

Attention control in middle childhood: Relations to psychopathological symptoms and threat perception distortions

Peter Muris^{a,*}, Cor Meesters^b, Linda Rompelberg^b

^a*Institute of Psychology, Erasmus University Rotterdam, Burgemeester Oudlaan 50, Suite T13-37, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands*

^b*Department of Medical, Clinical, and Experimental Psychology, Maastricht University, P.O. Box 616, 6200 MD Maastricht, The Netherlands*

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Abstract

The present study examined the construct of attention control, which is an important aspect of effortful control, in a sample of non-clinical children aged between 9 and 13 years. Results demonstrated that attention control was associated with a broad range of psychopathological complaints, including symptoms of anxiety, aggression, depression, and ADHD. As predicted, lower levels of attention control were accompanied by higher levels of these symptoms. Further, attention control was also negatively related to threat perception distortions, which indicates that children who display low levels of this regulative temperament factor are more prone to such cognitive biases. Third, when controlling for neuroticism, attention control remained significantly (negatively) associated with symptoms of anxiety, depression (child report only), and ADHD. The correlations between attention control and threat perception distortions largely disappeared when the influence of neuroticism was partialled out. Only the link between attention control and anxious interpretations of ambiguous vignettes survived this correction. Finally, no evidence was found for the hypothesised mediating role of cognitive distortions on the relation between temperament factors and psychopathological symptoms.

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Introduction

Current theories propose that temperament factors in children can be roughly categorised into reactive and regulative traits (Muris & Ollendick, 2005; Rothbart & Bates, 1998). Basically, research has identified three biologically based dimensions that have been identified in children of various ages (e.g., Putnam, Ellis, & Rothbart, 2002). The first dimension is neuroticism, also known as emotionality or negative affectivity, and refers to psychological instability and proneness to experience feelings of anger, anxiety, and sadness when confronted with novel or (potentially) threatening stimuli and situations (Eysenck, 1967). The second dimension is extraversion, which involves positive affectivity and pertains to characteristics such as activity,

*Corresponding author. Tel.: +31 10 408 8706; fax: +31 10 408 9009.
E-mail address: muris@fsw.eur.nl (P. Muris).

sociability, enthusiasm, assertiveness, and self-confidence (Eysenck, 1967). The third dimension is effortful control, which includes the self-regulation of attention (i.e., attention control) and the ability to inhibit behaviour when appropriate (i.e., inhibitory control; Rothbart, Ellis, & Posner, 2004). Neuroticism and extraversion are reactive traits, which to a large extent determine children's reflex-like behaviour when exposed to challenging environmental stimuli, whereas effortful control is a regulative trait that serves to modulate reactivity (Rothbart & Bates, 1998).

Research on the role of temperament factors in the aetiology of child psychopathology has predominantly focused on the reactive trait of neuroticism. These studies have consistently demonstrated that neuroticism is positively associated with internalising and externalising problems in youths (e.g., Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003; Ehrlert, Evans, & McGhee, 1999; Huey & Weisz, 1997; John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994; Muris, Winands, & Horselenberg, 2003c). Meanwhile, it has been suggested that the regulative trait of effortful control is also important for understanding the emergence of child psychopathology (e.g., Muris & Ollendick, 2005; Posner & Rothbart, 2000). There is indeed accumulating evidence indicating that lower levels of effortful control are related to higher levels of emotional and behavioural problems in children (Eisenberg, Cumberland, Spinrad et al., 2001; Eisenberg, Fabes, Guthrie et al., 1996; Eisenberg, Guthrie, Fabes et al., 2000; Muris, 2006; Muris, de Jong, & Engelen, 2004; Valiente, Eisenberg, Smith et al., 2003), and that these relations are independent of neuroticism.

Cognitive distortions play a crucial role in the maintenance of psychopathology, and there is increasing support that this is also true for psychiatric problems in children (Leung & Wong, 1998). For example, when confronted with ambiguous social situations, children with behavioural problems pay more attention to aggression-relevant information, more frequently make hostile attributions about other people's intentions, and more often select and enact aggressive behavioural responses (Crick & Dodge, 1994). Similar distortions can be observed in children with anxiety disorders who selectively attend to threat-related material, more readily interpret ambiguous stimuli and situations as dangerous, and frequently choose avoidant responses (Daleiden & Vasey, 1997). It is generally assumed that temperament and personality factors are involved in the formation of psychopathology-related cognitive distortions in children. In particular, high levels of neuroticism are thought to be accompanied by high levels of cognitive distortions (see for a review, Vasey & MacLeod, 2001). However, no study can be found that examined the influence of the effortful control on cognitive distortions in children, in spite of the fact that such distortions apply to conscious, effortful processes that might be susceptible to the regulative influence of this temperament factor. In other words, it may well be the case that low levels of effortful control make children more vulnerable to psychopathology-related cognitive distortions (Muris & Ollendick, 2005).

Effortful control refers to self-regulative processes and can best be defined as "the ability to inhibit a dominant response to perform a subdominant response" (Rothbart & Bates, 1998). This definition is quite abstract and suggests that effortful control pertains to "controlling" one's behaviour under certain circumstances. This study focused on attention control, which is an important aspect of effortful control, and which pertains to the ability to organise incoming stimuli in order to maintain a calm state of mind, delay gratification, tolerate change, and create a cognitive and behavioural response to selected stimuli exclusively (Rothbart & Bates, 1998). Attention control refers to both attention focusing, which has to do with the ability to pay attention to a task over an extended period of time without being distracted by irrelevant stimuli in the environment, and attention shifting, which is concerned with flexibility in attention processes and which enables the individual to voluntarily move attention resources from one stimulus to another. While it is generally assumed that the capacity for attention control processes is innate (Poggi Davis, Bruce, & Gunnar, 2002), it is also clear that this regulative temperament characteristic further develops as a result of brain maturation and interaction with the environment (Kochanska, Murray, & Harlan, 2000; Posner & Rothbart, 2000). It is generally assumed that attention control skills progressively increase till the beginning of adolescence (Rothbart & Bates, 1998), and that the gradual improvement of this ability increasingly enables children to regulate emotions and behaviour (Rueda, Posner, & Rothbart, 2004).

The present study further investigated the construct of attention control in a sample of non-clinical children aged between 9 and 13 years. More specifically, the following issues were addressed. First, relations between attention control and a broad range of psychopathological symptoms were examined. So far, studies have predominantly addressed the links between effortful control and symptoms of anxiety and aggression, but it is

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