

## Children's interpretation and avoidant response biases in response to non-salient and salient situations: Relationships with mothers' threat perception and coping expectations

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### Abstract

This study examined the effect of situation salience on interpretation and avoidant response biases in clinically anxious and non-clinical children. The relationship between mothers' threat perception and expectations of their children's coping, and children's threat perception and coping expectations was also assessed. Forty clinically anxious and 40 non-clinical children (ages 7–14) participated with their mothers. In response to hypothetical situations, children described their likely thoughts and actions; mothers listed a typical child's thoughts and what their child would do. Consistent with information processing theories of anxiety, anxious children displayed amplified cognitive biases in response to personally salient situations, compared to non-clinical children. Mothers of anxious children had lower expectations for their children's coping than mothers of non-anxious children, mirroring differences between the groups of children. Mothers' expectations of their children's coping predicted children's coping expectations in non-salient and salient situations and threat perception in salient situations. Implications of findings are discussed. © 2007 Elsevier Ltd. All rights reserved.

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The identification of specific factors that contribute to the etiology and maintenance of child anxiety disorders is essential to the development of more effective treatments and prevention programs for this population. Biases in information processing are potential factors in the development and maintenance of anxiety in children and the subject of a number of studies in the past decade. In particular, Daleiden and Vasey (1997) suggest an information processing model for childhood anxiety that draws upon previous

cognitive models of anxiety and other emotional disorders by Crick and Dodge (1994) and Kendall and colleagues (Kendall, 1985; Kendall & Ronan, 1990). This model includes six progressive stages of information processing, with the potential for anxiety-related deficits or distortions to occur at each stage. The first stage, *encoding*, involves exposure to stimuli and then selectively perceiving and attending to a subset of those stimuli for later processing. For anxious children, greater intensity and selectivity of attention toward particularly threatening or personally salient stimuli would occur during this stage of information processing (Daleiden & Vasey, 1997).

*Interpretation* is the second stage of the model during which meaning is attached to the information

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that has been encoded; at this stage, children with high anxiety have been shown to display an interpretation bias, or tendency to interpret ambiguous and non-threatening situations as being more threatening than the evidence would indicate (Hadwin, Frost, French, & Richards, 1997; Suarez & Bell-Dolan, 2001; Muris, Rapee, Meesters, Schouten, & Geers, 2003; Bögels & Zigterman, 2000). Later stages of the model include *goal clarification and selection, response access, response selection, and enactment*. During the response access stage, anxious children must access coping responses, presumably stored in long-term memory, which will meet the goals they have selected for the situation in the previous stage. Daleiden and Vasey (1997) suggest that the high attentional demands of an anxiety-provoking situation for anxious children may prevent them from fully processing the contextual cues of the situation that would allow them to access all appropriate behavioral responses. Thus, anxious children are more likely to select (and then enact) avoidant responses to situations that pique their anxiety (Barrett, Rapee, Dadds, & Ryan, 1996; Kortlander, Kendall, & Panichelli-Mindel, 1997), and to underestimate their ability to cope with the situations or their emotional responses to the situations, a tendency that we will term “avoidant response bias” throughout this paper.

While numerous studies have found evidence for attentional bias in adults with anxiety disorders or high trait anxiety (i.e., Dagleish & Watts, 1990; MacLeod & Mathews, 1988), there have been fewer studies of this phenomenon in anxious children (Ehrenreich & Gross, 2002). Attentional biases, assessed using a modified Stroop task, have been observed among children with spider phobia (Martin, Horder, & Jones, 1992), generalized anxiety disorder (Taghavi, Dagleish, Moradi, Neshat-Doost, & Yule, 2003), and high trait-anxiety (Kindt, Brosschot, & Everaerd, 1997). Studies using a dot-probe detection task have also found that children with anxiety disorders or high-test anxiety are biased towards threatening words versus neutral words (Vasey, Daleiden, Williams, & Brown, 1995; Vasey, El-Hag, & Daleiden, 1996).

Daleiden and Vasey (1997) suggest that attentional bias towards threat in anxious children affects all later stages of information processing. In particular, they hypothesize that when anxious children selectively focus their attention on threatening aspects of a situation, they do not have the opportunity to learn about other aspects of the situation that could contribute to a balanced interpretation of the situation and selection of adaptive coping responses. It appears that anxious children are likely to show an attentional bias

towards situations that are of particular salience to them (Martin et al., 1992). Thus, if there is a relationship between biased processing during the encoding stage of information processing and biases in the later stages, anxious children should evidence interpretation and avoidant response biases in situations that are more personally relevant to them.

Higher threat perception in anxious children (i.e., interpretation bias) has been found by a number of studies examining children’s responses to both clearly threatening and more ambiguously threatening vignettes (Bögels & Zigterman, 2000; Suarez & Bell-Dolan, 2001). For instance, Bögels and Zigterman (2000) examined both interpretation bias and expectations of coping ability (i.e., avoidant response bias) in a clinically anxious group of children and two comparison groups (non-clinical and externalizing). Results showed that the anxiety-disordered group listed more negative thoughts in response to ambiguous scenarios than the externalizing group and were more likely to underestimate their ability to cope than both comparison groups. While there were no differences in overestimation of threat between groups on thought listings, the anxious group gave higher forced-choice ratings of danger than both comparison groups, and they rated themselves as less influential over the situations than the non-clinical comparison group.

Anxious children may partially acquire their information processing style from parents who overestimate threat and/or underestimate their children’s coping ability, although the mechanisms of such acquisition are unclear. Indeed, there is evidence of a significant relationship between parents’ threat perception and expectations of their children’s avoidance on one hand, and children’s threat perception and degree of avoidance on the other. Compared to the parents of non-clinical children, the parents of anxious children give more threat interpretations and have greater expectations that their child will avoid potentially threatening or ambiguous situations (Barrett, Rapee, et al., 1996; Shortt, Barrett, Dadds, & Fox, 2001). Significant positive correlations between parent and child reports of threat perception or negative cognitions have also been reported (Bögels, van Dongen, & Muris, 2003; Creswell, Schniering, & Rapee, 2005), and anxious mothers of anxious children have been found to predict that their children would have greater anxiety and avoidance in an anxiety-provoking situation (a speech task; Cobham, Dadds, & Spence, 1999). In another study, maternal ratings of child coping ability corresponded to actual lower coping capacity among anxious children during a speech task (Kortlander et al., 1997).

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