Shorter communication

The emotional reasoning heuristic in children

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Abstract

A previous study by Arntz, Rauner, and Van den Hout (1995; Behaviour Research and Therapy, 33, 917–925) has shown that adult anxiety patients tend to infer danger not only on the basis of objective danger information, but also on the basis of anxiety response information. The current study examined whether this so-called emotional reasoning phenomenon also occurs in children. Normal primary school children (N = 101) first completed scales tapping anxiety disorders symptoms, anxiety sensitivity, and trait anxiety. Next, they were asked to rate danger levels of scripts in which objective danger versus objective safety and anxiety response versus no anxiety response were systematically varied. Evidence was found for a general emotional reasoning effect. That is, children’s danger ratings were not only a function of objective danger information, but also, in the case of objective safety scripts, by anxiety response information. This emotional reasoning effect was predicted by levels of anxiety sensitivity and trait anxiety. More specifically, high levels of anxiety sensitivity and trait anxiety were accompanied by a greater tendency to use anxiety-response information as an heuristic for assessing dangerousness of safety scripts. Implications of these findings are briefly discussed.

Keywords: Anxiety; Children; Emotional reasoning; Information processing

1. Introduction

Anxiety disorders are among the most common psychiatric disorders in children and adolescents. Epidemiological studies found that between 8 and 12% of the youths suffer from anxiety...
complaints that are severe enough to interfere with their daily functioning (see for a review Bernstein, Borchardt, & Perwien, 1996). During the past decade, researchers and clinicians in the field of child psychopathology have reached consensus on the various types of anxiety disorders that may occur in children and adolescents (American Academy of Child and Adolescent Psychiatry, 1997). The most prevalent childhood anxiety disorders that have a major impact on children’s daily functioning are: (1) social phobia which is concerned with marked fear of social or performance situations in which embarrassment may occur; (2) separation anxiety disorder which is characterised by excessive anxiety concerning separation from the home or from significant attachment figures, to a degree that is beyond the child’s developmental level; and (3) generalized anxiety disorder, formerly termed overanxious disorder (American Psychiatric Association [APA], 1987), which refers to persistent and excessive anxiety and worry, accompanied by motor tension and vigilance (see Diagnostic and Statistical Manual of Mental Disorders [DSM-IV]; APA, 1994).

While the role of avoidance behaviour in the maintenance of childhood fear and anxiety seems self-evident (e.g., Ollendick, Vasey, & King, 2001), there are other mechanisms that are highly relevant in this context. Inspired by cognitive psychology, recent studies sought to elucidate information-processing abnormalities that may play a critical role in the persistence of anxiety symptoms in children (see for a comprehensive review, Vasey & MacLeod, 2001; Muris & Merckelbach, 2001; Merckelbach & Muris, 2001). So far, there is evidence for at least two distinct types of cognitive biases in anxious children: attentional bias which refers to hyperattention towards irrelevant, but threat-related stimuli, and interpretational bias which pertains to the tendency to interpret ambiguous situations as threatening.

A number of studies show that the attentional bias phenomenon occurs in anxious children. In a Stroop experiment, Martin, Horder and Jones (1992) noted that spider fearful children exhibit retarded colour naming times when confronted with spider-related words (e.g., ‘hairy’), but not when confronted with control words (e.g., ‘fly’). In a recent study by Dubner and Motta (1999), sexually abused children with and without post-traumatic stress disorder (PTSD) carried out a modified Stroop task that included trauma-related and control stimuli. Sexually abused children with PTSD had significantly longer colour naming times to trauma-related stimuli than did sexually abused children without PTSD (see for similar findings, Moradi, Taghavi, Neshat-Doost, Yule, & Dalgleish, 1999). Likewise, using the dot-probe paradigm, several studies (Taghavi, Neshat-Doost, Moradi, Yule, & Dalgleish, 1999; Vasey, Daleiden, Williams, & Brown, 1995; Vasey, El-Hag, & Daleiden, 1996) demonstrated that clinically anxious children and children high in test anxiety react more quickly to a probe when it is preceded by a threatening word than when it is preceded by a neutral word. This differential effect reflects selective hyperattention to threatening stimuli in anxious children that is not evident for control children.

Support for the existence of interpretational bias in anxious children comes from a study by Barrett, Rapee, Dadds and Ryan (1996). 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. Next, children were given two possible neutral outcomes and two possible threatening outcomes and were asked to indicate which outcome was most likely to occur. Both anxious and oppositional children interpreted ambiguous stories as more threatening than did normal controls. Interestingly, anxious children more frequently chose avoidant outcomes, whereas oppositional children more often selected aggressive outcomes (see for similar findings,
Chorpita, Albano, & Barlow, 1996; Bögels & Zigterman, 2000). A series of recent studies by Muris and colleagues (Muris, Kindt, Bögels, Merckelbach, Gadet, & Mouladert, 2000a; Muris, Luermans, Merckelbach, & Mayer, 2000b; Muris, Merckelbach, & Damsma, 2000c) found that anxious children not only more frequently interpret an ambiguous scenario as threatening, but that they also need less information before deciding that it is dangerous, a phenomenon which was dubbed threat perception bias.

With respect to the cognitive biases of anxious children, two additional remarks should be made. First of all, while the above mentioned research has provided support for the presence of attentional, interpretational, and threat perception bias in anxious youths, it should also be mentioned that several studies have failed to document these cognitive distortions in children (for an extensive discussion, see Vasey & MacLeod, 2001). One good example is a series of studies conducted by Kindt and colleagues (Kindt, Bierman, & Brosschot, 1997; Kindt, Van den Hout, De Jong, & Hoekzema, 2000) who examined response latencies of spider-fearful and control children aged 8–12 years using an emotional Stroop paradigm. These researchers consistently found that attentional bias for spider-related material was not restricted to the fearful group, but also emerged in the control group. Second, it is important to note that attentional, interpretational, and threat perception bias should not be seen as causal factors of anxiety problems, but rather are concomitant phenomena that play a role in the maintenance of childhood anxiety (e.g., Muris & Merckelbach, 2001).

Apart from cognitive distortions such as attentional bias and interpretational bias, children may display other information processing abnormalities that contribute to the maintenance of their anxiety (Daleiden & Vasey, 1997; Vasey & MacLeod, 2001). Arntz, Rainier, and Van den Hout (1995) demonstrated that adult patients with anxiety symptoms tend to infer dangerousness from their emotional response. This process of emotional reasoning has been described by Beck and Emery (1985) who observed this heuristic in their patients. In their words: “Many anxious patients use their feelings to validate their thoughts and thus start a vicious circle: ‘I’ll be anxious when I ask for the date so there must be something to fear’” (p. 198). In other words, anxious subjects strongly believe in the proposition “If I feel anxious, there must be danger”. Obviously, when danger is inferred from subjective anxiety responses rather than from objective threat, false alarms are not recognized and irrational fears will tend to persist. In Arntz et al.’s (1995) experiment on emotional reasoning, adult anxiety patients and normal controls gave ratings of the danger they perceived in scripts in which objective danger versus objective safety, and presence versus absence of anxiety-response information were systematically varied. As hypothesized, the danger ratings of anxious patients were not only fuelled by objective danger information, but also by anxiety response information. In contrast, danger ratings of normal controls were merely a function of objective danger information.

The main purpose of the present study was to examine whether this emotional reasoning phenomenon also occurs in children. Normal primary school children (N = 101) first completed a scale for assessing anxiety disorders symptoms (i.e., the Revised Children’s Anxiety and Depression Scale; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000), an index of trait anxiety (i.e., Spielberger Trait Anxiety Inventory for Children; Spielberger, 1973), and a measure of anxiety sensitivity (i.e., the Childhood Anxiety Sensitivity Index; Silverman, Fleisig, Rabian, & Peterson, 1991). Following this, children listened to scenarios in which objective danger versus objective safety, and presence versus absence of anxiety-response information were systematically
manipulated. After each scenario, children were asked to give a danger rating, that is, they were instructed to rate how dangerous they felt the scenario was. As these were normal children, we expected that for the total sample danger ratings would merely be influenced by objective danger information. However, we also predicted that higher levels of anxiety disorders symptoms, trait anxiety, and anxiety sensitivity would be accompanied by a greater tendency to use anxiety-response information for the ratings of the scenarios.

2. Method

2.1. Participants

The sample consisted of 101 children (57 boys and 44 girls) who were recruited from a regular primary school in Schoonbeek, Belgium. Informed consent from both parents and children was obtained; about 75% of those invited to participate eventually did so. Mean age of the children was 9.6 years ($SD = 1.2$; range 8 to 12 years).

2.2. Assessment

2.2.1. Questionnaires

Subscales from the Revised Children’s Anxiety and Depression Scale (RCADS; Chorpita et al., 2000) were used to assess symptoms of social phobia (9 items; e.g., “I am afraid of looking foolish in front of people”), separation anxiety disorder (7 items; e.g., “I fear being away from my parents”), and generalized anxiety disorder (6 items; e.g., “I worry that bad things will happen to myself”). Only these RCADS subscales were employed as the vignettes used in the current study (see below) pertained to anxiety symptoms addressed by these subscales. Each item has to be answered on a 4-point scale with $0 = never$, $1 = sometimes$, $2 = often$, and $3 = always$. A RCADS total score ($\alpha = 0.91$) was computed by summing ratings across items (range 0-54). The RCADS is an adaptation of the Spence Children’s Anxiety Scale (SCAS) that has been shown to be a reliable and valid measure of childhood anxiety (Spence, 1997; Spence, 1998).

The Childhood Anxiety Sensitivity Index (CASI; Silverman et al., 1991) is an 18-item self-report questionnaire for assessing fear of anxiety symptoms in children and adolescents. Sample items are “It scares me when my heart beats fast”, “It scares me when I feel nervous”, and “It scares me when I feel shaky”. Children have to rate on a 3-point Likert scale (1 = none, 2 = some, 3 = a lot) the extent to which they believe that the experience of anxiety will have negative consequences. CASI scores ($\alpha = 0.90$) range between 18 and 54, with higher scores indicating higher levels of anxiety sensitivity.

The trait anxiety scale of the State-Trait Anxiety Inventory for Children (Spielberger, 1973) contains 20 items that measure chronic symptoms of anxiety. Children are asked to rate the frequency with which (s)he experiences anxiety symptoms such as “I am scared”, “I feel troubled”, and “I get a funny feeling in my stomach” using three-point scales: $1 = almost never$, $2 = sometimes$, and $3 = often$. A total trait anxiety score ($\alpha = 0.91$) can be calculated by summing the ratings across items.
2.3. Vignettes

Six vignettes were used, each of them describing a situation that children might encounter. Situations pertained to the three major anxiety disorders that are prevalent among children: social phobia, separation anxiety disorder, and generalized anxiety disorder. For each situation, 4 scripts were written: (1) with objective danger information and anxiety-response information, (2) with objective information, but no anxiety response, (3) with objective safety information and an anxiety response, and (4) with objective safety information and no anxiety response. As an example, the 4 scripts of one of the social phobia vignettes were as follows:

(a) Objective danger/anxiety response:
“You are invited for a birthday party of one of the children in your class. Because you thought that the party was a costume ball, you are dressed up as a clown. When you enter the party, you see that nobody wears a costume. You start to sweat …”

(b) Objective danger/no anxiety response:
“You are invited for a birthday party of one of the children in your class. Because you thought that the party was a costume ball, you are dressed up as a clown. When you enter the party, you see that nobody wears a costume …”

(c) Objective safety/anxiety response:
“You are invited for a birthday party of one of the children in your class. Because you thought that the party was a costume ball, you are dressed up as a clown. When you enter the party, you see that everybody wears a costume that is just as lovely as yours is. You start to sweat …”

(d) Objective safety/no anxiety response:
“You are invited for a birthday party of one of the children in your class. Because you thought that the party was a costume ball, you are dressed up as a clown. When you enter the party, you see that everybody wears a costume that is just as lovely as yours is …”

The 24 scripts were audiotaped. The order of the scripts was randomly determined, but there were two restrictions. To begin with, each block of 6 scripts consisted of scripts describing all 6 situations. Furthermore, scripts of one and the same situation were never paired. The order thus obtained was used in half of the children. The other half of the children received the scripts in reversed order in order to minimize carry over effects.

Children received the following instruction: “In a moment, you are going to hear a number of stories. Please listen carefully to each story and then rate how scary you find the situation when it would happen to you.” Ratings had to be given on a 10-point scale anchored with 1 = not at all scary and 10 = very scary. To reduce the possibility that children remembered their rating to the stories, two types of filler items were used. First, each block of 6 scripts was followed by a set of 5 questions on which children had to score their mood at that moment. Second, after each script, children were not only asked to rate how scary they found the situation, but also how frequently the situation would occur in children (1 = almost never, 10 = very often).

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1 Other anxiety-related responses that were used in the stories were: blushing, rapid breathing, dizziness, trembling, and fast heartbeat. Stories can be obtained from the first author.
2.4. Procedure

Children first completed the self-report questionnaires (RCADS, CASI, and STAIC). This was done in their classroom in the presence of the teacher and a research assistant, who answered questions if necessary. Two weeks after the completion of the questionnaires, children were interviewed by a trained research assistant. This assistant was blind to children’s questionnaire scores. Using a tape recorder, she presented the scripts to the children, asked the pertinent question (“How scary do you find this story?”), and handed out the rating scales to the children.

2.5. Statistical analysis

The Statistical Package for Social Sciences (SPSS) was used to calculate descriptive statistics (means, standard deviations) and reliability coefficients, and to analyze children’s danger ratings by means of a 2 (danger: objective danger versus objective safety) × 2 (response: anxiety response versus no anxiety response) analysis of variance (ANOVA) with both factors being repeated measures. To evaluate whether anxiety levels were associated with the tendency to use anxiety-response information for rating the scripts, we first computed an emotional reasoning score (i.e., ratings for vignettes containing anxiety-response information minus ratings for similar vignettes but without anxiety-response information) for objective danger and objective safety scripts separately. Then, correlations were computed between RCADS, CASI, and STAIC scores, on the one hand, and emotional reasoning scores, on the other hand. In passing, it should be noted that age did not correlate with any of the anxiety or danger rating variables, and therefore this variable was not included in the statistical analyses.

3. Results

3.1. General emotional reasoning effect

Mean danger ratings for the total sample were 4.0 (SD = 1.5) for objective danger/anxiety response scripts, 4.1 (SD = 1.5) for objective danger/no anxiety response scripts, 2.0 (SD = 1.2) for objective safety/anxiety response scripts, and 1.3 (SD = 0.7) for objective safety/no anxiety response scripts (see Fig. 1). The 2 (danger) × 2 (response) ANOVA revealed a significant effect

![Fig. 1. Mean ratings of perceived danger as a function of objective danger versus safety information and anxiety versus no anxiety-response information for the total sample (N = 101).]
of danger information \( F(1,100) = 457.5, P < 0.001 \). As predicted, children used the objective danger information for rating the scripts. More specifically, they rated objective danger scenarios as more scary than objective safety scenarios. Surprisingly, the analysis also yielded a main effect of response \( F(1,100) = 21.0, P < 0.001 \) and a significant interaction effect of danger and response \( F(1,100) = 43.5, P < 0.001 \). As can be seen in Fig. 1, anxiety-response information inflated danger ratings, but this effect was only evident when objective safety scripts were involved. In other words, when children rated these scripts, inclusion of an anxiety response yielded significantly higher scores \( t(100) = 7.6, P < 0.001 \).

Thus, in contrast to our predictions, normal children generally show an emotional reasoning effect in response to objective safety scenarios.

3.2. Relationship between anxiety and emotional reasoning

In keeping with previous studies on childhood anxiety (see for a review, Craske, 1997), girls displayed higher levels of anxiety disorders symptoms \( t(99) = 3.8, P < 0.001 \), anxiety sensitivity \( t(99) = 3.5, P < 0.01 \), and trait anxiety \( t(99) = 4.6, P < 0.001 \) than boys (see Table 1). Correlations (corrected for gender) between RCADS, CASI, and STAIC scores, on the one hand, and danger ratings and emotional reasoning scores, on the other hand, are displayed in the right panel of Table 1. Note that all anxiety questionnaire scores were substantially connected to danger ratings of the various script types (all \( r \)s \( \geq 0.46 \), all \( Ps < 0.001 \)). Most importantly, no significant associations were found between anxiety indices and emotional reasoning with respect to objective danger scripts. However, positive and significant connections were observed between anxiety sensitivity and trait anxiety, on the one hand, and emotional reasoning in response to objective safety scripts, on the other hand (\( rs \) being 0.19, \( P < 0.05 \) and 0.31, \( P < 0.01 \), respectively). A test for comparing correlation coefficients (Meng, Rosenthal, & Rubin, 1992) showed that the correlation between trait anxiety and emotional reasoning was significantly larger than that between anxiety sensitivity and emotional reasoning \( (Z = 1.8, P < 0.05) \).

To examine the link between anxiety sensitivity/trait anxiety and emotional reasoning in more detail, the sample of children was divided into (a) a high anxiety sensitivity and a low anxiety sensitivity group, and (b) a high trait anxiety and a low trait anxiety group by means of a median split procedure.\(^2\) Figs. 2 and 3 present mean emotional reasoning scores for high and low anxiety sensitivity and high and low trait anxiety groups. As can be seen, children with high levels of anxiety sensitivity and trait anxiety displayed higher emotional reasoning scores in response to objective safety scripts (means being 0.8, \( SD = 1.0 \) and 0.9, \( SD = 1.0 \), respectively) than children with low levels of anxiety sensitivity and trait anxiety (means being 0.5, \( SD = 0.7 \) and 0.4, \( SD = 0.5 \); \( t(99) = 1.7, P < 0.05 \), one-tailed, for anxiety sensitivity, and \( t(99) = 3.3, P < 0.001 \), one-tailed, for trait anxiety).

4. Discussion

The current study examined the emotional reasoning phenomenon in a sample of normal school children. Results can be summarized as follows. To begin with, evidence was found for a general

\(^2\) Gender-appropriate median scores of both questionnaires were used for this procedure.
Table 1
Mean scores (standard deviations) and gender differences for RCADS, CASI, and STAIC, and correlations (corrected for gender) between anxiety measures, on the one hand, and danger ratings and emotional reasoning scores, on the other hand

<table>
<thead>
<tr>
<th></th>
<th>Total sample</th>
<th>Boys</th>
<th>Girls</th>
<th>Rating danger/ no anxiety</th>
<th>Rating danger/ anxiety</th>
<th>Rating no danger/ no anxiety</th>
<th>Rating no danger/ anxiety</th>
<th>Emotional reasoning danger</th>
<th>Emotional reasoning safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 101)</td>
<td>(n = 57)</td>
<td>(n = 44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCADS</td>
<td>16.1 (10.1)</td>
<td>12.9 (10.1)a</td>
<td>20.2 (8.6)b</td>
<td>0.51**</td>
<td>0.51**</td>
<td>0.67**</td>
<td>0.52**</td>
<td>0.03</td>
<td>0.15</td>
</tr>
<tr>
<td>CASI</td>
<td>27.6 (7.1)</td>
<td>25.6 (7.1)a</td>
<td>30.3 (6.1)b</td>
<td>0.50**</td>
<td>0.51**</td>
<td>0.60**</td>
<td>0.50**</td>
<td>0.03</td>
<td>0.19*</td>
</tr>
<tr>
<td>STAIC</td>
<td>33.3 (8.5)</td>
<td>30.2 (8.2)a</td>
<td>37.4 (7.1)b</td>
<td>0.46**</td>
<td>0.52**</td>
<td>0.58**</td>
<td>0.57**</td>
<td>0.14</td>
<td>0.31**</td>
</tr>
</tbody>
</table>

Notes. RCADS = Revised Children’s Anxiety and Depression Scale (total score of social phobia, separation anxiety disorder, and generalized anxiety disorder items), CASI = Childhood Anxiety Sensitivity Index, STAIC = Trait anxiety version of the State-Trait Anxiety Inventory for Children. N = 101. * P < 0.05, ** P < 0.01 (one-tailed).
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. Second, this emotional reasoning effect in response to objective safety scripts was positively associated with levels of anxiety sensitivity and trait anxiety. More specifically, high levels of anxiety sensitivity and trait anxiety were accompanied by a greater tendency to draw on anxiety-response information for rating objective safety scenarios.

It is not clear why the emotional reasoning effect was only found in response to objective safety scenarios. The most plausible explanation for this finding seems to be that children tend to focus on the most salient aspect of the script that is relevant for making a danger judgement. In the case of objective danger scripts, this aspect was the danger information, while in the case of objective safety scripts, this aspect was the anxiety response information. Perhaps, this problem could have been circumvented by not only reading the scripts to the children, but also by presenting them on paper.

The general emotional reasoning effect that was found in this sample of normal children is at variance with the results of Arntz et al., 1995 who showed that normal adults merely base their danger ratings on objective danger information and not on anxiety-response information. Developmental issues may be relevant here. That is to say, it may well be the case that there are important differences between children and adults in the prevalence and phenomenology of information processing biases. Tentative evidence for this comes from the aforementioned studies by Kindt.

Fig. 2. Mean emotional reasoning scores of children in the low and high anxiety sensitivity groups.

Fig. 3. Mean emotional reasoning scores of children in the low and high trait anxiety groups.
and colleagues (Kindt et al., 1997, 2000). These researchers demonstrated that attentional bias for spider-related material not only occurred in fearful children but also in control children. Interestingly, in control children, age was found to be negatively related to attentional bias, suggesting a decline of attentional bias for spider-related words with age. On the basis of these data, Kindt et al. argue that at early developmental stages, attentional bias for threatening material may be a pervasive and normal phenomenon. As children grow older, they would learn to inhibit this selective processing of threat cues. A similar developmental pattern might be true for emotional reasoning. That is, anxiety-response information may sensitize children to potential danger, in particular in situations that appear to be rather harmless (i.e., objective safety situations). Note that this notion of a general emotional reasoning heuristic is consistent with the high prevalence of specific fears in children (e.g., King, Hamilton, & Ollendick, 1988). Although we found no negative correlation between age and the emotional reasoning phenomenon, it should be emphasized that none of the children in our sample were older than 12 years. It may well be the case that the general emotional reasoning heuristic disappears during adolescence. Clearly, this point warrants further study.

In agreement with Arntz et al. (1995), high levels of trait anxiety and anxiety sensitivity, but not anxiety disorders symptoms, were significantly associated with the tendency to rely on anxiety-response information when rating the danger of the situations. Curiously enough, trait anxiety appeared to be a stronger correlate of emotional reasoning than anxiety sensitivity. One possible explanation is that the trait of anxiety sensitivity has not been crystallized out completely in 8- to 12-year-old children (see Reiss, Silverman, & Weems, 2001). An alternative explanation is related to Lonigan and Vasey’s (1999, see Vasey & MacLeod, 2001) hypothesis that information processing biases become most prominent in children who are not only high on negative affectivity/neuroticism but also low on effortful control. By their view, high negative affectivity/neuroticism promotes the occurrence of information processing abnormalities, but these may be moderated by high levels of effortful control, which permit the inhibition of cognitive biases. As measures of trait anxiety are thought to tap both negative affectivity/neuroticism and effortful control (Lonigan & Phillips, 2001), this might explain why trait anxiety generally is a good predictor of anxiety-related cognitive biases.

Positive correlations were found between all anxiety questionnaire scores and danger ratings and this was not only true for objective danger scripts but also for objective safety scripts. This result comes close to the finding in one of our previous studies (Muris et al., 2000b) investigating the threat perception bias. In that study, support was found for the idea that anxious children seem to rely on a heuristic that can best be summarized as “Danger is lurking everywhere”. That is to say, even when they are confronted with a situation that contains no obvious trace of threat, anxious children still have a shrewd suspicion that bad things are going to happen.

At a more general level, our results demonstrate that the emotional reasoning heuristic per se is not a sign of psychopathology. In previous papers (Muris & Merckelbach, 2001; Merckelbach & Muris, 2001), we formulated a multifactorial model of pathological anxiety in children. According to this model, pathological anxiety is rooted in normal developmental fears that radicalize due to specific learning experiences (e.g., aversive conditioning events; e.g., Merckelbach & Muris, 1997) in combination with certain temperamental traits (e.g., trait anxiety). Perhaps, then, the interaction of learning experiences and temperamental traits hinders a normal developmental trajectory during which cognitive biases such as emotional reasoning disappear, thereby promoting the persistence
of anxiety symptoms. Thus, it would be informative if future studies would focus not only on the presence or absence of cognitive biases, but also on learning history and temperamental traits. Taken together, the current data suggest that children in general do not only use objective danger information, but also rely on anxiety-response information when they evaluate the potential dangerousness of situations. Furthermore, anxiety sensitivity and in particular trait anxiety were positively related to this emotional reasoning heuristic. Future studies are necessary to replicate and extend the present findings. It would be particularly interesting to examine this type of information processing abnormality in anxiety disordered children and in a large group of normal children with a broad age range in an attempt to elucidate the developmental pattern of the phenomenon.

References


