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Prevalence of anxiety disorders among children who stutter

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ABSTRACT

Purpose: Stuttering during adulthood is associated with a heightened rate of anxiety disorders, especially social anxiety disorder. Given the early onset of both anxiety and stuttering, this comorbidity could be present among stuttering children.
Method: Participants were 75 stuttering children 7–12 years and 150 matched non-stuttering control children. Multinomial and binary logistic regression models were used to estimate odds ratios for anxiety disorders, and two-sample *t*-tests compared scores on measures of anxiety and psycho-social difficulties.
Results: Compared to non-stuttering controls, the stuttering group had six-fold increased odds for social anxiety disorder, seven-fold increased odds for subclinical generalized anxiety disorder, and four-fold increased odds for any anxiety disorder.
Conclusion: These results show that, as is the case during adulthood, stuttering during childhood is associated with a significantly heightened rate of anxiety disorders. Future research is needed to determine the impact of those disorders on speech treatment outcomes.

1. Introduction

For some children who stutter, the negative social consequences of stuttering can begin as early as the preschool years, and continue across the lifespan. Non-stuttering preschool children have been found to negatively evaluate stuttering (Ezrati-Vinacour, Platzky, & Yairi, 2001) and may sometimes ignore, interrupt, mock, and walk away from stuttering children (Langevin, Packman, & Onslow, 2009). The communication difficulties and negative consequences of stuttering experienced by some children who stutter typically intensify during the school years, due to the increased importance of communication in social and classroom settings. Stuttering children have been rated as less popular, less likely to be considered leaders, and more likely to be considered bully victims, than their non-stuttering peers (Davis, Howell, & Cooke, 2002). Several studies have also confirmed that stuttering adolescents report a significantly higher rate of bullying than non-stuttering controls (Blood & Blood, 2004, 2007; Blood et al., 2011).

Although negative consequences to stuttering may not occur for all children who stutter, these experiences have the capacity to adversely impact communication competence, self-esteem, social development, and even romantic attractive-

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ness (Blood et al., 2011; Erickson & Block, 2013; Van Borsel, Brepoels, & De Coene, 2011). By adulthood, stuttering is often associated with escalating social and psychological difficulties, including negative listener reactions and stereotypes, educational and occupational disadvantages, lowered quality of life, fear of social harm, avoidance of social situations, and debilitating levels of anxiety (Blumgart, Tran, & Craig, 2010; Craig, Blumgart, & Tran, 2009; Cream, Onslow, Packman, & Llewellyn, 2003).

1.1. Anxiety and stuttering

Anxiety is one of the most frequently observed and extensively studied consequences of stuttering. Associations between stuttering and anxiety are not surprising when considering the importance of speech to daily functioning and social wellbeing. Despite widespread associations between stuttering and anxiety, studies investigating this relationship have not always provided clear and convincing evidence (Iverach, Menzies, O'Brian, Packman, & Onslow, 2011). Reviews of this literature have highlighted several methodological limitations thought to contribute to the ambiguous nature of research findings regarding anxiety in both children and adults who stutter, including small sample sizes and use of general measures of anxiety that do not adequately evaluate the unique social fears associated with stuttering (Iverach et al., 2011; Smith, Iverach, O'Brian, Kefalianos, & Reilly, 2014).

More recently, findings regarding the presence of anxiety among adults who stutter have become less equivocal. This may be underpinned by advances in the assessment of anxiety among adults who stutter, including recruitment of larger samples sizes, application of measures designed specifically to assess symptoms of social anxiety, and use of structured diagnostic assessments to evaluate the clinical presence of anxiety disorders such as social anxiety disorder (Iverach & Rapee, 2014). It is plausible that these advances in the assessment of anxiety among adults who stutter may also be of benefit to children who stutter.

1.2. Social anxiety disorder

Social anxiety disorder is a chronic and debilitating anxiety disorder characterized by intense fear of social or performance-based situations where evaluation by others is possible (American Psychiatric Association, 2013). Individuals with social anxiety disorder typically report a profound fear of negative evaluation by others, and experience considerable distress across a wide range of social situations. Social anxiety disorder is one of the most common mental disorders, with a lifetime prevalence of 8–13% (Kessler et al., 2005; Ruscio et al., 2008). Onset typically occurs between 8 and 15 years of age (Beidel & Turner, 1998; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), when vulnerability to social embarrassment is heightened, and social relationships are growing in significance (Ollendick & Hirshfeld-Becker, 2002). The disorder is typically associated with significant life interference and distress, reduced occupational and educational achievement, lower socioeconomic status, and high rates of comorbidity with other mental disorders such as depression and substance use (Slade et al., 2009; Stein & Kean, 2000).

Structured diagnostic interviews are regarded as the gold standard for evaluating the clinical presence of anxiety disorders such as social anxiety disorder (Gunn et al., 2014). While self-report measures of anxiety typically provide a reliable and time-efficient method for evaluating the presence and severity of anxiety symptoms, they are not capable of diagnosing the clinical presence of anxiety disorders or providing detailed clinical information. Structured diagnostic interviews, on the other hand, provide a comprehensive, detailed, and often lengthy assessment of anxiety symptoms and associated life interference based on the diagnostic criteria set forth by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 2000; DSM-5, American Psychiatric Association, 2013). Structured diagnostic interviews are often supplemented with child and parent report measures of anxiety symptoms in order to yield a comprehensive, multi-method, multi-informant evaluation of diagnostic information and associated symptoms.

1.3. Social anxiety disorder in adolescents and adults who stutter

As noted above, the use of structured diagnostic interviews to determine the clinical presence of anxiety disorders in adults who stutter has yielded convincing evidence of a relationship between stuttering and anxiety (Iverach & Rapee, 2014). In these studies, approximately 22–60% of adults who stutter were found to meet criteria for a diagnosis of social anxiety disorder (Blumgart et al., 2010; Iverach & Rapee, 2014; Menzies et al., 2008; Stein, Baird, & Walker, 1996). For instance, in a large sample of adults seeking speech treatment for stuttering, the 12-month prevalence for social anxiety disorder was 22%, which represented a 34-fold greater likelihood of social anxiety disorder than among a sample of age and gender-matched controls (Iverach, O'Brian et al., 2009). Similarly, using a screening instrument, Blumgart et al. (2010) reported a significantly increased risk for social anxiety disorder among 50 adults who stutter when compared to controls, indicating a spot prevalence of at least 40% for adults who stutter.

More recently, Gunn et al. (2014) reported on the use of a structured diagnostic interview to diagnose mental disorders among adolescent seeking treatment for stuttering. Although this study did not use a control group, adolescents who stutter were found to demonstrate a higher rate of anxiety disorders, including social anxiety disorder, than rates for non-stuttering adolescents from the general community.