



Cognitive development and the interpretation of anxiety-related physical symptoms in 4–13-year-old non-clinical children

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Abstract

The present study examined developmental patterns in children's interpretation of anxiety-related physical symptoms and emotional reasoning (i.e., the tendency to infer danger on the basis of physical response information). A sample of 171 children aged between 4 and 13 years were interviewed after listening to a number of vignettes in which the presence and absence of physical symptoms was systematically varied. Results revealed the expected developmental pattern for anxiety-related interpretations of physical symptoms. More precisely, from age 7, children were increasingly capable of linking physical symptoms to the emotion of anxiety. Furthermore, support was obtained for an emotional reasoning effect. That is, children rated vignettes with physical symptoms as more dangerous than vignettes without such symptoms. While the emotional reasoning effect was present in children of all ages, this phenomenon was more salient among older children. Finally, cognitive development as measured by Piagetian conservation tasks appeared to influence children's anxiety-related interpretations of physical symptoms and emotional reasoning. Altogether, these findings are relevant for researchers who are interested in "physical symptoms-based" theories of childhood anxiety.

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1. Introduction

The experience of physical symptoms such as palpitations, sweating, trembling, shortness of breath, nausea or abdominal distress, dizziness, chills and hot flushes is not only the key feature of panic disorder (American Psychiatric Association, 2000), but is an important concomitant of anxiety psychopathology in general (Lang, 1968), and this seems also true for children (e.g., Fonseca & Perrin, 2001). Several researchers have formulated theories that are based on the notion that physical symptoms are not only an epiphenomenon of anxiety, but might play an important role in the development and maintenance of this emotion. A first theory concerns the cognitive model of panic as described by Clark (1986), which proposes that panic attacks result from the catastrophic misinterpretation of physical symptoms. Thus, according to this account, anxiety arises when physical symptoms are interpreted as far more threatening than they actually are. A second theory has to do with an individual difference variable labeled as anxiety sensitivity, which can be defined as the fear of anxiety-related physical symptoms that are interpreted as having potentially harmful somatic, psychological or social consequences (e.g., Taylor, 1995). The anxiety sensitivity theory assumes that people differ in the extent to which they experience physical symptoms as aversive, and become anxious when having such symptoms (Reiss, Peterson, Gursky, & McNally, 1986). A third account refers to the phenomenon of emotional reasoning, which can be specified as the cognitive process of inferring danger on the basis of a physical anxiety response. That is, when evaluating the dangerousness of a situation, anxious individuals not only rely on objective danger information, but also on anxiety response information (Arntz, Rauner, & Van den Hout, 1995). Emotional reasoning is also described as *ex consequentia* reasoning, because the individual does not only conclude that danger implies feeling anxious, but also that feeling anxious implies danger. Thus, anxious individuals show the tendency to use their anxious feelings to validate their thoughts.

There is evidence that these “physical symptoms-based” theories also apply to the formation and persistence of childhood anxiety. For example, while some authors have assumed that the cognitive model of panic does not apply to preadolescent children because they still lack the cognitive ability to make catastrophic misinterpretations (Nelles & Barlow, 1988), Mattis and Ollendick (1997) have clearly demonstrated that even children as young as 9 years were able to attribute physical symptoms to internal, catastrophic cognitions. Furthermore, the individual difference variable of anxiety sensitivity is thought to develop during middle childhood (Reiss, Silverman, & Weems, 2001), and research has demonstrated that children who display high levels of this trait run greater risk for developing panic disorder and other anxiety disorders (e.g., Hayward, Killen, Kraemer, & Taylor, 2000). Finally, two recent studies by Muris, Meesters et al. (2003) and Muris, Merckelbach, Schepers, and Meesters (2003) yielded support for the emotional reasoning phenomenon in children. Children were asked to rate the danger levels of scripts in which objective danger versus objective safety and physical response versus non-physical 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 physical response information.

While the above described research lines have provided evidence for the applicability of adult “physical symptoms-based” theories of anxiety to child populations, relatively little

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