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Aggression and Threat Perception Abnormalities in Children with Learning and Behavior Problems

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ABSTRACT: The current study investigated the connection between aggression and the perception of threat in a group of children with learning and behavior problems ($N = 103$). Aggression was assessed by means of the aggressive behavior subscales of the Child Behavior Checklist (CBCL), Teacher Report Form (TRF), and Youth Self-Report (YSR). Perception of threat was measured by studying children's reactions to a series of stories depicting ambiguous social situations. Results demonstrated small but significant correlations between self-reported aggression (as indexed by the YSR) and threat perception abnormalities. That is, high levels of aggression were associated with a high frequency of threat perception, high ratings of threat, high levels of negative feelings and cognitions, and an early detection of threat. Furthermore, no substantial connections emerged between children's level of aggression as rated by parents (CBCL) and teachers (TRF) and threat perception indices. Finally, regression analyses revealed that in particular YSR social problems was a better predictor of most threat perception abnormalities than YSR aggressive behavior. Implications of these findings are briefly discussed.

KEY WORDS: information processing; perception of threat; aggression; children.

Introduction

The information-processing model as described by Dodge^{1,2,3} provides a useful framework for discussing the role of cognitive distortions in children's social maladjustment. According to this model, children's responses depend on the processing and interpretation of information

We thank children, teachers, and staff of special schools De Dolfijn and St. Martinus in Genk, Belgium, for their participation in the present study.

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about social situations. Briefly, there are five main stages that describe the flow of information through the processing system. During the first so-called *encoding* stage, information about the social situation is selected for further processing while other information is ignored. The second stage of *interpretation* involves attaching meaning to the information that is encoded. In the third stage of *response search*, possible reactions to the social situation are generated or retrieved from memory. During the fourth stage of *response decision*, possible responses are evaluated in terms of their consequences and the most appropriate response is selected. The fifth stage of *enactment* involves the production of the selected response.

Both anxious and aggressive behaviors in social situations can be well understood in terms of Dodge's model. That is, an anxious child generally selects and produces an avoidant response, whereas an aggressive child typically chooses and enacts an offensive response. This does not necessarily mean, however, that these responses occur due to distortions in the response decision and enactment stages of information processing. It seems to be the case that cognitive processes in anxious and aggressive children frequently are already erroneous or biased during the earlier stages of processing. Evidence for this notion comes from a study by Barrett, Rapee, Dadds, and Ryan.⁴ These authors examined interpretations of ambiguous situations in anxiety disordered children, children with oppositional defiant disorder, and normal controls. Children were presented with vignettes of ambiguous situations and asked about what was happening during each situation. Then children were given two possible neutral outcomes and two possible threatening outcomes and asked which outcome was most likely to occur. Results showed that both anxious and oppositional children interpreted ambiguous stories as more threatening than did normal controls. Most importantly, anxious children more frequently chose avoidant outcomes, whereas oppositional children more often selected aggressive outcomes. Thus, both anxious and aggressive children interpreted ambiguous information negatively in a way that was congruent with their specific problems.

In two recent studies, Muris and colleagues^{5,6} found further support for the existence of information processing distortions in socially anxious children. In the first study,⁵ social phobic children ($n = 28$) and non-social phobic children ($n = 224$) were exposed to ambiguous stories in which social situations were described. Children were told that some of the stories were scary, i.e., these stories would have a bad end, whereas other stories were not scary, i.e., these stories would

have a happy end. Children were instructed to find out as quickly as possible whether the pertinent story was scary or not. Stories were read aloud sentence by sentence, and after each sentence children were asked whether they thought that the story would be scary or not scary. Results indicated that social phobic children needed to hear fewer sentences before deciding that an ambiguous story was threatening compared to the non-social phobic control children. The study further showed that social phobic children more frequently perceived threat while listening to the stories, more often interpreted the complete story as threatening, and displayed higher levels of negative feelings and cognitions in relation to the stories.

In the second study⁶ which relied on a highly similar design, 76 normal primary school children were again exposed to stories describing social situations. Half of the stories were ambiguous and thus contained information that could be interpreted as threatening, whereas the other half of the stories were non-threatening, that is these stories clearly had a positive content and contained no obvious trace of threat. From children's responses, several threat indices were derived. Children's levels of social anxiety were assessed by means of a self-report questionnaire. Results indicated that high levels of anxiety were accompanied by a high frequency of threat perception, high ratings of threat, a high frequency of threatening interpretations, high levels of negative feelings and cognitions, and an early detection of threat. Most importantly, significant associations were not only observed in response to ambiguous stories but also in relation to non-threatening scenarios. Muris et al.⁶ concluded that "Anxious children seem to have a motto that can be summarized as 'Danger is lurking everywhere' which manifests itself in threat perception abnormalities that even occur in relatively non-threatening situations" (p. 134).

Our two previous studies^{5,6} were both concerned with socially anxious children and so it remains to be seen whether similar information processing abnormalities can be detected in socially aggressive children. Indeed, there is evidence from previous research suggesting that comparable cognitive distortions occur in aggressive youths. The aforementioned study by Barrett et al.⁴ showed that children with oppositional-defiant disorder of whom many have aggressive problems, indeed interpreted ambiguous stories as more threatening than did normal controls. Furthermore, there is also support for the notion that aggressive children need less information before making a negative judgement about a person than non-aggressive children. More specifically, in a study by Dodge and Newman,⁷ aggressive and non-aggres-

sive boys were asked to play a detective game during which they could listen to audiotaped testimonies. Children were allowed to listen to as many of the testimonies as necessary to be confident in their decision about whether the suspected person had committed the crime in question. Results indicated that, compared with non-aggressive children, aggressive children sought less information before making their negative decisions.

The main purpose of the present study was to further examine the relationship between aggression and threat perception abnormalities in children. One-hundred-and-three 6- to 14-year-old children were recruited from a school for children with learning and behavior problems. To assess children's levels of aggression, children, parents, and teachers completed shortened versions of respectively the Youth Self-Report (YSR),⁸ the Child Behavior Checklist (CBCL),⁹ and the Teacher Report Form (TRF)¹⁰ which contain a subscale measuring aggressive behavior. Next, children were exposed to ambiguous stories describing social situations and instructed to find out as fast as possible whether the stories were threatening (i.e., stories which have a bad end) or not threatening (i.e., stories which have a good end). In this way, the threshold and frequency of threat perception were measured. Children were also asked to tell how each story would end (threat interpretation) and to judge how they would feel and think when actually confronted with these situations. It was expected that, compared to children with low levels of aggression, children with high levels of aggression more frequently perceive threat while listening to these stories, perceive higher levels of threat, need to hear fewer sentences of a story before deciding it to be threatening, more frequently interpret the stories as threatening, and report more negative feelings and cognition in response to the stories. Furthermore, to examine the unique contribution of aggression to threat perception abnormalities, a series of regression analyses was carried out with aggression and other potentially relevant problem domains (i.e., anxious-depressed, withdrawn, and social problems) as predictor variables.

Method

Participants

The sample consisted of 103 children (95 boys and 8 girls) who were recruited from two special schools for children with learning and/or behavior problems in Genk, Belgium. Mean age of the children was 9.6 years ($SD = 2.4$;

range 6–14 years). Most children (66.0%) had parents who originated from a West-European country, 21.4% came from a family with a Mediterranean background, and the remaining children had Moroccan or Turkish parents (8.7% and 3.9%, respectively). Fifteen children (14.6%) were living in a boarding school, the other children lived at home. A substantial minority of the children (35.0%) came from single-parent families. Mean IQ scores of the children was 86.9 ($SD = 12.5$, range 55–117). IQ scores were obtained from children's personal files and assessed by means of a variety of tests: the Wechsler Preschool and Primary Scale of Intelligence-Revised (Wechsler, 1989) and the Wechsler Intelligence Scale for Children-Revised (Wechsler, 1974) were used in more than 80% of the cases. Most IQ scores were not up-to-date but obtained during the diagnostic intake procedure when children entered the schools.

No exact information about children's diagnostic status (e.g., the presence of diagnoses such as oppositional-defiant disorder or conduct disorder) was available, but comparisons of the CBCL, TRF, and YSR scores with normative data of these scales^{13,14,15} indicated that the children in the present study displayed mean scores on the aggressive behavior subscales that were substantially higher than the standard scores (see Table 2). A substantial minority of the children even scored above the clinical cut-off scores on the aggressive behavior subscales of these measures (Table 1).

Assessment

Questionnaires. The CBCL comprises 112 items addressing emotional and behavioral problems in youths. Parents or other educators indicate on 3-point scales the extent to which each item applies to their child: 0 = *not*, 1 = *sometimes*, or 2 = *often*. The scale addresses two broad domains in which problems of children and adolescents manifest themselves. One domain is externalizing which reflects behavioral problems and the other is internalizing which refers to emotional problems. In addition, factor analysis has yielded eight so-called narrow-band factors that have been replicated across different gender and age groups. In the present study, we focussed on four of these factors: aggressive behavior (20 items; e.g., "Argues a lot") and three other factors that were considered as relevant for threat perception abnormalities in relation to social situations, viz. withdrawn (9 items; e.g., "Likes to be alone"), anxious-depressed (14 items; e.g., "Nervous"), and social problems (13 items; e.g., "Doesn't get along with other kids"). The TRF and YSR are similar to the CBCL, but assess emotional and behavioral problems from respectively the teacher's and child's point of view. Previous research has shown that CBCL, TRF, and YSR are reliable and valid instruments for assessing psychopathological symptoms in youths and that this is also true for the Dutch versions of the scales.^{13,14,15}

Threat Perception Indices. Threat perception was assessed employing the procedure as described earlier by Muris and colleagues.^{5,6} Seven hypothetical stories were used (for an example, see Appendix). The stories described a wide range of social situations that children may encounter: asking other children

Table 1
Demographic Variables of the Children ($N = 103$)

	n (%)
Gender	
Boys	95 (92.2)
Girls	8 (7.8)
Age	
6–8 years	39 (37.9)
9–11 years	34 (33.0)
12–14 years	30 (29.1)
Socioeconomic status	
Low	96 (93.2)
Middle	7 (6.8)
High	0 (0.0)
Ethnicity	
West-European	68 (66.0)
Mediterranean	22 (21.4)
Moroccan	9 (8.7)
Turkish	4 (3.9)
Residence	
Home	88 (85.4)
Institution	15 (14.6)
Family status	
Complete	67 (65.0)
Broken	36 (35.0)
IQ	
< 70	11 (10.7)
70–90	49 (47.6)
> 90	43 (41.7)
Clinical range	
CBCL	
Aggressive behavior	22 (21.4)
TRF	
Aggressive behavior	18 (17.5)
YSR	
Aggressive behavior	20 (19.4)

Notes. CBCL = Child Behavior Checklist, TRF = Teacher Report Form, YSR = Youth Self-Report.

to come to your birthday party, meeting unfamiliar adults, going to a sporting club for the first time, being teased by another child, encountering a group of unfamiliar children, talking to the teacher, and meeting a child of new neighbors. Six of the seven stories were ambiguous; one threatening story was included. This was done to enhance the credibility of the instruction, that is, to

give children the idea that some of the stories were indeed threatening (see below).^{*} Children received the following instruction: "In a moment, I am going to read you a number of brief stories. Some stories will have a bad end, whereas some stories will have a good end. You have to try to guess *as quickly as possible* whether the story that I read is a bad story or a good story. I will read you each story sentence by sentence and after each sentence I will ask you whether you think that the story is bad or good. Once you have told me that you think the story will be bad, you still may change your opinion after the next sentence."

Each story consisted of five sentences. After reading each sentence, the child was asked: "What do you think? Is this going to be a bad or a good story?" Two scores were derived from children's answers to this question. First, for each story, the *threshold of threat perception* was established. This threshold score was defined as the moment at which the child first began to perceive the story as bad. When a child indicated that the story was bad after reading the first sentence, the threshold score was 1, when a child indicated that the story was bad after the second sentence, the threshold score was 2, etc. When a child still indicated that the story was good after the fifth sentence, the threshold was scored as 6. Thus, the lower the threshold score, the less information a child needed to perceive threat. Second, for each story, the number of sentences after which children indicated the story to be bad was summed to yield the *frequency of threat perception*. This variable provided additional information since children were allowed to change their opinion about hearing a new sentence of the story.

After each sentence of the story, *threat ratings* were obtained. Each time the child indicated the story to be bad, he or she was asked to predict how bad the story was going to be on a 10-point Likert scale (1 = *a little bit bad*, 10 = *very bad*). This threat rating was scored as 0 when children indicated that the story was good after hearing a sentence. For each story, a mean threat rating score was calculated.

To measure *interpretation bias*, the story was then read out to the children for a second time without any interruptions. Children were asked: "What do you think will happen in this situation?" Children's answers were written down word-by-word, and then rated by a blind rater who judged whether children had interpreted the pertinent story as either bad or good. A second blind rater judged the answers of 20 randomly selected children. Raters agreed on 92.9% of the answers, yielding an overall kappa of 0.85.

Finally, children were asked: "How would you feel if you were in this situation?" and rated the following *feelings and cognitions scales*: 1. I am angry, 2. I am furious, 3. I don't know what to do, 4. I am worried that this will end badly, 5. I feel bad, and 6. I feel unhappy. Each scale had to be scored on a 5-point scale with 1 = *not at all*, 2 = *a little*, 3 = *somewhat*, 4 = *pretty much*, and 5 = *very much*. Scores on these scales were summed to compute a total score for each story.

^{*}Analyses indeed showed that the 'threatening story' was accompanied by higher levels of threat frequency, threat ratings, threat interpretations, and negative feelings and cognitions and lower levels of threat threshold compared to the six ambiguous stories.

Threat perception scores were combined for the six ambiguous stories. More specifically, threat threshold, threat frequency, threat rating, and feelings and cognitions scores were all averaged (the ranges for these indices were 1–6, 0–5, 0–10, 6–30, respectively), whereas threat interpretation scores were summed (range 0–6).

Procedure

Children were tested individually by a trained research assistant. First, children completed the YSR. For the younger children, the instrument was administered orally. Older children completed the scale on their own. Next, stories were presented and threat perception scores were obtained. The assistant read the stories in a neutral way, asked questions, and documented children's answers on-line. To minimize carry-over effects, stories were presented in a fixed, alternating order. Parents/educators and teachers were approached to complete the CBCL and TRF. This was done personally by the research assistant or by mail.

Data Analysis

Statistical analyses were carried out by means of the Statistical Package for the Social Sciences (SPSS). In correlational and regression analyses, we controlled for gender, age, and level of intelligence as these variables showed considerable variability and/or were considered as relevant for the relationship between psychopathological symptoms and threat perception and the assessment of these phenomena.

Results

General Results

Table 2 presents mean scores on relevant CBCL, TRF, and YSR scales and threat perception indices, and reliability coefficients for the various measures. With respect to these data, two remarks are in order. First, comparisons of the mean CBCL, TRF, and YSR scores with normative data indicated that the children in our sample not only had elevated scores on aggressive behavior (see *supra*), but also scored relatively high on the other subscales. This indicates that the children indeed displayed above-average levels of behavioral, emotional, and social problems. Second, most questionnaires and threat perception indices were found to be reliable in terms of inter-rater reliability (threat interpretation) and internal consistency (questionnaires and all other threat perception indices). The only noteworthy exception was the YSR withdrawn subscale which had a Cronbach's alpha of

Table 2
Mean Scores (standard deviations) and Reliability Coefficients
for the Measures That Were Used in the Present Study

	M (SD)	Reliability ^a
CBCL		
Aggressive	13.0 (8.5)	0.94
Withdrawn	3.1 (2.8)	0.68
Anxious/depressed	5.2 (5.1)	0.87
Social problems	3.9 (3.0)	0.67
TRF		
Aggressive	9.8 (7.6)	0.93
Withdrawn	2.7 (2.6)	0.68
Anxious/depressed	4.3 (4.9)	0.88
Social problems	2.8 (2.5)	0.67
YSR		
Aggressive behavior	11.2 (6.3)	0.83
Withdrawn	3.8 (2.5)	0.55
Anxious/depressed	9.4 (5.4)	0.79
Social problems	4.8 (2.7)	0.60
Threat perception		
Threat threshold	3.2 (0.9)	0.61
Threat frequency	2.0 (0.8)	0.67
Threat ratings	1.8 (1.1)	0.76
Threat interpretation	3.1 (1.8)	0.85
Feelings and cognitions	12.6 (3.6)	0.86

Notes. $N = 103$. CBCL = Child Behavior Checklist, TRF = Teacher Report Form, YSR = Youth Self-Report.

^aFor most variables Cronbach's alphas were computed, for threat perception measures Cohen's kappa was used.

0.55, a result which has been documented in previous research with this scale.¹⁵

Furthermore, it is important to note that correlations between CBCL, TRF, and YSR subscales were low to modest. Intercorrelations were between 0.33 (CBCL and YSR) and 0.55 (CBCL and TRF) for aggressive behavior, between 0.13 (TRF and YSR) and 0.42 (CBCL and TRF) for withdrawn, between 0.33 (CBCL and YSR) and 0.54 (CBCL and TRF) for anxious-depressed, and between 0.15 (TRF and YSR) and 0.63 (CBCL and TRF) for social problems. These results are well in line with those of earlier studies on the cross-informant correlations of behavioral and emotional problems and indicate that the correspondence between child and parent/teacher is generally lower than that between parent and teacher.¹⁶

Correlations Between Aggression and Threat Perception Abnormalities

Table 3 shows correlations (corrected for gender, age, and level of intelligence) between aggression as indexed by the aggressive behavior subscales of the CBCL, TRF, and YSR and threat perception indices. Note that no significant associations were found between CBCL and TRF aggressive behavior scores and threat perception indices. However, a number of expected correlations were observed between YSR aggressive behavior and threat perception. That is, self-reported levels of aggression correlated positively with threat frequency, threat ratings, and negative feelings and cognitions, while a negative correlation emerged with threat thresholds. Although correlations were rather small, these results are in keeping with the notion that high levels of aggression are accompanied by a high frequency of threat perception, high ratings of threat, high levels of negative feelings and cognitions in response to ambiguous social situations, and an early detection of threat.

Unique Contribution of Aggression to Threat Perception Abnormalities

To examine the relative contribution of aggression to threat perception abnormalities, a series of (backward) regression analyses was carried out with aggressive behaviors and other potentially relevant problem domains, viz. anxious-depressed, withdrawn, and social problems as predictor variables (to control for gender, age, and level of intelligence, these variables were forced into the equation on step 1). Results indicated that none of the CBCL and TRF subscales accounted for a significant proportion of the variance of threat perception scores. However, as summarized in Table 4, YSR subscales declared significant percentages of the variance of a number of threat perception indices. Two conclusions can be drawn from this table. First, YSR aggressive behavior was the only significant predictor of threat threshold. The negative beta indicated that high levels of aggression were associated with an earlier detection of threat. Second, aggressive behavior was not retained in the equations predicting other threat perception indices. Third, YSR social problems appeared to be a significant predictor of various threat perception scores (i.e., threat frequency, threat ratings, and feelings and cognitions). In all cases, positive betas were found indicating that high levels of social problems were accompanied

Table 3
Correlations (corrected for gender, age, and level of intelligence) Between Aggressive Behavior Scores on the CBCL, TRF, and YSR and Threat Perception Indices

	<i>CBCL</i> <i>Aggressive</i> <i>Behavior</i>	<i>TRF</i> <i>Aggressive</i> <i>Behavior</i>	<i>YSR</i> <i>Aggressive</i> <i>Behavior</i>
Threat perception			
Threat threshold	-0.01	0.01	-0.22*
Threat frequency	0.01	-0.01	0.22*
Threat ratings	0.06	0.00	0.22*
Threat interpretation	0.17	0.08	0.15
Feelings and cognitions	0.09	0.09	0.25*

Notes. $N = 103$. CBCL = Child Behavior Checklist, TRF = Teacher Report Form, YSR = Youth Self-Report.

* $p < 0.05$.

Table 4
Results of the Backward Regression Analyses with YSR Aggressive Behaviors and Other Potentially Relevant Problem Domains (viz. anxious-depressed, withdrawn, and social problems) as Predictor Variables and Threat Perception Indices as the Dependent Variables

<i>Predictors</i>	<i>beta</i>	<i>t</i>	<i>p</i>
<i>Threat threshold</i>			
YSR Aggressive behavior	-0.22	-2.3	< 0.05
$R^2 = 0.046, F(1, 98) = 5.2, p < 0.05$			
<i>Threat frequency</i>			
YSR Social problems	0.23	2.4	< 0.05
$R^2 = 0.051, F(1, 98) = 5.7, p < 0.05$			
<i>Threat ratings</i>			
YSR Social problems	0.22	2.3	< 0.05
$R^2 = 0.046, F(1, 98) = 5.4, p < 0.05$			
<i>Feelings and cognitions</i>			
YSR Social problems	0.32	2.6	< 0.05
YSR Withdrawn	-0.35	-2.4	< 0.05
YSR Anxious-depressed	0.38	2.5	< 0.05
$R^2 = 0.176, F(3, 96) = 6.9, p < 0.001$			

Notes. YSR = Youth Self-Report. In all regression analyses, gender, age, and level of intelligence were forced into the equation on step 1. R^2 and F statistics pertain to the step on which YSR predictor variables were entered (i.e., change statistics).

by a higher frequency of threat perception, higher ratings of threat, and higher levels of negative feelings and cognitions. Fourth, YSR anxious-depressed and YSR withdrawn were found to account for additional proportions of the variance of feelings and cognitions. Note that the beta was positive for anxious-depressed but negative for withdrawn. Thus, whereas high levels of anxiety-depression were associated with high levels of negative feelings and cognitions, high levels of withdrawal were linked to low levels of negative feelings and cognitions.

Discussion

The present study examined the relation between aggression and the perception of threat in a group of children with learning and behavior problems. Aggression was assessed by means of the aggressive behavior subscales of the CBCL, TRF, and YSR. Perception of threat was measured by studying children's reactions to a series of stories depicting ambiguous social situations. The main results can be catalogued as follows. To begin with, small but significant correlations were found between self-reported aggression (as indexed by the YSR) and threat perception abnormalities. More specifically, high levels of aggression were associated with a high frequency of threat perception, high ratings of threat, high levels of negative feelings and cognitions, and an early detection of threat. Further, no substantial connections emerged between children's level of aggression as rated by parents (CBCL) and teachers (TRF) and threat perception indices. Finally, regression analyses revealed that in particular YSR social problems was a better predictor of most threat perception abnormalities than YSR aggressive behavior.

The finding that high levels of aggression were connected with an earlier detection of threat in stories describing ambiguous social situations is in keeping with the results of Dodge and Newman's study⁷ who found that aggressive boys needed less information before making a negative appraisal of an unknown person. The correlations between aggression and other threat perception indices were also in the predicted direction and thus seem to indicate the presence of threat perception abnormalities in aggressive children as previously documented in studies of anxious children.^{5,6,17} However, two remarks can be made to qualify this conclusion. First, with the exception of the threat threshold, most threat perception variables were better pre-

dicted by YSR social problems than by YSR aggressive behavior. Clearly, social problems may arise as a consequence of children's aggressive behaviors, but it is also possible that such problems are the result of children's social anxiety. It may well be the case that YSR social problems is a derivative of both types of problems, thereby making it a better predictor of threat perception abnormalities in response to the social stories that were used in the current study. Second, it should be acknowledged that aggression accounted for a rather small percentage of the variance of threat perception scores (i.e., between 4.8% and 6.3% in those cases in which correlations were significant). Moreover, the correlations between aggression and threat perception abnormalities as obtained in the present study were considerably smaller than those between social anxiety and threat perception scores as reported by Muris et al.⁵ who employed the same series of stories (comparisons of the 95% confidence intervals indeed revealed significant differences between the correlations obtained in both studies). Although it is clear that both samples differed substantially with regard to a number of demographic variables (SES, level of intelligence), these divergent findings may also reflect differences in the cognitive distortions of anxious and aggressive children. Thus, it may be rather naïve to assume that social information processing in aggressive children is highly similar to that in anxious children.¹⁸ For example, while researchers in the field of childhood anxiety have consistently documented the interpretation bias, those working in the domain of childhood aggression have repeatedly found a phenomenon called 'hostile attributional bias,' that is, aggressive children would more often attribute hostile intentions to other children than their nonaggressive peers.^{19,20} It should be kept in mind that the experimental procedure that was used in the current study was originally geared to tap threat perception abnormalities of anxious children and perhaps was less suitable for assessing the typical cognitive distortions in aggressive children.

As previous studies have demonstrated robust connections between anxiety and threat perception distortions,^{5,6,17,18,21} one would expect to find substantial correlations between anxious-depressed scores (in particular the YSR anxious-depressed scale) and threat perception indices. In the present study, however, these correlations appeared to be rather modest, that is YSR anxious-depressed correlated -0.20 with threat threshold and between 0.10 and 0.30 with other threat perception indices. It should be borne in mind that the YSR anxious-depressed scale is not a pure anxiety measure.²² In fact, the scale con-

tains only 4 items that are specifically linked to anxiety (i.e., "Anxious," "Fears to do something bad," "Worries," and "Nervous"); the other 10 items are more relevant for depression.

There are a number of findings which deserve additional comment. First of all, an unexpected result was the negative association between YSR withdrawn and feelings and cognitions scores. At first sight, one would expect to find a positive link between these variables. However, it should be noted that feelings and cognitions scales contained items such as "I am angry" and "I am furious" on which withdrawn children probably scored rather low. Second, correlations between aggression and threat perception indices only attained significance in the case of self-reported aggressive behavior (as indexed by the YSR). Parent- and teacher-reported aggression (CBCL and TRF) were not significantly connected to threat perception distortions. On the one hand, this result might suggest that children's social problems (including aggression) were most reliably assessed by self-report and that parents and teachers probably have a limited view of children's social activities. On the other hand, it is also possible that the present findings need to be qualified as being accounted for by 'source variance.' That is to say, the significant associations between YSR aggression and threat perception indices may simply be due to the fact that they were both assessed through self-report. Future studies employing Campbell and Fiske's multi-trait multi-method procedure²³ could clarify this issue. Such procedure implies that both aggression and threat perception are assessed by means of various methods/informants.

Besides this methodological comment, several limitations of the present study should be acknowledged. First of all, aggression was assessed as a continuous variable by means of questionnaires. Although the current study certainly included children with high levels of aggressive problems (see Table 1), a comparison between children with extremely high levels of aggression (e.g., children with disruptive disorders) and normal control children might yield further information on the connection between aggression and threat perception abnormalities. Future studies could address this issue. A further limitation pertains to the fact that in younger children, the experimenter was not blind to children's YSR scores as this measure was administered orally. However, the interview for assessing threat perception abnormalities is highly structured, leaving no room for interpretation on the side of the interviewer.

Despite these shortcomings, it is plausible to assume that threat perception abnormalities are involved in the maintenance of aggres-

sive behavior. Meanwhile, one should keep in mind that these cognitive distortions are not exclusively linked to aggression but seem to play a role in socially maladjusted behavior in general. Furthermore, Crick and Dodge³ have pointed out that many other information processing factors (e.g., response access patterns, perceived self-competence) contribute to the pathogenesis of aggression and social anxiety. More studies are necessary to reveal the (probably interactive) relationships of threat perception abnormalities, these other cognitive factors, and social psychopathology in children.

Summary

Previous studies have indicated that anxious children demonstrate threat perception abnormalities.^{5,6,17} More specifically, when confronted with ambiguous material, anxious children perceive threat more easily and more frequently than control children do. The current study examined the connection between aggression and perception of threat in a group of children with learning and behavior problems. Aggression and other socially relevant factors (i.e., withdrawn, anxious-depressed, social problems) were assessed by means of self-report and parent- and teacher-rating scales. Perception of threat was measured by studying children's reactions to a series of stories depicting ambiguous social situations. Results demonstrated small but significant correlations between self-reported aggression and social problems, on the one hand, and threat perception abnormalities, on the other hand. Altogether, these results are in line with the notion that distorted cognitive processes contribute to the pathogenesis of aggression and other social problems.

Appendix: Example of a Story That Was Used in the Present Study

1. You are going on holiday. Your parents have told you that you are going to a campsite where there will be a lot of other children.
2. You have just arrived and you walk around the campsite to see where everything is.
3. You see a group of children.
4. They are a few years older than you are.
5. They walk towards you.

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