RUNNING HEAD: Reactive Attachment Disorders and Internal Working Models

**Inhibited Symptoms of Reactive Attachment Disorder:
Links with Working Models of Significant Others and the Self.**

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Abstract

DSM-5 has narrowed the Reactive Attachment Disorder (RAD) classification to children showing inhibited attachment disorder behaviors. To better understand RAD, the current study tested whether children with RAD can be distinguished from other children with severe emotional and behavioral disorders with regard to the quality of their interpersonal behavior during interactions with teachers and with regard to their representations or Internal Working Models (IWMs) of self and others. For this purpose, symptoms of attachment disorder were screened in 166 children from special education schools serving children with emotional and behavioral disorders. These children (87% boys) were between 5.67 years and 10.08 years old. Based on the 75% highest scores on a screening instrument, 77 children with parental permission were selected to administer the Disturbances of Attachment Interview to parents. Of these 77 children, 22 likely cases of inhibited reactive attachment disorder were identified. To measure quality of the interactions with teachers, we observed children's trust and positive affect in dyadic interactions with teachers. For the IWM of others, we measured self-reported trust in parents and teachers. For the IWM of the self, two self-esteem assessments were individually administered. Results showed that, compared to children with other emotional and behavior disorders, RAD children's behavior reflected less trust in their teachers. At the level of representations, children reported less trust in teacher care. Instead, no links were found with self-report measures focusing on IWMs of parents and IWM of Self. These findings will be discussed in light of the ongoing discussion about whether or not attachment disorder and insecure attachment are associated concepts.

Inhibited Symptoms of Reactive Attachment Disorder:**Links with Working Models of Significant Others and the Self.**

In a response to the difficulties encountered to link Reactive Attachment Disorder (RAD) diagnosis to differences in secure versus insecure attachment (e.g., Zilberstein, 2015), the DSM-5 only regards children with inhibited/emotionally withdrawn symptoms of RAD as attachment disordered (American Psychiatric Association, 2013). The decision to change the DSM was based on research in which infant attachment behavior was observed using the strange situation procedure and in which associations between attachment behavior towards primary caregivers (like foster parents) and RAD symptomatology was only found for the children of the inhibited RAD subtype (Gleason et al., 2011). This decision ensured a closer link between attachment theory and the remaining RAD diagnosis and a better defined RAD diagnosis (Zeanah & Gleason, 2010). In spite of the value of this research driven change, several aspects of the definition of inhibited RAD require further investigation. In the current study, we will focus on two unanswered questions. First, although the RAD definition suggests that children should show inhibited behavior across adult caregivers, so far, research was limited to the observation of interactions with primary caregivers like parents or foster parents (e.g., Gleason et al., 2011). This leads to the question whether RAD children show the same disordered interpersonal behavior in interaction to other adult caregivers. Secondly, so far, no study has tested whether links between RAD and attachment can be found at the level of children's representations or Internal Working Models of caregivers and of the self. This leads to the question whether children with RAD have more negative IWMs of caregivers and of the self.

According to the DSM-5, RAD can be diagnosed if children show (A) consistent patterns of inhibited, emotionally withdrawn behavior toward adult caregivers in attachment-relevant situations, and (B) persistent social or emotional disturbances, reflected in minimal social and emotional responsiveness, limited positive affect, or episodes of unexplained arousal, also during non-threatening interactions with adult caregivers. Moreover (C), the children must have been exposed to a pattern of extremes of insufficient care. RAD is not prevalent in the normal population

(1%), but its prevalence rises in populations of children at risk for maltreatment. For example, 38% of children referred to foster care for reasons of abuse and neglect showed symptoms of inhibited RAD (Zeanah, Scheeringa, Boris, Heller, Smyke, & Trapani, 2004). Especially the definition of criterion A increased the construct validity of the diagnosis because it explicitly linked the attachment disorder diagnosis to attachment theory.

According to attachment theory, children develop a secure attachment to caregivers if they consistently experience caregivers to respond sensitively to their distress (Bowlby, 1969). Conversely, children are more at risk to develop insecure attachments if they experience that caregivers respond inconsistently supportive to their distress, or if they experience that caregivers are consistently unavailable for support. If children are insecurely attached, they are impaired in their attachment behavior or in their ability to seek attachment figures' proximity and support during stress and in their ability to benefit from their caregivers' attempts to comfort them (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969; Cassidy, 2016). In accordance with attachment theory, criterion A of the RAD now refers to a consistent pattern of inhibited, emotionally withdrawn behavior toward adult caregivers, manifested by both of the following: (a) the child rarely or minimally seeks comfort when distressed; (b) the child rarely or minimally responds to comfort when distressed (American Psychological Association, 2013). However, this definition implies two assumptions that have not yet been put to the test.

First, the definition suggests that inhibited/withdrawn attachment behavior should also be observed in relationships with adult caregivers that are not the primary caregivers. Therefore, evidence in favor of the generalization of this behavior pattern across types of caregivers would add to the validity of the diagnostic category. One type of adult caregiver that is of high importance in children is the teacher. Although it is clear that the teacher cannot be considered fully equivalent to an attachment figure because there is no "relatively long-enduring tie in which the partner is important as a unique individual and is interchangeable with none other" (Ainsworth, 1989, p. 711), increasing research shows in middle childhood and even more so in younger children with special

needs that the teacher-child relationship may have an “attachment component” (Cassidy, 2008, p. 14) and that the teacher may serve the function of temporary or ad-hoc attachment figure (Zajac & Kobak, 2006; Verschueren, 2015). Therefore, it is not only a theoretically but also clinically important research question whether RAD children show impaired attachment behavior during interactions with teachers. We predicted that these children would show more inhibited behavior as reflected in reduced proximity seeking to their teacher and reduced positive emotional responses to interactions with their teachers during distressing (emotionally challenging and academically challenging) situations. These situations were chosen based on the observation in attachment research that securely attached children rely more easily on attachment figures during distress (Ainsworth et al., 1978). The chosen situations are known as eliciting levels of distress that activate the need for support from attachment figures (Dujardin et al., 2016; Vandevivere et al., 2015). In addition, and in line with the assumption that children with RAD-symptoms also show impairments in interactions with adult caregivers in non-threatening situations (see criterion B of DSM-5), we anticipated that they would also display lower levels of emotional security and positive affect during non-threatening free play situation with their teacher.

Second, attachment theory and research has found that differences in (in)secure attachment are increasingly reflected at the level of their representations of their relationships with attachment figures as children grow older (e.g., Main, Kaplan, & Cassidy, 1985; Waters et al., 2015). Children are supposed to store secure or insecure experiences with attachment figures in Internal Working Models (IWMs). These are cognitive-affective representations that get activated by new distress and that determine the likelihood that children will rely on their caregivers as a resource to regulate distress (Bretherton, 1990). Insecurely attached children have IWMs about the attachment figure as unavailable for care (negative IWM of the other) and about the self as being unworthy to deserve being cared for (negative IWM of the self; Bowlby, 1969; Cassidy, 2016). Given that the DSM-5 explicitly defined RAD in such a way that there should be a clear link with the attachment construct,

it is an important research question whether RAD children hold more negative IWMs of others and self.

With regard to the IWM of others, research shows increasingly that children develop these IWMs in relationships with multiple caregivers. Although relationships with parents have been most widely studied, there has been an increasing interest in children's relationships with teachers. Researchers have pointed to teachers as potential ad-hoc or temporary attachment figures for children at school and to the safe haven function of teachers especially for vulnerable children (Schuengel, 2012; Verschueren & Koomen, 2012). In different contexts, different IWMs might be activated (Gerlsma & Luteijn, 2000; Sibley & Overall, 2008). A child might have developed low trust in his or her parents due to insufficient caregiving, but the child might be able to develop trust in his or her teacher when the teacher consistently affords the child support and security. To test whether children with Inhibited RAD differentiate between attachment figures across contexts, we examined children's IWMs of others across relationships at home and in school, including the child's mother, father, and the teacher. Because Inhibited RAD is expected to be associated with social disturbances across contexts, we predicted children with Inhibited RAD to report low trust across these relationships and contexts.

With regard to the IWM of the self, research provided substantial evidence that secure attachment is characterized by higher self-esteem (e.g., Arbona & Power, 2003; Cassidy, 1988; Verschueren & Marcoen, 1999; Verschueren, Doumen, & Buyse, 2012). When children feel valued by their parents and supported when distressed, they tend to believe that they are valuable and worthy of love and support, and thus develop a higher sense of self-esteem. Conversely, when they experience a lack of care and support, they may interpret it as a sign that they are not worthy of care, and thus develop a lower self-esteem. Consequently, given the assumption that deficiencies in parental care among children with RAD are even more extreme, we predicted that children with more RAD symptoms should have a more negative IWM of the others and the self.

Current Study

The current study focused on children in segregated special schools specialized in educating children with severe emotional and behavioral problems, such as RAD. Conducting the study in this population increased the likelihood of identifying a relevant number of children with RAD symptoms. Moreover, studying this population allowed us to evaluate the extent to which insecure IWMs of the self and the others are a problem that is specific to children with inhibited RAD symptoms compared to children with other severe emotional and behavioral problems. Moreover, in the current study, we collected data in 6-10 year old children. At this age, biological processes enhance children's brain capacity to organize experiences during social interactions in a cognitive script-like fashion (Del Giudice, 2015). Hence, at this age, RAD children's negative IWMs of others and the self should be more clearly observable. In sum, three predictions were tested. Compared to children with other severe emotional and behavioral disorders, children with RAD will (1) display lower levels of emotional security and positive affect, both in challenging and non-threatening situations, (2) they will report less trust in mother, father, and teacher, (3) they will have lower levels of self-esteem.

Method

Participants

A two-step method was applied to select participants. First, we contacted all 38 schools providing special education for children with emotional and behavioral disorders in Flanders, the Dutch-speaking region of Belgium. In the schools that agreed to participate ($n = 21$, one of which served as a pilot school), the primary caregivers of all children born between 2001 and 2004 ($n = 425$) received information about the study and were asked for participation. Caregivers of 166 children (39%) gave active consent for their child's participation and filled out the screening instrument for RAD (i.e., the Relationship Problems Questionnaire, RPQ, Minnis, Reekie, Young, O'Connor, Ronald, Grayand, & Plomin, 2007). Almost 90% of the caregivers was a biological parent of the child, but only 30% of the caregivers daily took care of the child together with the other biological parent. To assess symptoms of RAD, the Disturbances of Attachment Interview (DAI; Smyke & Zeanah, 1999) was administered for

77 children, of which 22 children met the criterion cutoff for Inhibited RAD (Gleason et al., 2011). The interviews were administered to 74 mothers, two primary caregivers from a residential care unit, and one adoption father. Additional data (including individual child measures described below) were collected for a maximum of two children per teacher. Because of this criterion, 9 children were excluded (including one child that met the Inhibited RAD criterion). In addition, one child was excluded because of validity concerns. Consequently, the final sample consisted of 67 children (including 21 children who met the criterion for Inhibited RAD). Observations took place two to three months after the start of the school year, to ensure that there were enough interaction opportunities between the teacher and the child. Indeed, Koomen and Hoeksma (2003) showed that the child already starts to display attachment behavior towards the teacher from the start of the school year. However, the fact that we collected data later in the school year further ensured that children had had the ability to establish an ad-hoc attachment relationship with their teacher.

Most of these children were boys (82.1%) and their age ranged from 6.6 to 10.8 years ($M_{\text{age}} = 8.70$; $SD = 0.99$). Almost all children were Caucasian (98.8%). The majority (84.8%) had one or more psychiatric diagnoses with almost half of them (43.9%) having received more than one diagnosis. Clinical files indicated that about 27.2% of the children were diagnosed with or suspected to suffer from RAD. Moreover, for 48% of the children's school psychologists indicated (suspicions of) a history of pathogenic care (e.g., physical or emotional maltreatment or neglect, or sexual abuse). About 39% of the children stayed at a specialized boarding school during the week in which they are cared for by multiple caregivers. Respectively 40.9% and 33.3% of the children were diagnosed with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD). Of the children that met the RAD criteria, 12 children's files mentioned ASD as diagnosis in their files. However, the files did not allow to assess the quality of the assessment on which this was based. Approval for this study was obtained from the institutional ethical committee of the KU Leuven, Belgium.

Instruments

Reactive Attachment Disorder (RAD). To assess symptoms of RAD, the Disturbances of Attachment Interview (DAI; Smyke & Zeanah, 1999) was administered to one of the primary caregivers (mainly the mothers). The DAI is a semi-structured interview that was originally developed for 1- to 5-year-old children, and later adapted for use with school-aged children (Smyke et al., 2012; Zeanah & Smyke, n.d.). It probes the degree of inhibited and disinhibited child behavior as derived from caregiver reports. For this study, we used the school-aged version which includes 11 questions on RAD-symptoms. Each question is scored with 0, 1, or 2 depending on the extent to which the probed attribute is present (no, some, and consistent evidence for an attachment disorder symptom). Prior to data collection, the third author was trained to administer and score the Dutch version of the DAI by Clasien de Schipper (VU Amsterdam), who was in turn trained by Neil Boris and Robert Marvin.

Principal Component Analyses with varimax rotation on the scores yielded two components, one reflecting inhibited (4 items) and the other disinhibited behaviour (7 items). In the current study we only used the inhibited scale. To derive an inhibited RAD diagnosis, some (score 1) or consistent evidence (score 2) should be present for at least three of the probed inhibited behaviors. Prior studies have shown adequate interrater reliability and internal consistency of the inhibited scale (Smyke et al., 2002). Furthermore, Gleason and colleagues (2011) found evidence for its convergent and discriminant validity. In the current study Cronbach alpha for the inhibited scale was low (.53), but interrater reliability was good. Specifically, Spearman Rho correlation, calculated on 22 interviews coded by two independent raters, was .89. Moreover, prior research on the same sample showed that the DAI-inhibited score correlated as expected with parents' RPQ-scores for inhibited behavior ($r = .39, p < .01$). Also, it was associated positively with child emotional and interactional problem behavior as observed during interactions with their caregiver at home ($r = .28, p < .05$) (see Vervoort, de Schipper, Bosmans, & Verschueren, 2013 for more information on the psychometric properties). Because the low alpha could have affected the results, we calculated a factor score for this scale and repeated all analyses with the factor score. This did not substantially alter the patterns of effects, which suggests that these

patterns were not the result of error variance. To increase the interpretability of the findings, in all analyses, we worked with the sum-score as is usually done with this research instrument.

Trust in the Reliability of Others in Daily Life. A subscale of the Early Childhood Generalized Trust Belief Scale (ECGTBS; Betts, Rotenberg, & Trueman, 2009) was used to measure children's generalized trust in the reliability of significant others. The scale consists of eight items, including two for mothers, fathers, teachers, and peers. Each item describes a situation in which the significant other makes a promise to a child (e.g., "Courtney's mum said that she would take Courtney swimming on Sunday. How sure are you that Courtney's mum will take her swimming?"). The children were asked to indicate how sure they were that the target would keep his or her promise, using five bars of increasing size. Higher scores reflect more trust. The parent-related trust items have been meaningfully linked to observed interpersonal behavior in prior research, suggesting the validity of the scale (Gordon et al., 2014). For this study, we computed scores for trust in each target separately. The intercorrelations on the two respective items were .32 ($p < .01$), .16 ($p = .19$), and .27 ($p < .05$) for respectively mothers, fathers, and teachers (the peer scale was not included as it was not part of the scope of the current research goals). Note that the lack of a significant correlation for the father trust items could point at lack of reliability and error in the analyses.

Observed emotional security during interactions with the teacher. Each child was observed in interaction with his or her teacher in a dyadic setting outside the classroom during three structured tasks: a free-choice activity, a cognitive task activity, and an emotion dialogue task activity. The interactions were video-taped and afterwards coded by trained observers. Observers were not familiar with the participants. For each task, observers rated Emotional Insecurity and Trust/Positive Affect for Teacher on scale from 1 (low) to 7 (high). High scores on Emotional Insecurity indicate that the child feels insecure during the entire session, as indicated by responding minimally to questions, displaying nervous gestures, and making an overall very passive, stressed, or timid impression (Thijs & Koomen, 2008, p.187). High scores on Trust/Positive Affect for Teacher are

given when a child shows positive feelings and trust by actively approaching the teacher and sharing positive and negative feelings.

All data were double coded to examine interrater reliability. Intraclass correlations ranged between .76-.81 for Insecurity and between .80 and .87 for Trust/Positive Affect, which indicates high interrater reliability. Because of high correlations between the two scales ($r = -.70$ to $-.89$ across tasks), the scales were aggregated (after reversing the scores on Insecurity) such that higher scores represent more emotional security and trust in teachers.

Global self-esteem. To assess the child's global self-esteem we used two measures: the General-Self subscale of the Self-Description Questionnaire-I (SDQ-I; Marsh, 1992) and the Pictorial Self-Evaluation Scale (PSES; Verschueren & Marcoen, 1999; Verschueren, Marcoen, & Schoefs, 1996).

The SDQ-I General-Self scale consists of 8 items that were individually and orally presented to the child, according to the procedure described by Marsh, Craven, and Debus (1991). After presentation of each item (e.g., "In general, I like being the way I am"), the child was asked whether the statement was true or false for him or her. After answering with 'yes' or 'no', the child indicated whether this was 'always' or 'sometimes' true. The child's response was scored on a scale ranging from 1 ("no, never") to 5 ("yes, always"). A score of 3 was given if the child understood the item, but did not respond with "yes" or "no". Previous research supported the reliability and validity of the scale (Marsh et al., 1991; Verschueren et al., 2012). In the current study, Cronbach's alpha was .77.

The Pictorial Self-Evaluation Scale (PSES; Verschueren & Marcoen, 1999; Verschueren et al., 1996) includes 6 items, each accompanied by two pictures. A sample item is: "This boy/girl likes himself/herself, but that boy/girl does not like himself/herself that much. Which boy/girl is most like you?" The child first has to choose a picture and then has to indicate whether he/she is "a lot" (either score 4 or 1) or just "a little" (either score 3 or 2) like the child in the description. Higher scores reflect a higher global self-esteem. Reliability and validity of the scale were supported in previous research (Doumen, Buyse, Colpin, & Verschueren, 2011; Verschueren et al., 1996). In the current study, Cronbach's alpha was .65. The PSES-scores correlated significantly with the SDQ-I General Self scores

($r = .50, p < .001$). Therefore, we created a composite Self-esteem score by standardizing and averaging both scores.

Control variables. Control variables were age, autism spectrum disorder (ASD), and attention deficit hyperactivity disorder (ADHD). These diagnoses were derived from children's files. We could not evaluate to which extent these diagnoses were based on good quality, reliable, and valid diagnostic evaluations, but because we had this information available, it seemed important to evaluate the extent to which the findings were specific for inhibited RAD symptoms. Additionally, we controlled for effects of verbal intelligence (receptive vocabulary) which we measured with the Word Meaning subtest of the Revision Amsterdam Intelligence Test for Children (Resing, Bleichrodt, Drenth, & Zaal, 2012).

Results

Missing data and outliers. For 10 children, no data were collected and therefore these children were excluded. There were no significant differences on Inhibited RAD between the included and excluded children ($p = .20$).

Descriptive statistics. The descriptive statistics are reported in Table 1 and the correlations in Table 2. Inhibited RAD correlated negatively with Trust in Teachers, and with Observed Emotional Security with Teacher in the cognitive task and emotion dialogue task.

Table 3 presents the results of independent t-tests of mean differences between children with and without Inhibited RAD. Children with Inhibited RAD scored significantly lower on Trust in Teachers and on Observed Emotional Security with Teacher in the cognitive task and emotion dialogue task. No significant group mean differences were found for Trust in Mother, Trust in Father, Global Self-esteem, and Observed Emotional Security in the free choice task.

Regression analyses. To examine the unique effects of Inhibited RAD on the outcomes, we conducted regression analyses while controlling for age, ADHD, ASD, and verbal intelligence (receptive language). Non-significant covariates were removed from the model to retain power. More details about these analyses can be obtained from the authors. The results confirmed the

findings of the t-tests, suggesting that children with Inhibited RAD have lower Trust in Teachers, and score lower on Observed Emotional Security with their Teacher in the cognitive task and emotion dialogue task. However, when one outlier was removed (because of a standardized residual > -3), Inhibited RAD no longer predicted Observed Emotional Security with Teacher during the emotion dialogue task above and beyond ASD.

Discussion

The first research question of the current study was whether children with RAD show less secure and more emotionally withdrawn behavior during interactions with teachers as one example of adult caregivers that are not primary attachment figures. The second research question of the study was whether children with RAD have more negative Internal Working Models (IWMs) of others in terms of decreased trust in their mother, their father, and their teacher. The third research question was whether RAD children have a more negative IWM of the self in terms of low self-esteem. The data of the current study suggested that, compared to children with other severe emotional and behavioral disorders, children with RAD showed less emotional security and trust behavior in interactions with their teacher. Moreover, these children reported less trust in their teacher. At the same time, the results indicated lack of associations between RAD and inhibited child behavior in a non-threatening situation, and self-reported trust in relationships with parents or self-esteem.

We conducted this study in a sample of children known to be at elevated risk for RAD. Indeed, preliminary analyses showed that the 2-step procedure we used to identify inhibited RAD children resulted in a prevalence of 22 identified cases out of 166 screened children (13.3%). This prevalence is substantially higher than what is found in the general population (1%, Minnis et al., 2013; Zilberstein, 2015) and higher than what is found in post-institutionalized children (3-5%; Gleason et al., 2011), but lower than what is found in a sample of maltreated toddlers in foster care (23-35%, Zeanah et al., 2004). One of the limitations of the current study is that we had no observation data of inhibited RAD symptoms to evaluate the extent to which parent-report on the

DAI interview corroborated with symptoms observed by experts. Nevertheless, these findings suggest that the percentage of children in this sample that met the criteria for inhibited RAD was sufficient to test whether inhibited RAD symptoms relate specifically with IWMs of others and the self.

The first finding of the current study was that these children were observed to show less emotional security, more withdrawal, and less trust and positive affect in interactions with their teacher in challenging task settings. The importance of this effect was emphasized by the fact that the results also showed that RAD children had a more negative IWM about the teacher compared to children with other severe emotional and behavioral disorders. More specifically, the RAD children reported less trust in their teacher as a source for support. These findings confirm the claim of Criterion A in the RAD definition, namely that these children show a consistent pattern of emotionally withdrawn behavior and limited positive affect towards a wider range of adult caregivers. This finding is in line with the theory that children evaluate the extent they can rely on other caregivers, like teachers, based on their prior experiences with their primary caregivers (Fraleigh, Vicary, Brumbaugh, & Roisman, 2011; Sabol & Pianta, 2012; Verschueren, 2015). This finding is of practical relevance. Due to difficulties with trusting others in new contexts, children with RAD may lack the social resources that are necessary to cope with context-related challenges and distress. Applied to the school context, children who cannot use their teacher as a secure base for autonomous exploration at school might miss out important learning opportunities (Verschueren & Koomen, 2012), which may result in academic underachievement.

Furthermore, we found no associations between children's observed emotional security with teachers in the free choice play task. These findings contradict our assumption, based on DSM-5, that children with RAD-symptoms would also show emotionally withdrawn behavior toward adult caregivers in non-threatening social situations. Instead, they suggest that interactive behavior of children with RAD symptoms is particularly impaired in more distressing, attachment-relevant situations. However, this differential patterns of results could also be explained by differences in the

standardization of tasks. In the free play situation, the level of interaction with the teacher was highly dependent on the type of game or materials that children chose to play with (some games or play materials elicited a lot more interactions with the teachers than other tasks). In the cognitive task and emotion dialogue task, all children carried out the same task, which allowed for a more standardized assessment of child security and thus a more accurate assessment of inter-individual differences.

In spite of the evidence in favor for a more negative IWM about the teacher in children with RAD, no evidence was found for a more negative IWM about the mother or the father. Because abundant research has shown that, at the level of representation or IWMs, insecurely attached children have less trust in the availability of the primary caregivers like the parents (Main et al., 1985; Waters & Waters, 2006), this finding contradicts the DSM-5's claim that RAD should be considered a disorder in the development of attachment relationships (Zeanah & Gleason, 2010). However, there are many reasons to remain cautious and not to draw too firm conclusions based on the current data. First, we now only present data on a self-report measure of trust. This measures a level of processing of the attachment relationship about which children are more or less able to strategically reflect (Moors, 2016). Consequently, trust scores might have been affected by social desirability and other defensive reactions. Therefore, it remains necessary to measure IWMs of parents at a less strategic level (like in an interview or with more implicit tasks), because research increasingly shows that complex constructs like attachment need to be captured within multiple levels of assessment (e.g., Hankin, 2012; Bosmans & Kerns, 2015). Moreover, the type of situations about which trust was investigated might have rather reflected everyday dependability and less the trust that is typically considered in the attachment domain. This measurement strategy could have suppressed possible links between trust and RAD. This issue should be accounted for in future research to see whether this helps to more convincingly reveal links between RAD and IWMs of the other. Finally, the trust items for father did not correlate significantly, suggesting that error might have suppressed effects for father. However, because the correlation between the mother trust items was even higher than

the same correlation for the teacher items, and because in spite of that higher correlation, mother trust was less linked to RAD than teacher trust, error does seem not fully explain the current pattern of results.

Lastly, no association was found between inhibited RAD and the IWM of the self. This is in contradiction with attachment research that has robustly demonstrated that less securely attached children have lower self-esteem (e.g., Arbona & Power, 2003; Cassidy, 1988; Verschueren & Marcoen, 1999; Verschueren et al., 2012). Some of these studies even used the same validated instruments to assess self-esteem as the instruments that were used in the current study. This finding could suggest that insecure attachment and RAD are not the same and should be distinguished. However, also here, before drawing any such conclusions, it seems necessary to further explore the link with IWM of the self with alternative measurement strategies that go beyond self-report.

When considering this pattern of results, it is important to take into account the limitations of the current study. Most importantly, to identify RAD symptoms, we only relied on the Disturbances of Attachment Interview (Smyke & Zeanah, 1999). As argued in the current special issue, parent interviews might not be the most appropriate strategy to identify RAD symptoms. It is very likely that the pattern of results would have been clearer if we could have tested our hypotheses with observational data. Therefore, more research is needed to further evaluate whether observation outperforms parent interviews to assess RAD symptoms. Furthermore, it is important to take into account that the current hypotheses were tested in a homogeneous, clinical sample. Both insecure attachment and low self-esteem are transdiagnostic risk factors (e.g., Madigan, Brumariu, Villani, Atkinson, & Lyons-Ruth, 2016). Therefore, it is likely that indices of insecure attachment do not differentiate between children with RAD and other emotional and behavioral problems in the current sample. In addition, it needs to be noted that the sample was rather small, which might have made it harder to detect effects of smaller size like links between RAD and trust in parental support and self-esteem. Finally, we controlled for ASD to examine the unique effects of RAD. This did not

change the results. However, these results should be interpreted cautiously because diagnoses of ASD were derived from children's clinical files and we do not know to whether these diagnoses were based on reliable and valid diagnostic evaluations.

In spite of these limitations, the current findings add to the further understanding of RAD. On the one hand, they provide support for Criterion A's suggestion that children's disturbed interpersonal behavior extends beyond primary caregivers and can be observed at least also during interactions with teachers. On the other hand, the current findings provided only mixed support for the expectation that children with more RAD symptoms are characterized by negative IWMs about the others and the self. Although these children's reduced trust in teachers, often considered ad-hoc attachment figures, gives some indication for attachment-issues in RAD children, the absence of links between RAD and trust in children's mother and father contradicts the expected link between RAD and attachment. More research is needed to see whether this finding replicates in larger samples, with other measures of the IWMs, and in samples that are more heterogeneous regarding level of psychopathology. However, if such research would lead to the same conclusions, it could mean that the theoretical understanding of RAD needs further refinement. Other scholars have argued against the idea that all children with RAD are insecurely attached (e.g., Zilberstein, 2006). One alternative perspective might be that RAD symptoms reflect children's genetic vulnerability to develop an inhibited behavioral pattern in response to exposure to maltreatment (e.g., Zeanah & Gleason 2010 ; Kay & Green 2013). Taken together, the current study found support for the validity of the changes to the RAD diagnosis during the observed interactions with teacher. However, with regard to the theoretical link between RAD and attachment development, the current results were inconclusive. Because IMWs were assessed by perceived trust and self-esteem, research on links with other that other aspects or components of IWMs is needed to draw final conclusions (Bosmans & Kerns, 2015).

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Table 1

Descriptive statistics

	Minimum	Maximum	Mean	SD	Skewness
Inhibited RAD	.00	1.25	0.50	0.34	.40
Trust in Mother	2	10	7.49	2.11	-.54
Trust in Father	2	10	7.91	2.05	-1.06
Trust in Teacher	2	10	8.04	1.93	-.91
Global Self-esteem*	-2.99	1.49	-0.28	0.94	-.33
Observed Emotional Security Teacher _T1	2.25	7.00	5.19	1.06	-.65
Observed Emotional Security Teacher _T2	2.25	6.38	4.85	0.937	-.70
Observed Emotional Security Teacher _T3	1.00	6.25	4.64	0.97	-1.04

Note 1: *z-score.

Note 2. T1 = task 1: free choice; T2 = task 2: cognitive task, T3 = task 3 = emotion dialogue task

Table 2

Correlations

	1	2	3	4	5	6	7
1. Inhibited RAD	1						
2. Trust in Mother	-.11	1					
3. Trust in Father	-.07	.52	1				
4. Trust in Teacher	-.28	.39	.53	1			
5. Global Self-esteem	-.01	.17	.05	.29	1		
6. Observed Emotional Security Teacher_T1	-.05	.06	.16	.04	.15	1	
7. Observed Emotional Security Teacher_T2	-.23 [†]	-.05	.12	-.02	-.04	.66	1
8. Observed Emotional Security Teacher_T3	-.21 [†]	-.07	-.01	.07	.03	.37	.51

Note 1. Significant correlations at $p < .05$ (two-tailed) in bold, [†] $p \leq .10$

Note 2. T1 = task 1: free choice; T2 = task 2: cognitive task, T3 = task 3: emotion dialogue tas

Table 3

Mean differences between children with and without Inhibited RAD

	<u>Children without RAD (n=46)</u>		<u>Children with RAD (n=21)</u>		<i>t</i> -test	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Trust in Mother	7.59	2.17	7.29	2.00	0.540	0.14
Trust in Father	7.98	2.10	7.76	1.97	0.398	0.11
Trust in Teacher	8.46	1.59	7.14	2.31	2.711**	0.67
Global self-esteem ^a	-0.25	0.95	-0.35	0.94	0.403	0.11
Observed Emotional Security Teacher_T1	5.28	1.06	4.99	1.06	1.041	0.27
Observed Emotional Security Teacher_T2	5.05	0.79	4.41	1.09	2.724**	0.67
Observed Emotional Security Teacher_T3	4.81	.86	4.25	1.11	2.270*	0.57

Note 1. ^az-score, **p* < .05, ***p* < .01 (two-tailed)*Note 2.* T1 = task 1: free choice; T2 = task 2: cognitive task, T3 = task 3: emotion dialogue task