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Reactively aggressive and hyperactive-impulsive children have been shown to have a higher risk of being rejected by their peers, which can lead to a multitude of negative outcomes, including psychological and behavioral problems. An environmental factor that may impact the relation between these problem behaviors and peer rejection is the teacher-child relationship. Past research examining how teacher-child relationship factors interact with child characteristics in predicting peer outcomes has produced inconsistent results, possibly due to combining hyperactivity-impulsivity and reactive aggression into the same category, when there is evidence that these constructs should be examined independently. It was hypothesized that due to the negative emotionality associated with reactive aggression, teacher-child closeness and teacher-child conflict would moderate the association between reactive aggression and peer rejection, but not the association between hyperactivity-impulsivity and peer rejection. A sample of 106 girls and 81 boys was assessed in the kindergarten year for teacher-reported behavior problems and the level of closeness and conflict present in the teacher-child relationship. Peer rejection data were collected using a sociometric nomination procedure in kindergarten. Results indicated that teacher-child conflict, but not closeness, moderated the relations between both externalizing subtypes and peer rejection. Implications for future research and a consideration of correlates with teacher-child relationship variables were discussed.

EXTERNALIZING SUBTYPES AND PEER REJECTION: THE IMPACT OF A CLOSE OR CONFLICTUAL TEACHER-CHILD RELATIONSHIP

by

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CHAPTER I

INTRODUCTION

Rejection by one's peers has been associated with a number of negative outcomes for children, including truancy, anxiety, depression, substance use, and engagement in delinquent activities (Bierman, 2004; Coie & Cillessen, 1993; Kupersmidt, Coie, & Dodge, 1990). Researchers have identified several individual characteristics that put a child at risk for being rejected by their peers, including aggression and hyperactivity-impulsivity (Bierman, 2004; Coie, Belding, & Underwood, 1988; Hoza, 2007). In addition to these individual factors, environmental factors might interact with these child characteristics in predicting peer rejection. One environmental factor that could impact child outcomes is the teacher-child relationship. Though some researchers have examined how teacher-child closeness and conflict interact with child characteristics in predicting peer relationship outcomes, most of this research has focused on children with difficult temperaments or with externalizing problems, in general. The results of these studies have been mixed, with some studies showing a buffering effect of teacher-child closeness, others showing an exacerbating effect of teacher-child conflict, and others showing no effects. These mixed results may, in part, be due to the fact that the constructs "difficult temperament" and "externalizing problems" combine the child characteristics of reactive aggression and hyperactivity-impulsivity. Although

hyperactivity-impulsivity and reactive aggression are related, a meta-analysis by Card and Little (2006) showed that they share only a small to moderate correlation. Thus, while some children may exhibit both hyperactivity-impulsivity and reactive aggression, and both are risk factors for peer rejection, others may exhibit only one or the other. Consequently, the teacher-child relationship may operate differently for children with these different behavioral manifestations, which could help explain the inconsistencies in past research on this topic.

The Teacher's Role in the Kindergarten Classroom

In examining children's peer relationships, researchers have emphasized the importance of examining both within-child variables and environmental or contextual variables. As Bronfenbrenner's bioecological model emphasizes, a person develops within many environmental systems, with different sources of influence. As such, it is important to understand the interaction between a person and their environment (Bronfenbrenner, 1977). For children entering kindergarten, these processes involve higher rates of interaction with both teachers and peers. Once formal schooling has begun, teachers become the adults primarily responsible for guiding a child's education, as well as supervising interactions with peers. For these reasons, recent research has focused on the teacher-child relationship as an important process in development. Farmer, Lines, and Hamm (2011) described the teacher's influence as an "invisible hand" that guides the general social atmosphere of the classroom. These researchers explained the teacher's role as twofold: to teach and reinforce appropriate behavior, as well as to

facilitate children's social opportunities and regulate classroom peer dynamics (Farmer et al., 2011).

This role for teachers may be particularly crucial in the kindergarten year, as children are transitioning into the formal school environment. In kindergarten, children begin to take on more personal responsibility for regulating their emotions and social interactions. Children who attend preschool become accustomed to less direct supervision and more social interaction, but expectations for children's behavior and academic achievement are generally not as high as those in the kindergarten classroom, especially with regard to children's attention and behavior (Rimm-Kaufman & Pianta, 2000).

Pianta and Steinberg (1992) defined three qualities of the teacher-child relationship using the Student-Teacher Relationship Scale (STRS), a self-report measure of a teacher's relationship with a child. These qualities include teacher-child conflict, closeness, and dependency. A conflictual teacher-child relationship is defined by a lack of rapport between the child and teacher and frictional interactions; teachers reporting high conflict perceive their interactions with the student as negative, and report feeling ineffective and emotionally drained when dealing with the student. A close teacher-child relationship is characterized by warmth, affection, and open communication. Finally, a dependent teacher-child relationship is associated with children who are clingy and overly needy (Pianta, 1996). The conflict and closeness subscales are moderately negatively correlated ($r = -.451$, $p<.001$). The dependency subscale, which was not used in this study, is weakly correlated with both the conflict subscale ($r = .278$, $p<.001$), and the closeness subscale ($r = .125$, $p<.01$) (Pianta, 1996). Because the conflict and

closeness subscales share a moderate negative correlation, it appears that these two constructs do not exist on one continuum, and that teachers report relationships with students that are high in both conflict and closeness, and vice versa (Pianta, 1996).

Since the teacher plays an important role in easing the kindergarten transition for children, much research has focused on the teacher-child relationship during this developmental stage and its implications across future development. Hamre and Pianta (2001) found that teacher-child conflict in kindergarten was negatively associated with math and reading grades in 1st through 8th grade. Other researchers have also found high levels of teacher-child closeness in kindergarten to be associated with higher visual and language skills, and higher report card grades in kindergarten and 1st grade (Birch & Ladd, 1997; Pianta & Stuhlman, 2004).

In addition to academic achievement, children's behavioral outcomes have also been associated with aspects of the kindergarten teacher-child relationship. Silver, Measelle, Armstrong, and Essex (2005) examined trajectories of classroom externalizing behavior from kindergarten to third grade, and found a significant relation between kindergarten teacher-child conflict and externalizing behavior slope, such that higher levels of teacher-child conflict in kindergarten predicted increases in externalizing behavior from kindergarten to third grade. Additionally, these researchers observed a protective effect of teacher-child closeness in predicting trajectories of externalizing behavior to third grade, which was the strongest for children who exhibited the highest initial levels of externalizing behavior (Silver et al., 2005). These findings indicate that the teacher-child relationship is not only important in predicting a child's behavior in one

teacher's classroom, but also in predicting trajectories of behavior across elementary school.

Less empirical research has focused on the teacher's role in children's social relationships, but researchers have theorized that a warm relationship with a teacher may provide children with a more supportive social environment in the classroom, helping them to develop socially adaptive behaviors; on the other hand, a turbulent and confrontational relationship with a teacher may exacerbate a child's risk for negative peer outcomes by creating a more negative and adversarial classroom environment (Farmer et al., 2011).

The Teacher-Child Relationship as a Risk or Protective Factor for Social Outcomes

The current study approaches this topic from a child by environment perspective, in which a child's individual characteristics of reactive aggression or hyperactivity-impulsivity interact with characteristics of their environment, in this case, the amount of closeness or conflict present in the teacher-child relationship. Researchers have theorized that for children at risk for peer rejection due to their behavioral problems, closeness in the teacher-child relationship could buffer them against later peer rejection, while conflict in the teacher-child relationship may put them at greater risk for rejection. Few studies in this area have explicitly examined peer rejection as a child outcome; however, researchers have examined other social outcomes in this context. Studies examining teacher-child relationship factors as moderators in the relation between within-child variables and social outcomes have primarily focused on broad individual child characteristics of difficult temperament and externalizing behavior. For instance, Griggs,

Gagnon, Huelsman, Kidder-Ashley, and Ballard (2009) examined preschool children with a difficult temperament and found that teacher-child conflict significantly moderated the relation between temperament and play disruption, such that children with more difficult temperaments were more likely to exhibit disrupted play when there was higher conflict in the teacher child relationship, but not when there was lower conflict. Teacher-child closeness was not a significant moderating variable in this study (Griggs et al., 2009). Rudasill, Niehaus, Buhs, and White (2013) also studied preschool children's difficult temperaments, and examined whether teacher-child closeness and teacher-child conflict moderated the association between early difficult temperaments and later peer interactions. These researchers did not find any significant moderation paths with these variables, which seems to contradict the findings of Griggs and colleagues described previously (Griggs et al., 2009; Rudasill et al., 2013). This lack of consistency in findings could be due to the fact that "difficult temperament" is a broad category encompassing many different behaviors, and may imply that this category of behaviors should be examined more carefully.

In addition to difficult temperament, externalizing behavior has been examined as a risk factor for later social maladjustment. In a study of elementary school children, Baker (2006) found that children with externalizing problems who also had a close teacher-child relationship had higher levels of prosocial competence than similar children with a less close teacher-child relationship; that is, teacher-child closeness moderated the relation between externalizing behavior and prosocial competence, acting as a protective factor. In another study examining elementary school children's social outcomes,

Henricsson and Rydell (2006) found no evidence for moderating effects of teacher-child closeness or teacher-child conflict in the relation between externalizing problems and peer acceptance. As noted in studies examining difficult temperament, the construct of externalizing problems is also broad, and may be tapping into several individual child characteristics that operate differently with regard to teacher-child relationship variables.

Though the social outcome variables in the abovementioned studies are not precisely the same, in general, the role of the teacher-child relationship in influencing social outcomes for children with problem behavior is unclear; some results show a protective effect of teacher-child closeness or an exacerbating effect of teacher-child conflict, while others show no moderating effects. This discordance in the literature may be due in part to how previous researchers have defined "difficult temperament" and "externalizing problems," as these variables are comprised of multiple child characteristics. For instance, the studies examining difficult temperament used latent variables composed of various dimensions, including both activity level and anger/frustration, among other factors (Griggs et al., 2009; Rudasill et al., 2013). Similarly, Baker (2006) measured externalizing behavior as a composite score of aggression, hyperactivity, and conduct problems, while Henricsson and Rydell (2006) used acting-out behaviors combined with restlessness and inattention. In sum, the small body of literature examining moderating effects of teacher-child relationship factors on the relation between difficult/externalizing behaviors and social outcomes has examined many problem behaviors, including aggressive and hyperactive behaviors, as a single construct, and results have been inconsistent.

Past research has shown that although there is some overlap between hyperactivity-impulsivity and reactive aggression, these constructs are distinguishable. For instance, a meta-analysis by Card and Little (2006) found that across 11 studies, reactive aggression had only a small to moderate correlation with ADHD-type symptoms (r=.24), implying that while there may be some overlap, reactive aggression and ADHD symptoms such as hyperactivity-impulsivity should be examined as two separate constructs. Other research has also stressed the importance of distinguishing between these two categories of externalizing problems, suggesting that hyperactivity and aggression are partially independent (Hinshaw, 1987). In the general population, researchers have estimated the correlation between aggressive and hyperactive behaviors to be between .6 and .83, indicating high overlap but possible differentiation between these constructs (Achenbach & Rescorla, 2001; Shaw, Stringaris, Nigg, & Leibenluft, 2014). While recent research has highlighted the need to examine the separate interactions of hyperactivity-impulsivity and reactive aggression with teacher-child relationship factors in predicting social outcomes, few researchers have carried this out (Runions, 2014).

Hyperactivity-Impulsivity, Reactive Aggression, and Peer Rejection

Peer rejection is not simply the opposite of peer acceptance; rather, a child who is rejected by their peers is actively disliked by the general peer group (Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). This rejection can lead to a multitude of negative outcomes across childhood and even early adulthood, including delinquency, adult criminality, school dropout, internalizing problems, externalizing problems, and

substance use (Bagwell, Newcomb, & Bukowski, 1998; Bierman, 2004; Coie & Cillessen, 1993; Kupersmidt et al., 1990). Due to the negative outcomes associated with peer rejection, a large body of research has been dedicated to identifying individual characteristics that put a child at risk for being rejected by his or her peers. Two child characteristics that have been reliably associated with childhood peer rejection are reactive aggression and hyperactivity-impulsivity.

Aggressive behaviors are generally defined as actions intended to cause harm to others (Coie et al., 1988). These actions can include hitting, wrestling, insulting, threatening, gossiping, and lying (Bierman, 2004). While many different categories of aggression have been defined, research has consistently identified two types of aggression that differ in their intentionality: proactive aggression and reactive aggression. Proactive aggression is deliberate, and used in an instrumental way to achieve a goal, such as pushing another child out of line to get in front of them (Card & Little, 2006). Reactive aggression, on the other hand, is more emotional, and is a response to frustration or provocation; for instance, a child who gets bumped into during lunch and spills their drink may retaliate by pushing the child who bumped into them (Card & Little, 2006). In Card and Little's meta-analysis (2006), across 7 studies reactive aggression had a significantly stronger relationship with peer rejection (sr=.23) than proactive aggression (sr=.12). The exact mechanism linking reactive aggression to peer rejection is unknown, but researchers have theorized that children exhibiting high levels of reactive aggression may be rejected by their peers due to their anger, distress, and defensiveness in response

to situations that others perceive to be benign (Coie et al., 1988; Evans, Fite, Hendrickson, Rubens, & Mages, 2015).

Another individual characteristic linked to peer rejection in childhood is hyperactivity-impulsivity. As mentioned previously, children exhibiting high levels of hyperactivity-impulsivity are also likely to exhibit negative and aggressive behaviors, which may contribute to their negative social status; however, this does not categorize all hyperactive-impulsive children (Evans et al., 2015; Nijmeijer et al., 2008). Hyperactive-impulsive children may also be at risk for peer rejection due to their intrusive and inappropriate social behaviors, such as running, yelling, and interrupting other children's playtime (Hoza, 2007; Nijmeijer et al., 2008). While some researchers have addressed social outcomes for hyperactive-impulsive and reactively aggressive children, relatively few have examined the separate effects of these variables in predicting peer rejection. A recent study addressing this topic examined the independent effects of reactive aggression and hyperactivity-impulsivity on peer rejection in an adolescent sample (Evans et al., 2015). These researchers found that while hyperactivity-impulsivity and reactive aggression were related, only reactive aggression was uniquely related to peer rejection, implying that the reactive aggressive behaviors proved most socially problematic for these adolescents (Evans et al., 2015). While these findings are informative, researchers have not examined this topic in younger children, nor have they explored potential environmental factors that could influence the relation between reactive aggression, hyperactivity-impulsivity, and peer rejection, such as the teacher-child relationship. Examining peer rejection for these populations of children is

particularly important, since aggressive or hyperactive-impulsive children who also experience peer problems are at even greater risk for negative outcomes such as substance use, delinquency, and anxiety than rejected children without these individual characteristics (Bierman, 2004; Mrug et al., 2012).

Hyperactivity-impulsivity, Reactive Aggression, and the Teacher-Child Relationship

Because children's levels of reactive aggression and hyperactivity-impulsivity put them at risk for peer rejection, and thus, serious negative outcomes, it is important to examine environmental factors that may impact this link to peer rejection, such as the teacher-child relationship. While research has begun to examine the role of a close or conflictual teacher-child relationship in predicting peer status and social behaviors, the results of this research has been mixed, and has not accounted for the potential differential relations with hyperactivity-impulsivity and reactive aggression (Baker, 2006; Card & Little, 2006; Griggs et al., 2009; Henricsson & Rydell, 2006; Rudasill et al., 2013). Due to the nature of their behaviors, it is possible that children primarily exhibiting reactively aggressive behaviors are impacted differently by a close or conflictual teacher-child relationship than children primarily exhibiting hyperactive-impulsive symptoms.

Reactive aggression is characterized by high levels of negative emotionality (Hubbard, McAuliffe, Morrow, & Romano, 2010). Research has indicated that reactively aggressive children tend to interpret stimuli in the environment as hostile or threatening and retaliate with anger and aggression (Eisenberg, Fabes, Guthrie, & Reiser, 2000; McAuliffe, Hubbard, Rubin, Morrow, & Dearing, 2006). In contrast, hyperactive-

impulsive children typically exhibit behaviors that are intrusive, disruptive, and annoying (Hoza, 2007). While there is comorbidity, some children exhibit hyperactive-impulsive behaviors in the absence of reactive aggression. Nijmeyer and colleagues (2008) reviewed research examining social dysfunctioning in children with ADHD and concluded that hyperactivity and impulsivity led to peer rejection even in the absence of commonly comorbid aggressive behaviors. These researchers highlighted that pathways leading to peer rejection for "pure" and "comorbid" groups of children with ADHD may differ, but researchers have not yet examined these differential pathways (Nijmeijer et al., 2008).

Due to the high levels of negative emotionality they experience, it was expected that children exhibiting reactive aggression would be more sensitive and responsive to teacher interactions. For instance, when teacher-child conflict is higher, reactively aggressive children likely respond with increased anger and aggression, which may negatively impact their other classroom social interactions. In fact, Doumen and colleagues (2008) found evidence for a bidirectional relationship between teacher-child conflict and aggression across the kindergarten year, in which initial levels of aggression led to increased teacher-child conflict by midyear, which predicted increases in aggression at the end of the school year. As a result of this negative cycle, a reactively aggressive child who engages in conflict with their teacher may be exhibiting increased levels of anger and aggression in classroom interactions than a reactively aggressive child not engaging in teacher-child conflict. It was posited that these conflictual interactions could lead reactively aggressive children to perceive the wider classroom environment as

negative, resulting in these children taking an even more hostile approach to other social interactions in the classroom. Furthermore, classroom peers witnessing the escalating cycle between teacher-child conflict and reactive aggression could develop negative social perceptions regarding the reactively aggressive child, resulting in increased peer rejection in the classroom. Thus, it was expected that a reactively aggressive child's peer rejection status would depend on the level of conflict they experience with their teacher, both due to behavioral consequences of this conflict, as well as peers' perceptions and interpretations of negative teacher-child interactions.

Whereas children exhibiting reactive aggression are primarily struggling to regulate negative emotions, children exhibiting hyperactivity-impulsivity are primarily struggling to regulate annoying or disruptive behaviors; hyperactivity-impulsivity alone lacks a component of negative emotionality and hostile social perceptions (Nijmeijer et al., 2008). In the absence of these latter behaviors, it was not expected that engaging in teacher-child conflict would impact how a hyperactive-impulsive child engages in other classroom interactions, as conflict with one's teacher may not result in a cycle of worsening hostile attributions or behavior for these children. While hyperactive-impulsive children's peers might still be witnessing teacher-child conflict, they may not be observing the escalating negative cycle of interactions that occur when reactively aggressive children respond to conflict with the teacher. Thus, it was hypothesized that hyperactive-impulsive children would be at higher risk for peer rejection, but the level of conflict in the teacher-child relationship was not expected to impact peer rejection status for these children.

As for teacher-child closeness, an overtly warm and supportive classroom teacher may be able to attenuate the perceived hostility that reactively aggressive children encounter in their classroom environments. Since reactive aggression is characterized by increased negative emotional arousal, having a teacher-child relationship with high levels of support to counter these negative reactions may help a reactively aggressive child to improve social interactions in the broader classroom context. There is some empirical evidence to suggest that having a close teacher-child relationship may be able to impact outcomes for primarily aggressive children. For instance, Hughes, Cavell, and Willson (2001) found that in third and fourth grade children, classroom peer reports of teacher support significantly predicted peer ratings of social preference after controlling for peer-rated aggression. This work implies that aggressive children may be able to benefit from a close teacher-child relationship in the social domain; however, this research examined general aggression rather than reactive aggression specifically, did not account for behavioral under-control, and did not examine interactions between aggression and teacher-child relationship variables, so future research is needed to clarify the exact role of teacher-child closeness for reactively aggressive children (Hughes et al., 2001). The current study hypothesized that peer rejection status for reactively aggressive children would differ based on the level of closeness present in the teacher-child relationship. It was expected that having a close teacher-child relationship would attenuate reactively aggressive children's hostile perceptions by creating a more positive and warm classroom context, thus decreasing their negative behaviors across all classroom social interactions and improving their peer rejection status.

Whereas having a close and supportive teacher-child relationship may help a reactively aggressive child temper their anger and perceive the classroom as less threatening, having this relationship is not expected to impact the overactivity and intrusiveness experienced by hyperactive-impulsive children. It was expected that sharing a warm and close relationship with one's teacher would be impactful for reactively aggressive children, who struggle to cope with negative emotions, but not for hyperactive-impulsive children, who struggle to control aversive behaviors. Empirically, literature in the area of ADHD research has shown that negative peer status is particularly resistant to intervention for hyperactive-impulsive and inattentive children (Hoza, 2007; Hoza et al., 2005; Mrug et al., 2012). As such, it was not expected that peer rejection status for children exhibiting primarily hyperactive-impulsive behaviors would be influenced by teacher-child closeness.

The Present Study

The present study examined the independent effects of a child's level of hyperactivity-impulsivity and reactive aggression on their peer rejection status in kindergarten, and assessed the moderating effects of kindergarten teacher-child closeness and teacher-child conflict in these relationships in a community sample of children. The first goal of the study was to examine the separate effects of hyperactivity-impulsivity and reactive aggression on a child's peer rejection status. It was hypothesized that hyperactivity-impulsivity and reactive aggression would each independently predict peer rejection in kindergarten. A second goal of this study was to evaluate whether teacher-child closeness and teacher-child conflict act as moderating variables with the individual

child factors in predicting peer rejection. It was hypothesized that teacher-child closeness would moderate the relation between reactive aggression and peer rejection in kindergarten, such that reactively aggressive children with higher levels of teacher-child closeness would experience lower levels of peer rejection than reactively aggressive children with lower levels of teacher-child closeness. It was also hypothesized that teacher-child conflict in kindergarten would moderate the relation between reactive aggression and peer rejection in kindergarten, such that reactively aggressive children with higher teacher-child conflict would exhibit higher levels of peer rejection than reactively aggressive children with lower levels of teacher-child conflict. As for hyperactivity-impulsivity, it was hypothesized that neither teacher-child closeness nor teacher child conflict would moderate the relation between hyperactivity-impulsivity and peer rejection in kindergarten.

CHAPTER II

METHOD

Recruitment and Attrition

The current study utilized data from three cohorts of children who are part of an ongoing longitudinal study of social and emotional development. The goal for recruitment was to obtain a sample of children who were at risk for developing future externalizing behavior problems, and who were representative of the surrounding community in terms of race and socioeconomic status (SES). All cohorts were recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children (WIC) program. Potential participants for cohorts 1 and 2 were recruited at 2-years of age (cohort 1: 1994-1996 and cohort 2: 2000-2001) and screened using the Child Behavior Checklist (CBCL 2-3; Achenbach, 1992), completed by the mother, in order to over-sample for externalizing behavior problems. Children were identified as being at risk for future externalizing behaviors if they received an externalizing T-score of 60 or above. Efforts were made to obtain approximately equal numbers of males and females. This recruitment effort resulted in a total of 307 children. Cohort 3 was initially recruited when infants were 6 months of age (in 1998) for their level of frustration, based on laboratory observation and parent report, and were followed through the toddler period (see Calkins, Dedmon, Gill, Lomax, & Johnson, 2002, for

more information). Children from Cohort 3 whose mothers completed the CBCL at two years of age (N = 140) were then included in the larger study. Of the entire sample (N = 447), 37% of children were identified as being at risk for future externalizing problems. There were no significant demographic differences between cohorts with regard to gender, $\chi^2(2, N = 447) = .63$, p = .73, race, $\chi^2(2, N = 447) = 1.13$, p = .57, or two-year SES, F (2, 444) = .53, p = .59.

Of the 447 originally selected participants, six were dropped because they did not participate in any data collection at 2 years old. An additional 12 families participated at recruitment, did not participate at two-year, but did participate at later years. At age 5, 365 families participated, including four that did not participate in the four-year assessment. There were no significant differences between families who did and did not participate in terms of gender, χ^2 (1, N = 447) = .76, p = .38, race, χ^2 (1, N = 447) = .14, p = .71, 2-year SES, t (432) = -1.93, p = .06, and 2-year externalizing T score, t (445) = 1.39, p = .17.

Sensitivity analysis. Since the data for this study had already been collected, and thus, sample size was fixed, a post hoc sensitivity analysis was conducted for the multiple regression model (R^2 increase) using the G*Power program (Faul, Erdfelder, Buchner, & Lang, 2009). The sample size of 187 was entered with 6 predictors in the regression model and an alpha level of .05. Results of the sensitivity analysis indicated that while maintaining adequate power ($1-\beta = 0.8$), the minimum detectable effect size would be d = .04.

Participants

The sample for the current study included 187 children (106 girls, 81 boys) who participated in the RIGHT Track project at the 5-year assessment. Children were included in the current study if they had complete teacher-reported data and peer-reported data at the 5-year time point. 64.7% of the sample was European American, 28.9% African American, 5.3% biracial, and 1.1% other. Families were economically diverse based on Hollingshead (1975) scores at the 5-year assessment, with a range from 14 to 66 (M = 42.99, SD = 10.74), thus representing families from each level of social strata typically captured by this scale. Hollingshead scores that range from 40 to 54 reflect minor professional and technical occupations considered to be representative of middle class. . The 187 children with complete data at this time point did not differ from other children who participated at this time point on sex (F(442)=2.677, p=.103), race (F(442)=.693, p=.4-6), SES (F(337)=.013, p=.908), or mother-reported externalizing problems (F(325)=1.858, p=.174).

Procedure

Children and their mothers participated in an ongoing longitudinal study when the children were 5 years old. During the laboratory visits, the children and their mothers participated in a series of laboratory tasks designed to elicit emotional and behavioral responses as well as parent-child interaction. Questionnaires were also completed, which assessed family demographics, their own functioning, and their child's behavior at each visit. Families also gave permission for the study to contact schools to administer questionnaires to the children's teachers. Teachers completed questionnaires between

November and May of the children's kindergarten year. Peer data were collected in schools between November and May when children were in kindergarten using a sociometric nomination procedure. Questionnaires completed by teachers, sociometric data from peers, and demographic data from families when children were in kindergarten were utilized in this study.

Measures

Teacher-child relationship – closeness and conflict. Teacher-child closeness and conflict are moderating variables in the current study. Closeness and conflict in the teacher-child relationship were assessed using subscales from the 28-item Student Teacher Relationship Scale (STRS;(Pianta, 2001). The scale uses a Likert-type format, and responses range from 1 (*definitely does not apply*) to 5 (*definitely applies*), in which the teacher rates each statement on the degree to which it applies to their relationship with the child. The 11-item closeness subscale measures the degree to which the relationship is categorized by affection, warmth, and open communication ($\alpha = .86$). The closeness subscale includes items such as "I share an affectionate, warm relationship with this child," and, "If upset, this child will seek comfort from me." The 12-item conflict subscale measures the degree to which the relationship is negative and conflictual ($\alpha = .92$). The conflict subscale includes items such as "This child and I always seem to be struggling with each other," and "This child sees me as a source of punishment and criticism." Test-retest correlations for the subscales being used were significant at $p < .05$: Closeness, .88; Conflict, .92. The closeness and conflict subscales are moderately negatively correlated ($r = -.451$, $p<.001$).

Hyperactivity-impulsivity. Hyperactivity-impulsivity is a predictor variable in the current study, and was measured using teacher-report on the ADHD Rating Scale-IV: School Version (α = .88) (DuPaul, Power, Anastopoulos, & Reid, 1998). The hyperactivity-impulsivity subscale is composed of 9 items describing various behaviors, and the rate of occurrence of each of these behaviors is rated on a 4-point Likert scale ranging from 0 ("never or rarely") to 3 ("very often").

Reactive aggression. Reactive aggression is a predictor variable in the current study, and was assessed using teacher-report on the Taxonomy of Problem Situations (TOPS) (Dodge, McClaskey, & Feldman, 1985). The subscale of reactive aggression was utilized in the current study (α = .94) (Blankemeyer, Culp, Hubbs-Tait, & Culp, 2002). This subscale consists of 8 items that are rated on a Likert-type scale from 1 ("situation is never a problem for the child") to 5 ("situation is almost always a problem for the child").

Peer rejection. Peer rejection is the outcome variable for the current study and was assessed using peer-reported sociometric nomination data in kindergarten. Sociometric data collection began in November of children's kindergarten year as to allow children time to get to know their classmates. For the current sample of 187 children, data collection occurred between November and May, and took place across 152 classrooms in 69 schools. Classmates of children in the study were asked to nominate peers they "liked least" (modified procedures by Coie, Dodge, & Coppotelli, 1982). Children were permitted to respond verbally, or by pointing to pictures of the children in their class. The number of nominations each child received was standardized within

classrooms to create a z-score, with lower scores indicating fewer nominations, and was used as a measure of peer rejection.

CHAPTER III

RESULTS

Preliminary Analyses

To account for missing data, the STRS, ADHD-RS-IV, and the TOPS were imputed at the single item level using the expectation maximization (EM) method. Preliminary analyses were run on all study variables to assess for normality and distribution (see Table 1). Skewness and kurtosis values for all variables were between -3 and 3, indicating that all variables were normally distributed. Notably, though variables were determined to be normally distributed, descriptive statistics indicated that there was a restricted range of reporting in predictor variables and moderator variables. While scores spanned the entire 1-5 scale in reports of reactive aggression, teachers more commonly reported low levels of reactive aggression (M=1.80; Range=1-5). About 16% of the teachers reported levels of reactive aggression that fell one standard deviation above the mean, and about 20.3% of teachers reported that the participant displayed no reactive aggressive behaviors (SD=0.88). Teacher's reports on children's levels of hyperactivity-impulsivity were similarly distributed, indicating that teachers tended to report lower levels of hyperactivity-impulsivity (M=0.62; Range=0-2.78). The hyperactivity-impulsivity scale ranged from 0-3, and the range in the data extended to 2.78, indicating that the full range of the scale was not utilized; the mean of 0.62 reflects

that teachers generally reported lower levels of hyperactivity-impulsivity (SD=0.71). Approximately 17.6% of children fell one standard deviation above the mean for hyperactivity-impulsivity, and for about 27.8% of the children, teachers reported no hyperactivity-impulsivity.

As for the moderating variables, teachers also tended to report teacher-child relationships with low levels of conflict (M=1.54; Range=1-4) and high levels of closeness (M=4.16; Range=1.91-5). For teacher-child conflict, the data ranged from 1-4 on a 1-5 scale, indicating that the data did not span the full range of the scale; additionally, the mean of 1.54 indicates that most teachers reported relatively low levels of conflict. About 15.5% of teachers reported conflict levels one standard deviation above the mean, and 20.3% reported that there was no conflict in the teacher-child relationship (SD=0.65). For teacher-child closeness, the lowest data point was 1.91 on the 1-5 scale and the mean was 4.16, showing that teachers generally reported high levels of closeness and that the lowest end of the scale was not reflected in the range of data in the current study. Approximately 15% of teachers reported a level of closeness that fell one standard deviation below the mean, and 12.8% of teachers reported a level of closeness one standard deviation above the mean (SD=0.61).

Correlations between study variables were also computed (see Table 2). As previous research has found consistent differences in hyperactivity-impulsivity and teacher-child relationship variables based on sex, such that girls tend to exhibit lower levels of hyperactivity-impulsivity and share closer and less conflictual relationships with teachers, sex was included in the correlational analyses (Birch & Ladd, 1997; DuPaul,

Anastopoulos, et al., 1998; Hamre & Pianta, 2001; Ramtekkar, Reiersen, Todorov, & Todd, 2010). Results indicated that sex was significantly associated with hyperactivity-impulsivity, teacher-child closeness, and peer rejection, such that girls tended to have lower levels of hyperactivity-impulsivity and peer rejection, and higher levels of teacher-child closeness. Sex was thus included in future analyses as a covariate. As expected, peer rejection was significantly and positively correlated with both hyperactivity-impulsivity ($r=.40$, $p<.01$) and reactive aggression ($r=.47$, $p<.01$). Additionally, hyperactivity-impulsivity and reactive aggression were highly correlated ($r=.61$, $p<.01$). This correlation is slightly higher than expected based on a meta-analyses conducted by Card and Little in 2006, but still supports the assertion that these constructs are related but not equivalent. High positive correlations were also found between teacher-child conflict and reactive aggression ($r=.68$, $p<.01$) and hyperactivity-impulsivity ($r=.65$, $p<.01$); these correlations were consistent with past research in this area (Baker, 2006; Griggs et al., 2009; Silver et al., 2005). Teacher-child closeness was negatively associated with both hyperactivity-impulsivity ($r=-.17$, $p<.05$) and reactive aggression ($r=-.21$, $p<.01$). Consistent with past research, teacher-child conflict and teacher-child closeness share a small-moderate negative correlation ($r=-.28$, $p<.01$). Finally, peer rejection was significantly correlated with both teacher-child conflict ($r=.32$, $p<.01$) and teacher-child closeness ($r=-.20$, $p<.01$).

Regression Analyses

Regression models examining teacher-child closeness as the moderator. In order to test the hypothesis that reactively aggressive children with high closeness in the

teacher-child relationship would experience lower levels of peer rejection than reactively aggressive children with low closeness in the teacher child relationship, a hierarchical regression analysis was conducted. Continuous predictor variables were centered before creating interaction terms and conducting the regression analysis. Sex and hyperactivity-impulsivity were entered in the first step as control variables, so that the independent effects of reactive aggression could be isolated. Additionally teacher-child conflict was entered in the first step to account for the fact that aspects of the teacher-child relationship do not exist in isolation. Reactive aggression and teacher-child closeness were entered in the second step to test the main effects. The interaction of reactive aggression x teacher-child closeness was entered in the third step. The beta values and significance for each step can be found in Table 3. As hypothesized, reactive aggression was a significant predictor of peer rejection after controlling for hyperactivity-impulsivity, sex, and teacher-child relationship variables (B=.437, p<.001). Teacher-child closeness was not a significant predictor of peer rejection. The hypothesis that teacher-child closeness would moderate the relation between reactive aggression and peer rejection was not supported [R^2 change = .004; *F*-change(1, 181) = 1.097, *p* = .296].

To test the hypothesis that hyperactive-impulsive children would experience higher levels of peer rejection regardless of the level of teacher-child closeness, a hierarchical regression analysis was conducted. This regression was parallel to the model testing reactive aggression, and continuous predictor variables were centered before computing the interaction term. Sex, reactive aggression, and teacher-child conflict were entered in the first step. The beta values and significance for each step can be found in

Table 4. These results supported the hypothesis that hyperactivity-impulsivity would predict peer rejection after accounting for the variance associated with sex, reactive aggression, and teacher-child relationship variables (B=.273, p=.028). As hypothesized, teacher-child closeness did not moderate the relation between hyperactivity-impulsivity and peer rejection [R^2 change = .000005; *F*-change(1, 181) = .001, *p* = .972].

Regression models examining teacher-child conflict as the moderator. In order to test the hypothesis that reactively aggressive children with high conflict in the teacher-child relationship would experience higher levels of peer rejection than reactively aggressive children with low conflict in the teacher child relationship, a hierarchical regression analysis was conducted. Continuous predictor variables were centered before creating interaction terms and conducting the regression analysis. Sex and hyperactivity-impulsivity were entered in the first step as control variables, so that the independent effects of reactive aggression could be isolated. To account for the fact that facets of the teacher-child relationship do not occur in isolation, teacher-child closeness was also entered in the first step. Reactive aggression and teacher-child conflict were entered in the second step to test the main effects. The interaction of reactive aggression x teacher-child conflict was entered in the third step. The beta values and significance for each step can be found in Table 5. The results indicated a significant reactive aggression x teacher-child conflict interaction [R^2 change = .042; *F*-change(1, 181) = 10.829, *p* = .001].

To test the hypothesis that hyperactive-impulsive children would experience higher levels of peer rejection regardless of the level of teacher-child conflict, a hierarchical regression analysis was conducted, parallel to the model described above,

and continuous predictor variables were centered prior to computing the interaction term. Sex, reactive aggression, and teacher-child closeness were entered in the first step. The beta values and significance for each step can be found in Table 6. The results revealed a significant hyperactivity-impulsivity x teacher-child conflict interaction [R^2 change = .027; *F*-change(1, 181) = 6.874, *p*<.01].

To interpret these significant interactions, simple slopes analyses were conducted using the method described by Aiken and West (1991). These interactions were probed at high, mean, and low levels of teacher-child conflict. High levels of conflict were defined as one standard deviation above the mean, and low levels of conflict were defined as one standard deviation below the mean. For the reactive aggression x teacher-child conflict interaction, analyses revealed that the association between reactive aggression and peer rejection was significant at low and mean levels of teacher-child conflict, but not at high levels of teacher-child conflict. At mean and low levels of teacher-child conflict, reactive aggression was positively associated with peer rejection (mean: B=.439, p<.001; low: B=.653, p<.001). At high levels of conflict, this association was only marginally significant (B=.225, p=.058). These results indicate that reactive aggression was positively and significantly associated with peer rejection and mean and low levels of conflict; however, for children with high teacher-child conflict, reactive aggression was only marginally associated with peer rejection (See Figure 1). Additional simple slopes analyses were performed on the independent variable to determine the level of reactive aggression at which the effect of conflict on peer rejection was significant. These analyses indicated that at high levels of reactive aggression, there was not a significant

effect of conflict (B=-.15, p=.307); that is, children experiencing high reactive aggression were more likely to be rejected by peers regardless of the level of conflict they experienced. At low levels of reactive aggression, children experiencing high conflict were marginally more likely to be rejected by their peers than children experiencing low conflict (B=.43, p=.060). Overall, these results indicate that higher levels of reactive aggression are associated with higher levels of peer rejection, and that for children low in reactive aggression, higher teacher-child conflict may be a risk factor for rejection.

Simple slopes analyses were also performed for the significant hyperactivity-impulsivity x teacher-child conflict interaction, and results were similar to those described for the reactive aggression x teacher-child conflict interaction described above. At mean and low levels of teacher-child conflict, hyperactivity-impulsivity was positively associated with peer rejection (mean conflict: B=.338, p<.01; low conflict: B=.541, p=.001). At high levels of teacher-child conflict, the relation between hyperactivity-impulsivity and peer rejection was not significant (B=.135, p=.308). Taken together, results indicated that hyperactivity-impulsivity was significantly associated with peer rejection at low and mean levels of teacher-child conflict, but not at high levels of teacher-child conflict (See Figure 2). Further simple slopes analyses were conducted to examine differences in conflict effects at different levels of hyperactivity. These analyses indicated that there was no effect of conflict on peer rejection at low levels of hyperactivity (B=.28, p=.208) or high levels of hyperactivity (B=-.16, p=.258). These results highlight that higher levels of hyperactivity-impulsivity are associated with higher

levels of peer rejection, and that the effect of teacher-child conflict is not significant at high or low levels of hyperactivity-impulsivity.

CHAPTER IV

DISCUSSION

The current study aimed to contribute to literature examining how teacher-child relationships impact peer relationship outcomes for children exhibiting different externalizing behaviors. This study intended to add to existing literature by examining the differential impact of close and conflictual teacher-child relationships on children who exhibit either reactively aggressive or hyperactive-impulsive behaviors in kindergarten. Contrary to the study hypotheses, reactive aggression and hyperactivity-impulsivity were not found to have differential peer rejection outcomes based on the quality of the teacher-child relationship; patterns of findings for these two child characteristics were similar. Both hyperactivity-impulsivity and reactive aggression were shown to be independently associated with peer rejection, as hypothesized. This finding confirms past research indicating that both hyperactivity-impulsivity and reactive aggression are associated with peer rejection, with higher levels of each of these behaviors predicting higher levels of peer rejection (Bierman, 2004; Coie et al., 1988; Hoza, 2007).

The results of the present study did not support the hypothesis that teacher-child closeness would act as a protective factor for reactively aggressive children's peer rejection status. Results indicated that children who exhibited reactively aggressive behaviors were more likely to be rejected by their peers, and that having a close-teacher

child relationship did not attenuate this effect. Consistent with the study hypothesis, hyperactive-impulsive children were found to experience higher levels of peer rejection, and teacher-child closeness did not mitigate this relationship. Past literature has not examined reactive aggression and hyperactivity-impulsivity independently in conjunction with teacher-child closeness to predict peer rejection; however, these results are consistent with other studies examining externalizing behaviors overall, which found that teacher-child closeness did not impact social outcomes for children exhibiting externalizing behaviors (Griggs et al., 2009; Rudasill et al., 2013; Henricsson & Rydell, 2006).

Previous research has indicated that having a close teacher-child relationship can benefit children in academic and behavioral domains (Birch & Ladd, 1997; Pianta & Stuhlman, 2004; Silver et al., 2005); however, research regarding teacher-child closeness and social outcomes is inconclusive. Taken together, this implies that although a close teacher-child relationship may be able to impact individual child behaviors, this change in negative behaviors may not result in a change in peer status. The non-significant findings with regard to teacher-child closeness in the present study do not support the theory of the "invisible hand," which suggests that relationships between teachers and students set the example for how peers should perceive each other (Farmer et al., 2011). As reactive aggression and hyperactivity-impulsivity are salient predictors of peer rejection, it is possible that sharing a close and warm relationship with one's teacher is not sufficient to alter these peer rejection pathways. The results of the current study suggest that more targeted interventions may be necessary for a close teacher-child

relationship to impact peer outcomes for children exhibiting such socially problematic behaviors.

In the current study there were significant reactive aggression x teacher-child conflict and hyperactivity-impulsivity x teacher-child conflict interaction effects in the opposite of the hypothesized direction, suggesting that high conflict may be a risk factor for children lower on problem behaviors, but not for children higher on problem behaviors. These results are unique in that previous research has implied that having high teacher-child conflict would be particularly damaging for children exhibiting higher levels externalizing behaviors, since these children are at risk for peer rejection. In the present study, there was a significant main effect of both reactive aggression and hyperactivity-impulsivity, indicating that children higher on these problem behaviors were significantly more likely to be rejected by peers. It is possible that the peer rejection status of children already high on problem behaviors is not further impacted by a conflictual teacher-child relationship, whereas children lower on problem behaviors are at more risk from teacher-child conflict, as they may not be rejected for their behaviors otherwise. These findings suggest that children at-risk for peer rejection due to their high levels of problem behaviors may not be at increased risk due to teacher-child conflict, contrary to the study hypothesis; thus a closer examination of how teacher-child conflict unfolds in the classroom is warranted to determine why children high in problem behaviors may not be at increased risk due to conflict with the teacher.

It may be informative to examine how a child's time in the classroom is spread across teachers and peers. Past research has shown that teachers spend more time with

and pay more attention to children with whom they report having lower quality teacher-child relationships, as well as with children who exhibit disruptive behaviors (O'Connor & McCartney, 2007). As such, children who share unfavorable relationships with their teachers, as well as children who exhibit problem behaviors such as reactive aggression and hyperactivity-impulsivity, may be spending more time with teachers and less time with their peers. It is possible that a highly conflictual relationship could result in a child being removed from the peer context more often, and therefore sheltered from the negative social consequences of their behavior.

It may also be valuable to consider how experiencing conflict with students impacts a teacher's behavior in the classroom. Thijs, Koomen, and van der Leij (2008) found that teachers reporting higher conflict with children also reported using higher levels of behavioral regulation with those children, which included limit setting, behavior reinforcement, and social skills teaching. In this case, teachers may be reporting increased amounts of conflict as a result of their attempts to modify children's behavior. It is possible that these behavior modifications are beneficial for children with externalizing problems, resulting in more appropriate social behaviors, despite occurring alongside increased levels of teacher-child conflict in the classroom.

It is also important to consider other potential factors that may contribute to a teacher's report of their relationship with a student, besides the quality of the relationship itself, including both individual teacher characteristics as well as environmental characteristics. Mashburn, Hamre, Downer, and Pianta (2006) found that teachers who rated feelings of higher self-efficacy reported having closer relationships with children,

and that teachers with more years of experience reported lower levels of teacher-child closeness. Other research has shown that a teacher's report of stress is associated with the number of students with whom they report sharing a negative relationship (Yoon, 2002). Additionally, teachers have been found to report higher conflict with students in classrooms with longer school days, indicating that classroom and school structure may also influence how teachers perceive their relationships with students (Mashburn et al., 2006). A teacher's race has also been associated with differential ratings of teacher-child relationships. For example, Mashburn and colleagues (2006) found that white teachers were more likely to report higher teacher-child conflict than teachers of another race. Ethnic match between teachers and students has also been associated with differential teacher-child relationship ratings. Saft and Pianta (2001) found that teacher-child ethnic match significantly predicted higher teacher child closeness as well as lower teacher-child conflict. Taken together, this body of research indicates that the teacher-child relationship construct may be representing more than simply the relationship a child shares with their teacher, and could also reflect individual teacher characteristics such as ethnicity or experience, as well as aspects of classroom structure.

In addition to individual teacher characteristics, overall classroom climate may also be an important variable to consider when examining how children with externalizing problems interact with teachers and peers. Past research has examined the role of peer group norms, and found that peer rejection in a given classroom may depend on the level of various social behaviors occurring in the classroom, such as withdrawal and aggression; this research suggests that norms for behavior vary across classrooms,

making withdrawal and aggression more or less social acceptable depending on the individual classroom environment (Stormshak, Bierman, Bruschi, Dodge, & Coie, 1999). This research indicates that overall classroom levels of problem behaviors may impact the extent to which a child is rejected by peers due to those behaviors. Classroom levels of problem behaviors may also impact teacher-child relationships in the classroom. Buyse, Verschueren, Doumen, Damme, and Maes (2008) found that in classrooms with high overall levels of internalizing or externalizing problems, teachers were more likely to form conflictual relationships with children exhibiting externalizing problems. These findings imply that in classrooms with lower levels of psychopathology, a child with externalizing problems may be at lower risk for experiencing conflict with their teacher. Taken together, these examinations of classroom climate suggest that teacher-child relationship and peer rejection levels for a child in a given classroom may depend on behaviors of other classroom children.

Limitations/Future Directions

The current study contains certain limitations that warrant discussion. Contrary to the study hypotheses, no differences were found in how reactive aggression and hyperactivity-impulsivity interact with teacher-child relationship variables. This lack of differentiation is in contrast to existing research indicating that there is an important distinction between these constructs (Card & Little, 2006; Evans et al., 2015; Runions, 2014). While it is possible that these results were obtained due to a lack of meaningful differentiation between these externalizing subtypes in relation to teacher-child

relationship variables, other limitations that may have impacted these null findings must also be considered.

The present study utilized teacher-report to assess the predictor variables, reactive aggression and hyperactivity-impulsivity, as well as the moderating variables, teacher-child closeness and teacher-child conflict. It is possible that this introduced some same-reporter bias, as teachers were reporting both on their relationship with a child and that child's behavior. Past research has shown that teachers tend to report less close and more conflictual relationships with children who exhibit problem behaviors (Pianta, Hamre, & Stuhlman, 2003). Although children with higher rates of problem behavior may truly share lower closeness or higher conflict with a teacher, it is also possible that teachers experiencing high levels of stress or frustration with a given child may exaggerate the problem behavior exhibited by that child. Future researchers should attempt to use a different reporter of child problem behaviors, such as maternal report or observation, to ensure that these ratings are unbiased.

As mentioned above, teacher-child relationship variables were assessed using teacher-report. Because past research has indicated that individual teacher characteristics and environmental factors can play a role in how teacher-child relationship facets are rated, it is unclear how cleanly the measures of teacher-child closeness and teacher-child conflict assessed the constructs of interest. The present study was unable to account for individual teacher characteristics such as years of teaching experience, teacher self-efficacy, and teacher ethnicity. Additionally, because teacher ethnicity data were unavailable, the current study did not include teacher-child ethnic match as a covariate.

Since past research has highlighted the importance of these variables in predicting teacher-child relationships, future researchers should consider individual teacher characteristics as well as teacher-child ethnic match when utilizing this construct. Future studies may want to consider examining teacher-child relationships in a nested model, which can account for individual differences in reporting between teachers.

A restricted range of reporting for both teacher-child relationship variables was a limitation of the present study. The mean levels of teacher-child closeness and conflict were comparable to other studies examining these constructs, in which teachers reported relationships with students that were relatively higher in closeness and lower in conflict, on average (Henricsson & Rydell, 2006; Silver et al., 2005). This may be reflecting teachers' hesitancy to report negativity towards students, or a desire to appear highly competent with establishing positive relationships in their profession. Alternatively, teacher-child relationships at the kindergarten age may tend to be close and low in conflict for many teacher-child dyads due to this developmental period.

In the future, examining other reporters of the teacher-child relationship may be valuable. Obtaining an observer report of how teachers and children interact in the classroom may provide a more objective measure of teacher-child relationships. Objectively observing teacher-child interactions could provide information about how much time children spend with teachers, and how that time is spent; this could help to clarify the exact social implications of engaging in a teacher-child relationship with high conflict and may help to explain the results of the present study. Future research may also benefit from examining a child's report of their relationship with a teacher. Investigating

how a child interprets the teacher-child relationship may be particularly interesting for children exhibiting reactive aggression, as this may give insight into whether teacher-child relationships impact hostile or angry attributions that these children tend to make when interpreting others' intentions.

Another measurement limitation in this study was the timing of school assessments. Data collection in schools took place between November and May; thus, teachers and peers across the 152 classrooms spent varying times together before data collection occurred. It is possible that the point in the school year at which data was collected could have impacted teacher and peer ratings of participants. For instance, children's problem behaviors could grow increasingly frustrating for teachers and peers across the school year; alternatively, allowing children more time to get to know their peers and teachers may result in closer teacher-child relationships and more positive peer relations. Future studies should attempt to plan for teacher-questionnaire and sociometric data collection to occur as simultaneously as possible across classrooms to account for this possibility.

The present study did not take into account other individual child characteristics that could impact the level of peer rejection experienced by a child. Future studies may want to examine other variables that could contribute to peer rejection, such as social competence, cognitive ability, shyness, and parenting style (Asher, 1983; Newcomb, Bukowski, & Pattee, 1993; Putallaz & Heflin, 1990). These individual child characteristics may impact the relation between problem behaviors and peer rejection, and could also impact how children interact with their teachers.

This study also did not consider how classroom climate influences peer rejection status and teacher-child relationships. Future studies in this area should attempt to take classroom norms into account when comparing levels of peer rejection for children with problem behaviors across different classrooms, since norms of various behaviors may impact how socially acceptable they are. Additionally, because classroom mean levels of overall psychopathology have been shown to impact externalizing children's teacher-child relationship quality, considering overall classroom composition may help future researchers disentangle how problem behaviors relate to teacher-child relationships and peer rejection (Buyse et al., 2008).

In conclusion, the present study confirmed past research indicating that both hyperactivity-impulsivity and reactive aggression are linked to peer rejection in kindergarten. The hypothesis that teacher-child closeness would mitigate this link for reactive aggressive children was not supported, indicating that reactively aggressive and hyperactive-impulsive children are at risk for peer rejection regardless of closeness present in the teacher-child relationship. The current study found a significant interaction between teacher-child conflict and child hyperactivity-impulsivity and reactive aggression that was not in the hypothesized direction, indicating that high teacher-child conflict did not exacerbate peer rejection outcomes for children exhibiting higher levels of problem behaviors; however, results implied that higher teacher-child conflict may be damaging for children not exhibiting problem behaviors. The findings from the current study underscore the importance of considering the multifaceted nature of teacher-child

relationship constructs, which may be reflecting various individual teacher characteristics and behaviors that should be considered in future research.

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APPENDIX A

ADHD RATING SCALE IV: SCHOOL VERSION

ADHD Rating Scale IV: School Version

Ratings:
0 = Never or Rarely
1 = Sometimes
2 = Often
3 = Very Often

Hyperactivity-Impulsivity Subscale

2. Fidgets with hands or feet or squirms in seat
4. Leaves seat in classroom or in other situations in which remaining seated is expected
6. Runs about or climbs excessively in situations in which it is inappropriate
8. Has difficulty playing or engaging in leisure activities quietly
10. Is "on the go" or acts as if "driven by a motor"
12. Talks excessively
14. Blurts out answers before questions have been completed.
16. Has difficulty awaiting turn.
18. Interrupts or intrudes on others.

APPENDIX B

TAXONOMY OF PROBLEM SITUATIONS

Taxonomy of Problem Situations (TOPS)

Ratings:
1 = Never a problem for this child
2 = Rarely a problem for this child
3 = Sometimes a problem for this child
4 = Usually a problem for this child
5 = Almost always a problem for this child

Reactive Aggression Subscale

45. When this child has been teased or threatened, s/he gets angry easily and strikes back
46. This child always claims that other children are to blame in a fight and feels that they started the trouble
47. When a peer accidentally hurts this child (such as bumping into him/her), s/he overreacts with anger and fighting
48. When a peer refuses to play with this child, s/he gets angry and threatens the peer
49. When a peer takes an object from this child, s/he gets angry and will use force to retrieve the object
50. When this child makes a request of a peer and the peer refuses, this child gets angry and either threatens the peer or strikes out at the peer
51. When a peer ignores this child, s/he gets angry and either threatens the peer or strikes out at the peer
52. When a peer refuses to play with this child, s/he gets angry and either threatens the peer or strikes out at the peer

APPENDIX C

STUDENT TEACHER RELATIONSHIP SCALE

Student Teacher Relationship Scale (STRS)

Ratings:
1 = Definitely does not apply
2 = Does not really apply
3 = Neutral, not sure
4 = Applies somewhat
5 = Definitely applies

Closeness Subscale

1. I share an affectionate, warm relationship with this child
3. If upset, this child will seek comfort from me
4(r). This child is uncomfortable with physical affection or touch from me
5. This child values his/her relationship with me
7. When I praise this child, he/she beams with pride
9. This child spontaneously shares information about himself/herself
12. This child tries to please me
15. It is easy to be in tune with what this child is feeling
21. I've noticed this child copying my behavior or ways of doing things
27. This child openly shares his/her feelings and experiences with me
28. My interactions with this child make me feel effective and confident

Conflict Subscale

2. This child and I always seem to be struggling with each other
11. This child easily becomes angry with me
13. This child feels that I treat him/her unfairly
16. This child sees me as a source of punishment and criticism
18. This child remains angry or is resistant after being disciplined
19(r). When this child is misbehaving, he/she responds well to my look or tone of voice
20. Dealing with this child drains my energy
22. When this child is in a bad mood, I know we're in for a long and difficult day
23. This child's feelings toward me can be unpredictable or can change suddenly
24. Despite my best efforts, I'm uncomfortable with how this child and I get along
25. This child whines or cries when he/she wants something from me
26 This child is sneaky or manipulative with me

APPENDIX D

SOCIOMETRIC NOMINATION PROCEDURE

Sociometric Nomination Procedure

Introduction to Interview:
"I'm glad you can help me out today. I'm going to ask you some questions about kids in your class. This is not a test – there are no right or wrong answers. I'm just interested in your school and what you think about the kids here. I will keep your answers private – just between you and me. I won't tell the other kids or anyone what you say. This is not something for you to talk about with your friends. You are being a big help by telling me what you think – because that is one way I'll be able to learn about the kids in your class."

Peer Rejection Nomination

"Sometimes, there are kids in our class that we don't like as well as other kids. Name the kids in your class that you don't like very much."

APPENDIX E

TABLES AND FIGURES

Table 1

Means and Standard Deviations of Study Variables

Variable	Mean	SD	Min.	Max.	Kurtosis	Skewness
Reactive Aggression	1.80	0.88	1.00	5.00	0.87	1.23
Hyperactivity-Impulsivity	0.62	0.71	0.00	2.78	0.66	1.23
TC-Conflict	1.54	0.65	1.00	4.00	2.65	1.73
TC-Closeness	4.16	0.61	1.91	5.00	1.52	-1.21
Peer Rejection	-0.03	0.88	-2.05	2.30	-0.57	0.43

Table 2

Correlation Coefficients for Independent and Dependent Scale Variables

Measure	1	2	3	4	5
1. Reactive Aggression	--				
2. Hyperactivity-Impulsivity	.61**	--			
3. TC-Conflict	.68**	.65**	--		
4. TC-Closeness	-.21**	-.17*	-.28**	--	
5. Peer Rejection	.47**	.40**	.32**	-.20**	--

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

Table 3

Reactive Aggression and TC-Closeness Regressed on Peer Rejection

Variable	B	R^2	ΔR^2
Step 1		.17**	
Sex	-.15		
Hyperactivity-Impulsivity	.42**		
TC-Conflict	.18		
Step 2			.09**
TC-Closeness	-.17		
Reactive Aggression	.44**		
Step 3			.004
Reactive Aggression x TC-Closeness	-.14		

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

Table 4

Hyperactivity-Impulsivity and TC-Closeness Regressed on Peer Rejection

Variable	B	R^2	ΔR^2
Step 1		.23**	
Sex	-.19		
Reactive Aggression	.51**		
TC-Conflict	.01		
Step 2			.03*
TC-Closeness	-.17		
Hyperactivity-Impulsivity	.27*		
Step 3			.000005
Hyperactivity-Impulsivity x TC-Closeness	-.01		

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

Table 5

Reactive Aggression and TC-Conflict Regressed on Peer Rejection

Variable	B	R^2	ΔR^2
Step 1		.18**	
Sex	-.09		
Hyperactivity-Impulsivity	.51**		
TC-Closeness	-.21		
Step 2			.08**
TC-Conflict	-.16		
Reactive Aggression	.44**		
Step 3			.04**
Reactive Aggression x TC-Conflict	-.33**		

*Note. *p < .05, **p < .01*

Table 6

Hyperactivity-Impulsivity and TC-Conflict Regressed on Peer Rejection

Variable	B	R^2	ΔR^2
Step 1		.24**	
Sex	-.16		
Reactive Aggression	.49**		
TC-Closeness	-.15		
Step 2			.02
TC-Conflict	-.16		
Hyperactivity-Impulsivity	.27*		
Step 3			.03**
Hyperactivity-Impulsivity x TC-Conflict	-.31**		

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

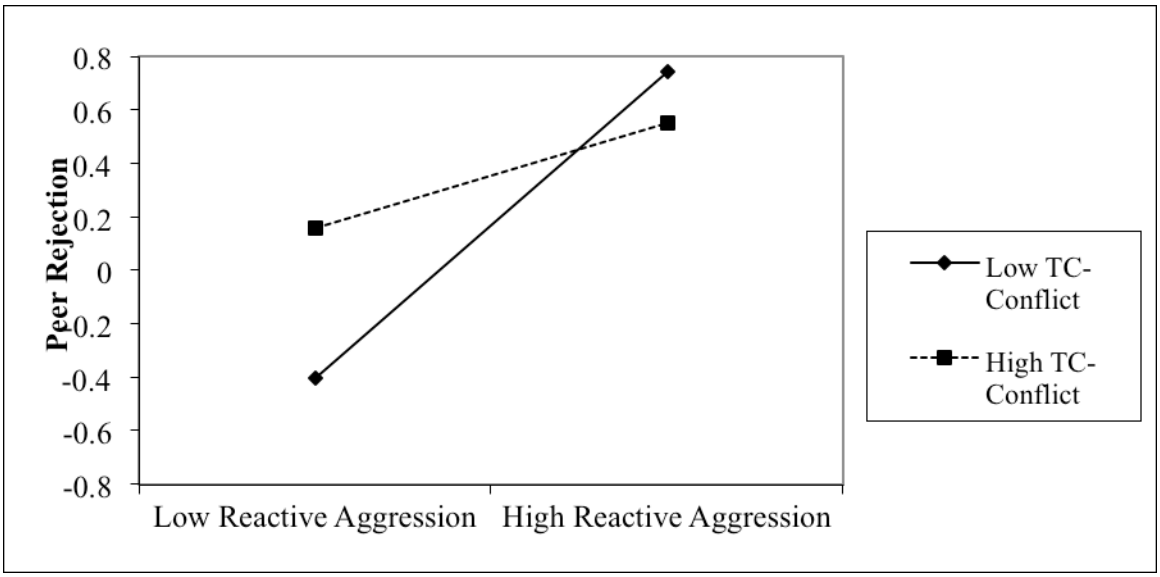

Figure 1. Interaction of Reactive Aggression and TC-Conflict Predicting Peer Rejection

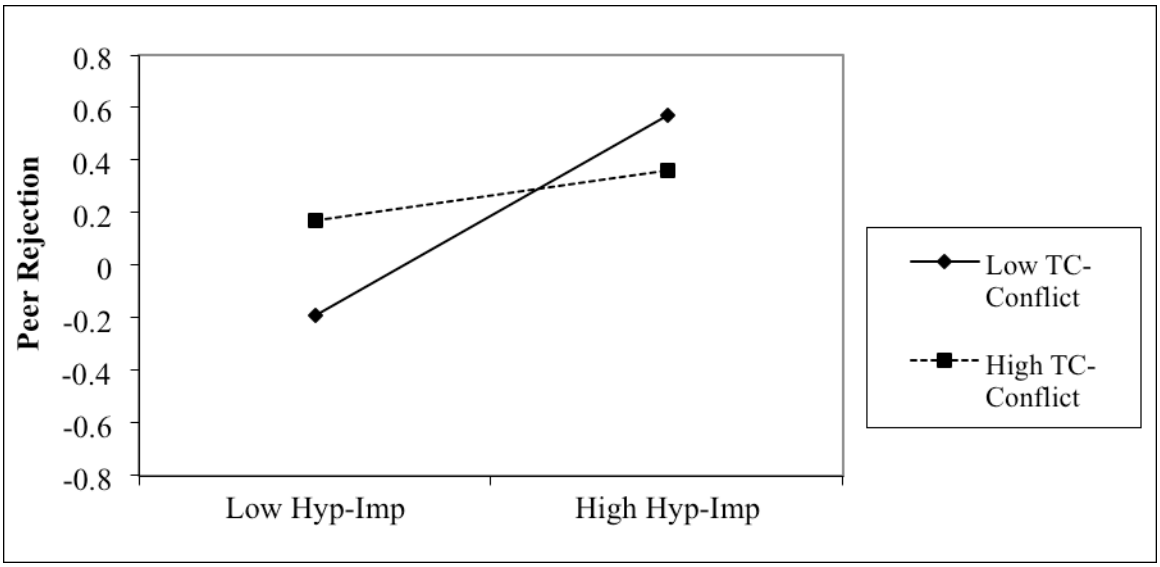

Figure 2. Interaction of Hyperactivity-Impulsivity and TC-Conflict Predicting Peer Rejection