**Applicability of the attentional control theory to attention biases for threat in socially anxious children: New evidences from electrophysiological data**

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Enhanced attentional engagement and disengagement impairments from threat have frequently been reported in children with social anxiety disorder. According to the attentional control theory (ACT) developed by Eysenck and colleagues (2007), these attention biases (AB) are hypothesized to arise from attentional control deficits. However, recent studies using standard behavioral paradigms reached conflicting results regarding these AB, that could be explained by the second assumption of the ACT stating that anxiety has a greater impact on processing efficiency than on performance effectiveness. Therefore, event-related potentials (ERPs) appear to be a first choice technique to delineate these conflicting results as to investigate the precise nature of AB for threat in socially anxious children.

We recorded electroencephalographic (EEG) data of children with high (HSA) and low levels of social anxiety (LSA) aged between 8 and 12. In experiment 1 (N=35; mean age= 10.27; SD= 1.16), children had to perform a spatial cueing task requiring them to process targets following an individual neutral or disgusted face. In experiment 2 (N=45; mean age=10.20; SD= 1.17), we proposed a visual dot-probe task asking children to process targets preceded by neutral/disgusted or neutral/happy pairs of faces.

Results failed to demonstrate significant effect of group on reaction times in both experiments. In experiment 1, principal component (PCA) analyses showed increased N2 [p=.003] and lower P3a amplitudes [p=.021] for targets following disgusted faces in a valid condition in HSA children. In experiment 2, we found increased N2 [p=.045] and P3b [p=.001] in HSA children confronted to disgusted faces in comparison to neutral faces.

These results confirmed the idea of the ACT according to which socially anxious individuals can have similar performances that low anxious ones (‘performance effectiveness’) because they recruit more neural resources while performing a task (‘processing efficiency’). PCA data of both experiments also demonstrated that social anxiety acts, in children, as a filter on the later, top-down, stages of the attentional processing that need more attentional control abilities. In conclusion, our results confirmed the applicability of the attentional control theory to the understanding of AB in socially anxious children.

Key words: attention bias, attentional control, children, electrophysiology, social anxiety disorder

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