

The Socio-Behavioral Development of Children with Symptoms of Attachment Disorder: An Observational Study of Teacher Sensitivity in Special Education

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Background: Children with Reactive Attachment Disorder (RAD) have serious socio-behavioral problems and often rely on socially abnormal, aggressive, and manipulative forms of communication. Little is known, however, about the influence of teachers on the socio-behavioral development of children with symptoms of RAD.

Aims: This longitudinal study examined the influence of teacher sensitivity on the socio-behavioral development of children with symptoms of RAD across one school year.

Method: The sample included 85 Belgian children and 70 teachers from special education schools. In the previous school year, teachers rated Inhibited and Disinhibited RAD symptoms. In the next school year, teacher Sensitivity was observed in interactions with individual children in the first trimester. Teacher-rated Overt aggression, Relational aggression, and Prosocial behavior was assessed in the first, second, and third trimester.

Results: We found no effects of Sensitivity on Prosocial behavior. Also, no effects were found for children with Disinhibited RAD symptoms. For children with Inhibited RAD symptoms, increases in Overt and Relational aggression were observed when Sensitivity was low, whereas decreases were observed when Sensitivity was high.

Conclusions and Implications: The results suggest that teacher sensitivity is associated with the socio-behavioral development of children with Inhibited RAD symptoms but not with the socio-behavioral development of children with Disinhibited RAD symptoms.

Keywords: Reactive Attachment Disorder (RAD) symptoms, Inhibited, Disinhibited, Teacher sensitivity, Socio-behavioral development, Overt aggression, Relational aggression, Prosocial behavior, Special education

What this paper adds

Children with Reactive Attachment Disorder (RAD) exhibit socio-behavioral problems that hinder their school adjustment. These socio-behavioral problems appear relatively stable and it is not known what influence special education teachers might have on the development of these problems across a school year.

This study suggests that teacher sensitivity is associated with changes in the socio-behavioral development of children with Inhibited RAD symptoms. Whereas high sensitivity was associated with improvements, low sensitivity appeared to exaggerate the socio-behavioral problems of these children.

As children with Inhibited RAD symptoms have difficulties communicating their needs and wishes in socially adaptive ways, it may not be easy for teachers to understand these children. Teachers may misinterpret a child's behavior and consequently will fail to respond to the child's underlying needs. This may reinforce the child's socio-behavioral problems and increase the child's reliance on egocentric and aggressive means in interactions with others. This study therefore highlights the need to support teachers in interactions with children with Inhibited RAD symptoms in order to help them understand how the children's observable behaviors in the classroom may convey their underlying socio-emotional needs and how they can respond to these needs.

Importantly, teacher sensitivity was not associated with the socio-behavioral development of children with Disinhibited RAD symptoms (e.g., indiscriminate friendliness). Consistent with previous research, this study suggests that children with Inhibited RAD symptoms are more susceptible to the quality of the caregiving environment than children with Disinhibited RAD symptoms and extends this finding to the school context.

The Socio-Behavioral Development of Children with Symptoms of Attachment Disorder: An Observational Study of Teacher Sensitivity in Special Education

Attachment problems have a severe impact on children's social relationships in everyday life. Children with Reactive Attachment Disorder (RAD) are impaired in their abilities to form secure relationships with others and tend to rely on socially abnormal, aggressive, and manipulative forms of communication. On entering school, these children are at increased risk of forming poor relationships with both peers and teachers, which further impedes their socio-behavioral development. Given the severe social problems and inability to form secure and selective attachments with others, it may be expected that teachers have limited influence on the socio-behavioral development of children with RAD. On the other hand, based on attachment theory and the notion that internal working models of the self and self-other relationships are open to change, it can be argued that sensitive teachers, who are responsive to the unique academic and socio-emotional needs of these children, may be able to win children's trust and promote children's socio-behavioral development through establishing a warm and supportive relationship (Howes, Galinsky, & Kontos, 1998).

To examine these propositions, we observed teachers' sensitivity in interactions with children with mild to severe symptoms of RAD. Two subtypes of RAD are distinguished in the DSM IV: the *emotionally withdrawn/inhibited subtype* characterized by a lack of social approach and attachment behavior, and the *indiscriminately social/disinhibited subtype* characterized by indiscriminate friendliness and failure to develop selective attachments (Gleason et al., 2011). Inhibited RAD symptoms refer to a lack of social approach and emotionally withdrawn and hypervigilant responses to others as if children are frightened of others (e.g., "Sometimes looks frozen with fear without an obvious reason"). Children with inhibited RAD lack active attachment behaviors and fail to seek proximity or obtain comfort from caregivers. Disinhibited RAD symptoms or indiscriminate friendliness, on the other hand, is characterized by affectionate, overly sociable and overly familiar behavior towards others, including strangers (e.g., "Is too friendly with strangers"). Whereas the Inhibited and Disinhibited subtypes of RAD were previously considered subtypes of the same disorder, in the DSM-5 the disinhibited type is described as a separate disorder and renamed as disinhibited social engagement disorder (American Psychiatric Association, 2013). By re-conceptualizing the disinhibited subtype as a social engagement disorder, the emphasis is less on disturbed attachment behavior and more on disturbed social behavior (i.e., indiscriminate friendliness) as a core symptom of the disorder. Because this study was conducted before the publication of the DSM-5, we will follow the DSM-IV but we will return to this issue in our discussion of the results.

In the etiology of both subtypes of RAD, both genetic and environmental influences play a role with a history of extremely insufficient care, such as maltreatment and harsh parenting, being the most important predictor (American Psychiatric Association, 2013). The impact of parental abuse or neglect on children's development is severe. RAD has been related to a variety of negative outcomes and correlates, including externalizing problems, depression, and poor social relationships (Pritchett, Pritchett, Marshall, Davidson, & Minnis, 2013). The associations between inhibited RAD on the one hand, and social problems and

depression on the other hand, appear somewhat stronger than for disinhibited RAD, whereas disinhibited RAD appears somewhat more strongly related to oppositional, hyperactive and inattentive behaviors (Gleason et al., 2011). Moreover, research suggests that RAD symptoms and its correlates are significantly stable (Gleason et al., 2011). Little is known about environmental influences, and more specific about protective factors in schools, that might buffer children with RAD symptoms against negative outcomes in the school-age period (O'Neill, Guenette, & Kitchenham, 2010).

Impaired Socio-Behavioral Development of Children with RAD

In this study, we examined the socio-behavioral development of children with symptoms of RAD in special education classrooms. Research in special education classrooms for children with emotional disturbances suggests that children in these classrooms experience more negative encounters with peers and teachers than children in regular education classrooms (Little & Kobak, 2003).

The socio-behavioral development of children with RAD is often impaired for at least three reasons. First, children with RAD are assumed to have formed insecure working models of self and others due to unresponsive or abusive parenting. They have internalized feelings of being unworthy of being loved and cared for, and of others being unresponsive and unreliable. These insecure working models have a negative influence on children's sense of belonging and social relationships with others, including their relationships with peers and teachers (Howes & Hamilton, 1992; Little & Kobak, 2003). Children with RAD may have little trust in the availability and responsiveness of their teacher (Buyse, Verschueren & Doumen, 2011; Lynch & Cicchetti, 1992). Due to their insecure attachments, they seek social proximity in abnormal and counterproductive ways by exhibiting extreme inhibition or indiscriminate sociability. In addition, they may rely on aggressive and controlling behaviors to regulate proximity in order to protect themselves against social rejection and relational loss (Schwartz & Davis, 2006).

Second, attachment quality has been linked to children's ability for self-regulation (Kochanska, 2001). The presence of a nurturing attachment figure helps a child to regulate its arousal states and to cope with stress in a coherent and effective way. Over time, children with secure attachments become increasingly capable to manage their own emotions and behaviors. Children with insecure attachments are often impaired in their abilities to regulate intense feelings and impulses, which further compromises their socio-behavioral development (Schwartz & Davis, 2006).

Third, harsh parenting is believed to influence children's social behaviors through modelling. Children with RAD may have learned a repertoire of manipulative, antisocial and emotionally-abusive communication styles from their parents (Kawabata, Alink, Tseng, Van Ijzendoorn, & Crick, 2011). At the same time, they have had limited opportunities to acquire prosocial skills. Consequently, in interactions with teachers and peers, they tend to use more aggression and behave less prosocially than children without RAD.

Relationships between Teachers and Children with RAD

RAD symptoms and their correlates are found to be relatively stable. However, according to ecological and transactional models of development, the continuation or discontinuation of children's maladaptive social behaviors over time is influenced by social influences in the

child's immediate environment (Sameroff, 2000). Interpersonal relationships in schools are increasingly considered key contexts for children's development (Pianta, Hamre, & Stuhlman, 2003). Unfortunately, in schools, peers and teachers often respond negatively to initial problem behaviors of children (Stormont, 2002; Van Acker & Grant, 1996). Research in both regular and special education has shown mutual reinforcing processes between initial problem behavior and poor social relationships (Doumen et al., 2008; Sutherland & Oswald, 2005). For children with RAD, this is believed to confirm the child's insecure working models and so to further exaggerate the child's social-relational problems. Involvement in positive relationships with teachers, in contrast, may enable children with RAD to develop a sense of trust and to develop their self-regulation abilities in such a way that their social functioning will be enhanced (Little & Kobak, 2003; Schwartz & Davis, 2006; Waters & Cummings, 2000). There is a growing recognition of the influence of teacher-child relationships on children's development and school careers (Hughes, 2012; McGrath & Van Bergen, 2015). According to an attachment perspective on teacher-student relationships, teachers who are responsive to a child's needs may serve as ad-hoc attachment figures providing children a secure base for exploration and learning and a safe haven to return to when children need comfort or reassurance (Verschueren & Koomen, 2012). Research shows that in particular at-risk children benefit from such close relationships with their teacher (for reviews, see Hughes, 2012; McGrath & Van Bergen, 2015; Sabol & Pianta, 2012). However, because most research on the protective role of teacher-child relationships has been conducted in regular education, it is largely unknown whether these findings apply to children in special education classrooms or, more specific, to children with RAD symptoms.

Positive change in the socio-behavioral development of children with RAD might be achieved through modifications in children's internal working models of attachment. Attachment theory asserts that internal working models, although relatively stable, are open to new information. This implies that new relationships with adults who are responsive to the child's needs may provide children with corrective attachment experiences that can disconfirm and change initially insecure working models (Buyse et al., 2011; Zajac & Kobak, 2006). It is also possible that children develop different or partly non-overlapping internal working models for different relationships or for relationships in different contexts that have unique effects on their development (Fraleigh, 2007; Sibley & Overall, 2008). This would imply that sensitive teachers can have a protective influence on the development of children with insecure attachments with parents in the school context (Sabol & Pianta, 2012; Verschueren, Doumen, & Buyse, 2012). In line with this reasoning, the current study examined whether teachers' sensitivity in interactions with individual children could promote the socio-behavioral development of that child at school while controlling for initial levels of attachment problems.

Research on the Protective Role of Teacher Sensitivity in Regular Education

Previous research in the normal population has provided empirical support for the protective role of teacher sensitivity and positive teacher-child relationships for at-risk children (Sabol & Pianta, 2012). For instance, research in regular classrooms has demonstrated that high-quality relationships protect children with poor relationships with parents against aggression (Buyse et al., 2011) and underachievement (O'Connor & McCartney, 2007). The protective role of

teacher-child relationships has also been shown for children with externalizing problems (Silver, Measelle, Armstrong, & Essex, 2005), internalizing problems (Berry & O'Connor, 2010), and children with low social status in regular classrooms (Spilt, van Lier, Leflot, Onghena, & Colpin, 2014). However, there is a paucity of research that has examined the importance of teacher sensitivity and teacher-child relationships among children with developmental disorders and special educational needs. As a consequence, it is largely unknown to what extent the development of children with developmental problems, and in particular children with RAD, is related to and can be influenced by the quality of teacher-child interactions.

Measurement of Teacher Sensitivity as a Dyadic Construct

Another gap in the literature concerns the observation of teacher sensitivity as a dyadic construct. Most observational research in education has examined teacher sensitivity as a classroom construct by observing teachers' behaviors in relation to multiple children (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008; La Paro, Rimm Kaufman, & Pianta, 2006; for exceptions see Rimm-Kaufman et al., 2002; Spilt & Koomen, 2012). To understand the development of an individual child, however, it is also important to examine adult sensitivity as a dyadic construct, that is: the adult's responsiveness to the unique needs of that specific child. Such a dyadic approach is supported by empirical research that has indicated considerable differences in how teachers interact with different children in their classrooms (Coplan & Prakash, 2003; Greene, Beszterczey, Katzenstein, Park, & Goring, 2002; Sutherland & Oswald, 2005).

The majority of studies that did employ a dyadic approach have been based on teacher perceptions of close teacher-child relationships. Although teachers are important informants of their own relationships with children, teacher reports are also subjective accounts that are susceptible to perceptual biases (Thijs & Koomen, 2009). There is therefore a strong need for observational research on teacher sensitivity as a dyadic construct to complement and expand the existing literature base on the protective role of teachers for at-risk children.

The Present Study

This study aims to contribute to the existing literature in at least three ways. First, we sought to advance understanding of the socio-behavioral development of children with RAD symptoms in special education schools by examining a malleable factor in children's immediate environment, that is teacher sensitivity, that may protect children with RAD symptoms against poor developmental outcomes. Second, as most research has been conducted in regular classrooms, this study can extend empirical support for the protective role of teacher sensitivity to an understudied group of developmentally at-risk children, that is children with symptoms of RAD in special education classrooms serving children with emotional and behavioral disorders. Although close teacher-child relationships and teacher sensitivity are believed to be in particular important for at-risk children, it remains to be seen whether teachers are able to provide children with RAD symptoms a sense of security and to foster a positive development given the often severe social problems and incapability to form selective attachments with non-parental caregivers. Third, unlike most observational research on teacher sensitivity and in line with conceptualizations of teacher sensitivity as a dyadic

construct, we observed teacher sensitivity in interaction with the target child instead of the whole classroom.

Teacher sensitivity in interaction with the target child was observed at the beginning of the school year. We examined the predictive effects of teacher sensitivity at the beginning of the school year on children's overt aggression, relational aggression, and prosocial behavior at the middle of the school year (to examine immediate or short-term effects) and at the end of the school year (to examine longer-term effects) while controlling for baseline levels. In addition, we examined whether teacher sensitivity could promote or protect the socio-behavioral development of children with symptoms of RAD by testing interaction effects between teacher sensitivity and inhibited RAD symptoms and disinhibited RAD symptoms on the child outcomes.

Method

Sample

The sample included 85 Belgian children with mild to severe symptoms of RAD and 70 teachers from 20 special education schools in Flanders (Belgium). Almost all children were Caucasian (98.8%) and most of them were boys (83%). Children's age ranged between 6.22 to 10.39 years ($M_{\text{age}} = 8.32$; $SD = 0.97$).

Most children (83.1%) had one or more psychiatric diagnoses with more than half of them (67.19%) having received more than one diagnosis. Examination of the children's clinical files indicated that about 30% of the children were diagnosed with or suspected to suffer from RAD. These children scored higher on teacher-rated Inhibited symptoms (Cohen's $d = .50$) and Disinhibited symptoms (Cohen's $d = .37$) on the RPQ (see below). For 48% of the children, school psychologists indicated (suspicions of) a history of pathogenic care (e.g., physical or emotional maltreatment or neglect, or sexual abuse). Respectively 29 and 28 children were diagnosed with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), which we controlled for in the analyses. Approximately 40% of the children stayed at a specialized boarding school during the week in which they are cared for by multiple caregivers.

Most teachers were female (90.0%) and were employed full-time (93.4%). Their mean age was 34.5 years ($SD = 8.08$) and they had on average 6.7 years ($SD = 7.35$) experience in special education for children with emotional and behavioral disorders.

Selection procedure

Participants were recruited in special education schools serving children with emotional and behavioral disorders. All 38 schools in Flanders that provide this kind of education were invited to participate in the study, and 20 agreed to participate. Thirty-nine percent of the caregivers agreed on child participation ($n = 166$). Of these children, 85 were selected for participation based on the 75% highest scores on the RPQ (see below) and a maximum of two children per teacher, given the intensity of data collection for teachers.

Data Collection

Teacher sensitivity was observed at the beginning of the school year at Wave 1 (first trimester). Questionnaires on children's socio-behavioral development were administered to teachers at three waves: Wave 1 (first trimester), Wave 2 (second trimester), and Wave 3 (third trimester) to examine changes in children's development across the entire school year.

Information on RAD symptoms was collected in the previous school year as part of the selection procedure (Wave 0). Note that information on RAD symptoms was provided by different teachers than those participating at Waves 1-3.

Measures

Predictors

Inhibited and Disinhibited symptoms of Reactive Attachment Disorder (RAD).

Teachers completed the teacher-version of the Relationship Problems Questionnaire (RPQ; Minnis et al., 2007, Vervoort et al., 2013) to assess RAD symptoms exhibited at school. The RPQ assesses both Inhibited symptoms (6 items, e.g. “Sometimes looks frozen with fear, without an obvious reason”) and Disinhibited symptoms (4 items; e.g. “Gets too physically close to strangers”). Items were rated on a 4-point Likert scale (0= Not at all like, 3= Exactly like).

Although there is little research in school-age children compared to younger children, research shows that the teacher-version of the RPQ is a reliable and valid measure of symptoms of RAD of school-age children (Minnis et al., 2009). The psychometric quality of both scales of the teacher version in the present sample has been demonstrated by Vervoort et al. (2013). However, Vervoort et al. (2013) found stronger convergence between teacher and parent reports for Disinhibited symptoms than for Inhibited symptoms, whereas Inhibited symptoms were more strongly related to maladaptive functioning than Disinhibited symptoms (more externalizing and internalizing problems and less prosocial behavior). Furthermore, home observations indicated that children rated high on Disinhibition by teachers were more likely to approach strangers as if previously familiar and that children rated high on Inhibition by teachers were less likely to display an insatiable demand for attention.

Observed teacher sensitivity. Children’s new classroom teachers were observed in interaction with the target children in a dyadic setting outside the classroom. Teachers were observed in interaction with the child in three structured task settings: free-choice activity, a cognitive task activity, and an emotion task activity.

The interactions were video-taped and afterwards coded by trained observers who were not familiar with the participants. For each task, observers rated the subscales Sensitivity and Positive climate of the Classroom Assessment Scoring System (CLASS; La Paro, Pianta, & Stuhlman, 2002) that was adapted to measure dyadic interaction quality (Verschueren, Van de Water, Buyse, & Doumen, 2006). Sensitivity denotes teachers’ provision of comfort, reassurance, and encouragement with respect to the child’s academic and emotional needs. Positive climate refers to the teacher’s enthusiasm, enjoyment, and respect displayed during interactions with the target child. Intraclass correlations were .76 for Sensitivity and .81 for Positive climate across activities, suggesting excellent reliability. Because of the high correlation between Sensitivity and Positive Climate ($r = .85, p < .001$), we averaged the scores into a single scale.

Outcomes

To assess children’s aggressive and prosocial behaviors with peers, teachers completed the Teacher Assessment of Social Behavior Questionnaire (TASB; Cassidy & Asher, 1992) and the Children’s Social Behavior Scale—Teacher Form (CSBS-T; Crick, 1996). Items of the TASB are rated on a 5 point Likert scale (1=very uncharacteristic; 5=very characteristic).

Items of the CSBS-T are also rated on a 5 point Likert scale (1= this is never true of this child; 5=this is almost always true of this child). Both instruments have shown adequate psychometric qualities (e.g., Collett, Ohan, & Myers, 2003; Howes, 2000). In the current study, the Cronbach's alpha's ranged between .83 and .93, indicating high reliability for all scales across the three waves.

Overt aggression. Overt aggression refers to behaviors that harm others through physical means and verbal attacks (e.g., physical fighting, verbal threats). The Overt aggression scale of the CSBS-T (4 items) and the Aggression scale of the TASB (3 items) were averaged to create a single measure of Overt aggression (sample item: "This child bites, shoves, or pushes peers").

Relational aggression. Relational aggression involves aggressive and manipulative behaviors that harm others through purposefully damaging their social relationships and social group status (e.g., spreading rumors, ignoring or excluding others from social activities) and was assessed with the Relational aggression scale of the CSBS-T (7 items, sample item: "When angry at a peer, this child tries to get other children to stop playing with the peer or to stop liking the peer").

Prosocial behavior. The Prosocial subscales of the TASB (3 items) and CSBS-T (4 items) measure friendly and helpful behaviors. The subscales were averaged to create one scale for prosocial behavior (sample item: "This child is helpful to peers").

Control variables

Control variables were gender, age, autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), and verbal intelligence (receptive vocabulary) measured with the Word Meaning subtest of the Revision Amsterdam Intelligence Test for Children (Resing, Bleichrodt, Drenth, & Zaal, 2012).

Analyses

Linear regression models were estimated in Mplus (Muthen & Muthen, 1998-2011). The predictors were mean-centered and simultaneously added to the regression models. Interaction terms were computed by multiplying Sensitivity with Inhibited and Disinhibited RAD symptoms. Outcomes at Time 2 and 3 were regressed on Time 1 baseline level, Inhibited and Disinhibited symptoms of RAD, observed Sensitivity of the teacher, and the interaction terms. The significance of parameter estimates was tested two-tailed ($p < .05$). Standardized estimates were presented to indicate effect sizes. Non-significant interaction terms were removed from the final models to estimate main effects. To facilitate the interpretation of significant interaction effects, we examined *regions of significance* with alpha set at .10 using computational tools provided by Preacher and colleagues (Preacher, Curran, & Bauer, 2006). The region of significance indicates the values of the moderator at which the regression lines become significantly different. Simple slopes were calculated and plotted to visually probe interaction effects.

The covariance coverage matrix, which indicates the proportion of data that were present, ranged between .847 and 1.000. Full information maximum likelihood (FIML) estimation of missing data was used to retain the full sample. The cluster option of Mplus in combination with the MLR estimator was used to account for non-independence of observations (as explained above, some teachers reported on two target children).

Results

Table 1 presents the descriptive statistics and correlations between the variables. Disinhibited symptoms of RAD were not significantly related to teacher reports of aggression and prosocial behavior. Inhibited symptoms of RAD were associated with more overt aggression and less prosocial behavior, but not with relational aggression. Observed teacher sensitivity was negatively associated with relational aggression but not with overt aggression and prosocial behavior.

Regression Models

Table 2 presents the results of the regression analyses. Of the control variables, only gender and ASD proved significant and were therefore included as covariates (Table 2). Overall, overt aggression, relational aggression, and prosocial behavior were highly stable across waves. There were no significant main effects of Inhibition, Disinhibition, and Sensitivity on the outcomes.

Interaction effects

Overt aggression. There was a significant interaction effect between Sensitivity and Inhibition on Overt aggression at Time 2 but not Time 3. Figure 1 depicts the interaction effect on Time 2. Analysis of the region of significance indicated an increase in Overt aggression between trimester 1 and 2 when levels of Sensitivity were below -0.98 SD from the mean in the first trimester, whereas a significant decrease in Overt aggression was observed among children with Inhibited RAD symptoms when levels of Sensitivity were above 0.54 SD from the mean. There was no significant change in Overt aggression between the first and second trimester among children with Inhibited RAD symptoms when Sensitivity was between these values.

There were no significant interaction effects with Disinhibition.

Relational aggression. There was a significant interaction effect between Sensitivity and Inhibition on Relational aggression at both Time 2 and Time 3. Figure 2 depicts the interaction effect on Time 2. Analysis of the region of significance indicated a significant increase in Relational aggression between the first and second trimester when Sensitivity was below -0.77 SD from the mean, whereas a decrease in Relational aggression was observed among children with Inhibited RAD symptoms when Sensitivity was above 0.44 SD from the mean. When Sensitivity was between these values, there was no significant change in Relational aggression among children high on Inhibition.

Figure 3 depicts the interaction effect on Time 3. Analysis of the region of significance indicate a significant increase in Relational aggression when Sensitivity was below -0.27 SD from the mean, whereas a decrease in Relational aggression was observed when Sensitivity was above 0.37 SD from the mean. When levels of Sensitivity were between these values there was no significant change in Relational aggression between the first and third trimester.

There were no significant interactions effects with Disinhibition.

Prosocial behavior. No significant interaction effects between Sensitivity and Inhibition and Disinhibition on Prosocial behavior were found.

Discussion

This study suggests that the socio-behavioral development among children with heightened levels of inhibited symptoms of RAD is associated with the sensitivity of teachers for the emotional and academic needs of these children. Specifically, high sensitivity predicted decreases in overt and relational aggression, whereas low sensitivity predicted increases in both forms of aggression. This effect was robust for relational aggression as changes were observed between both the first and second trimester and the second and third trimester of the school year. The changes in overt aggression were observed only between the first and second trimester. No effects were found on the development of prosocial behavior. Also, teacher sensitivity was not associated with the socio-behavioral development of children with disinhibited symptoms of RAD.

The finding that teacher sensitivity is associated with the socio-behavioral development of children with inhibited RAD symptoms is encouraging. Given the severity and persistency of RAD symptoms and associated social-relational problems, we wondered at the start of this study whether just one teacher could make a difference for children with RAD symptoms during a school year. We found that this seemed the case for children with heightened levels of inhibited RAD symptoms as evidenced by decreases in aggression.

In accordance with ecological and transactional models of development, the findings suggest that teachers may have a significant influence on the socio-behavioral development of children high on inhibited RAD symptoms, for better and worse: Whereas sensitivity of teachers was associated with decreases in aggression, insensitivity was found to perpetuate and even increase aggression. These effects appeared marked. For instance, the standardized differences in aggression scores between children high on inhibition (1 SD above the mean) having the most insensitive teacher versus similar children having the most sensitive teacher ranged between 0.8 and 0.9 SD in this sample (see Figures 1-3), and these effects become increasingly larger when children exhibit more inhibited RAD symptoms.

The observed risk of low sensitivity concurs with previous research that has found negative reinforcing effects of child behavior problems and conflictual interactions with teachers across a school year in both regular and special education (Doumen et al., 2008; Sutherland & Oswald, 2005). The behaviors of insensitive teachers may confirm the children's insecure working models and add to their beliefs that they are unworthy of love and care, and that adults are untrustworthy and indifferent to their needs. To protect themselves, they may increasingly rely on aggression and relational manipulation to control their social environment. Such perpetuating cycles of negative child behavior and unresponsiveness of teachers may become increasingly difficult to be amended by subsequent teachers.

Sensitive teachers, on the other hand, may be able to function as ad-hoc attachment figures for children with inhibited RAD. The first possibility is that sensitive teachers are, at least to some extent, able to modify children's initial insecure working models by providing corrective attachment experiences, thereby promoting beliefs of self-worth and trust in others (Buyse et al., 2011). A second possibility is that these children may form relationship-specific internal working models of relationships. Although they may have limited trust in their primary caregivers, they may learn to rely on ad-hoc caregivers such as teachers for support and care and develop a secure internal working model of the teacher-child relationship, which may promote adaptive behavior in the school context.

It should be noted that the declines in aggressive behaviors of children with symptoms of inhibited RAD might have taken place without a change in children's working models of relationships. Sensitive teachers may have prevented children with inhibited RAD symptoms from using aggression simply by responding to a child's need and by providing a child an external source of self-regulation or by learning children adaptive coping skills. For example, during conflicts with peers, sensitive teachers may be able to alleviate a child's stress, to sustain the child's self-control, and alleviate the need to rely on aggressive and manipulative methods as a result.

The observed declines in overt and relational aggression did not coincide with improvements in children's prosocial behavior. It is possible that teachers in special education are more focused on preventing problem behavior than on promoting positive skills. In addition, children with special educational needs appear to be restrained in their ability to learn prosocial skills by observing teachers as models of social behavior (Canney & Byrne, 2006). Instead, they seem to require explicit teaching of prosocial skills (Canney & Byrne, 2006). Finally, our measure of sensitivity is perhaps not a very good indicator of teachers' efficacy in modelling and reinforcing prosocial behaviors.

Teacher sensitivity did not appear to make a difference in aggression for children with disinhibited RAD symptoms. It has been suggested that children with disinhibited RAD are less responsive to caregiving influences: Enhancement of primary care, for instance through adoption, does reduce inhibited but not disinhibited RAD symptoms (Zeanah & Smyke, 2008). It also corroborates the reasoning that the disinhibited subtype is not primarily an attachment disorder but rather a social engagement disorder (DSM-5; American Psychiatric Association, 2013).

Limitations and Future Research

To correctly evaluate the findings, some limitations should be considered. First, we should be careful not to directly generalize the findings to children with a clinical diagnosis of RAD because this study was not designed to identify children with a clinical diagnosis of RAD. Instead, the study's sample included children with mild to severe levels of symptoms of RAD (as expressed in the classroom), covering the whole range of RAD symptoms in special education for children with emotional and behavioral problems. It is not clear to what extent the children met all RAD criteria, although an examination of the clinical files indicated that about 30% of the children had a diagnosis or were suspected to suffer from RAD and for about 50% of children there were indications or suspicions of pathogenic care.

Second, given the non-experimental nature of the data, we cannot draw causal conclusions about the influence of teacher sensitivity on the sociobehavioral development of children with RAD symptoms. In addition, teacher sensitivity was examined only at the beginning of the school year. It is not clear whether our observations are representative for the level of teacher sensitivity in the subsequent trimesters. Measurement of sensitivity in all three trimester is needed to examine to what extent teachers may improve in sensitivity (probably because they become to know the children better over the course of the school year) or decrease in sensitivity (as they may become tired or increasingly influenced by perceptual biases of the child's needs and behaviors) and how these changes might have impacted

children's socio-behavioral development. Observations in all trimesters would have been likely to have yielded more robust effects.

Furthermore, we examined teacher sensitivity in different sessions with individual children in three structured task settings. This was done in a dyadic setting outside the classroom, which has several advantages and disadvantages. In comparison to unstructured observations in the classroom, our observations may have relatively limited ecological validity. On the other hand, this approach allows for a more standardized assessment of teacher sensitivity and thus a more accurate assessment of differences between teacher-child dyads (see also Zaslow et al., 2006). It should also be noted that all observations were done on one specific day, thus ignoring possible variations in time.

We chose to examine teacher sensitivity at the dyadic level to extent and complement research that has examined teacher sensitivity at the classroom level. However, there is no clear evidence for the relative importance of classroom sensitivity versus dyadic sensitivity. For instance, Spilt et al. (2014) found protective effects on the self-concept of rejected children of teacher support for individual children but not for teacher support at the classroom level. In contrast, a meta-analysis of child care research suggested that classroom sensitivity is a more important predictor of non-parental caregiver-child attachment in large group settings than dyadic sensitivity (Ahnert, Pinquart, & Lamb, 2006).

Fourth, although we used a validated teacher questionnaire to measure RAD symptoms as exhibited in the classroom, we do not know whether the changes in socio-behavioral functioning reflected changes in teacher perceptions, or changes in actual child behaviors, or both. However, given the well-known influence of teachers perceptions and interpretations of a child's behaviors on teachers attitudes and behaviors in interactions with that child (Dobbs & Arnold, 2009; Thijs & Koomen, 2009), the results may still be considered valuable if interpreted as reflecting primarily changes in teacher perceptions.

Fifth, we also do not know if effects on children's socio-behavioral development might be still observable in the next school years and how these may be carried forward into relationships with subsequent teachers. Research suggests a long-term impact of single teachers on the development of at-risk children (e.g., Essex, Armstrong, Burk, Goldsmith, & Boyce, 2011), which corroborates the assumption that relationships with teachers can have a lasting impact on children because these relationships can induce important changes in children's internal working models of relationships. However, possible long-term effects need to be tested in future research for children with RAD symptoms.

Moreover, we have not tested *how* teacher sensitivity might have influenced children's socio-behavioral development. We offered several explanations for the effects of teacher sensitivity including modifications in children's general working models of relationships or the formation of context-specific working models for relationships with teachers and effects on emotional security and self-regulation. Future research is needed to test these explanations. Finally, future research may include other measures of socio-behavioral development, for instance friendship quality or social acceptance using sociometric procedures.

Practical Implications

This study highlights the importance of teachers being highly sensitive to the unique needs of children with inhibited RAD symptoms. However, for many teachers this may prove difficult.

It is not easy to perceive and understand the needs of these children given their difficulties with regulating proximity. By responding with anxiety, indifference or aggressive behavior towards teachers' initiatives for contact, their need for a secure attachment may be difficult to detect for teachers and may push the teacher away. How teachers interpret and respond to such behavior, either by responding to the child's overt behavior or to the child's underlying need for attachment, is key for building a strong relationship with the child and for having a remedial influence on the child's development.

It is thus of primary importance to provide teachers with opportunities to improve their sensitivity towards individual children. School psychologists need to be aware of this importance and support teachers through psycho-education and teacher consultation. Recent intervention research shows that the provision to the teacher of a supportive coach or consultant can protect teachers and children getting caught in negative cycles of interaction (Cappella et al., 2012). Spilt et al. (2012) developed the relationship-focused reflection program to help teachers purposely reflect on relational difficulties and to analyze how their (negative) emotions might influence their behaviors towards a child perceived as disruptive. This was done in one-to-one sessions with a consultant and was found to enhance the teacher's sensitivity in interactions with that child (Spilt, Koomen, Thijs, & Van der Leij, 2012). Other promising dyad-focused interventions to enhance teacher-child compatibility are Banking Time and Playing-2-Gether. Banking Time involves dyadic sessions of child-directed play and teacher facilitation techniques (Driscoll & Pianta, 2010). Playing-2-Gether is a two component program that combines principles of Banking Time with a component aimed at behavioral modification techniques that are grounded in learning theory (Vancraeyveldt et al., 2015). Although these programs have been initially developed for teachers and young students in regular education, the programs may be suitable for teachers of older students as well and in particular for students with Inhibited RAD symptoms.

Conclusions

Despite the often persistent social-relational problems of children with RAD, it was found that the socio-behavioral development of children with elevated levels of Inhibited RAD symptoms was associated with teachers' sensitivity (or lack thereof) in dyadic interactions with the child. Whereas low sensitivity was associated with increases in overt and relational aggression, high sensitivity predicted decreases in aggression. However, this appeared to be the case only for children with Inhibited RAD symptoms and not for children with Disinhibited RAD symptoms.

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Tables

Table 1. Descriptive Statistics (N=85)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. Disinhibited _{T0}	.53	.63	-										
2. Inhibited _{T0}	.59	.56	.20	-									
3. Sensitivity _{T1}	4.86	.58	.08	.16	-								
4. Overt aggr. _{T1}	2.67	1.12	.01	.42**	-.01	-							
5. Overt aggr. _{T2}	2.66	1.16	.01	.30**	-.15	.82**	-						
6. Overt aggr. _{T3}	2.57	1.09	-.09	.35**	.04	.73**	.77**	-					
7. Relational aggr. _{T1}	2.34	.81	-.10	.06	-.32**	.53**	.54**	.53**	-				
8. Relational aggr. _{T2}	2.38	.91	-.03	.03	-.35**	.55**	.56**	.49**	.80**	-			
9. Relational aggr. _{T3}	2.37	.88	-.12	.10	-.28*	.51**	.61**	.57**	.74**	.84**	-		
10. Prosocial _{T1}	3.23	.75	.12	-.24*	.11	-.40**	-.42**	-.41**	-.16	-.12	-.23*	-	
11. Prosocial _{T2}	3.26	.89	.04	-.19	.09	-.41**	-.50**	-.39**	-.18	-.11	-.19	.79**	-
12. Prosocial _{T3}	3.28	.80	.16	-.23*	.11	-.28*	-.26*	-.41**	-.28*	-.09	-.21	.60**	.73**

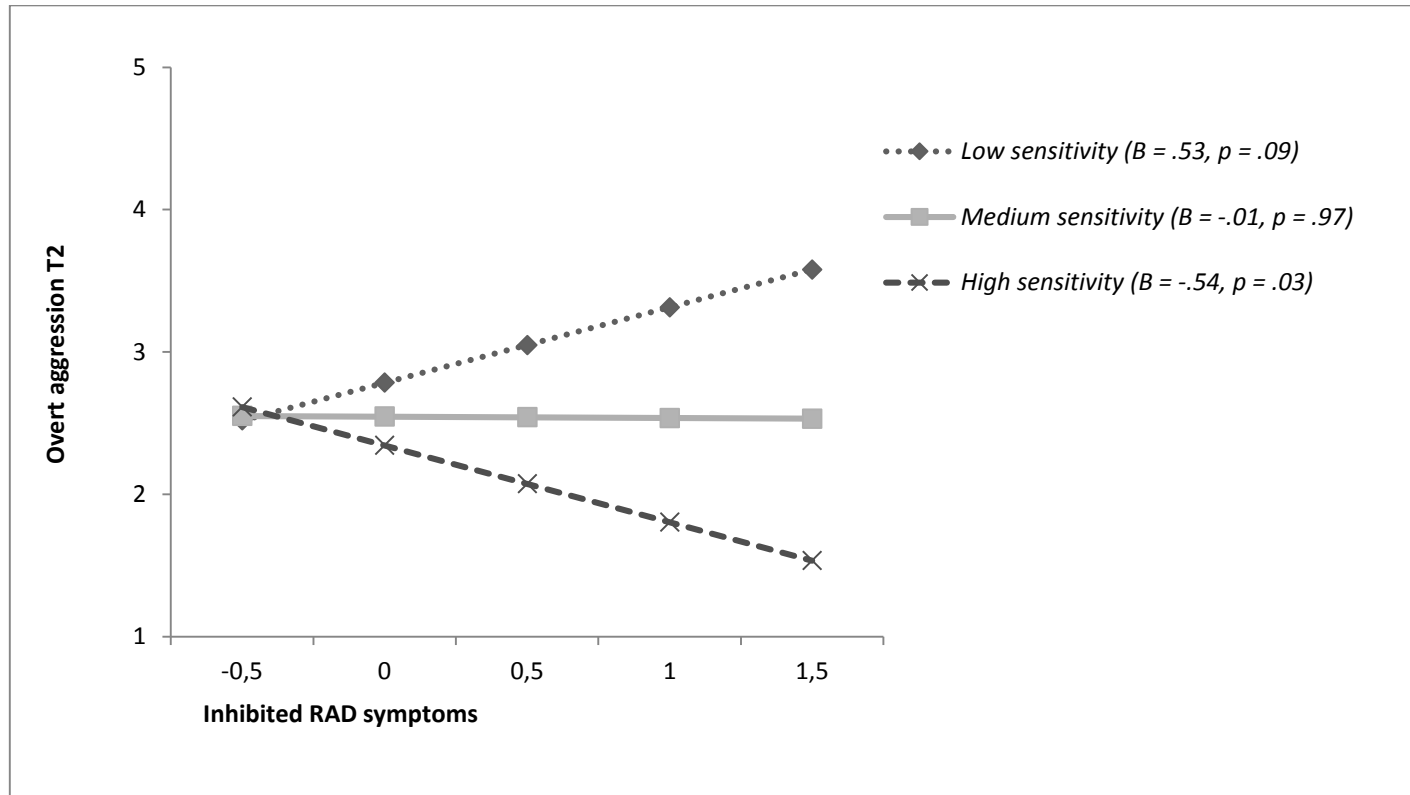
Note 1. ** $p < .01$, * $p < .05$ (two-tailed)

Note 2. _{T0}=trimester 3 in previous school year, _{T1}=trimester 1, _{T2}=trimester 2, _{T3}=trimester 3; aggr.=aggression

Table 2. Regression Models Predicting Outcomes at Time 2 and Time 3 (Trimester 2 and 3)

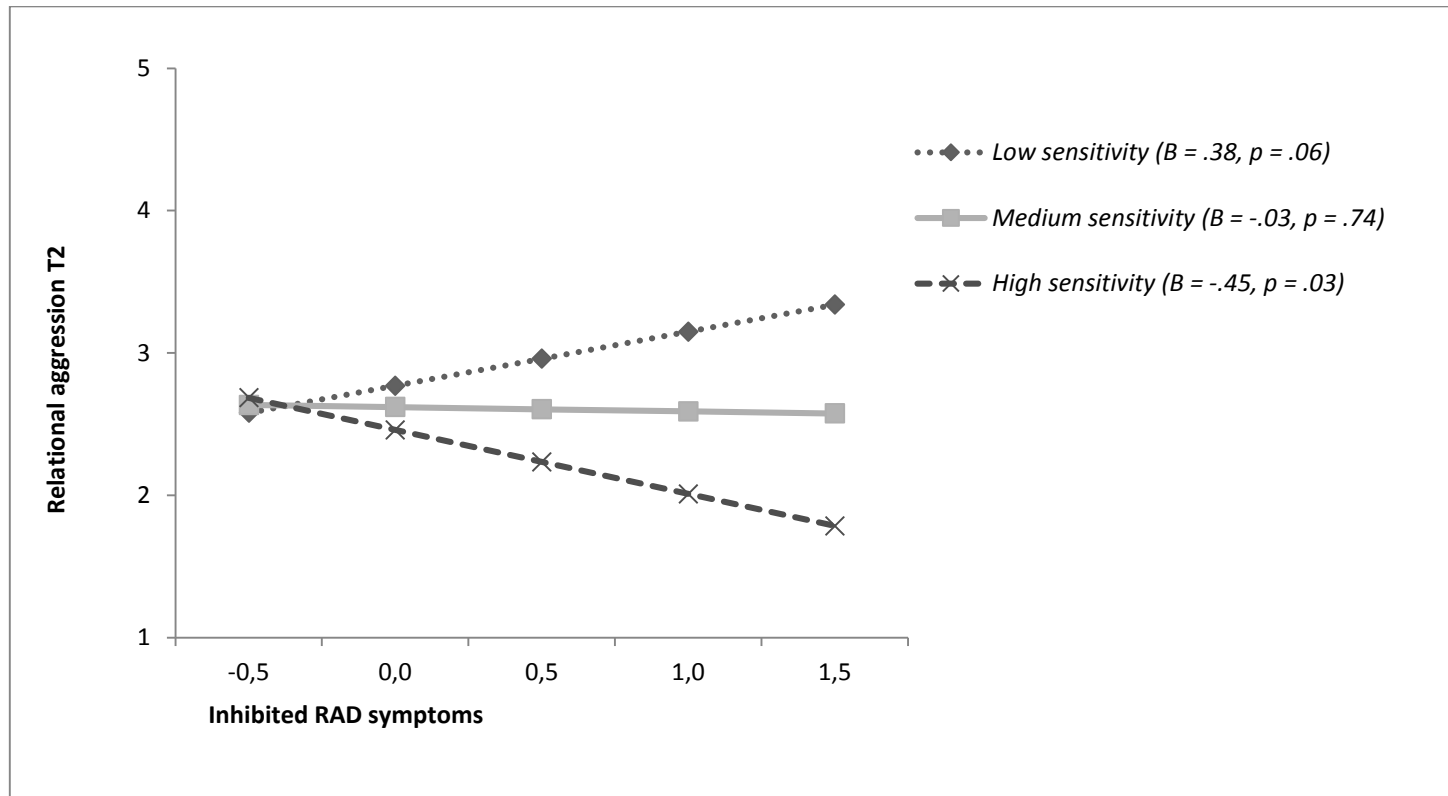
	<u>Overt aggression</u>				<u>Relational aggression</u>				<u>Prosocial behavior</u>			
	<u>Time 2</u>		<u>Time 3</u>		<u>Time 2</u>		<u>Time 3</u>		<u>Time 2</u>		<u>Time 3</u>	
	B(SE)	β	B(SE)	β	B(SE)	β	B(SE)	β	B(SE)	β	B(SE)	β
Baseline	.79(.06)	.79**	.66(.07)	.70**	.80(.09)	.76**	.71(.08)	.69**	.93(.07)	.79**	.62(.10)	.60**
Gender (boy)	.30(.22)	.27	.27(.22)	.26	-.06(.14)	-.07	-.17(.20)	-.20	-.48(.15)	-.54**	-.08(.15)	-.11
ASD	-.27(.20)		-.44(.20)	-.21*	-.30(.14)	-.17*	-.27(.17)	-.16	.32(.15)	.18*	.05(.18)	.03
Disinhibited	-.01(.10)	-.01	-.19(.12)	-.11	.02(.07)	.01	-.13(.09)	-.10	-.04(.07)	-.03	.05(.11)	.04
Inhibited	-.01(.15)	-.00	.00(.16)	.00	-.03(.09)	-.02	.07(.09)	.05	.13(.10)	.08	-.17(.14)	-.12
Sensitivity	-.20(.13)	-.11	.04(.16)	.02	-.14(.10)	-.10	-.05(.13)	-.04	.08(.11)	.05	.14(.12)	.11
Sensitivity x Disinhibited	-	-	-	-	-	-	-	-	-	-	-	-
Sensitivity x Inhibited	-.49(.20)	-.14*	-	-	-.38(.15)	-.15*	-.54(.19)	-.21**	-	-	-	-

Note 1. ** $p < .01$, * $p < .05$ (two-tailed)

Figure 1. Interaction Effect of Teacher Sensitivity and Inhibited RAD symptoms on Overt Aggression in 2nd Trimester

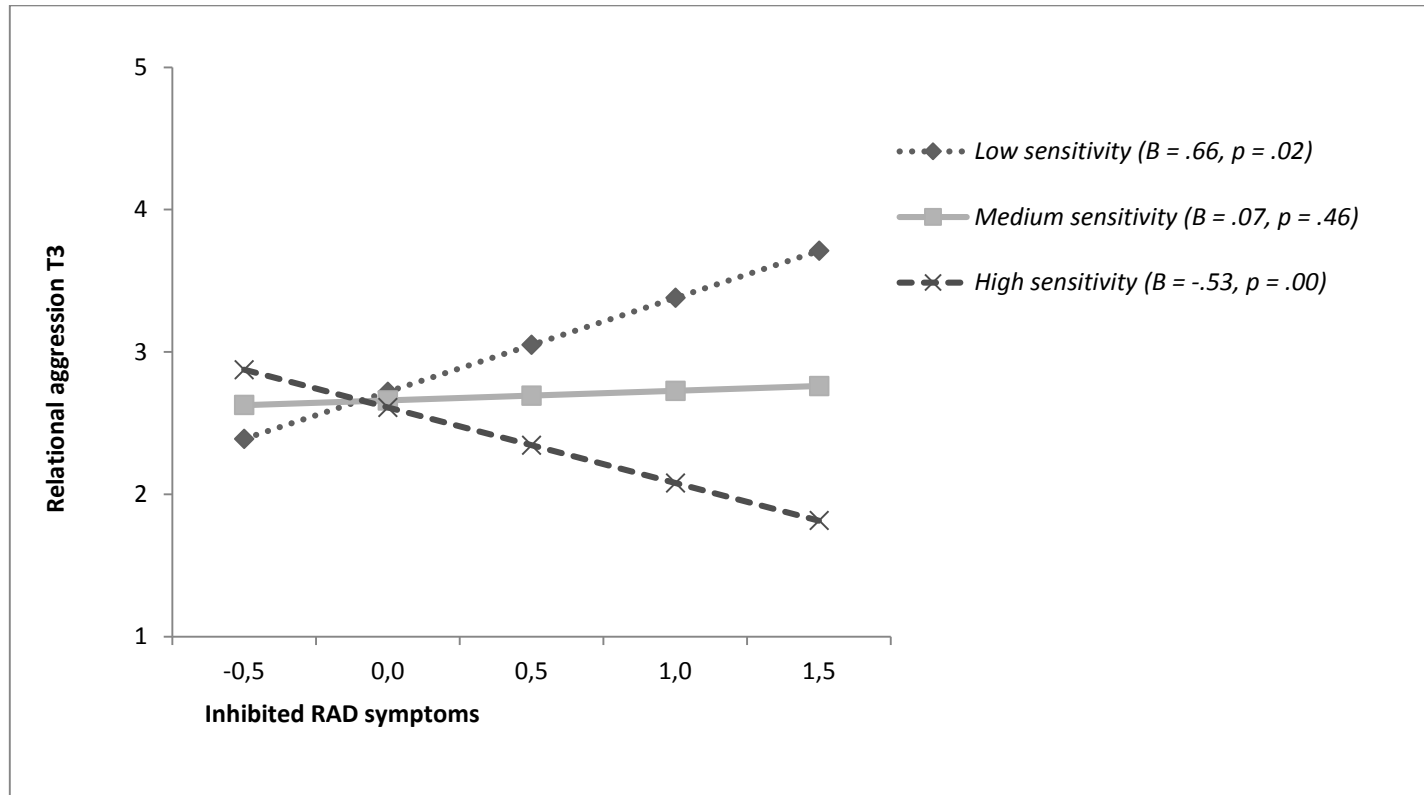
Note. Low sensitivity = -2SD, Medium sensitivity = 0SD, and High sensitivity = +2SD from the mean

The regression lines became significantly different when the mean-centered Inhibited RAD symptom scores were $>.11$, which was the case for 31% of the sample.

Figure 2. Interaction Effect of Teacher Sensitivity and Inhibited RAD symptoms on Relational Aggression in 2nd Trimester

Note. Low sensitivity = -2SD, Medium sensitivity = 0SD, and High sensitivity = +2SD from the mean

The regression lines became significantly different when the mean-centered Inhibited RAD symptom scores were $> .19$, which was the case for 31% of the sample.

Figure 3. Interaction Effect of Teacher Sensitivity and Inhibited RAD symptoms on Relational Aggression in 3rd Trimester

Note. Low sensitivity = -2SD, Medium sensitivity = 0SD, and High sensitivity = +2SD from the mean

The regression lines became significantly different when the mean-centered Inhibited RAD symptom scores were $> .37$, which was the case for 28% of the sample.