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Anxiety and cognitive bias in children and young people who stutter

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Abstract

Psychologists recognise various forms of anxiety, such as generalized anxiety disorder, separation anxiety and social phobia. People who stutter are at risk of elevated levels of anxiety, especially social phobia. Recent research has suggested that anxiety may be caused and maintained by cognitive biases such as preferentially allocating attention towards threat stimuli. These biases can be re-trained using cognitive bias modification with resulting improvements in levels of anxiety.

In the present study, we measured different forms of anxiety and attentional bias for faces among 8-18 year olds attending the Michael Palin Centre for treatment for stuttering. The clients and their parent(s) completed the child and parent versions, respectively, of the Screen for Childhood Anxiety Related Emotional Disorders (SCARED), which provides an overall anxiety score and sub-scores, with clinical cut-offs, for generalized anxiety disorder, separation anxiety, social phobia , school avoidance and panic. The clients also performed a computerised measure of attentional bias for faces, using schematic stimuli.

Levels of anxiety were higher than in the general population, and prevalence increased with age. There was a significant correlation between SCARED scores produced by clients and their parents. Socially anxious participants showed a bias towards sad faces.

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1. Introduction

Clinical psychologists distinguish between various forms of anxiety (American Psychiatric Association, 2013). For example, in social phobia (also known as social anxiety disorder) the anxiety is focused on situations

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where the individual may be evaluated by others, often when social interaction is involved. Separation anxiety involves fear of being away from home or apart from people to whom the individual is emotionally attached. School avoidance refers to refusal to attend school due to emotional distress. Generalised anxiety disorder may affect a wide range of situations. The anxiety may be accompanied by panic/somatic symptoms such as blushing, sweating or elevated heart rate.

The relationship between stuttering and anxiety has long been debated. In a recent systematic review and meta-analysis, Craig &Tran (2014) found that, relative to people who do not stutter, adults with chronic stuttering experience significantly elevated levels of anxiety, especially social anxiety. They argued that these differences result from the negative effects of stuttering across the lifespan, probably beginning in childhood (see, for example, Blood & Blood, 2007; Davis, Howell & Cook, 2003; Langevin, Packman & Onslow, 2009). Smith, Iverach, O'Brian, Kefalianos & Reilly (2014) reviewed published research into risk factors for anxiety in children and adolescents who stutter. They pointed out that it is clinically important to identify the typical age of onset of anxiety disorders in this client group, but concluded, on the basis of their review, that there is currently insufficient evidence to permit this.

Carrying out anxiety research with children and young people can be challenging: they may have poor insight into their own level of anxiety, or might be affected by demand characteristics (e.g., reporting high levels of anxiety because they believe that this is what the researcher wants them to do) or perceptions of societal norms (e.g., boys may feel that admitting to their anxiety could be seen as a sign of weakness).Gunn, Menzies, O'Brian, Onslow, Packman, Lowe, Iverach, Heard Block (2014) stressed the importance of gaining confirmatory reports about anxiety from others, for example, parents.

Many studies with people who do not stutter have indicated that people with high or clinical levels of anxiety are biased in their cognitive processing (Clark & Wells, 1995; Eysenck, Mogg, May, Richards & Mathews, 1991; Mathews & MacLeod, 2005).This bias may manifest itself in a number of ways. It may affect the way that the individual allocates attention: while non-anxious people automatically direct their attention away from negative stimuli such as disapproving faces or threat words (e.g. attending preferentially to the word *feature* rather than *failure*), anxious individuals show attentional bias towards such stimuli (e.g. Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg & van Ijzendoorn, 2007; Mogg, Philippot, & Bradley, 2004). Interpretation bias occurs when the individual tends to select a negative interpretation of ambiguous stimuli or events (for example, the laughter of others is seen as a signal of derision directed at the anxious person, rather than enjoyment: Mathews & Mackintosh, 2000). These biases are believed to cause and maintain anxiety. Biases have been demonstrated in children and young people as well as adults. Weissman, Chu, Reddy & Mohlman (2012) used schematic faces to investigate attentional bias, and found that anxious 8-18 year olds allocated attention preferentially to schematic faces displaying negative expressions.

Recent research has focused on cognitive bias modification (CBM) interventions which automatically re-train the biases and thereby reduce levels of anxiety (Hallion & Ruscio, 2011). Attentional bias modification, in which participants learn to allocate attention in a way that is less maladaptive, has been used successfully to treat social phobia in adults (Schmidt, Richey, Buckner & Timpano, 2009). Interpretation bias modification, which uses ambiguous vignettes to train people to select positive interpretations, has been used to treat anxiety and stress, and may even be effective when used in advance of threatening situations to reduce their impact on the individual: Woud, Postma, Holmes & Mackintosh (2013) found that when participants were given interpretation bias modification prior to exposure to an extremely distressing film, they were less likely to experience disturbing intrusive thoughts subsequently.

Lowe, Guastella, Chen, Menzies, Packman, O'Brian & Onslow (2012) carried out an eye movement study to investigate the way that adults who stutter deploy visual attention while processing facial expressions delivered via a TV screen. In their study, participants who stuttered displayed attentional bias: compared with controls who did not stutter, they looked less at the TV display overall and, in particular, spent less time looking at positive facial

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