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This study examined the association between toddler peer behaviors, toddler emotion regulation and kindergarten peer behaviors and acceptance using a sample of 128 children. Toddler peer behavior was assessed during play with an unfamiliar peer and kindergarten peer behavior was assessed using standard sociometric techniques in the classroom. Social peer behavior was not associated with peer outcomes at age 5. Retacent peer behavior was associated with better peer adjustment at age 5 and moderated the association between toddler peer conflict and kindergarten peer conflict, such that children who displayed low reticence and high conflict were more likely than other children to be nominated for fighting behavior in kindergarten. Emotion regulation (ER) showed a similar interaction effect. ER was weakly related to reticence, but not to other forms of peer play behavior in toddlerhood. Discussion of results highlights the importance of including both familiar and unfamiliar peer contexts when assessing social behavior.

PREDICTING EARLY PEER ACCEPTANCE FROM TODDLER PEER
BEHAVIOR

by

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CHAPTER I

INTRODUCTION

Researchers have repeatedly demonstrated the importance of the peer domain for children's development, and many agree that peers uniquely contribute to a child's development (Rubin, Bukowski, & Parker, 1998). Peer experiences provide opportunities for the development of social skills and healthy psychosocial adjustment (Hartup, 1989). With their peers, children develop the ability to establish meaningful relationships with others, negotiate interpersonal conflict situations, and control their emotions (Hartup, 1996; Newcomb, Bukowski, & Bagwell, 1999; Laursen, Hartup, & Koplas, 1996).

Peers can also present difficulties for some children. Children who are not accepted by the peer group often have both short-term and long-term adjustment problems. Researchers have established a strong link between poor peer acceptance and aggression. Children who are not accepted by the peer group are at greater risk for later conduct problems and other forms of delinquency. Furthermore, poor peer acceptance has been linked to internalizing problems, such as loneliness (Asher, Hymel, & Renshaw, 1984; Buhs & Ladd, 2001), social anxiety (Sandstrom, 2004), and depressive symptoms (Prinstein, Cheah, & Guyer, 2005). Poor peer acceptance is associated with these negative outcomes at several different ages, including preschool, kindergarten (Ladd & Coleman, 1997), and adolescence (Prinstein & LaGreca, 2004). The effects of poor peer

acceptance can even persist into adulthood (Bagwell, Newcomb, & Bukowski, 1998).

Given the potential long-term and negative impact of poor peer acceptance, it is important to determine what early factors predict peer maladjustment. Identification of problematic early peer behaviors that contribute to low peer acceptance may help early intervention efforts.

Coie (1990) outlined a theory that addresses the processes and outcomes of peer rejection. Although his theory was built from a line of research that used categories of peer status (e.g., rejected, popular), advances in statistical methods have made continuous variables (e.g., social preference scores) easier to analyze. Categorical and continuous measures of peer acceptance are not purely synonymous; however, Coie's (1990) theory lends itself to an investigation of peer adjustment in general. In his theory, Coie outlines four phases: precursor, emergent, maintenance, and consequent. The emergent and consequent phases have received the most research attention. The emergent phase refers to the period during which a child's maladaptive social behavior leads to his or her rejection. It is assumed that specific characteristics of the child—not the peer group—are responsible for peer rejection during this phase. This relationship shifts during the maintenance phase, such that the group opinions and treatment of the rejected child become paramount. During the maintenance phase, it becomes more difficult for the child to change his or her status. Changes in behavior may not be noticed by the peer group and, therefore, may not result in status change. Finally, the consequent stage refers to the outcomes of peer rejection, which include increased aggression as well as increased internalizing problems. Less consideration, however, has been given to the precursor

phase, which is the focus of the current study. A more in-depth study of this phase is important for our understanding of the development of early peer behaviors, the development of peer acceptance/rejection, and to increase our ability to develop early interventions that target early patterns of maladaptive peer behavior. During the precursor phase, distal causes (e.g., parenting) and proximal causes (e.g., children's behavioral orientation toward their peers) are presumed to predict peer acceptance and rejection. Researchers have linked individual differences in parenting during the infant and toddler years to differences in school-age peer adjustment (Dishion, 1990; Rubin, Burgess, & Hastings, 2002). Fewer studies have investigated whether early differences in the peer domain are indicative of later school peer adjustment. That is, are individual differences in early child interactions—like differences in parent-child interactions—predictive of peer acceptance and behavior with peers in school? Is orientation to peers evident by the toddler years, and does it predict how well children are accepted in school?

Behavioral orientation toward peers can be expressed through a number of social and non-social behaviors. Patterns of social, aggressive, and withdrawn behaviors have received the most research attention, and these behaviors appear to be fairly stable by early childhood (see Rubin & Coplan, 1992 for a review). Social behavior emerges during toddlerhood, such that it tends to eclipse solitary play by the end of the second year of life (Eckerman, Whatley, & Kutz, 1975). Social reticence is observable in toddlerhood and predicts social reticence at age 4 (Rubin, Burgess, & Hastings, 2002). Finally, most children's aggressive behavior, including peer conflict, peaks between toddlerhood and preschool, declining as children enter school (Hill, Degnan, Calkins, &

Keane, 2006). It is an open empirical question whether the behaviors that emerge during toddlerhood reflect the patterns of behavior and predict the degree of peer acceptance in early childhood.

Howes and colleagues have studied various social play behaviors (e.g., reciprocal play and cooperative play) across the toddler, preschool, and early childhood years. Toddlers who displayed more complex social play with familiar peers (i.e., cooperative vs. parallel play) were also engaged in more complex social play in preschool one to two years later (Howes & Phillipsen, 1998). Teachers rated these children as less aggressive at age 9. Howes (1988) also found that cooperative social play in toddlerhood was related to higher peer ratings two years later in preschool. These findings suggest that social play, at least in the context of familiar peer interactions, is indicative of social competence in the toddler years.

Socially withdrawn and reticent behavior is another facet of children's behavioral orientation and has received recent empirical attention. Reticent behavior is operationally defined as hovering, onlooking, or unoccupied behavior and is associated with a fearful temperament (Rubin, Burgess, & Hastings, 2002). Reticence with unfamiliar peers is often conceptualized as behavioral inhibition and is typically studied in toddlerhood and early childhood. Rubin and colleagues (1995) demonstrated that withdrawal in the form of reticence around unfamiliar peers is relatively stable and predictive of later outcomes, such as loneliness and negative self-regard, by age 7. Reticence with unfamiliar peers is also associated with poor responses from unfamiliar peers in early childhood (Nelson, Fox, & Rubin, 2005). Withdrawal with familiar peers is conceptualized as anxious

withdrawal or anxious solitude. This type of behavior is typically assessed starting with school entry through early adolescence. Anxious solitude has been shown to be stable for at least a two-year period starting in preschool (Howes & Phillipsen, 1998) and kindergarten (Rubin, 1993). Anxious solitude is associated with poor peer acceptance and neglect as early as kindergarten (Gazelle & Ladd, 2003) and continuing throughout middle childhood and adolescence (Gazelle & Rudolph, 2004; Hymel, Rubin, Rowden, & LeMare, 1990; Morison & Masten, 1991).

It is not entirely clear, however, whether children who are reticent with unfamiliar peers are withdrawn from and then rejected by their familiar classmates. Studies of reticent children interacting with both familiar and unfamiliar peers are few, conducted with older children, and have shown conflicting results (Gazelle et al., 2005; Paquette & LaFrenier, 1994; Stewart & Rubin, 1995). Stewart and Rubin (1995) selected children who were rated by familiar peers and teachers as highly anxious-withdrawn. These children then interacted with unfamiliar peers and were less assertive and were less likely to reattempt problem solving after a failure compared to average children. Paquette and LaFrenier (1994) did not, however, find an overlap between the two contexts. Gazelle and colleagues (2005) selected anxious-withdrawn and behaviorally normative girls who were observed in 5 consecutive play situations with either familiar or unfamiliar peers. They found that although anxious-withdrawn girls displayed more difficulty interacting with peers in both settings compared to average girls, the behavior of anxious-withdrawn girls was much more similar to average girls in settings with unfamiliar peers. Asendorpf (1990) argued for the inclusion of situational specificity in models of the development of

reticence. His study demonstrated that the association between stranger inhibition and inhibition with familiar peers decreased over time, with inhibition in class being better predicted by classroom behaviors.

These mixed results suggest two possibilities. First, reticence may represent two distinct (although potentially interrelated) constructs depending on the situation in which the behaviors are displayed. It is an open empirical question whether behavioral inhibition (reticence with unfamiliar peers) is equivalent to anxious withdrawal (reticence with familiar peers). Second, it may be that the form and function of social inhibition changes between toddlerhood and early childhood. Much of the work investigating behavioral inhibition in social situations is conducted with younger children, whereas anxious withdrawal/solitude involves school-age children, leaving a gap in our knowledge about the continuity of these behaviors across time *and* context.

Finally, aggression is one of the most stable behavioral traits in childhood and adulthood. Olweus (1979) maintains that the stability of aggression among males approaches the level of stability seen in intelligence scores. Aggression has been shown to be stable by age 6 and predictive of later problems (Campbell, Pierce, Moore, & Marakovitz, 1996). Howes and Phillipsen (1998) found that aggression was stable over a five-year period from preschool to middle-childhood. Aggressive children are less likely to be accepted by their peers than are non-aggressive children (Miller-Johnson et al., 2002), starting with the earliest peer interactions. Aggression, therefore, is an important early factor to examine in relation to peer interactions and peer acceptance.

Despite the well-established link between aggression and maladjustment in childhood, some aggression and, more broadly, externalizing behaviors are normative during the toddler years, peaking around age 2 and then declining (Hartup, 1974; Tremblay, 2000), although a sub-group of children continue to display elevated levels of aggression (Campbell, 2002; Hill, Degnan, Calkins, & Keane, 2006). A number of factors that influence continuities and discontinuities in externalizing behaviors have been identified, including language skills (Stansbury & Zimmerman, 1999) and emotion regulation (Hill, Degnan, Calkins, & Keane, 2006). Children with well-developed adaptive skills tend to have declining externalizing trajectories from toddlerhood to early childhood. Children's behavioral orientation to their peers may be another factor that can influence trajectories of externalizing behavior, particularly aggression with peers. That is, children with adaptive behavioral orientations to their peers may exhibit fewer peer aggressive behaviors over time. Specifically, children's tendencies to be social or reticent with their peers may moderate the relations among toddler peer aggression, early childhood peer aggression, and early childhood peer acceptance.

Children's behavioral orientation to peers is likely not the only individual factor that predicts their social adjustment. Another potential individual factor that may influence social development and early peer adjustment is emotion regulation. Emotion regulation is posited to be an important individual factor that allows one to interact successfully with others (Porges, 2003). The ability to regulate emotions allows children to engage (e.g., talk or play with peers) and disengage (e.g., ignore) peers at appropriate times, a hallmark of adaptive social skills. Appropriate emotion regulation is related to

the ability to manage anger with peers (Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994) and with social competence and popularity (Eisenberg, Valiente, Fabes, et al. 2003). Children who have difficulty managing emotions in a constructive manner may be less successful in negotiating peer relationships (Keane & Calkins, 2004). Thus, it is expected that emotion regulation will be related to the emergence of children's social behavior in toddlerhood and peer acceptance in kindergarten. Furthermore, and as discussed above, emotion regulation is also associated with normative declines in aggression (Hill, Degnan, Calkins, & Keane, 2006). Therefore, it was also expected that emotion regulation would moderate the relation between peer conflict in toddlerhood and fighting behavior in kindergarten.

Current Study

The purpose of the current study is to examine what Coie (1990) calls the precursor phase in the development of peer rejection. Specifically, the focus of this study is children's behavioral orientation to their peers. Children's orientation is expected to predict their peer acceptance and their peer behaviors upon school entry. The first goal is to determine whether early peer interactions can serve as a marker of later peer adjustment (as measured by level of peer acceptance in kindergarten). Identifying early signs of peer problems is crucial to the development of intervention efforts for children with problematic peer relationships. Based on Howes' (1988) findings, it is argued that higher levels of social play in toddlerhood is a measure of social competence and will thus be related to higher peer acceptance in kindergarten. Reticent behavior is expected to be related to peer-nominated shy behavior.

It should be noted that the current study differs from previous work in that children's behavioral orientation toward peers at age two are assessed with *unfamiliar* peers, and their peer behaviors in kindergarten are assessed with *familiar* peers. Howes measured social behavior among familiar peers at both time points, whereas most work with reticent behavior assesses reticence with unfamiliar peers at both time points. It is not clear how similar children's behavior with their peers is between familiar and unfamiliar peer contexts. Thus, a secondary goal of this study was to further extend findings on social and reticent behaviors by including both peer contexts.

Aggression in toddler peer interactions is predicted to be related to both fighting behavior and decreased peer acceptance in kindergarten. The third goal of the study is to determine whether children's behavioral orientation toward peers moderates this relation, as there is a normative decline in aggressive behavior. Studies with older children have shown that children who show aggressive behavior coupled with prosocial tendencies are better liked than children who are aggressive only (Hawley, 2003); thus, it was expected that children who at age 2 displayed both aggressive and social behavior would be better liked and show less aggression at age 5 than children who display aggressive behavior coupled with low levels of social behavior. Reticence was expected to show the opposite pattern, given that school-age children identified as aggressive-withdrawn are consistently more maladjusted compared to aggressive-only and withdrawn-only children (Ladd & Burgess, 1999). Children who displayed peer aggression and high levels of reticence in toddlerhood were, therefore, expected to display aggression in kindergarten and be poorly accepted by their peers. Children who displayed aggression, but showed

low levels of reticence were expected to show peer adjustment commensurate with children who did not display peer aggression in toddlerhood.

Finally, this study sought to replicate and extend findings on the role of emotion regulation in the development of positive social adjustment as well as externalizing problems (in this case, peer aggression.) Good emotion regulation was expected to be related to toddler social behavior. Positive emotion regulation was predicted to be particularly important for children who displayed peer aggression as toddlers, such that children who displayed early peer aggression coupled with positive emotion regulation would be less likely to exhibit peer aggression in kindergarten. The answers to these questions will help clarify the precursor phase of peer acceptance and will shed light on the development of social competence and peer behavior in general.

CHAPTER II

METHOD

Participants

Participants were recruited as part of an ongoing longitudinal study that began when children were 2 years old. Three hundred and seven 2-year-old children and their mothers were initially recruited through child day-care centers, local pediatric offices, the County Health Department, and the local Women, Infants, and Children program. Participants were recruited from several sources to obtain an economically and racially diverse sample. An additional 140 children were recruited at six months of age, for a total of 447 children.

Children's parents completed the Child Behavior Checklist (CBCL; Achenbach, 1992) at age 2. Children were classified into three groups: (a) children with Externalizing scores on the CBCL in the clinical or borderline clinical range, with *T* scores of 60 or above ($n = 103$); (b) children with Externalizing and Internalizing scores on the CBCL in the clinical or borderline clinical range ($n = 61$); and (c) children with CBCL *T* scores below 60 on both Internalizing and Externalizing scales ($n = 283$). Although we over-sampled for externalizing problems, this sample reflected the demographics of the recruitment area and was economically and racially diverse (68% European American; mean Hollingshead score = 39.4). There were 215 male and 232

female children from primarily intact homes (62%). The three groups did not differ from one another on any sociodemographic measure.

A subset of children participated in a peer dyad visit at age 2 (in addition to the initial assessment visit). 316 children participated, resulting in 159 dyads (two children participated twice). Only children who had peer data at age 5 were included in the current report ($N = 176$). Of these children 48 were older than 3.5 years at the time of the peer dyad visit, and were thus excluded. The final sample included 128 children, ages 30 months to 42 months, from 92 dyads. This sample of 128 children was 70% European American with a mean Hollingshead (1975) score of 41.25. Both children from 36 dyads (72 children) were included, while only one child from each of 56 dyads was included. Of the 56 children from those dyads not included, two children were older than 42 months, two children had already participated in a separate dyad, and 52 did not have data at age 5. There was no difference on any study measure between children from dyads where both children were included and children from dyads where only one child was included in data analyses.

Two years after the original assessments, the families were contacted by mail and phone and asked to participate in a follow-up study of the children at preschool and kindergarten. Two hundred and forty-six families participated in the school assessment at age 5. Again, only children who participated in the peer dyad visit *and* had peer data at age 5 were included ($N = 128$). More families with boys as the target child discontinued participation in the study; however, there were no differences in race, socioeconomic status, or CBCL externalizing, internalizing, or total scores between the respondents who

continued to participate and those who did not. Furthermore, the proportion of children in each of the three groups was similar to that reported for the 2-year assessment.

Materials and Procedures at the 2-Year Assessment-Peer Visit

Children were matched by dyad, with one child from each risk group based on the externalizing status at recruitment [high-externalizing ($N = 49$), low-externalizing ($N = 79$)] in each dyad. As would be expected, the high-externalizing group had significantly different CBCL externalizing scores ($t = -16.0, p < .001$). High-externalizers had a mean CBCL score of 63.34 ($SD = 4.31$) and low-externalizers had a mean score of 47.82 ($SD = 5.89$). This represents a clinically significant difference in externalizing behaviors between groups. Children were placed with an unfamiliar age-mate and completed the following tasks: a *free-play session*, in which children had access to several toys throughout the room (10-15 min); a *sharing task*, in which children were given one desirable toy (a teeter-totter; 4-5 min); a *structured play task*, in which children were given a plastic set of kitchenware with several pieces with which to play (4-5 min); and a *free-play session with limited resources*, in which children had two toys—a more desirable toy (a toy phone that played voices, an electric piano, or a play guitar that played sounds) and a less desirable toy (a four-piece wood puzzle; 4-5 min). Both mothers were present during the entirety of the peer interaction. They were told they could interact quietly with one another, but they were asked not to initiate interaction with the children. They were also told to respond to their children as they normally would if the children approached them.

Coding of peer interaction. Coding was similar to that used in Howes (1988) and Rubin (1989). *Play behaviors* were coded in 10-second intervals. During each epoch, the major behavior engaged in during the majority of the interval was recorded. Codes for these behaviors were mutually exclusive; that is, not more than one behavior could be coded per epoch. Although many behaviors were recorded, including parallel play, the behaviors of interest for this study were social, reticent, and conflict behaviors (see Table 1). The measure of social or reticent behavior represented the proportion of 10-second intervals spent in that activity. The second five minutes of the free-play was coded, resulting in 30 epochs. The other tasks resulted in 24 to 30 coded intervals each, depending on whether the task was four or five minutes long. Several conflict behaviors were recorded. These behaviors were not mutually exclusive. Multiple conflict behaviors (e.g., verbal and physical aggression) could be recorded in each epoch. The conflict behaviors were recorded if they occurred at any point during an epoch, regardless of the duration; however, any given conflict behavior was not recorded more than once during an epoch. These behaviors could be recorded in an epoch during which either social or reticent behavior occurred during the majority of the epochs. (See Table 1 for descriptions of behaviors of interest.) Proportions were calculated for social behavior, reticent behavior, and conflict by dividing the number of epochs in which the variable of interest was displayed by the total number of epochs in that task.

Reliability. Two research assistants coded together 10% of the total sample on all tasks. Another 10% were coded separately to assess reliability. Intraclass correlations were used to measure reliability. Reliability for conflict behavior was adequate ($r = .78$,

$p < .001$). Good reliability was established for social behavior ($r = .92, p < .001$) and reticent behavior ($r = .95, p < .001$).

Materials and Procedures at the 2-Year Assessment-Emotion Regulation

In a second laboratory visit at age 2, mothers brought their children in for an individual visit and were videotaped during a task designed to elicit emotion regulation. The high-chair task from the Laboratory Temperament Assessment Battery: Locomotor Version 2.0 (Goldsmith & Rothbart, 1993) was used. During this task, the child is placed in a high chair without any toys or snacks for 5 minutes. Mothers were instructed to respond to their children as they deemed necessary. If the child was distressed or cried hard for more than 30 seconds, the task ended.

Coding of emotion regulation. Regulation was indexed by a measure of global regulation, which was coded on a scale of 0 (*no control of distress across task*) to 4 (*regulation of distress during most of task*).

Reliability. Two coders were involved in the regulation coding. They trained by working on 10% of the videotaped sessions and independently scoring another 10% for reliability purposes. Reliability kappa was acceptable for global regulation ($\kappa = .83$).

Procedures at the Kindergarten Assessment

Two hundred and forty-six children participated in the school assessment. One school returned less than 50% of consents; the data from this school was dropped due to questions about validity. Thus, data were collected for 114 boys and 132 girls in kindergarten. Of these children, 128 (58 boys) were part of the subset of children who participated in the peer dyad interaction.

Sociometric nominations. Parents of children in the target child's class were asked to provide consent to allow their child to participate in sociometric data collection. Data was collected from mid-October to April during the kindergarten year to allow the children time to become familiar with one another. A modified version of Coie, Dodge, and Coppotelli's (1982) procedure was used and is described below. Trained research assistants individually interviewed each child who had parental consent. Pictures were used as prompts to aid in gathering reliable data. Cross-gender nominations were used, which has been shown to improve stability (Terry & Coie, 1991).

Unlike the Coie et al. (1982) procedure, children provided unlimited nominations of the children they "liked most" and "liked least" (Terry, 2000). An unlimited nomination procedure has been shown to reduce measurement error and allows for reliable assessment with fewer classmates than is required by limited nominations procedures. In addition, children nominated classmates for the following behavioral categories: "starts fights", "shares", and "is shy". Children were trained on sample items until they understood the task.

Scores were calculated following Coie et al. (1982). "Liked most" and "liked least" nominations were standardized within the classroom. *Social preference* scores were calculated by subtracting the "liked least" z -score from the "liked most" z -score. These scores were then restandardized within the class. Preference z -scores ranged from -2.15 to 1.92, indicating a broad range of scores. Higher social preference scores indicate more peer liking within the classroom. Z -scores were also calculated for each of the three behavioral categories.

CHAPTER III

RESULTS

Preliminary Analyses

Preliminary analyses were conducted to examine race, gender, SES, and mother's level of education differences in the study measures. There were no race, SES, or maternal education differences in either the predictor (2-year peer behavior) or outcome variables (5-year sociometric nominations). There were no gender differences in the predictor variables, although there were gender differences in the outcome variables. Girls were more likely than boys to be nominated for shy and sharing behaviors ($t = -2.25, p = .03$; $t = -3.3, p = .001$, respectively). Boys, on the other hand, were more likely than girls to be nominated for fighting behavior ($t = 6.00, p < .001$; see Table 2 for means). Gender was, therefore, controlled in analyses involving shy, sharing, or fighting peer nominations. (See Table 3 for correlations among study variables.)

It should be noted that the analysis of dyadic interaction data typically poses the problem that one individual's behavior drives another individual's behavior. The remedy to this problem is often to use the dyad as the unit of analysis. We chose, however, to use the individual as the unit of analysis for three reasons. First, given the sample size, using the dyad as the unit of analysis would have reduced our ability to detect complex interaction effects. Second, the dyad analysis would obscure the individual differences we were attempting to identify. Third, the dyads were carefully matched so that each

dyad was similarly composed, thus equalizing across dyads the potential effect of one child's behavior on another child.

Toddler Peer Behavior

Means and standard deviations of reticent behavior, social behavior, and conflict overall and by task are listed in Table 4. The means observed in the current study were comparable to previous studies, although reticent behavior was slightly lower than most reported means (7-13% compared to 15-25%; Coplan et al., 1994; Howes, 1988; Jennings, Curry, & Connors, 1986; Rubin, Burgess, & Hastings, 2002). The associations between the peer behaviors were examined. Overall, reticent peer behavior was negatively associated with social behavior ($r = -.36, p < .001$). Conflict displayed during dyadic play was not significantly related to either reticent or social peer behavior.

Toddler Peer Behavior and Kindergarten Peer-Nominated Behavior

The effects of social behavior, reticent behavior, and conflict on peer-nominated social behavior and acceptance were examined. Social behavior was not associated with peer outcomes. Controlling for gender, reticent behavior was significantly related with decreased fighting in kindergarten ($r = -.22, p < .05$) and increased sharing ($r = .21, p < .05$). Contrary to expectations, reticence was not related to shy behavior or general social preference in kindergarten.

Because a large number of children did not display any conflict behavior during the entire peer interaction ($N = 73$), this variable was dichotomized. Children who displayed conflict during the dyadic interaction were more likely to be nominated for

fighting behavior ($M = .23$, $SD = 1.11$) than were children who did not display conflict ($M = -.08$, $SD = .87$; $t(126) = -2.1$, $p < .05$). Conversely, children who displayed conflict were less likely to be nominated for sharing behavior ($M = -.30$, $SD = .94$) than were children who did not display conflict ($M = .11$, $SD = .94$; $t(126) = -2.4$, $p < .05$). The two groups of children did not, however, differ in peer-nominated shy behavior or overall social preference in kindergarten.

The hypothesis that the relation between toddler conflict peer behavior and kindergarten peer behavior would be moderated by a child's overall social approach style (i.e., social and reticent behavior) was tested. Proportion of displayed social behavior did not interact with displayed conflict to predict any of the peer-nominated outcomes. Proportion of reticent behavior interacted with conflict to predict fighting and sharing behavior (controlling for gender), as well as overall social preference. The direction of the effect, however, was the opposite of our predictions. Children who displayed both peer conflict and *low* reticent peer behavior were more likely to be nominated as children who fight compared to other children. Children who displayed peer conflict and high reticent behavior were indistinguishable from children who displayed no conflict (see Figure 1; see Table 5 for R^2 and β ; overall model significant: $F(3,125) = 4.29$, $p < .01$). The pattern was similar, although weaker for sharing and social preference (i.e., children with conflict and low reticence showed a worse outcome.)

Emotion Regulation

Contrary to predictions, emotion regulation was not related to social behavior in toddlerhood. Furthermore, children who did and did not display conflict during peer dyads showed similar levels of emotion regulation. However, emotion regulation was weakly related to reticence displayed during the peer dyad ($r = .18, p < .05$).

We also tested the hypothesis that emotion regulation would moderate the relation between toddler peer conflict and kindergarten peer fighting, controlling for gender. The interaction between these variables on kindergarten fighting mirrored the findings using reticence as the moderator (see Figure 2, Table 6). Emotion regulation did not moderate the relation between toddler conflict and other peer outcome variables.

Ancillary Analyses

Reticence. In our study, reticence emerged as a marker of social adjustment rather than as a marker of maladaptive social withdrawal. Our main analyses suggest that reticence is related to and serves a similar function as emotion regulation. We ran post-hoc analyses to determine the extent to which reticence as measured in our study (i.e., onlooking and unoccupied behavior with unfamiliar peer) reflects social withdrawal. First we examined the bivariate correlation between children's proportion of reticence displayed with an unfamiliar peer and children's internalizing T-score from the CBCL. This association was not significant ($r = -.06, p = .51$). Next, we used the Social Fearfulness Scale score from the Toddler Behavior Assessment Questionnaire (Goldsmith, 1996). This scale examines inhibition, distress and withdrawal in novel or

uncertainty-provoking situations, including situations with children, doctors, and unfamiliar adults. The scale measures a range of responses from acute distress (e.g., crying and clinging) to milder hesitant responses (e.g., check with parent for assurance, take about 10 minutes to “warm up”) to immediate approach responses. The association with reticence with an unfamiliar peer was marginal and weak ($r = .17, p = .07$). Finally, we tested whether social fear as measured by the TBAQ would moderate the association between toddler peer conflict and kindergarten fighting behavior in a manner parallel to that of reticence in the lab. The overall hierarchical regression model was significant: $F(4, 120) = 11.98, p < .001$ (see Figure 3, Table 7), as was the interaction between social fear and toddler peer conflict ($\beta = .69, p = .05$). The nature of this interaction, however, was different from the interaction involving reticence. Specifically, children who demonstrated low levels of social fear showed moderate levels of fighting, regardless of whether they displayed peer conflict as a toddler. Children who were high on social fear and did not display toddler peer conflict were the least likely to be nominated as children who fight in kindergarten. Children who were highly fearful *and* displayed conflict showed the highest levels of fighting behavior in kindergarten.

Limited Resources Task. For our main analyses, we collapsed across tasks to increase the reliability of our observations. Each task, however, put unique demands on the child. Little demand was placed on the child during the Freeplay task, whereas the Teeter-Totter and Tea Set tasks were designed to elicit cooperation. The Limited Resource task was perhaps the most socially demanding task, as children had to balance

their own (typically) strong wish to play with the desired toy with the other child's desire to play with the same toy. As follow-up analyses, we examined the relations by task. We found that the Limited Resource task consistently mirrored the findings of the study when we collapsed across task. The other tasks produced fewer significant results. In the Limited Resources task, social behavior—which was not related to outcomes when collapsed across tasks—was significantly related to increased kindergarten fighting behavior ($r = .26, p < .01$). The interactions between conflict behavior and reticent behavior and emotion regulation were significant only in the Limited Resource condition. By separating by task, we reduce the reliability of the observations; thus, these ancillary findings must be interpreted with caution. It seems, however, that the overall findings may be driven, in large part, by peer behavior displayed in the Limited Resources task.

CHAPTER IV

DISCUSSION

The overall purpose of the current study was to examine the precursor phase of peer rejection. We focused on toddlers' behavioral orientations to their peers (i.e., social and reticent behavior) and investigated whether these behavioral orientations reliably predicted behavior with and acceptance by peers in kindergarten. A second goal was to determine whether children's social and reticent behaviors moderated the relation between toddler peer aggression and kindergarten peer behavior and acceptance. A third goal was to assess whether early emotion regulation was related to social behavior and whether it moderated the relation between peer conflict in toddlerhood and kindergarten.

Prior to a discussion of the findings, it is important to recognize some of the limitations of the current study. First, an individual unit of analysis approach was used with dyadic interactions. Ideally, a larger sample and a round-robin design would have been used to investigate questions of individual difference. The dyads were carefully matched, however, which would have equalized across the dyads the effects of one child on another, allowing us to interpret the findings of the study. A second weakness was that children were assessed with unfamiliar peers at age two and with familiar peers at age five. Although this design expanded research in the area by including both peer group types in a single study, it would have been preferable to have both group types at

each assessment point. The current design made it difficult to separate changes over time from changes across context. Finally, it is important to note that many of the results were weak to modest in strength; however, the overall pattern of findings was consistent and the magnitude of the associations (although not the direction) were not inconsistent with previous work.

An unexpected and interesting result of the current study was that reticence emerged as a marker of social competence. Although reticence was associated with peer outcomes in kindergarten, the direction of the association was the opposite of our predictions. Reticence as a toddler was associated with increased sharing and decreased fighting in kindergarten. There was no association, however, with shy behavior as a kindergartner. Furthermore, there was only a weak association between parent-rated social fear at age two and reticence with a peer. As would be expected based on the bivariate correlations, the interaction effect of reticence on the association between toddler peer conflict and kindergarten fighting was in the opposite direction of our predictions. Specifically, children who displayed low levels of reticence and conflict in toddler peer interactions were more likely than other children to be nominated for fighting behavior in kindergarten. Children who had high levels of reticence and displayed conflict behavior with peers, however, had lower levels of fighting in kindergarten and were comparable to children who did not display conflict with peers at age 2.

The notion that reticence in our paradigm was a socially adaptive response was further supported by two parallel regressions using emotion regulation and social fear as

moderators of toddler peer conflict and kindergarten fighting. Emotion regulation and reticence showed a similar moderation effect between the association of toddler peer conflict and kindergarten fighting. Reticence was only weakly (albeit significantly) related to emotion regulation at age 2, suggesting that reticence in this paradigm is not analogous to emotion regulation, but that the two characteristics are related and serve similar protective functions in the development of aggressive peer behaviors.

Conversely, the moderating effect of parent-rated social fear did not parallel that of reticence. Rather, children who were both high on social fear and displayed peer conflict were the most likely to be nominated as children who fight in kindergarten. This finding was in line with our original predictions involving reticence, wherein we predicted children with higher levels of reticence combined with peer conflict behavior would show higher levels of maladaptive behavior with peers based on the literature indicating that aggressive-withdrawn children are consistently more maladjusted compared to their peers. Thus reticence in our study appears to reflect an adaptive social skill rather than being a measure of maladaptive social fear.

There are several possible explanations for these counter-intuitive findings. First, much of the previous work has investigated reticence in a strictly unfamiliar-unfamiliar or familiar-familiar peer context. The current study used both unfamiliar (toddler peer dyad) and familiar (kindergarten classroom) peer contexts. There is some previous evidence that would support this finding, given the two different contexts. In familiar contexts, many preschool children use hovering as a preliminary entry bid (Ramsey & Lasquade, 1996), with the difference being that unpopular children are more likely to

persist unsuccessfully with this type of bid. Younger children (3-4 years) were also more likely to use hovering as a technique compared to older children (5 year old). Hovering and using a longer “wait-and-see” approach is a typical of bids made to unfamiliar groups (Putallaz & Wasserman, 1989). Gazelle and colleagues (2005) and Asendorpf (1990) have emphasized the necessity of studying the cross-situational specificity of socially withdrawn behavior. Gazelle and her colleagues showed that the behavior of socially withdrawn girls depended on the context (familiar/unfamiliar) of the peer interaction. Although socially withdrawn girls had more problematic interactions than average girls overall, their behavior was less maladaptive in unfamiliar peer situations. Our results further support the argument for careful investigation of the cross-situational specificity of reticent behavior. That is, more research is needed to determine the meaning and function of reticence in unfamiliar versus familiar situations. Furthermore, the degree of cross-situational specificity may depend on the age of the child; thus, investigating reticence across both time and context will provide us with rich information.

A second possible explanation is that reticence is the developmentally appropriate response for children in socially demanding situations. Reticence as socially adaptive was most apparent in the Limited Resource task, which was arguably the most socially demanding task. At this age, reticence and hovering may be developmentally appropriate. Cooperative and social play emerges during the 2nd and 3rd years of life (Eckerman, Whatley, & Kutz, 1975; Howes, 1988) and does not comprise the majority of play behavior until the preschool years (Howes, 1988). Toddlers may not have the requisite skills or experience to negotiate a limited resources situation. In fact, in one

study Camras (1984) assessing preschoolers', kindergartners', and 1st graders' responses to a limited resources situation showed that younger children were significantly more likely to use no verbal statement compared to older children, who were more likely to request permission or make demands on the other child. The quotidian world of the toddler may be such that the display of reticent behavior, particularly in a socially demanding situation, is a socially appropriate response.

The degree of reticent behavior may offer a third potential explanation. As in other research (e.g., Coplan et al., 1994; Rubin, Burgess, & Hastings, 2002), we operationalized reticence as onlooking and unoccupied behavior. This behavior can be, but is not always, accompanied by fearful crying and clinging to a parent. These more extreme fearful behaviors were infrequent in our sample. It should also be noted that although comparable, we observed slightly fewer instances of reticence (7-13%) compared to other published reports, which were closer to 15-20%. Thus, it is possible that *moderate* levels of reticence in a socially demanding task with unfamiliar peers is the socially appropriate response for toddlers.

Whereas an early reticent behavioral orientation to peers appears to be indicative of later peer adjustment (albeit in the opposite direction of our predictions), an early social behavioral orientation was not related to later peer adjustment, nor did it moderate the association between toddler peer conflict and kindergarten fighting behavior. There are several possible explanations for these null findings. The problem of familiar versus unfamiliar tasks may again explain this null finding. Whereas Howes studied social behavior across familiar tasks only, we have both an unfamiliar and a familiar task. It

may be that social peer behavior is only a marker of competence in familiar situations, suggesting that the ability to sustain social peer interactions over the history of a relationship may be more important than the ability to initiate social peer behavior during a short, unfamiliar interaction. Alternatively, the design of our study may have affected our ability to detect differences in regard to social behavior. Although we made attempts to equalize across dyads the extent to which one child's behavior influenced the other, it may be that whereas reticent behavior is less dependent on the actions of another child, social behavior in large part requires the response of the second child. Thus, including a round-robin design in addition to including observations with unfamiliar and familiar peers at both time points would allow us to better understand the relation between early social behavior and later peer adjustment.

Our ancillary analyses using the Limited Resources task only, however, revealed a significant effect of social behavior on kindergarten fighting. The direction of this effect was, however, in the opposite direction from our predictions. Due to the brief period of interaction (5 min), this finding is suggestive, rather than conclusive. There is evidence that would support the notion that in toddlers, social behavior in unfamiliar situations is a marker of dominance or externalizing tendencies. Hawley and Little (1999) study dominance in toddlers and children. They found that dominant toddlers were more likely to direct and take items from their partners. These toddlers also displayed more engaged and social play than did their less dominant counterparts. Although their data were not longitudinal, it is reasonable to expect that if social toddlers are more likely to take items and to direct play, these behaviors may lead to conflict with

peers later and thus more fighting and disruptive behavior. The finding that toddler social behavior is related to kindergarten fighting is in contrast to Howes' work, where social toddlers tend to become socially competent and well-liked children. Again, however, Howes studied social behavior across familiar contexts only. In a task that is designed to elicit competition, social behavior may reflect dominance, whereas social behavior in tasks designed to elicit cooperation or in less demanding social interactions may reflect another quality.

The first goal of this study was to determine whether children's early behavioral orientations to peers reliably predict school-age adjustment with peers. Our data indicate that the predictive ability of early peer behavior depends on the type of behavior (reticent/social) and the context in which the behaviors are displayed, including familiarity of peers (familiar/unfamiliar) and type of interaction (competitive/cooperative). Reticence appears to be a stronger predictor of later peer behavior compared to social behavior. Moderate reticence also appears to be a marker of social competence in situations with unfamiliar peers, particularly in socially demanding situations that elicit competition. Social behavior, on the other hand, is a less reliable predictor and may reflect dominance in competitive situations.

The second goal of the study was to determine whether early behavioral orientation toward peers moderated the association between toddler peer conflict and kindergarten fighting behavior. Reticence emerged as a protective factor for children who display early peer conflict behaviors. Specifically, children who displayed a higher proportion of reticent behavior along with peer conflict were similar to children who

displayed no peer conflict on kindergarten fighting behavior. Other individual variables also attenuated or exacerbated the association between early peer conflict and school-age fighting. Emotion regulation, like reticence, moderated this association such that relation between toddler peer conflict and kindergarten fighting was weaker for children with better emotion regulation. Parent-rated social fear, on the other hand, seemed to exacerbate the problem. The association between toddler conflict and kindergarten fighting was strongest for children with high social fear, suggesting that aggressive-withdrawal is a problematic social behavior even for very young children.

A third goal was to assess the role of emotion regulation in early social behavior. Contrary to predictions, emotion regulation was not related to social behavior, nor was it related to conflict behavior in toddlerhood. It was, however, weakly positively related to reticence in toddlerhood. On the face, these findings seem to contradict previous research; however, given the previous discussion on the null findings for social behavior and the counterintuitive findings for reticent behavior, these results are not surprising. In fact, the weak association between reticence and emotion regulation and the parallel moderating effects of reticence and emotion regulation support the notion that reticence in a socially demanding situation at this age may in fact be normative and appropriate. These results also add to the growing body of research that shows emotion regulation is important in social development and may be particularly important in altering trajectories of aggression.

To conclude, the current study supports Coie's theory of peer rejection in that a child's early behavioral orientation (a proximal causal factor in Coie's theory) predicts

school-age peer adjustment, both as a main effect and as a moderator. It seems, however, that early behavioral orientation predicts *specific* peer behaviors in the classroom, rather than directly predicting peer acceptance/rejection. Coie's theory also includes distal causal factors such as parenting behaviors. Parenting factors may help to explicate some of the associations between early peer behaviors and school-age peer adjustment. Contextual factors should also be considered in order to more fully understand the early predictors of peer adjustment/maladjustment. The current study highlights the importance of bridging the work that has been done using unfamiliar peer contexts and the work that has been done using familiar peer contexts. Gazelle and colleagues (2005) have shown some promising results with older girls who are highly social withdrawn. They found the behavior of these girls differed based on whether they were interacting with familiar or unfamiliar peers. To build on Gazelle and colleagues study and the current study, longitudinal designs using both contexts at each time point are necessary and will improve our knowledge of the constructs and cross-situational specificity of reticent and social behavior.

This study also adds to growing research that shows that trajectories of externalizing behavior, more broadly, are influenced by social factors such as SES (NICHD Early Child Research Care Research Network, 2004), maternal factors (Nagin & Tremblay, 2001), and individual factors such as the development of emotion regulation and attention skills (Hill, Degnan, Calkins, & Keane, 2006). This result suggests that including peer-specific factors may further our knowledge of the development of aggressive behavior, specifically in the context of peer relationships.

REFERENCES

- Achenbach, T. (1992). *Manual for the child behavior checklist/2-3 and 1992 profile*. Burlington, VT: Department of Psychiatry, University of Vermont.
- Asher, S., Hymel, S., & Renshaw, P. (1984). Loneliness in children. *Child Development, 55*(4), 1456-1464.
- Bagwell, C., Newcomb, A., & Bukowski, W. (1998). Preadolescent friendship and peer rejection as predictors of adult adjustment. *Child Development, 69*(1), 140-153.
- Buhs, E., & Ladd, G. (2001). Peer rejection as antecedent of young children's school adjustment: An examination of mediating processes. *Developmental Psychology, 37*(4), 550-560.
- Campbell, S. (2002). *Behavior problems in preschool children: Clinical and developmental issues* (2nd ed.). New York: Guilford Press.
- Campbell, S., Pierce, E., Moore, G., & Marakovitz, S. (1996). Boys' externalizing problems at elementary school age: Pathways from early behavior problems, maternal control, and family stress. *Development and Psychopathology, 8*(4), 701-719.
- Camras, L. (1984). Children's verbal and nonverbal communication in a conflict situation. *Ethology & Sociobiology, 5*(4), 257-268.
- Coie, J. (1990). Toward a theory of peer rejection. In S. Asher & J. Coie (Eds.), *Peer rejection in childhood* (pp.365-402). Cambridge, UK: Cambridge University Press.

- Coie, J., Dodge, K., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18*(4), 557-570.
- Coplan, R., Rubin, K., Fox, N., Calkins, S., & Stewart, S. (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. *Child Development, 65*(1), 129-137.
- Dishion, T. (1990). The family ecology of boys' peer relations in middle school. *Child Development, 61*(3), 874-892.
- Eckerman, C., Whatley, J., & Kutz, S. (1975). Growth of social play in the second year of life. *Developmental Psychology, 11*(1), 42-49.
- Eisenberg, N., Fabes, R., Nyman, M., Bernzweig, J., & Pinuelas, A. (1994). The relations of emotionality and emotion regulation to children's anger related reactions. *Child Development, 65*(1), 109-128.
- Eisenberg, N., Valiente, C., Fabes, R., Cumberland, A., Reiser, M., et al. (2003). Longitudinal relations among parental emotional expressivity, children's regulation, and quality of socioemotional functioning. *Developmental Psychology, 39*(1), 3-19.
- Gazelle, H., & Ladd, G. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development, 74*(1), 257-278.
- Gazelle, H., Putallaz, M., Li, Y., Grimes, C., Kupersmidt, J., & Coie, J. (2005). Anxious solitude across contexts: Girls' interactions with familiar and unfamiliar peers. *Child Development, 76*(1), 227-246.

- Gazelle, H., & Rudolph, K. (2004). Moving toward and away from the world: Social approach and avoidance trajectories in anxious solitary youth. *Child Development, 75*(3), 829-849.
- Goldsmith, H., & Rothbart, M. (1993). *The Laboratory Temperament Assessment Battery: Locomotor Version 2.02(LAB-TAB)*. Madison: University of Wisconsin.
- Goldsmith, H. (1996). Studying temperament via construction of the Toddler Behavior Assessment Questionnaire. *Child Development, 67*(1), 218-235.
- Hartup, W. (1974). Aggression in childhood: Developmental perspectives. *American Psychologist, 29*(5), 336-341.
- Hartup, W. (1989). Social relationships and their developmental significance. *American Psychologist, 44*(2), 120-126.
- Hartup, W. (1996). The company they keep: Friendships and their developmental significance. *Child Development, 67*(1), 1-13.
- Hawley, P. (2003). Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Quarterly, 49*(3), 279-309.
- Hawley, P., & Little, T. (1999). On winning some and losing some: A social relations approach to social dominance in toddlers. *Merrill-Palmer Quarterly, 45*(2), 185-214.
- Hill, A., Degnan, K., Calkins, S., & Keane, S. (2006). Profiles of externalizing behavior problems for boys and girls across preschool: The roles of emotion regulation and inattention. *Developmental Psychology, 42*(5), 913-928.

- Hollingshead, A. (1975). *Four-factor index of social status*. Unpublished manuscript, Yale University.
- Howes, C. (1988). Peer interaction of young children. *Monographs of the Society for Research in Child Development*, 53(1), 1-92.
- Howes, C., & Phillipsen, L. (1998). Continuity in children's relations with peers. *Social Development*, 7(3), 340-349.
- Jennings, K., Curry, N., & Connors, R. (1986). Toddlers' social behaviors in dyads and groups. *Journal of Genetic Psychology*, 147(4), 515-528.
- Keane, S., & Calkins, S. (2004). Predicting kindergarten peer social status from toddler and preschool problem behavior. *Journal of Abnormal Child Psychology*, 32(4), 409-423.
- Ladd, G., & Burgess, K. (1999). Charting the relationship trajectories of aggressive, withdrawn, and aggressive/withdrawn children during early grade school. *Child Development*, 70(4), 910-929.
- Ladd, G., & Coleman, C. (1997). Children's classroom peer relationships and early school attitudes: Concurrent and longitudinal associations. *Early Education and Development*, 8(1), 51-66.
- Laursen, B., Hartup, W., & Koplas, A. (1996). Towards understanding peer conflict. *Merrill-Palmer Quarterly*, 42(1), 76-102.
- Miller-Johnson, S., Coie, J., Maumary-Gremaud, A., Bierman, K., & The Conduct Problems Prevention Research Group (2002). Peer rejection and aggression and

- early starter models of conduct disorders. *Journal of Abnormal Child Psychology*, 30(3), 217-230.
- Nagin, D., & Tremblay, R. (2001). Parental and early childhood predictors of persistent physical aggression in boys from kindergarten to high school. *Archives of General Psychiatry*, 58(4), 389-394.
- Newcomb, A., Bukowski, W., & Bagwell, C. (1999). Knowing the sounds: Friendship as a developmental context. In A. Collins & B. Laursen (Eds.), *Relationships as developmental contexts* (pp. 63-84). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2004). Trajectories of physical aggression from toddlerhood to middle childhood: Predictors, correlates, and outcomes. *Monographs for the Society for Research on Child Development*, 69 (No. 4, Serial No. 278).
- Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin*, 86(4), 852-875.
- Paquette & LaFrenier (1994). Les enfants anxieux-isolés sont-ils inhibés dans un contexte de nouveauté sociale. *Canadian Journal of Behavioural Science*, 26(4), 534-550.
- Porges, S. (2003). The polyvagal theory: Phylogenetic contributions to social behavior. *Physiology and Behavior*, 79, 503-513.
- Prinstein, M., Cheah, C., & Guyer, A. (2005). Peer victimization, cue interpretation, and internalizing symptoms: Preliminary concurrent and longitudinal findings for

children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, 34(4), 11-24.

Prinstein, M., & LaGreca, A. (2004). Childhood peer rejection and aggression as predictors of adolescent girls' externalizing and health risk behaviors: A 6-year longitudinal study. *Journal of Consulting and Clinical Psychology*, 72(1), 103-112.

Putallaz, M., & Wasserman, A. (1989). Children's naturalistic entry behavior and sociometric status: A developmental perspective. *Developmental Psychology*, 25(2), 297-305.

Ramsey, P., & Lasquade, C. (1996). Preschool children's entry attempts. *Journal of Applied Developmental Psychology*, 17(1), 135-150.

Rubin, K. (1989). *The play observation scale*. The University of Waterloo.

Rubin, K. (1993). The Waterloo Longitudinal Project: Correlates and consequences of social withdrawal from childhood and adolescence. In K. Rubin (Ed.), *Social withdrawal, inhibition, and shyness in childhood* (pp. 291-314). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Rubin, K., Bukowski, W., & Parker, J. (1998). Peer interactions, relationships, and groups. In D. William & N. Eisenberg (Eds.), *Handbook of child psychology, 5th Ed., Vol. 3, Social, emotional, and personality development* (pp. 619-700). Hoboken, NJ: John Wiley & Sons.

- Rubin, K., Burgess, K., & Hastings, P. (2002). Stability and social-behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development, 73*(2), 483-495.
- Rubin, K., & Coplan, R. (1992). Peer relationships in childhood. In M. Bornstein & M. Lamb (Eds.), *Developmental psychology: An advanced textbook (3rd ed.)*, (pp. 519-578). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Rubin, K., Chen, X., McDougall, P., & Bowker, A. (1995). The Waterloo Longitudinal Project: Predicting internalizing and externalizing problems in adolescence. *Development and Psychopathology, 7*(4), 751-764.
- Sandstrom, M. (2004). Pitfalls of the peer world: How children cope with common rejection experiences. *Journal of Abnormal Child Psychology, 32*(1), 67-81.
- Stansbury, K., & Zimmerman, L. K. (1999). Relations among child language skills, maternal socializations of emotion regulation, and child behavior problems. *Child Psychiatry and Human Development, 30*, 121-142.
- Stewart, S., & Rubin, K. (1995). The social problem-solving skills of anxious-withdrawn children. *Development and Psychopathology, 7*(2), 323-336.
- Terry, R. (2000). Recent advances in measurement theory and the use of sociometric techniques. In A. Cillessen & W. Bukowski (Eds.), *Recent advances in the measurement of acceptance and rejection in the peer system: New direction for child and adolescent development* (pp. 27-53). San Francisco: Jossey-Bass.
- Terry, R., & Coie, J. (1991). A comparison of methods for defining sociometric status among children. *Developmental Psychology, 27*(5), 867-880.

Tremblay, R. (2000). The development of aggressive behaviour during childhood: What have we learned in the past century? *International Journal of Behavioral Development*, 24, 129-141.

APPENDIX A. TABLES

Table 1. *Behaviors Recorded during Dyad Interaction.*

CODE	DEFINITION	EXAMPLE
Social behavior*		
Cooperative Play	Engages in the same activity as the other child and takes turns or responds contingently.	The children play with a pop-up toy together, with one child pushing all the buttons to open compartments while the other child then shuts all the compartments again.
Simple Social Play	Talks, smiles, or plays with the other child without sharing a goal or taking turns with the other child.	While playing with plastic kitchenware, the target child smiles and offers dishes to the other child while maintaining an independent play area.
Reticent behavior*		
Unoccupied	Maintains a lack of focus or intent towards any person, thing, or activity.	The target child walks around the room slowly looking briefly at many toys or posters in the room.
Onlooking/hovering	Observes the activity of the other child without being involved. Children can be in close or distant proximity.	The target child stares at the non-target child who is playing alone.
Conflict**		
Verbal Aggression	Expresses displeasure towards the other child verbally only.	When the non-target child tries to join the target child on the teeter-totter, the target child yells, "No! It's mine!!"
Instrumental Aggression	Physically expresses anger in an effort to secure a toy from the other child.	The target child grabs a toy the other child is playing with and aggressively pulls it from the other child's hand.
Hostile Aggression	Physically harms the other child for no reason except to express some negative emotion.	The target child hits the other child on the back and walks away.
Retaliatory Aggression	Responds aggressively to the physical aggression of the non-target child.	Non-target child snatches target child's toy and target child grabs toy back.

* Behaviors are mutually exclusive from each other and indicate the major behavior seen during a 10 sec epoch.

** Behaviors can be recorded in conjunction with any social/reticent behavior and other conflict behavior during a 10 sec epoch.

Table 2.
Gender Differences in Peer Outcome Data

<u>Outcome variables</u>	<u>Boys</u>	<u>Girls</u>
Fighting	.58 (1.00)	-.35 (.75)
Sharing	-.37 (.94)	.18 (.91)
Shy	-.29 (.74)	.07 (1.03)

Table 3.
Correlations among Study Variables.

Variables	1.	2.	3.	4.	5.	6.	7.	8.
1. Proportion of Social Behavior - Toddler	1							
2. Proportion of Reticent Behavior - Toddler	-0.36***	1						
3. Conflict Behavior - Toddler	-0.07	-0.09	1					
4. "Fights" - Kindergarten	0.05	-0.22*	0.18*	1				
5. "Shy" - Kindergarten	-0.003	0.11	-0.02	-0.03	1			
6. "Shares" - Kindergarten	-0.008	0.21*	-0.21*	-0.35***	-0.09	1		
7. Social preference - Kindergarten	-0.03	0.10	-0.07	-0.55***	-0.06	0.68***	1	
8. Emotion Regulation	.05	.18*	-.10	-.07	-.03	-.05	.04	1

Note: correlations involving "fights", "shy", and "shares" control for gender;
 N = 128 for all, except Emotion Regulation, where N = 123
 * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.
Means, Standard Deviations, and Ranges of Proportion of Peer Behaviors Overall and by Task (N = 128).

	M(SD)	Range
<u>Reticent (total)</u>	0.1 (0.11)	.00-.77
Freeplay	0.12 (0.18)	.00-.93
Teeter-Totter	0.07 (0.13)	.00-.90
Tea Set	0.07 (0.14)	.00-.87
Limited Resources	0.13 (0.16)	.00-1.00
<u>Social (total)</u>	0.33 (0.16)	.01-.71
Freeplay	0.14 (0.2)	.00-.76
Teeter-Totter	0.63 (0.33)	.00-1.00
Tea Set	0.28 (0.24)	.00-1.00
Limited Resources	0.24 (0.21)	.00-.79
<u>Conflict (total)</u>	0.01 (0.04)	.00-.71
Freeplay	0.005 (0.02)	.00-.14
Teeter-Totter	0.01 (0.04)	.00-.28
Tea Set	0.01 (0.04)	.00-.30
Limited Resources	0.02 (0.05)	.00-.23

Table 5.
Effect of Toddler Reticence, Conflict, and Interaction of the Two on Kindergarten Fighting.

		<u>B</u>	<u>R²</u>	<u>ΔR²</u>
Step 1:	Gender	-0.46***	0.22***	
Step 2:	Proportion of Reticence	-0.06		
	Proportion of Conflict Behavior	0.26*	0.27***	0.05*
Step 3:	Reticence X Conflict	-0.25*	0.30***	0.03*

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

Table 6.
Effect of Toddler Emotion Regulation, Conflict, and Interaction of the Two on Kindergarten Fighting.

		<u>B</u>	<u>R²</u>	<u>ΔR²</u>
Step 1:	Gender	-0.45***	0.22***	
Step 2:	Emotion Regulation (ER)	0.08		
	Proportion of Conflict Behavior	0.74*	0.24***	0.02
Step 3:	ER X Conflict	-0.63**	0.28***	0.05**

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

Table 7.
Effect of TBAQ Social Fearfulness, Conflict, and Interaction of the Two on Kindergarten Fighting.

		<u>B</u>	<u>R²</u>	<u>ΔR²</u>
Step 1:	Gender	-0.49***	0.24***	
Step 2:	Social Fearfulness	-0.07		
	Proportion of Conflict Behavior	0.13	0.26***	0.02
Step 3:	Social Fear X Conflict	0.69*	0.29***	0.03*

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

APPENDIX B. FIGURES

Figure 1.
Interaction of toddler conflict and reticent behavior on kindergarten fighting (z-scores).

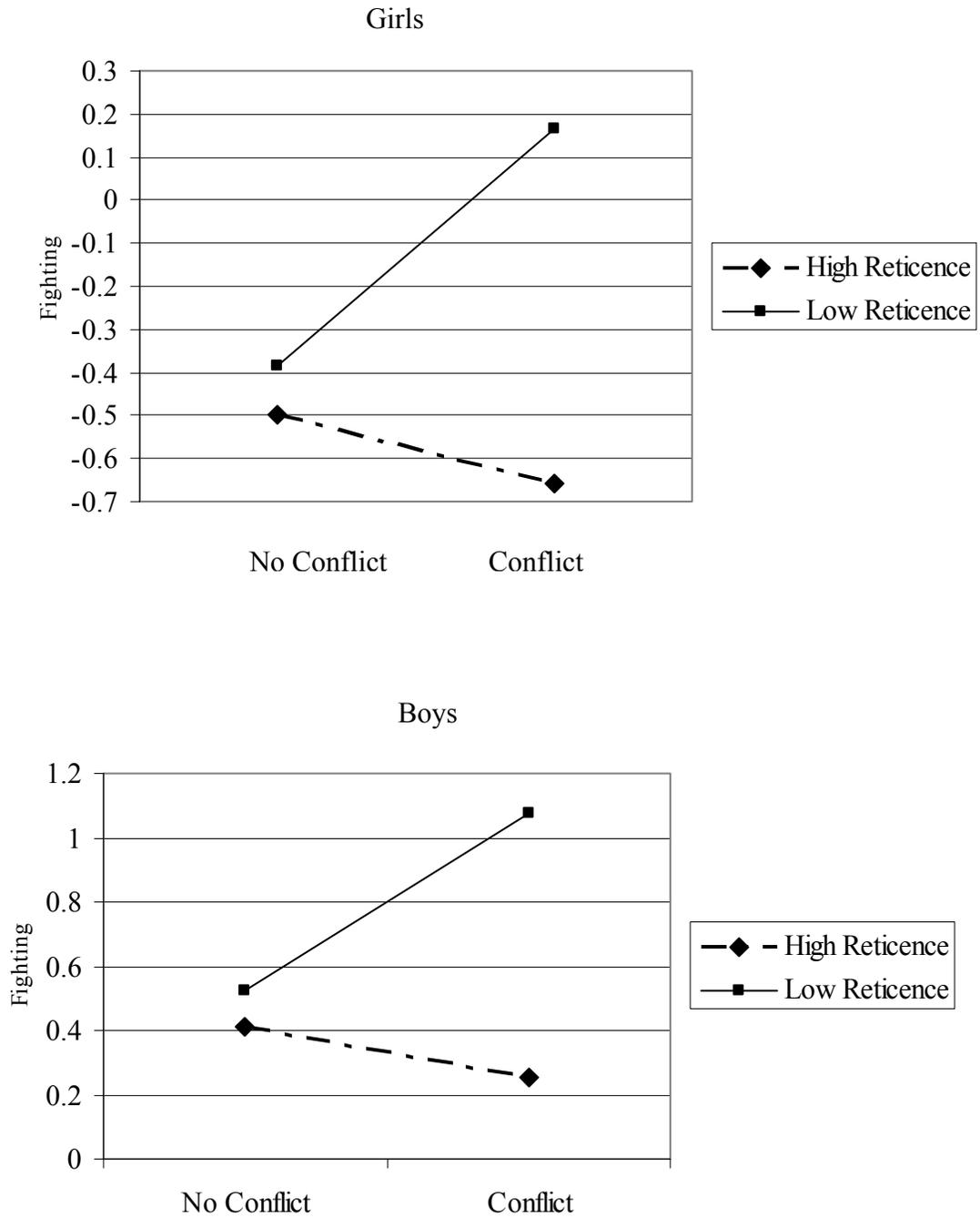


Figure 2.
Interaction of toddler conflict and emotion regulation on kindergarten fighting (z-scores).

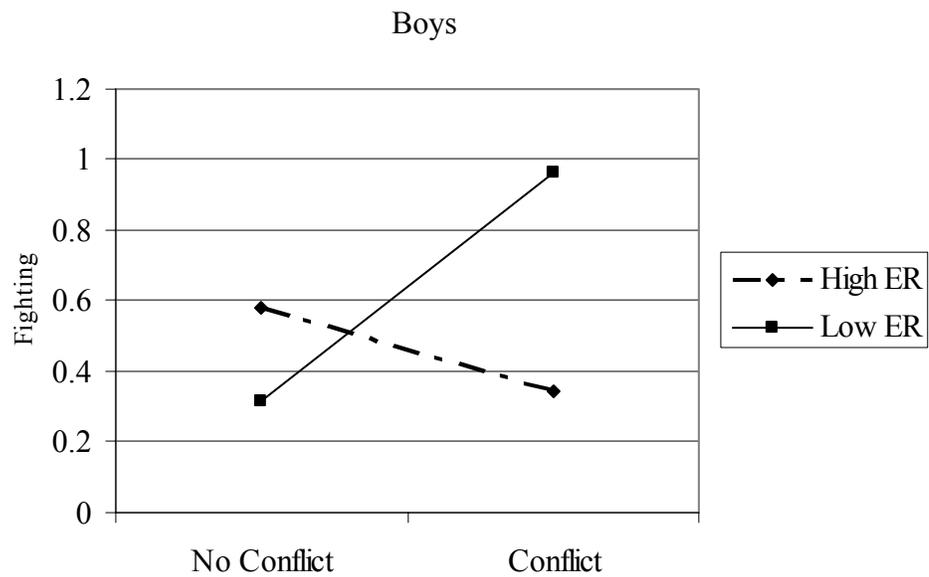
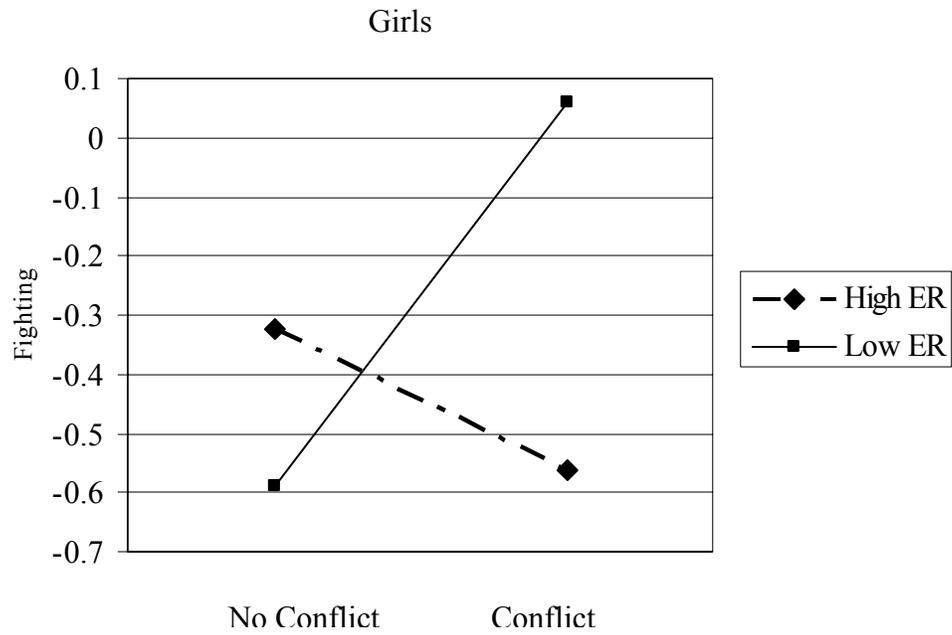


Figure 3.
Interaction of toddler conflict and social fearfulness on kindergarten fighting (z-scores).

