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# Impaired Attentional Control in Math-Anxious Individuals: Impact on Their Performance in Arithmetic Tasks

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## Abstract

Math anxiety is an emotional reaction characterized by feelings of fear and tension in situations involving math reasoning. This reaction leads highly math-anxious (HMA) individuals to avoid math and perform worse in math tasks than their low math-anxious (LMA) peers. Previous research suggested that HMA individuals may have a reduced attentional control, which might explain their suboptimal performance on math tasks. The aim of this study was to examine whether math anxiety is associated with worse attentional control, specifically with impaired focusing and shifting functions, and, if so, to what extent this worse attentional control might explain HMA individuals' poor achievement on an arithmetical task. Twenty-three HMA and 28 LMA individuals were asked to perform a fast addition verification task for which they received trial-by-trial feedback on the correctness of their answer. The ability to focus and to shift attention was measured with the Attentional Control Scale (Derryberry & Reed, 2002). Results showed that the HMA group was slower and more error prone on the arithmetical task than their less anxious counterparts. Moreover, HMA individuals showed reduced attentional control; i.e., less efficient focusing and shifting of the attentional focus than their LMA peers. Importantly, group differences in response time and accuracy were maintained after controlling for the effect of focusing and shifting. In conclusion, the present study shows that although math anxiety is related with a less efficient attentional control, the impairment in focusing and shifting functions is not enough to explain HMA individuals' difficulties during math performance.

**Keywords:** math anxiety, attention, math performance, focusing, shifting