Anxiety, Threat Perception Abnormalities, and Emotional Reasoning in Nonclinical Dutch Children

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Examined the relation between childhood anxiety and threat-perception abnormalities using vignettes in which external (i.e., exposure to potential threat cues) and internal (i.e., experience of anxiety responses) information were systematically varied. Nonclinical children (N = 156) aged 8 to 13 years completed anxiety questionnaires and were then exposed to 3 types of stories: ambiguous stories, ambiguous + anxiety-response stories, and nonthreatening stories. From children's responses to these stories, a number of threat-perception indexes were derived. Results showed that both external and internal information inflated children's perception of threat. Further, high levels of anxiety were accompanied by enhanced threat perception in response to external threat cues. Finally, little evidence was found that high levels of anxiety, and in particular of anxiety sensitivity, were associated with a greater tendency to use internal information (i.e., emotional reasoning). Potential avenues for future studies on anxiety-related threat-perception distortions are briefly discussed.

Cognitive theories of anxiety suggest that the overestimation of danger is a core feature of pathological fear (e.g., Beck, Emery, & Greenberg, 1985). On the basis of such theories, one would predict that anxious individuals more frequently interpret ambiguous information as threatening. Many studies have demonstrated this "interpretation bias" in adult anxiety (see Eysenck, 1992). Research on comparable cognitive biases in anxious children is just beginning to emerge (Daleiden & Vasey, 1997). Available evidence suggests, consistent with findings from adult anxiety research, that children with anxiety disorders and high-anxious nonclinical children disproportionately interpret ambiguous situations as threatening (Barrett, Raape, Dadds, & Ryan, 1996; Bögels & Ziglerman, 2000; Chorpita, Albano, & Barlow, 1996; Hadwin, Frost, French, & Richards, 1997).

In a series of studies, Muris and colleagues (Muris, Kindt, Bögels et al., 2000; Muris, Luermans, Merckelbach, & Mayer, 2000; Muris, Merckelbach, & Damsma, 2000; Muris, Raape, Meesters, Schouten, & Geers, 2003) found further support that anxiety in children is positively linked to the perception of threat. The general outline of their experiments is as follows. Nonclinical children were exposed to stories in which daily situations were described. They were told that some of these stories were scary (i.e., these stories would have a bad ending) whereas other stories were not scary (i.e., these stories would have a happy ending). Stories were presented sentence by sentence, and children were instructed to find out as quickly as possible whether the pertinent story was scary or not scary. Results consistently showed that high-anxious children needed to hear fewer sentences before deciding that an ambiguous story was threatening compared to low-anxious control children. The studies further showed that high-anxious children more frequently perceived threat while listening to the stories, more often interpreted the complete story as threatening, and

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displayed higher levels of negative feelings and cognitions in relation to the stories than control children.

Another phenomenon that may be involved in the enhanced threat perception of anxious children is emotional reasoning. Emotional reasoning can be defined as the cognitive process of inferring danger on the basis of an emotional response. Beck et al. (1985) noted that anxious patients may strongly believe in the proposition "If I feel anxious, there must be danger." It is easy to conceive that, when danger is inferred on the basis of an anxiety response and not on the basis of objective danger, false alarms are not recognized and irrational fears will tend to persist. In Arntz, Rainer, and Van den Hout's (1995) experimental study of the emotional reasoning phenomenon, adult anxiety patients and nonclinical controls rated the danger they perceived in scripts in which objective danger versus objective safety and anxiety response versus nonanxiety response were systematically varied. Results showed that danger ratings of anxious patients were not only influenced by objective danger information, but also by anxiety-response information. In contrast, danger ratings of nonclinical controls were merely influenced by objective danger information.

A recent study by Muris, Merckelbach, and Van Spauwen (2003) examined whether emotional reasoning also occurs in children. Nonclinical primary school children (N = 101) first completed self-reports of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity, which can be defined as the dispositional tendency to fear anxiety-related bodily symptoms (Silverman & Weems, 1999) and which by definition bears strong resemblance to the concept of emotional reasoning. After completion of the questionnaires, children were asked to rate the danger levels of scripts in which objective danger versus objective safety and anxiety response versus nonanxiety response were systematically manipulated. Some evidence was obtained for an emotional reasoning effect. That is, children's danger ratings were not only determined by objective danger information but also, in the case of objective safety scripts, by anxiety-response information. Further analyses revealed that this emotional reasoning effect was present in high- and low-anxious normal children, although children with high levels of trait anxiety and anxiety sensitivity displayed a significantly greater tendency to use anxiety-response information for the ratings of the objective safety scenarios.

In sum, research seems to indicate that children's evaluations of threat are not only determined by external information (i.e., exposure to potential threat cues) but also by internal information, such as the experience of anxiety-related bodily sensations. This study was an attempt to replicate previous findings on the link between anxiety and biased threat perception and emotional reasoning and to study whether these cognitive distortions make additional contributions to children's danger estimations. For this purpose, we examined the relation between childhood anxiety and evaluations of threat using vignettes in which external (i.e., ambiguous content versus nonthreatening content) and internal (i.e., anxiety response versus non anxiety response) information was systematically varied. Nonclinical children (N = 156) first completed self-report scales of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity. Next, children were exposed to three types of stories: ambiguous stories, ambiguous + anxiety-response stories, and nonthreatening stories. The ambiguous stories contained information that could be interpreted as threatening. The ambiguous + anxiety-response stories were identical to the ambiguous stories except that the first part of these stories described the main character as feeling a clear physiological anxiety symptom (e.g., feeling shaky, having heart palpitations, sweating). The nonthreatening stories pertained to similar situations as described in ambiguous and ambiguous + anxiety-response stories. However, these stories were rewritten in such a way that they contained no obvious trace of threat.

On the basis of our earlier work, we expected to find that (a) ambiguous stories would result in higher levels of threat perception than nonthreatening stories, implying that external information affects children's threat perceptions; (b) ambiguous + anxiety-response stories would result in higher levels of threat perception than ambiguous stories, indicating that internal information also influences children's threat perceptions and thus yielding further support for an emotional reasoning effect; (c) anxiety levels would be significantly associated with threat-perception scores as derived from all three story types; and (d) anxiety sensitivity would be more strongly associated with the tendency to use internal (i.e., anxiety response) information for threat appraisals than anxiety disorders symptoms and trait anxiety.

Method

Participants

One hundred fifty-six children (67 boys, 89 girls) were recruited from two regular primary schools in Stein (Limburg), The Netherlands. All children in Grades 4 to 6 and their parents were informed about the study by means of a letter that invited them to participate. About 50% of the children and their parents responded to this mailing and signed the written informed consent form (no effort was made to contact the nonresponders). The children who participated in the study had a mean age of 10.7 years (SD = 0.9, range 8 to 13 years). Note that children of this age are assumed
to have reached a certain level of cognitive maturity that enables them to consider various causes for physical symptoms, including the possibility that bodily symptoms can be a sign of anxiety (Harris, 1989). None of the children in this study was involved in our previous research (Muris, Kindt, et al., 2000; Muris, Luermans, et al., 2000; Muris, Merckelbach, et al., 2000; Muris, Rapee, et al., 2003).

Questionnaires

The Spence Children’s Anxiety Scale (SCAS; Spence, 1998) is a questionnaire measuring anxiety disorders symptoms defined by the Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM-IV]; American Psychiatric Association, 1994) in youths. The scale contains 38 items that can be allocated to the following six subscales: generalized anxiety, separation anxiety, social phobia, panic disorder/agoraphobia, obsessive–compulsive disorder, and physical-injury fears representing specific phobias. SCAS items are rated on a 4-point scale: 0 (never), 1 (sometimes), 2 (often), 3 (always). In this study, a SCAS total score was computed by summing ratings on all items (range 0 to 114).

The trait anxiety scale of the State–Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) contains 20 items that measure symptoms of negative affectivity. Children rate the frequency of each symptom on 3-point scales (1 = almost never, 2 = sometimes, 3 = often). A total trait anxiety score (range 20 to 60) can be calculated by summing the ratings for all items.

The Childhood Anxiety Sensitivity Index (CASI; Silverman, Fleisig, Rabian, & Peterson, 1991) is an 18-item self-report questionnaire that assesses fear of anxiety symptoms in youths. Children rate on a 3-point Likert scale—1 (none), 2 (some), or 3 (a lot)—the extent to which they believe that the experience of anxiety will have negative consequences. CASI scores range between 18 and 54, with higher scores indicating higher levels of anxiety sensitivity.

Previous studies have demonstrated that the SCAS, STAIC, and CASI are reliable and valid questionnaires for measuring different aspects of childhood anxiety (e.g., Silverman et al., 1991; Spence, 1998; Spielberger, 1973), and this is also true for the Dutch translations (Muris, Merckelbach, Ollendick, King, & Bogie, 2002; Muris, Schmidt, Merckelbach, & Schouten, 2001).

Stories

The stories described three situations that children may encounter: talking to the teacher in front of the class, being without mother in a shopping center in a foreign country, and riding a bike on a public highway. As mentioned, there were three versions of each story: (a) an ambiguous story, (b) an ambiguous + anxiety-response story, and (c) a nonthreatening story.1 In the appendix, an example of one of the stories in its three versions is given. For each story, the following threat-perception scores were derived (for an extensive description of these measures, see Muris, Kindt, et al., 2000; Muris, Luermans, et al., 2000; Muris, Merckelbach, et al., 2000): threat threshold (i.e., the moment [sentence] at which the child begins to perceive the story as threatening), threat frequency (i.e., the number of sentences after which the child indicates that the story is going to be threatening), threat ratings (i.e., the prediction [after hearing each sentence] of how threatening the story is going to be), threat interpretation (i.e., threatening interpretation of the child after hearing the whole story), and feelings and cognitions (i.e., ratings of how the child would think and feel when actually confronted with the situation).

For each type of story (i.e., ambiguous, ambiguous + anxiety-response, nonthreatening), threat-perception scores were combined. Ranges of scores were 1 to 6 for threat threshold, 0 to 15 for threat frequency, 0 to 10 for threat ratings, 0 to 3 for threat interpretation, and 4 to 20 for feelings and cognitions ratings.

Procedure

Children first completed the questionnaires (SCAS, STAIC, and CASI). Questionnaires were completed in children’ classrooms in the presence of a teacher and research assistant to ensure confidential and independent responding and provide assistance if necessary. Two weeks following the administration of the questionnaires, children were tested individually in a separate room at school. The research assistant who conducted the interviews was blind to children’s questionnaire scores. Stories were presented by audiocassette in a fixed, alternating order. To control for order effects, the starting point within this order was varied systematically.

Results

General Results

Significant sex differences were found for all anxiety questionnaires: mean scores for boys and girls were, respectively, 21.5 ($SD = 13.0$) versus 29.4 ($SD = 15.0$) on the SCAS, 30.4 ($SD = 7.1$) versus 35.3 ($SD = 8.2$) on the STAIC, and 25.4 ($SD = 6.1$) versus 30.0 ($SD = 8.2$).

1 A pilot study was carried out to check the level of ambiguity of the stories. Five clinical child psychologists were asked to assign a series of stories to one of three categories: nonthreatening to normal children, ambiguous to normal children, or threatening to normal children. The stories that were used in this study were unanimously defined as either nonthreatening or ambiguous.
on the CASI, all $t(154)s \geq 3.4$, $ps < .001$. Consistent with previous research, girls displayed higher levels of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity than boys. Sex differences also emerged for a number of the threat-perception indexes: In general, girls perceived the stories as more threatening than boys. However, these differences were due to the higher anxiety levels of girls. When correcting for anxiety scores, none of the sex differences in threat perception attained statistical significance. Furthermore, questionnaires and most of the threat-perception indexes were found to be reliable in terms of interrater agreement (threat interpretation) and internal consistency (see Table 1). Finally, correlations among anxiety questionnaires were substantial ($rs$ between .78 and .83, $ps < .001$), indicating considerable overlap among anxiety disorders symptoms, trait anxiety, and anxiety sensitivity.

Effects of External and Internal Information on Threat Perception

To examine whether external information affected children’s threat perceptions, paired $t$ tests were conducted comparing threat-perception scores for ambiguous stories with those for nonthreatening stories. Results showed that ambiguous stories were perceived as more threatening than nonthreatening stories. That is, compared to nonthreatening stories, ambiguous stories were associated with higher levels of threat frequency, $t(155) = 33.18$, $p < .001$; threat ratings, $t(155) = 23.31$, $p < .001$; threat interpretation, $t(155) = 6.37$, $p < .001$; and negative feelings and cognitions, paired $t(155) = 20.55$, $p < .001$; and a faster detection of threat, paired $t(155) = -25.41$, $p < .001$ (see Table 1).

To investigate the effects of internal information on threat perception, scores derived from ambiguous stories were compared with scores from ambiguous + anxiety-response stories. As predicted, the inclusion of anxiety response information in the stories produced significantly higher levels of threat frequency, $t(155) = 14.03$, $p < .001$; threat ratings, $t(155) = 18.73$, $p < .001$; threat interpretation, $t(155) = 2.40$, $p < .05$; and negative feelings and cognitions, $t(155) = 5.15$, $p < .001$; and a quickening of the detection of threat, $t(155) = -13.26$, $p < .001$. In other words, anxiety response information further enhanced children’s threat perceptions, a result that can be taken as evidence for an emotional reasoning effect (see Table 1).

Correlations Between Anxiety and Threat Perception Abnormalities

The right panel of Table 1 shows correlations between anxiety measures and threat-perception indexes. As expected, significant positive correlations were found between anxiety scores and threat frequency, threat ratings, threat interpretation, and negative feelings and cognitions, whereas significant negative correlations emerged between anxiety scores and threat thresholds. Thus, high levels of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity 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. Note also that the correlations between anxiety scores and threat-perception indexes were highly similar for all three types of stories. Thus, even in the case of nonthreatening stories, anxiety appeared to be associated with threat-perception abnormalities.

As mentioned earlier, anxiety questionnaire scores were significantly intercorrelated. To determine the relative contribution of each anxiety measure to threat-perception abnormalities, a series of regression analyses was conducted with anxiety disorders symptoms, trait anxiety, and anxiety sensitivity as the predictors and threat-perception scores in response to the three story types as the dependent variables. In 7 out of 15 regression analyses, anxiety sensitivity appeared to account for a small but significant and independent proportion of the variance in threat-perception scores, and particularly those pertaining to ambiguous and ambiguous + anxiety-response stories (with percentages of explained variance ranging between 2.89% and 4.58%). Thus, although findings pointed in the direction of a general anxiety effect, anxiety sensitivity appeared to add more weight in the prediction of threat-perception abnormalities.

Relation Between Anxiety and Emotional Reasoning

To examine whether high levels of anxiety, and especially anxiety sensitivity, are accompanied by a greater tendency to use anxiety-response information for the threat appraisal of ambiguous scenarios, correlations were computed between anxiety questionnaires and threat-perception difference scores (ambiguous + anxiety-response minus ambiguous). This analysis yielded only a few significant relations. That is, SCAS, STAIC, and CASI scores all correlated positively with the feelings and cognitions difference score ($rs$ were .17, .18, and .18, respectively, all $ps < .05$), whereas the CASI showed a further small but significant link to the threat ratings difference score ($r = .18$, $p < .05$). To further examine these effects, threat-perception difference scores were compared for children scoring in the upper and lower quartiles of the pertinent anxiety measures. Results showed that both high and low anxious children generally perceived more threat in stories that included anxiety-response information. Thus, even low-anxious children displayed significantly higher scores on most threat indexes for ambiguous + anxi-
Table 1. General Statistics of the Measures (Mean Scores, Reliability Coefficients) and Correlations Between Anxiety Scales and Threat Perception Scores

<table>
<thead>
<tr>
<th></th>
<th>Total Group*</th>
<th>Reliabilityb</th>
<th>SCAS</th>
<th>STAIC</th>
<th>CASI</th>
</tr>
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<tr>
<td>Questionnaires</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>SCAS</td>
<td>25.99 (14.62)</td>
<td>.93</td>
<td>.82**</td>
<td></td>
<td>.78**</td>
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<tr>
<td>STAIC</td>
<td>33.22 (8.06)</td>
<td>.89</td>
<td></td>
<td>.82**</td>
<td></td>
</tr>
<tr>
<td>CASI</td>
<td>27.84 (6.65)</td>
<td>.88</td>
<td>.83**</td>
<td>.82**</td>
<td>.78**</td>
</tr>
<tr>
<td>Threat perception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiguous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threat threshold</td>
<td>2.02 (0.83)</td>
<td>.76</td>
<td>-.22*</td>
<td>-.24*</td>
<td>-.29**</td>
</tr>
<tr>
<td>Threat frequency</td>
<td>11.10 (3.08)</td>
<td>.74</td>
<td>.26*</td>
<td>.28**</td>
<td>.34**</td>
</tr>
<tr>
<td>Threat ratings</td>
<td>3.51 (1.99)</td>
<td>.85</td>
<td>.41**</td>
<td>.39**</td>
<td>.44**</td>
</tr>
<tr>
<td>Threat interpretation</td>
<td>1.06 (0.95)</td>
<td>.9</td>
<td>.34**</td>
<td>.29**</td>
<td>.34**</td>
</tr>
<tr>
<td>Feelings and cognitions</td>
<td>9.07 (2.91)</td>
<td>.83</td>
<td>.47**</td>
<td>.44**</td>
<td>.47**</td>
</tr>
<tr>
<td>Ambiguous + anxiety-response stories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threat threshold</td>
<td>1.23 (0.57)</td>
<td>.59</td>
<td>-.21*</td>
<td>-.22*</td>
<td>-.28**</td>
</tr>
<tr>
<td>Threat frequency</td>
<td>13.46 (2.48)</td>
<td>.65</td>
<td>.25*</td>
<td>.27*</td>
<td>.32**</td>
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<tr>
<td>Threat ratings</td>
<td>4.90 (2.35)</td>
<td>.86</td>
<td>.41**</td>
<td>.39**</td>
<td>.44**</td>
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<tr>
<td>Threat interpretation</td>
<td>1.19 (0.98)</td>
<td>.92</td>
<td>.43**</td>
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<tr>
<td>Feelings and cognitions</td>
<td>9.58 (3.29)</td>
<td>.83</td>
<td>.48**</td>
<td>.46**</td>
<td>.48**</td>
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<td>Nonthreatening stories</td>
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<td></td>
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<td>Threat threshold</td>
<td>4.25 (1.57)</td>
<td>.82</td>
<td>-.31**</td>
<td>-.26*</td>
<td>-.32**</td>
</tr>
<tr>
<td>Threat frequency</td>
<td>3.50 (3.90)</td>
<td>.77</td>
<td>.28**</td>
<td>.25*</td>
<td>.31**</td>
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<tr>
<td>Threat ratings</td>
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<td>.34**</td>
<td>.33**</td>
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<tr>
<td>Threat interpretation</td>
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<td>.82</td>
<td>.32**</td>
<td>.34**</td>
<td>.35**</td>
</tr>
<tr>
<td>Feelings and cognitions</td>
<td>5.44 (1.66)</td>
<td>.68</td>
<td>.41**</td>
<td>.40**</td>
<td>.45**</td>
</tr>
</tbody>
</table>

Note: SCAS = Spence Children’s Anxiety Scale; STAIC = trait anxiety version of the State-Trait Anxiety Inventory for Children; CASI = Childhood Anxiety Sensitivity Index. High threat threshold scores are indicative of low levels of threat perception. For all other variables, higher scores reflect higher levels of threat perception.

N = 156. bReliability was indexed by Cohen’s kappa (threat interpretation) or Cronbach’s α (other threat perception measures).
*p < .05. **p < .001.

Discussion

This study was an attempt to examine the relation between childhood anxiety and threat-perception abnormalities using vignettes in which external (i.e., exposure to potential threat cues) and internal (i.e., experience of anxiety responses) information was systematically varied. The main results can be summarized as follows. First, as expected, external information clearly enhanced children’s perceptions of threat (see also Muris, Kindt, et al., 2000; Muris, Luermans, et al., 2000; Muris, Merckelbach, et al., 2000; Muris, Rapee, et al., 2003). Second, anxiety-response information further inflated children’s perceptions of threat, a result that can be taken as support for an emotional reasoning effect. Third, high levels of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity 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. Finally, little support emerged for the notion that high levels of anxiety, and anxiety sensitivity in particular, would be associated with a greater inclination to display emotional reasoning.

In keeping with Muris, Merckelbach, et al. (2003), the results showed that the inclusion of anxiety-response information enhanced threat perception in nonclinical children, a finding that can be taken as support for an emotional reasoning effect. It is important to note, however, that this finding is not in agreement with the results of Arntz et al. (1995). Arntz et al. demonstrated that, in adults, emotional reasoning only oc-
curred in anxiety patients and not in nonanxious controls. Developmental issues may be relevant here. That is, there may be important differences between children and adults in the prevalence and phenomenology of information-processing biases. Thus, it is possible that anxiety-response information makes all children to some extent vigilant for potential danger, in particular in situations that are relatively harmless. At a certain age, however, children outgrow this type of information-processing bias (see Vasey & MacLeod, 2001).

The prediction that high levels of anxiety, and in particular of anxiety sensitivity, would be a significant predictor of children’s inclinations to infer danger on the basis of anxiety-response information was not borne out by the data. That is, the correlations between anxiety sensitivity and other anxiety constructs on the one hand and emotional reasoning indexes on the other were small and in most cases did not attain statistical significance. These negative findings may have to do with the fact that the ambiguous stories used in the study were already threatening for the anxious children. Thus, it may be the case that some anxious children did not report higher threat levels for the ambiguous + anxiety-response stories because they already scored rather high in response to the ambiguous stories. Such a ceiling effect may have hindered the finding of clear-cut relations between anxiety, and especially anxiety sensitivity, and emotional reasoning.

Previous studies have shown that anxiety sensitivity is a significant predictor of panic symptoms, fear, and state anxiety in response to a physically challenging task (see Reiss, Silverman, & Weems, 2001) and that this is even the case when controlling for levels of trait anxiety. This study demonstrated that although correlations between the three anxiety constructs (anxiety disorders symptoms, trait anxiety, and anxiety sensitivity) and threat perception were all in the same range, only anxiety sensitivity accounted for a unique proportion of the variance. Thus, anxiety sensitivity seems to possess some incremental value in predicting anxiety-related cognitive biases.

This study has a number of limitations. First, the study used a sample of nonclinical children and calls for replication using children with anxiety disorders. Second, only 50% of the invited children participated in the study. Although the anxiety levels of the participants were comparable to those found in previous studies on nonclinical children, it is unclear to what extent the results of the study were affected by selection bias. Third, threat perception was assessed by means of a vignette paradigm. Although pilot work was carried out to select vignettes that were ambiguous and not explicitly threatening, it is clear that even the nonthreatening stories that were used in this study contained elements that reflect danger to children with high levels of anxiety. Therefore, it may be preferable that future studies rely on nonverbal stimulus material (e.g., pictures taken from projective tests) for measuring threat appraisals (Muris & Van Doorn, in press). Fourth, this study focused on anxiety. As other mental health problems such as depression and aggression are also associated with cognitive distortions (see Daleiden & Vasey, 1997), it remains to be established whether the threat-perception abnormalities found in this study are unique to anxiety. Fifth, the research was correlational in nature. One important step for future research would be to carry out a prospective study to demonstrate that these threat-perception abnormalities are predictive of anxiety symptoms over longer time periods (Vasey & MacLeod, 2001).

Finally, the study relied on children’s self-report. Although children seem to be the most important informants in the case of anxiety and associated cognitive phenomena (e.g., Stalling & March, 1995), information from parents could yield cross-validation information on children’s threat-perception abnormalities.

Despite these shortcomings, the results seem to indicate that biased threat perception and emotional reasoning make additional contributions to children’s danger estimations. Future studies should further elucidate whether these cognitive distortions play a significant role in the overestimation of danger in children with anxiety disorders.

References


THREAT PERCEPTION AND EMOTIONAL REASONING

Appendix

Example of One of the Stories in its Three Versions

Ambiguous Story

1. It’s your first day on a new school.
2. You don’t know anyone of the children in your new class.
3. The teacher tells you that you all have to give a small presentation in front of the class.
4. While saying this, he looks at you.
5. He says: “This really sounds like something for you. You are the first to give the presentation, next week!”

Ambiguous + Anxiety-Response Story

1. It’s your first day on a new school. During class, you feel your heart beating.
2. You don’t know anyone of the children in your new class.
3. The teacher tells you that you all have to give a small presentation in front of the class.
4. While saying this, he looks at you.
5. He says: “This really sounds like something for you. You are the first to give the presentation, next week!”

Nonthreatening Story

1. It’s your first day on a nice, new school.
2. You already know some of the children in your new class.
3. The teacher tells that there will be a class trip soon.
4. While saying this, he laughs at you.
5. He says: “This really sounds like something for you. Great that you can go with us!”

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