the same topic of conversation, the partners responded to one another's verbal bids), and 1 indicating that one partner maintained conversational dominance (e.g., the partners "talked over" one another, the partners' utterances did not match each other, one partner ignored verbal bids made by the other partner). Coders achieved a high level of agreement for mother–adolescent, $\kappa = 0.84$, and father–adolescent dyads, $\kappa = 0.83$. Separate *mother–adolescent* and *father–adolescent conversational equality* scores were created for each dyad by averaging the ratings received across all intervals.

2.5. Peer Competence

Prosocial Behavior and Peer Aggression. Mothers and fathers completed the Children's Social Behavior Scale (CSBS; [Crick, 1996](#)). In this study, responses to the prosocial peer behavior subscale (4 items; $\alpha = 0.84$; e.g., "Says supportive things to peers.", "Tries to cheer up peers when sad or upset."), and the aggression with peers subscale (4 items; $\alpha = 0.84$; e.g., "This child pushes or shoves peers.") were used. The response scale for each item ranged from 1 (this is never true of my child) to 5 (this is almost always true of my child).

The mothers' and fathers' scores were averaged to form an index of adolescents' *prosocial behavior with peers* ($\alpha = 0.78$) and *aggression with peers* ($\alpha = 0.80$) to be used in subsequent analyses. The parent version of the CSBS has demonstrated adequate internal consistency for both the prosocial behavior ($\alpha = 0.75$) and the aggression subscales ($\alpha = 0.82$) ([Tackett et al., 2014](#)).

2.6. Friendship Quality

Friendship Intimacy and Conflict. Adolescents completed the 40-item Friendship Quality Questionnaire (FQQ; [Parker & Asher, 1993](#)). The name of the child's self-identified close friend was inserted into each item. Children responded on a 5-point Likert-type scale, ranging from "not at all true" to "really true," about how each statement corresponded to their friendship. The reliability and validity of the measure have been demonstrated in previous research, with Cronbach's alphas of the original scale ranging between 0.71 and 0.86 ([Furman, 1996](#); [Parker & Asher, 1993](#)). For the purposes of this study, only the intimate disclosure and friendship conflict scales were used. The intimate disclosure scale contains 6 items (e.g., "_____ and I are always telling each other about our problems;" $\alpha = 0.86$) that were averaged to create a self-reported *friendship intimacy* score. The conflict scale also contains six items (e.g., "_____ and I get mad at each other a lot;" $\alpha = 0.74$) that were averaged to create a self-reported *friendship conflict* score.

2.7. Plan of Analysis

All data analyses were performed using SPSS (Chicago, IL, USA), version 27.0, 2020, with the alpha level set at ≤ 0.05 . Data analysis began with a descriptive examination of all variables, including frequency distributions, means, standard deviations, medians, and interquartile ranges, as appropriate to the level of measurement of the variables. Normal distributions for independent and dependent variables were confirmed by histogram and an assessment of skewness and kurtosis ($-2 < \text{skewness and kurtosis} < +2$), thereby indicating no violation of the normality assumption of linear regression. In the regression models, preliminary tests revealed no issues with multicollinearity as all variance inflation factors were < 4 . Primary analyses of the study hypotheses were performed using hierarchical linear regression.

3. Results

Descriptive statistics for parent–adolescent synchrony, adolescent peer competence, and adolescent friendship quality variables are presented separately based on adolescent gender in Table 1.

Correlation analyses revealed that family income was significantly positively associated with mother–child ($r = 0.22, p = 0.03$) and father–child dyadic synchrony ($r = 0.20, p = 0.04$), as well as mother–child ($r = 0.23, p = 0.02$) and father–child ($r = 0.25, p = 0.01$) conversational equality. This indicates that dyadic synchrony and conversational equality were higher in parent–child dyads from families with higher incomes. Family income was also positively associated with friendship intimacy ($r = 0.19, p = 0.04$), indicating that

adolescents from higher-income families rated their friendships as being more intimate. Based on these correlations, family income was included in subsequent analyses to control for its effect.

Table 1. Descriptive statistics for parent–adolescent synchrony, parent-reported peer competence, and adolescent self-reported friendship quality variables.

	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
	Girls (<i>n</i> = 91)			Boys (<i>n</i> = 94)		
Mother–adolescent synchrony						
Dyadic synchrony	3.47	0.59	1.82–4.73	3.35	0.53	1.78–4.70
Shared positive affect	0.52	0.27	0.20–1.00	0.45	0.18	0.28–1.00
Conversational equality	3.32	0.41	1.96–4.85	3.09	0.40	1.76–4.77
Father–adolescent synchrony						
Dyadic synchrony	3.32	0.52	1.80–4.77	3.38	0.50	1.82–4.73
Shared positive affect	0.55	0.20	0.18–1.00	0.44	0.21	0.18–1.00
Conversational equality	3.03	0.42	1.74–4.39	3.15	0.39	1.33–4.70
Parent-reported peer competence						
Prosocial behavior	3.85	0.82	2.20–4.94	3.71	0.87	2.12–4.81
Aggression	2.16	0.57	1.00–3.13	2.22	0.48	1.00–3.56
Self-reported friendship quality						
Intimacy	3.90	0.82	1.91–4.83	3.24	0.86	1.70–4.66
Conflict	2.67	0.58	1.00–3.45	2.24	0.51	1.00–3.15

There was a significant positive correlation between mother–child and father–child dyadic synchrony ($r = 0.48$, $p = 0.001$), shared positive affect ($r = 0.56$, $p = 0.001$), and conversational equality ($r = 0.36$, $p = 0.001$).

Dyadic Synchrony as a Predictor of Early Adolescents' Peer Competence

A series of four hierarchical regressions was performed in which the dependent variables were the two peer competence measures: (a) prosocial behavior, (b) aggression, and the two friendship quality measures, (a) friendship intimacy and (b) friendship conflict. As family income was significantly associated with the dependent variables, it was included in the first step of each regression model to control for its effects. The three indicators of mother–child synchrony were entered simultaneously in the second step. The three indicators of father–child synchrony were entered simultaneously in the third step. The order of the entry of mother–child and father–child synchrony variables was arbitrary. Analyses with father–child variables entered in the second step and mother–child synchrony variables entered in the third step revealed no difference in the pattern of findings.

The results for the regression analyses predicting parent-reported peer competence are presented in Table 2. In the final equation, with all the predictors entered, for the regression predicting prosocial behavior with peers, family income and child sex accounted for a significant 12% of the variance ($VIF = 2.30$). In the second step, mother–child synchrony accounted for an additional significant 8% of the variance in parent ratings of adolescent prosocial behavior. The beta weights revealed that mother–adolescent shared positive affect ($VIF = 3.53$) and conversational equality ($VIF = 2.23$) accounted for the association between mother–adolescent synchrony and prosocial behavior. In the third step, father–child synchrony significantly contributed to 6% of the variance in prosocial behavior ratings. Again, the beta weights revealed that father–adolescent shared positive affect ($VIF = 3.03$) and conversational equality ($VIF = 2.46$) accounted for the association between father–adolescent synchrony and prosocial behavior.

Table 2. Regression analysis: relations of family demographic characteristics and mother–child and father–child synchrony variables to parent-rated peer behavior.

	Prosocial Behavior				Aggression			
	ΔR^2	<i>B</i>	<i>SE B</i>	β	ΔR^2	<i>B</i>	<i>SE B</i>	β
Step 1: Family demographics	0.12 **				0.07 *			
Family income		0.52	0.15	0.26 **		0.24	0.22	0.09
<i>F</i> for step	$F(1, 183) = 8.40$ **				$F(1, 183) = 1.25$			
Step 2: Mother–child synchrony	0.08 **				0.05 *			
Dyadic synchrony		0.32	0.38	0.14		−0.66	0.54	−0.15
Shared positive affect		0.48	0.22	0.30 **		−0.43	0.27	−0.26 *
Conversational equality		0.51	0.26	0.25 *		−0.24	0.56	0.12
<i>F</i> for step	$F(4, 180) = 5.81$ **				$F(4, 180) = 3.72$ *			
Step 3: Father–child synchrony	0.06 *				0.05 *			
Dyadic synchrony		0.33	0.37	0.09		−0.65	0.62	−0.07
Shared positive affect		0.42	0.24	0.25 *		−0.46	0.16	−0.31 *
Conversational equality		0.77	0.50	0.25 *		−0.46	0.61	−0.15
<i>F</i> for step	$F(7, 177) = 4.52$ *				$F(7, 177) = 4.06$ *			

* $p < 0.05$, ** $p < 0.01$.

In the analyses for parent-reported aggression with peers, family income accounted for a significant 7% of the variance ($VIF = 2.45$). In step 2, mother–child dyadic synchrony contributed an additional 5% of the variance for aggression with peers. This contribution was accounted for predominately by a significant negative association between mother–adolescent shared positive affect ($VIF = 1.77$) and peer aggression ratings. Similarly, in step 3, father–child dyadic synchrony contributed an additional 5% of the variance to aggression with peers, which was accounted for by a significant negative association between father–adolescent shared positive affect ($VIF = 2.73$) and peer aggression.

Analyses of adolescent self-reported friendship quality are summarized in Table 3. In the analyses for self-reported friendship intimacy, after accounting for the significant 5% of the variance predicted by family income ($VIF = 2.64$), high levels of mother–child synchrony significantly contributed to the prediction of 6% of the variance in friendship intimacy. The beta weights revealed that this was attributed to a significant positive association between mother–adolescent shared positive affect ($VIF = 2.15$) and friendship intimacy. In the following step, father–child synchrony contributed to an additional 7% of the variance in friendship intimacy. Both father–child shared positive affect ($VIF = 3.43$) and conversational equality ($VIF = 2.63$) were significantly positively associated with friendship intimacy.

Table 3. Regression analysis: relations of family demographic characteristics and mother–child and father–child synchrony variables to early adolescents’ self-reported friendship quality.

	Intimacy				Conflict			
	ΔR^2	<i>B</i>	<i>SE B</i>	β	ΔR^2	<i>B</i>	<i>SE B</i>	β
Step 1: Family demographics	0.05 *				0.01			
Family income		0.36	0.30	0.16		0.29	0.28	0.03
<i>F</i> for step	$F(1, 183) = 4.15$ *				$F(1, 183) = 0.98$			
Step 2: Mother–child synchrony	0.06 *				0.03			
Dyadic synchrony		0.30	0.27	0.14		−0.12	0.13	−0.01
Shared positive affect		0.55	0.36	0.25 *		−0.18	0.19	−0.06
Conversational equality		0.42	0.48	0.11		−0.38	0.46	−0.09
<i>F</i> for step	$F(4, 180) = 5.16$ *				$F(4, 180) = 1.10$			
Step 3: Father–child synchrony	0.07 *				0.02			
Dyadic synchrony		0.51	0.74	0.18		−0.62	0.51	−0.14
Shared positive affect		0.76	0.30	0.31 *		−0.39	0.43	−0.10
Conversational equality		0.58	0.27	0.25 *		−0.28	0.35	−0.12
<i>F</i> for step	$F(7, 177) = 6.47$ *				$F(7, 177) = 2.11$			

* $p < 0.05$.

In the analyses for adolescent-reported friendship conflict, family income made no significant prediction. Furthermore, neither mother–child nor father–child synchrony measures predicted friendship conflict.

4. Discussion

The present study supports theoretical propositions derived from Dynamic Systems Theory that parent–child dyadic synchrony is associated with more optimal relationships with peers during adolescence (Chu & Powers, 1995; Harrist & Waugh, 2002). Specifically, the results revealed that mother–adolescent and father–adolescent synchrony were each uniquely associated with measures of prosocial behavior, peer aggression, and friendship quality. However, the nature of these associations varied based on the form of dyadic synchrony and the specific dimension of peer relationship quality.

Analyses supported the hypothesis that parent–adolescent synchrony would be associated with adolescents' prosocial behavior with peers in that two out of three forms of parent–adolescent synchrony were significantly associated with parent ratings of prosocial behavior. The findings support theoretical arguments that parent–child synchrony manifests in different modalities that may have different consequences for children's social functioning (Birk et al., 2022; Davis et al., 2017). In future research, it will be worthwhile to consider the specific mechanisms by which parent–child shared positive emotion and conversational equality contribute to prosocial behavior with peers.

Support also was found for the hypothesized association between parent–adolescent synchrony and adolescent peer aggression, although only one dimension of synchrony was significantly associated with peer aggression. Specifically, for both mother–adolescent and father–adolescent dyads, shared positive affect was associated with adolescents having low scores on parent-rated peer aggression. The present study is the first, to the best of my knowledge, to link both mother–adolescent and father–adolescent synchrony to peer aggression. As a modality of dyadic synchrony that is connected to the experience of emotion, shared positive affect may be associated with the adolescent's ability to regulate emotions to decrease the likelihood of aggressive behavior with peers in a way that conversational equality is not.

Following past research, friendship quality was operationalized as high levels of intimacy and low levels of conflict (Bauminger et al., 2008; Berndt, 2004). In relation to these domains, support was found for the hypothesis that parent–adolescent synchrony would be associated with friendship intimacy. Specifically, adolescents who achieved higher levels of shared positive affect with their mother and father and higher levels of conversational equality with their father were in friendships characterized by high levels of intimacy, as reported by the adolescent's self-identified best friend. These patterns of associations align with previous research suggesting that the synchronization of positive emotion and verbal communication with parents may initiate children into a form of communication that carries over into their friendships (Feldman et al., 2013; Harrist et al., 1994). These possible mechanisms to account for the link between parent–adolescent synchrony and friendship intimacy deserve examination in future studies.

In contrast, the hypothesis that parent–child dyadic synchrony would be associated with friendship conflict failed to receive support. The lack of association between parent–adolescent synchrony and adolescent–friend conflict is counter to findings by Feldman et al. (2013) that both mother–adolescent and father–adolescent dyadic reciprocity contributed to less aggressive interaction between adolescents and their best friend. The discrepancy between the two studies may be the result of methodological differences in that in the present study, friendship conflict was assessed based on friend self-report, whereas Feldman et al. (2013) obtained an observational measure of aggression between friends

during a laboratory interaction session. Given the contradictory findings, additional research is needed to investigate potential links between parent–adolescent synchrony and adolescents’ intimacy with friends.

Other limitations to consider include the fact that the parents provided the ratings of their children’s prosocial behavior and peer aggression. The more consistent pattern of connection between parent–child synchrony and prosocial behavior and peer aggression measures may reflect some underlying link between parents’ behavior with adolescents and parents’ impression of adolescents’ behavior with peers. Future studies should obtain independent sources of data for synchrony and peer outcome measures, such as observational indices for both synchrony and behavior with peers. In addition, the self-reported nature of friendship quality means that variations in the identity of friends and friendship characteristics not assessed in the current study may have influenced the pattern of associations between parent–adolescent synchrony and friendship quality. Future research would benefit from a more comprehensive assessment of the identity of adolescents’ friends.

Even with these limitations, the present study expands the limited body of research on parent–child dyadic synchrony in early adolescence, a phenomenon that has been investigated predominately in early parent–child relationships (Birk et al., 2022). The findings indicate that dyadic synchrony is equally prevalent in mother–child and father–child dyads and that the experience of synchrony with both parents is related to adolescents’ adjustment in the domains of prosocial behavior, peer aggression, and friendship quality. A noteworthy strength of the study was the inclusion of different forms of parent–adolescent synchrony, which revealed that shared positive emotion was a particularly robust correlation of the quality of adolescents’ peer relationships. When considered alongside previous findings with preschool-age (Harrist et al., 1994; Lindsey et al., 2009) and school-age children (Criss et al., 2003; Deater-Deckard & Petrill, 2004), the present study suggests that there may be developmental continuity in the importance of dyadic synchrony as a characteristic of parent–child interaction. At the same time, given the associations that were found among the various components of dyadic synchrony, the findings argue for a multidimensional view of parent–child dyadic synchrony during early adolescence.

5. Conclusions

Although in need of replication with longitudinal and experimental studies, the findings of this investigation have valuable applied implications for settings such as parenting programs, school-based interventions, and clinical practice. The present results imply that educators and counselors concerned about promoting children’s social development with peers might focus on programs to teach parent–adolescent partners strategies such as validating one another’s emotions and responding consistently to each other’s expressions of positive emotion. Moreover, such efforts should include adolescents’ relationships with both mother and father. While still clearly a research tool, the coding procedures used in this investigation are deserving of investigation as to their usefulness in clinical assessments to monitor parent–adolescent interaction during intervention. Even so, the findings suggest that clinicians and family counselors might consider addressing parent–adolescent synchrony in therapy to help families improve their relational dynamics, leading to greater adolescent peer competence. Furthermore, replication and expansion of this work could offer additional guidance to clinicians as to how to help teens and their parents connect with one another on a deeper dyadic level and develop more adaptive interaction within their relationship. Community programs aimed at adolescent social development can integrate dyadic synchrony into parent–teen interaction workshops. By encouraging shared experiences and cooperative tasks between parents and adolescents, these programs can

reinforce patterns of positive emotional synchrony and conversational equality to enhance adolescents' peer interactions.

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