



## Avoidance of eye gaze by adults who stutter

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### ABSTRACT

**Purpose:** Adults who stutter are at significant risk of developing social phobia. Cognitive theorists argue that a critical factor maintaining social anxiety is avoidance of social information. This avoidance may impair access to positive feedback from social encounters that could disconfirm fears and negative beliefs. Adults who stutter are known to engage in avoidance behaviours, and may neglect positive social information. This study investigated the gaze behaviour of adults who stutter whilst giving a speech.

**Method:** 16 adults who stutter and 16 matched controls delivered a 3-min speech to a television display of a pre-recorded lecture theatre audience. Participants were told the audience was watching them live from another room. Audience members were trained to display positive, negative and neutral expressions. Participant eye movement was recorded with an eye-tracker.

**Results:** There was a significant difference between the stuttering and control participants for fixation duration and fixation count towards an audience display. In particular, the stuttering participants, compared to controls, looked for shorter time at positive audience members than at negative and neutral audience members and the background.

**Conclusions:** Adults who stutter may neglect positive social cues within social situations that could serve to disconfirm negative beliefs and fears.

**Educational objectives:** The reader will be able to: (a) describe the nature of anxiety experienced by adults who stutter; (b) identify the most common anxiety condition among adults who stutter; (c) understand how information processing biases and the use of safety behaviours contribute to the maintenance of social anxiety; (d) describe how avoiding social information may contribute to the maintenance of social anxiety in people who stutter; and (e) describe the clinical implications of avoidance of social information in people who stutter.

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## 1. Introduction

Stuttering is a speech motor disorder that involves disruptions to the free flow of speech production. The condition is understood to be the result of neural processing deficits, impairing the initiation of speech motor programmes for

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the production of syllables (Packman, Code, & Onslow, 2007). Those who stutter are at risk of experiencing significant negative consequences throughout life, including negative listener reactions, teasing, bullying, social rejection, stereotyping, educational underachievement, discrimination in the workforce and reduced occupational opportunities (Blood & Blood, 2004; Cooper & Cooper, 1985, 1996; Craig & Calvert, 1991; Crichton-Smith, 2002; Gabel, Blood, Tellis, & Althouse, 2004; Hayhow, Cray, & Enderby, 2002; Hugh-Jones & Smith, 1999; Langevin, Bortnick, Hammer, & Wiebe, 1998; Silverman & Paynter, 1990). Negative social reactions can result in a fear of social situations and the belief that social encounters are fraught with danger (Clark & Wells, 1995). It is not surprising then, that some people who stutter experience anxiety in speaking and social situations.

It has become increasingly apparent that expectancies of social harm and fear of negative evaluation due to stuttering are central to the nature of the anxiety experienced by people who stutter. For example, Messenger, Onslow, Packman, and Menzies (2004) found that those who stuttered scored significantly higher than controls on the Fear of Negative Evaluation (FNE; Watson & Friend, 1969) questionnaire and the Social Evaluation and New/Strange Situations subtests of the Endler Multidimensional Anxiety Scales–Trait (EMAS-T; Endler, Edwards, & Vitelli, 1991). Iverach, O'Brian, et al. (2009) confirmed these results with a large sample of 92 adults who stutter compared with matched controls. In yet another study (Bricker-Katz, Lincoln, & McCabe, 2009), with a group of older adults who stutter, scores on the FNE and EMAS-T for social evaluative anxiety and anxiety related to physical danger were significantly higher than those of controls. Moreover, although the stuttering participant's scores on the EMAS-T were in the average range, scores on FNE were in the social phobia range (Bricker-Katz et al., 2009). Most recently, Blumgart, Tran, and Craig (2010) reported that a group of 200 adults who stutter scored significantly higher than controls on the FNE.

Fear or expectancy of negative evaluation in situations that involve social participation is a significant factor used to define social anxiety (Beck, Emery, & Greenberg, 1985). There is increasing evidence that social anxiety disorder (social phobia) is the most common anxiety condition among people who stutter, with between 45% and 60% of adult treatment seekers meeting criteria for this diagnosis (Blumgart et al., 2010; Menzies et al., 2008; Stein, Baird, & Walker, 1996). Further, Iverach, O'Brian, et al. (2009) found that adults seeking treatment for stuttering had 16–34-fold increased odds of meeting criteria for a diagnosis of social phobia compared to matched controls. These findings are not surprising given that early negative social experiences appear to be implicated in the development of social anxiety (Hackmann, Clark, & McManus, 2000) and salient learning experiences such as teasing, bullying and social rejection are common among people who stutter.

In a recent report, Iverach, Jones, et al. (2009) reported that a comorbid diagnosis of an anxiety or mood disorder was associated with impaired long-term speech treatment outcomes. This finding is consistent with that of Craig and Hancock (1995), who reported that participants who had relapsed following speech treatment were three times more likely to experience high anxiety levels. It would seem important then to determine the factors that may maintain anxiety in those who stutter. Such information could be used to improve speech restructuring treatment programmes to (1) maximize the benefits of using a speech technique and (2) address the long-standing problem that for many people who stutter speech treatment gains are not maintained in the long-term (Andrews & Craig, 1988; Block, Onslow, Packman, & Dacakis, 2006; Craig, 1998; Craig & Calvert, 1991; Craig & Hancock, 1995; Martin, 1981). Further, interventions that have proved to be beneficial to those with social anxiety could be considered in the treatment of anxiety in those who stutter (Mahr & Torosian, 1999).

According to contemporary cognitive theorists Clark and Wells (1995), information processing biases and the use of safety behaviours play a role in maintaining anxiety in people with high levels of social anxiety. Biases in attentional processing occur when one focuses excessive attention towards threatening material, stimuli or unhelpful thoughts and feelings. For instance, when a person with significant levels of social anxiety enters a feared social situation, internal anxiety symptoms are activated. Attention is drawn away from external social information towards internal negative thoughts and the physiological arousal associated with anxiety (Clark & Wells). As a result potential positive feedback from the social interaction that could disconfirm negative thoughts, feelings and beliefs may not be processed. Much research has explored information processing and attention in people with social anxiety using computer-based tasks, eye tracking procedures and within real-life social interactions. Consistent with cognitive theories, those with social anxiety have displayed attentional neglect for positive social cues and a bias to attend towards threat stimuli. For instance, those with social anxiety have demonstrated (1) avoidance of positive facial stimuli and attention towards threatening facial stimuli (Pishyar, Harris, & Menzies, 2004, 2008), (2) attention towards internal information and away from external information (Mansell, Clark, & Ehlers, 2003), (3) higher accuracy in detecting negative social information than positive social information (Veljaca & Rapee, 1998), (4) discrimination of negative social information compared to low socially anxious participants, who discriminated positive social information (Perowne & Mansell, 2002), (5) slower recognition of positive social stimuli compared to low anxious participants (Silvia, Allan, Beauchamp, Maschauer, & Workman, 2006), and (6) hyperscanning of emotional social stimuli (Horley, Williams, Gonsalvez, & Gordon, 2003, 2004).

Safety behaviours are those behaviours or actions performed by a person who feels anxious, in order to relieve anxiety and minimize the risk of the feared outcome occurring (Salkovskis, 1991). Avoiding eye contact is a typical safety behaviour used by people who experience social anxiety (Clark & Wells, 1995; Horley et al., 2004; Huppert & Foa, 2004; Mansell, Clark, Ehlers, & Chen, 1999; Marks, 1969; Ohman, 1986; Wells et al., 1995). This avoidance of eye contact may be used to reduce opportunities to be included in social interactions, to continue conversations, to take part in turn taking or to observe possible negative reactions from others. Whilst this avoidance may reduce anxiety during the moment, it does not allow extinction of fear over time. The use of some safety behaviours, such as avoiding eye gaze, may even cause the feared outcome to occur. For example, someone who avoids looking at communication partners may be perceived by others as

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