

Proactive Aggression in Early School-Aged Children With Externalizing Behavior Problems: A Longitudinal Study on the Influence of Empathy in Response to Distress

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The course of proactive aggressive behavior may be affected by empathy in response to sadness and distress of others. The aim of the current study is to examine empathy in response to sadness and distress and its relation to proactive and reactive aggression in a clinical sample of children with externalizing behavior problems. At baseline (T1) and 12 months later (T2), parents and teachers of 104 six- and seven-year-old children completed the Instrument for Reactive and Proactive Aggression. At T1, parents and teachers also reported empathy in response to sadness and distress on the Griffith Empathy Measure. Findings show that low levels of parent-reported empathy at baseline were specifically associated with high parent-reported proactive aggression but not with reactive aggression. Similarly, low teacher-reported empathy was specifically related to high teacher-reported proactive aggression. Furthermore, high parent-reported but not teacher-reported empathy at baseline was associated with low proactive aggression at 12 months after controlling for proactive aggression at baseline. The conclusions support the notion that in the study of the course of aggression in clinical groups, the distinction between proactive and reactive aggression as well as the study of empathy in response to distress is relevant for a better understanding and might be taken into account in the development of future interventions.

Public Policy Relevance Statement

In young school-age children with externalizing behavior problems, low empathy, in response to sadness and distress of others, is associated with high proactive and planned aggression. It is not associated with reactive aggression in response to threat or frustration. This can be taken into account in the development of future interventions aimed at the prevention and treatment of aggressive behavior.

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Aggression is behavior deliberately aimed at harming people (Lovett & Sheffield, 2007; Parke & Slaby, 1983). Empathy is the sharing and understanding of others' feelings. In the developmental psychological tradition, the lack of empathy is one of the factors that has long been suggested to be associated with aggression (for a review, see Eisenberg, Eggum, & Di Giunta, 2010). There are two important issues that have received insufficient attention in the empirical study of the association between empathy and aggression in children. First, there is a need to specify empathy in terms of response to sadness and distress, rather than to other emotions such as the happiness and anger of others. Second, there is a need to differentiate aggression into proactive aggression (i.e., in terms of planned and goal-directed behavior) and reactive aggression (i.e., in response to

threat or frustration). A combination of both points, as is explained in more detail below, is theoretically defensible but empirically lacking in clinical populations thus far. A better understanding of the relation between empathy in response to distress of others and proactive aggression may prove to be fruitful for better prevention and treatment of aggressive behavior in clinical groups of children with externalizing behavior problems, who often show persistent patterns of aggression over time.

The importance of specifying empathy as a response to distress follows from an ethological perspective. This perspective states that in humans, as in other social animals, a victim's pain and distress induces similar feelings of distress in the aggressor, which in turn are likely to inhibit further aggressive behavior (Blair, 1995; Blair, Jones, Clark, & Smith, 1997). This violence inhibition mechanism is supported by evidence from neurobiological studies that show a functional impairment in empathy to be associated with a reduced responsiveness of the amygdala and ventromedial prefrontal cortex to distress cues (Blair, 2013). Thus, when children witness sadness or distress in another person as a result of their own behavior, they may become distressed themselves and then stop harming the other person to reduce their own personal distress (Kimonis, Frick, Fazekas, & Loney, 2006; Pouw, Rieffe, Oosterveld, Huskens, & Stockmann, 2013). However, this inhibitory effect on further aggression is likely to be balanced with the personal gain resulting from the aggression and may thus depend on the motivation of aggressive behavior.

Considering the underlying motivation of aggression (the function, or the "whys" of aggressive behavior; Little, Henrich, Jones, & Hawley, 2003), a distinction has been made between reactive and proactive aggression (for reviews, see Dodge, Pepler, & Rubin, 1991; Feshbach & Roe, 1968; Kempes, Matthys, de Vries, & van Engeland, 2005; Vitaro, Brendgen, & Barker, 2006). Reactive aggression is an impulsive aggressive response to a frustration, perceived threat, or provocation. Proactive aggression, on the other hand, is controlled aggressive behavior in anticipation of a reward. In relation to empathy, it has been suggested that empathic feelings induced by the observation of sadness or distress in others are more likely to inhibit proactive aggression than reactive aggression (Lovett & Sheffield, 2007; Parke & Slaby, 1983). It is not presumable that a reactive and impulsive aggressive response, to a threat or frustration, will be inhibited by empathic feelings that are induced by the observation of sadness and distress of the other. On the contrary, the evocation of a reactive aggressive impulse is a rapid process, and feelings of guilt or empathy for the victim are more likely to arise after the aggressive act has already been performed. It is more presumable that the recurring experience or the anticipation of empathic feelings, when planning an act of proactive and controlled aggressive behavior, will inhibit further proactive aggressive behavior. Taken together, the specific association between empathy, in response to distress of others, and proactive aggression is an interesting venue to explore in young children.

The association of impairments in empathy and aggression has been examined in numerous cross-sectional studies in children and adolescents in the general population, as well as in children with aggressive behavior, such as those diagnosed with a disruptive behavior disorder (DBD). How empathy and aggression have been specified seems to depend on the study methods and the population. Experimental studies in clinical populations of children with

DBD have shown impairments in empathy, in response to vignettes of sadness and distress (Anastassiou-Hadjicharalambous & Warden, 2008; de Wied, Goudena, & Matthys, 2005; de Wied, van Bostel, Matthys, & Meeus, 2012), whereas results of reduced empathic responses to happiness and anger have been more mixed (de Wied et al., 2005, 2012). With regards to self-reported empathic traits, most clinical population studies have thus far not distinguished between empathy in response to feelings of sadness/distress, happiness, or anger (Anastassiou-Hadjicharalambous & Warden, 2008; Cohen & Strayer, 1996; de Wied et al., 2005). One study, comparing 6- to 7-year-old children with DBD to typically developing children, found that children with DBD were rated as less empathic in response to sadness and distress by their teachers, but not by their parents. No differences were observed in the empathic feelings that children reported in response to vignettes of sadness and distress of other children between the groups (Deschamps, Schutter, Kenemans, & Matthys, 2015). However, there have been no studies thus far that have looked into empathy and proactive aggression in clinical groups.

Several studies regarding children in nonclinical populations have tried to refine the association between empathy and aggression by examining the specific functions of aggression. A number of studies seem to support that empathy is associated with proactive aggression. In a community sample of elementary schoolchildren (Grades 4–6), children who reported that they were proactive-rationally aggressive felt fewer empathic responses in hypothetical conflict-situation vignettes than nonaggressive children (Blair, 1995; Blair et al., 1997; Katsuma & Yamasaki, 2008). Similarly, a study among 50 nonreferred girls and boys (mean age 9 years) showed that there was a significant association between high proactive aggression and reduced responsiveness to distressing stimuli (Kimonis et al., 2006; Pouw et al., 2013). Furthermore, some studies have concluded that proactive aggression, in the form of bullying, is associated with lower levels of empathy (e.g., Anastassiou-Hadjicharalambous & Warden, 2008; Cohen & Strayer, 1996; de Wied et al., 2005, 2012; Jolliffe & Farrington, 2011; Schwenck et al., 2012; Steffgen, König, Pfetsch, & Melzer, 2011). However, in a community sample of 10- to 13-year-old children, teacher-reported reactive aggression was negatively associated with self-reported empathy in response to sadness, but surprisingly proactive aggression was not (Polman, de Castro, Thomaes, & van Aken, 2009). Additionally, in a different study, 9- to 14-year-old typically developing children failed to show an association between self-reported empathy and proactive aggression, although lower levels of perspective taking and theory of mind were associated with self-reported proactive aggression (Pouw et al., 2013).

Taken together, clinical population studies have shown that children with disorders, characterized by externalizing and aggressive behavior, display lower levels of empathy, while studies concerning typically developing children show mixed results regarding a specific association between proactive aggression and empathy. In addition, the association between empathy and aggression may be convoluted by the lack of specification of empathy in terms of response to sadness and distress and aggression in terms of its proactive function. Therefore, the current study examines how empathy, in response to sadness and distress of others, and proactive aggression are associated in a clinical sample of children with DBD. Furthermore, if empathy in response to dis-

tress does indeed function as an aversive stimulus and inhibits aggressive behavior, it is likely to affect the course of proactive aggression over time. To our knowledge, no longitudinal studies have directly investigated the role of empathy in the persistence or the course of proactive aggression in children (Eisenberg et al., 2010; Lovett & Sheffield, 2007). It is relevant to examine the possible persistence of aggression in clinical groups of children and to consider the implications for treatment. Indirect evidence from studies regarding children with high callous-unemotional traits, a personality trait that includes a lack of empathy, has shown that they follow high and stable trajectories of antisocial behavior over time (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005).

The aim of the present study is to examine the relation between empathy in response to sadness and distress and proactive and reactive aggression in a clinical sample of 6- to 7-year-old children with externalizing behavior problems. First, we examined the cross-sectional association between empathic traits in response to sadness and distress of others and proactive and reactive aggression, as reported by parents as well as teachers. We expected that high levels of empathy, in response to sadness and distress of others, to be specifically associated with low levels of proactive aggression but not with low levels of reactive aggressive behavior. Second, the role of empathy, in response to sadness and distress of others, on the proactive and reactive aggressive behavior was studied longitudinally. We expected low levels of empathy to be associated with high levels of proactive aggression at 1-year follow-up after controlling for proactive aggression at baseline.

Method

Participants

A sample of 104 children, aged 6–7 years, with a previous clinical diagnosis of DBD and/or attention-deficit hyperactivity disorder (ADHD) was recruited at the Outpatient Clinic of the Department of Child and Adolescent Psychiatry, University Medical Center Utrecht, as part of a project concerning empathy in children with psychiatric disorders. Children were excluded from analyses when a clinical diagnosis of DBD or ADHD could not be confirmed ($n = 3$) in the parent version of the Diagnostic Interview Schedule for Children (DISC, module E; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). The total study sample consisted of 101 children aged 6–7 years, 78% boys, with an average estimated IQ of 99.6 ($SD = 21.8$). Children in the current sample met the diagnostic criteria for ADHD without comorbid DBD ($n = 29$), DBD without comorbid ADHD ($n = 7$), and comorbid ADHD and DBD ($n = 65$). In line with previous reports, comorbidity between ADHD and DBD in the clinical sample was high, while the DBD-only group was small (Bird, Gould, & Staghezza, 1993; Lahey, Miller, Gordon, & Riley, 1999).

Procedure

At baseline (T1), the parent version of the DISC interview (module E) was administered during a home visit by a trained interviewer. Parents also completed the Child Behavior Checklist 6–18 (CBCL), and teachers completed the Teacher Report Form (TRF; Achenbach & Rescorla, 2001), as general dimensional

measures of aggressive behavior (CBCL aggression symptom T score $M = 68.32$, $SD = 9.99$, TRF aggression symptom T score $M = 62.92$, $SD = 9.43$). Parents and teachers also completed the Griffith Empathy Measure (GEM; Dadds et al., 2008) and the Instrument for Reactive and Proactive Aggression (IRPA; Polman et al., 2009). After 12 months (T2), parents of 84 children and teachers of 82 children completed the IRPA questionnaires again. It should be noted that children changed grades during the course of the study, and different teachers reported at baseline and after 12 months.

The Medical Ethics Committee of the University Medical Center Utrecht approved the study protocol, and parents gave written informed consent prior to participation.

Proactive and reactive aggression. The IRPA (Polman et al., 2009) was designed to assess forms and functions of aggression. Parents and teachers rated the frequency of three forms of aggression over the period of a month. The three forms concerned physical, verbal, and covert aggression. Ratings were scored on a 5-point scale (0 = never, 1 = once or twice, 2 = weekly, 3 = several times a week, 4 = daily). Next, parents and teachers could assign both reactive and proactive functions to the same forms of aggression. In case of a score of 1 or higher on a form-item, parents and teachers rated seven aggression functions for the specific aggressive behavior. Function-items consisted of four proactive items (i.e., “to get something he or she wanted,” “to hurt someone or to be mean,” “to be the boss,” “because this child takes pleasure in it”) and three reactive items (i.e., “because someone teased or upset him/her,” “because this child felt threatened by someone,” “because this child was angry”). These items were rated on a 5-point scale (0 = never, 1 = rarely, 2 = sometimes, 3 = most of the time, 4 = always). In case of a null score on a form-item, function-items were coded as 0. A high score for a proactive function indicates that if this child behaves aggressively, it is often with a proactive function. Seven function-scores were computed by aggregating functions across forms. Total scores for proactive and reactive aggression were calculated by taking the average of the relevant items. Cronbach’s alpha scores for the separate reporters of proactive and reactive aggression were as follows: Parents T1 = .67 (pro) and .84 (rea); Parents T2 = .72 (pro) and .81 (rea); Teachers T1 = .54 (pro) and .72 (rea); Teachers T2 = .74 (pro) and .86 (rea).

Empathy. Empathy was measured using the GEM (Dadds et al., 2008), which is a 23-item parent questionnaire adapted from Bryant’s index of empathy for children and adolescents. The GEM assesses both aspects of cognitive empathy (e.g., “My child rarely understands why other people cry”) and affective empathy (e.g., “My child becomes sad when other children are sad,” “My child gets upset when he/she sees an animal being hurt”) using a 9-point Likert scale ($-4 = strongly disagree$; $+4 = strongly agree$). A higher total score represents a higher level of empathy. For the current study, we selected the questions relating to empathy in response to sadness and distress of others, and we removed the questions regarding empathy in response to other emotions. We also adapted the scale to administer it to teachers, removing two items not applicable to a classroom or school situation (“The child gets upset when he/she sees an animal being hurt” and “The child feels sad for other people who are physically disabled, for example

in a wheelchair"). The GEM-SADNESS scores for parents consisted of 15 items; Cronbach's alpha for this scale was 0.85. The GEM-SADNESS scores for teachers consisted of 13 items; Cronbach's alpha for this scale was 0.84.

Statistical Analyses

Bivariate correlations were calculated between all variables measured at T1 using IBM SPSS 20.0 (IBM Company, Chicago, Illinois). Next, means of proactive and reactive aggression at T1 and T2 were calculated; differences between the means were tested using paired samples *T* tests in IBM SPSS. To examine the effects of empathy on the change in proactive and reactive aggressive behavior over time, stepwise regression models were conducted in which proactive and reactive aggression at T2 were simultaneously predicted by proactive and reactive aggression at T1 and empathy as reported at T1, in Mplus (version 7.2; Muthén & Muthén, 1998–2012). Separate models were analyzed for parents and teachers. Maximum likelihood estimation (MLR) with robust standard errors was used as an estimator in these analyses, considering that MLR is robust to nonnormality (Muthén & Muthén, 1998–2012). To deal with missing data (at T2, data of 17 parents and 19 teachers could not be collected), T1 variances were estimated (Enders, 2010).

Results

Correlations Between Different Measures of Empathy and Proactive Aggression at Baseline

To examine the associations between empathy and aggressive behavior, bivariate correlations were estimated at T1. Correlations for empathy and both parent- and teacher-reports of proactive and reactive aggressive behavior are displayed in Table 1. Both for parents and teachers, a significant positive association was found between reactive and proactive aggression, indicating that higher levels of proactive aggression were associated with higher levels of reactive aggression. In addition, a significant negative association was found between empathy and proactive aggressive behavior for both parents and teachers, indicating that lower levels of empathy were associated with higher levels of proactive aggressive behavior. Parent- and teacher-reported empathy was not found to be significantly associated with parent- and teacher-reported

reactive aggressive behavior. Finally, correlations between parent and teacher reports of aggression were not significant (reactive aggression: $r = .119$, $p = .269$; proactive aggression: $r = -.026$, $p = .809$).

Associations Between Empathy and Proactive and Reactive Aggression at Follow-Up

Parent-reported mean levels of proactive aggression nonsignificantly decreased from $M_{T1} = 0.90$ to $M_{T2} = 0.84$, $t(81) = .85$, $p = .398$. Teacher-reported mean levels of proactive aggression also nonsignificantly decreased from $M_{T1} = 0.80$ to $M_{T2} = 0.75$, $t(77) = .08$, $p = .939$. Parent-reported reactive aggression nonsignificantly increased from $M_{T1} = 1.64$ to $M_{T2} = 1.74$, $t(81) = -1.15$, $p = .252$, and teacher-reported reactive aggression also nonsignificantly increased from $M_{T1} = 1.48$ to $M_{T2} = 1.51$, $t(77) = .10$, $p = .923$. The 12-month stability of proactive aggression was moderate for parents, $r = .47$, $p < .001$, and for teachers, $r = .32$, $p = .004$. For reactive aggression, the 12-month stability was moderate for parents, $r = .41$, $p < .001$, and small for teachers, $r = .23$, $p = .045$ (Cohen, 1988).

Stepwise regression analyses were conducted to examine the predictive value of empathy on the association between proactive aggression at baseline and at follow-up. Results for parent-reports of proactive and reactive aggressive behavior are presented in Table 2. In the first step, parent-reported proactive and reactive aggression at T1 were entered. Only proactive aggression at T1 was found to be a significant predictor of proactive aggression at T2, indicating that more proactive aggression at baseline was associated with more proactive aggression at follow-up. Similarly, only reactive aggression at T1 was found to be a significant predictor of reactive aggression at T2. In the second step, parent-reported empathy was entered into the model, resulting in sufficient fit according to most of the fit indices, $\chi^2(df = 2) = 5.06$, $p = .080$; Comparative Fit Index (CFI) = .923; Root Mean Square Error of Approximation (RMSEA) = .126; Standardized Root Mean Square Residual (SRMR) = .053. Results indicate a negative association between parent-reported empathy and proactive aggression at T2 after controlling for proactive aggression at T1. Whereas parent-reported empathy was predictive of proactive aggression at T2, it was not predictive of reactive aggression at T2. The increase in explained variance in proactive aggression because of the indicator of empathy was 7%.

Considering teacher reports, proactive aggression at T1 was also found to be predictive of proactive aggression at T2 and reactive aggression at T1 was also found to predict reactive aggression at T2 (see Table 3). Again, proactive and reactive aggression were not predictive of each other. In Step 2, teacher-reported empathy was added to the model. However, teacher-reported empathy was not significantly associated with proactive or reactive aggressive behavior over time. The final model did not reach sufficient model fit, $\chi^2(df = 2) = 14.35$, $p < .001$; CFI = .000; RMSEA = .261; SRMR = .066.

Discussion

The aim of the present study was to examine the cross-sectional and longitudinal associations between empathy, in response to

Table 1. Bivariate Correlations Between Measures of Proactive and Reactive Aggressive Behavior and Empathy at T1 (Reported by Parent and Teacher)

Variable	Proactive aggression	Reactive aggression	Trait empathy
Proactive aggression	—	.21*	-.35**
Reactive aggression	.25*	—	.01
Trait empathy	-.44**	.10	—

Note. Correlations above the diagonal represent the correlations for parent-reports and below the diagonal for teacher-reports.

* $p < .05$. ** $p < .001$.

Table 2. *Stepwise Regression Model Predicting the Development in Parent-Reported Proactive and Reactive Aggressive Behavior over Time*

Variable	β	p value	R^2
Step 1			
Proactive aggression T2			.234
Reactive aggression T1	.05	.633	
Proactive aggression T1	.48*	<.001	
Step 2			
Reactive aggression T2			.174
Reactive aggression T1	.40*	<.001	
Proactive aggression T1	.12	.286	
Step 2			
Proactive aggression T2			.301
Reactive aggression T1	.08	.431	
Proactive aggression T1	.39*	<.001	
Empathy T1	-.27*	.007	
Step 2			
Reactive aggression T2			.202
Reactive aggression T1	.41*	<.001	
Proactive aggression T1	.07	.529	
Empathy T1	-.14	.141	

Note. The correlation between proactive and reactive aggression at T2 was also included in the model, $\beta = .33$, $p = .001$ in Model 1 and $\beta = .30$, $p = .005$ in Model 2.

* $p < .05$.

sadness and distress, and proactive aggression in a clinical sample of 6- to 7-year-old children with externalizing behavior problems. Cross-sectional results show that, as expected, lower levels of empathy, in response to sadness and distress, as reported by parents and teachers, were associated with higher levels of proactive but not reactive aggression. Longitudinally, a negative association between parent-reported empathy, in response to sadness and distress, at T1 and proactive aggression at T2 was found, after controlling for proactive aggression at T1. Furthermore, proactive aggression was predicted by proactive aggression at baseline, and reactive aggression was predicted by reactive aggression at baseline. Proactive and reactive aggression were not, however, predictive of each other. Although some studies have found reactive and proactive aggression to be highly correlated, they have also been found to be independent or modestly related in observational studies or when a distinction was made between both the form and the function of aggression (Dadds & Hawes, 2004; Polman, Orobio de Castro, Koops, van Bostel, & Merk, 2007). The pattern observed in the current study, present for both parents and teachers, supports the notion that distinguishing between different functions of aggression is relevant when researching the course of aggression in clinical groups. A better understanding of how different functions of aggression develop can aid the development of future interventions.

This study hypothesized a specific relationship between empathy, in response to sadness and distress, and proactive aggression. It has been proposed that the experience or anticipation of empathic feelings of distress after aggressive behavior may inhibit further proactive aggressive behavior (Eisenberg et al., 2010; Lovett & Sheffield, 2007; Miller & Eisenberg, 1988). In our clinical sample of early elementary schoolchildren with externalizing behavior problems, we indeed found that empathy, in response to distress and sadness and as reported by

parents and teachers, was cross-sectionally related to proactive aggressive behavior. This finding is consistent with studies among older elementary schoolchildren that show proactive aggression to be associated with lower levels of empathy in response to sadness and distress (Eisenberg et al., 2010; Katsuma & Yamasaki, 2008; Kimonis et al., 2006) and with studies that show bullying, as a form of proactive aggression, to be associated with lower levels of empathy (Jolliffe & Farrington, 2011; Steffgen et al., 2011). Parent-reported proactive aggression was positively related to parent-reported reactive aggression, whereas empathy was not related to parent-reported reactive aggressive behavior. This supports the hypothesis that it is unlikely that a reactive and impulsive aggressive response to a threat or frustration is inhibited by empathic feelings induced by the observation of sadness and distress of the other (Eisenberg et al., 2010; Lovett & Sheffield, 2007).

This study adds to the literature by examining the association between empathy, in response to sadness and distress, and the course of proactive aggressive behavior over time. Results show that less parent-reported but not teacher-reported empathy was associated with more proactive aggressive behavior at follow-up. Importantly, while proactive aggression at the first assessment predicted a relatively large portion of variance in proactive aggression a year later, there was an additional and significant predictive value for empathy in response to sadness and distress. This is in line with indirect evidence from studies that show high callous-unemotional traits (CU traits)—a concept that includes limited prosocial emotions, callousness, and a lack of empathy and guilt—to predict increases in aggressive behavior over time (Eisenberg et al., 2010; Pardini, Lochman, & Powell, 2007). CU traits have also been shown to be associated with high, stable trajectories of antisocial behavior over time in school-age children (Frick et al., 2005; Little et al.,

Table 3. *Stepwise Regression Model Predicting the Development in Teacher-Reported Proactive and Reactive Aggressive Behavior Over Time*

Variable	β	p value	R^2
Step 1			
Proactive aggression T2			.131
Reactive aggression T1	-.12	.360	
Proactive aggression T1	.34*	<.001	
Step 2			
Reactive aggression T2			.081
Reactive aggression T1	.25*	.010	
Proactive aggression T1	-.13	.261	
Step 2			
Proactive aggression T2			.136
Reactive aggression T1	-.13	.346	
Proactive aggression T1	.36*	.001	
Empathy T1	.04	.725	
Step 2			
Reactive aggression T2			.081
Reactive aggression T1	.25*	.012	
Proactive aggression T1	-.13	.263	
Empathy T1	-.01	.970	

Note. The correlation between proactive and reactive aggression at T2 was also included in the model, $\beta = .12$, $p = .202$ in Model 1 and $\beta = .12$, $p = .201$ in Model 2.

* $p < .05$.

2003). Additionally, CU traits have been uniquely related to proactive but not reactive aggression in children who score high on CU traits and conduct problems at a 1-year follow-up in a community sample (Crick & Grotpeter, 1995; Frick, Cornell, Barry, Bodin, & Dane, 2003). Teacher-reported empathy at first assessment was not associated with proactive aggression 1 year later. This may be due to different teachers reporting on empathy at baseline and aggression at follow-up. Teacher ratings of proactive aggression, which were also rated by different teachers at baseline and follow-up, were associated across these two time points, despite the variance introduced by different reporters. This is remarkable, as no significant association was found between the reports of parents and teachers at baseline or follow-up. This finding appears to confirm that the variance introduced by the setting (home vs. school) can be substantial (De Los Reyes et al., 2015), and in the current sample was found to be even larger than the variance induced by the report of different teachers over time.

This study is characterized by a number of strengths. First, we examined empathy in response to sadness and distress using the assessment of multiple informants (i.e., parents and teachers). Second, rather than testing for global relations between empathy and aggression, we tested the association of specific features of empathy with a specific function of aggression. Third, to our knowledge, this study is the first to examine the relation between empathy, in response to sadness and distress, and proactive aggressive behavior over a 1-year period in a clinical sample of early elementary schoolchildren.

It is also important to highlight several limitations. First, a larger study sample covering a longer follow-up period and with repeated measurements is needed to confirm the current findings. Second, considering the finding that only parent-reported empathy was associated with parent-reported proactive aggressive behavior, common method and informant variance may have been a source of measurement error. Third, teachers and parents were asked to report on the function of aggression of the children, but it is unknown whether they reported their own assumptions and/or whether they also actively inquired after the intentions of the children. Although this is hard to overcome in young children, it should be noted that as children did not report on their own intentions, the motivation for aggressive behavior was inferred by others and therefore possibly less accurate. Future studies should consider observational paradigms to assess both motivation for aggression in children, as well as their empathic responses to sadness and distress of others. Fourth, the role of comorbidity, with ADHD for example, in the relation between empathy and aggression was not examined, although deficient impulse control in children with ADHD is likely to affect reactive aggression, and attention problems might affect perception of relevant emotional stimuli of others. Future studies using larger samples may consider taking these and other characteristics into account. Finally, our clinical study sample consisted of both boys and girls. Differences have been shown to be present between the aggressive patterns of boys and girls, and different associations have been suggested between sex and empathy. It is presumable that sex influences the association between empathy and aggression and the development of aggression. Future studies in larger or more specific samples should take this into account. The current sample was unable to

test models for boys and girls separately, because of the limited number of girls.

In conclusion, the results of the current study, using a clinical sample of 6- to 7-year-old children with externalizing behavior problems, suggest that reports of low levels of empathy, in response to sadness and distress of others, are specifically associated with more proactive aggressive behavior. In addition, reports of low levels of empathy were shown to predict proactive aggression over time. If these results are replicated, they are of interest to the development of new treatment paradigms. Findings in the current clinical population are most relevant given the high risk for adverse outcomes and persistence in aggression in clinical groups but may also prove to be relevant for indicated prevention in high-risk groups. Studies have already started to explore treatment prediction and have shown that impaired fearful expression, a possible marker for reduced empathic responses to distress cues, was associated with significantly less reduction in proactive aggression following aggression replacement therapy (Smeets, Rommelse, Scheepers, & Buitelaar, 2017). In addition, parenting-focused interventions appear to be effective in reducing the levels of both aggressive behavior and CU traits, which include low empathy (Waller, Gardner, & Hyde, 2013).

Development of appropriate prevention and intervention programs should consider taking the role of empathy in response to distress of others into account and further examining whether subgroups of children can be identified that are at risk for a more stable and persistent course of proactive aggression. This is relevant as children who display aggressive behavior before the age of 12 are at risk to continue showing problem behaviors into (early) adulthood (Dodge et al., 1991; Kempes et al., 2005; Mannuzza, Klein, Abikoff, & Moulton, 2004; Nagin & Tremblay, 1999; Vitaro et al., 2006). In turn, these “early starters” are at high risk of becoming persistent offenders (van Domburgh, Loeber, Bezemer, Stallings, & Stouthamer-Loeber, 2009; Little et al., 2003), which makes their behavior highly detrimental to not only these individuals but also their environment and society (e.g., Frick & Loney, 1999; Polman et al., 2007). Cognitive-behavioral interventions for clinical groups of children with externalizing behavioral problems should incorporate promoting empathy, in response to distress of others, to reduce proactive aggression.

Keywords: empathy; proactive aggression; reactive aggression; children

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