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Trait and social anxiety in adults with chronic stuttering: Conclusions following meta-analysis

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ABSTRACT

Purpose: The relationship between chronic stuttering and anxiety has been a matter of some debate over the past two decades, with a major emphasis of research focused on examining whether people who stutter have abnormally elevated levels of trait or social anxiety. The major goal of this paper was to perform a systematic literature review and perform meta-analyses on research that has assessed (i) trait anxiety and (ii) social anxiety, in adults who stutter.

Method: Only studies that met strict inclusion criteria were selected for the meta-analyses. Two meta-analyses were conducted, the first for trait anxiety, and the second for social anxiety. Meta-analysis combines statistically the results of selected studies that meet strict design criteria, thereby clarifying the size of differences in trait and social anxiety between adults who stutter and adults who do not stutter.

Results: Meta-analytic results confirmed that adults with chronic stuttering do have substantially elevated trait and social anxiety. The overall effect size for trait and social anxiety was calculated to be .57 and .82, respectively.

Conclusions: Trait and social anxiety are definite problems for many adults who stutter. Clinical implications of these findings for the diagnosis and treatment of adult who stutter are discussed.

Educational objectives: The reader will be able to: (a) describe the process of conducting a systematic review and meta-analysis; (b) describe the possible impact of publication bias on meta-analysis results; (c) explain the impact of a chronic disorder like stuttering on levels of trait anxiety; (d) explain the impact of stuttering on levels of social anxiety; (e) interpret the results of meta-analysis when applied to differences in anxiety between adult people who stutter and those who do not stutter; and (f) describe implications for fluency enhancing treatments.

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1. Introduction

Stuttering is a communication or fluency disorder that has an early age onset during the development of language and speech (Bloodstein & Bernstein Ratner, 2008). It can be distinguished from non-stuttered speech by the involuntary occurrence of interruptions to the fluency of speech, typically syllable repetitions, prolongation and blocking of sounds, as well as substitutions and avoidance of words (Bloodstein & Bernstein Ratner, 2008). Additionally, chronic stuttering is

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often associated with negative emotional reactions to difficulties in speaking fluently in social contexts where stuttering is more likely (Craig & Tran, 2006). Reactions include anxiety and frustration associated with anticipated embarrassment and humiliation when speaking, possibly leading to lowered motivation and consequent avoidance of situations where they anxiously anticipate problems (Bloodstein & Bernstein Ratner, 2008; Tran, Blumgart, & Craig, 2011). These reactions can be complex as many adults who stutter have experienced fear and anxiety regarding their stuttering over most of their lifetime. Also, their emotional reactions will have been influenced by negative life events such as stuttering related bullying when they were young (Davis, Howell, & Cooke, 2002), and lowered expectations and disappointments when seeking employment (Craig & Calver, 1991; Klein & Hood, 2004; McAllister, Collier, & Shepstone, 2012). People who stutter may also perceive themselves as less attractive (Van Borsel, Brepoels, & De Coene, 2011), and recent evidence suggests chronic stuttering may impact personality (Bleek et al., 2012).

Social anxiety has been shown to be elevated by late adolescence in people who stutter (Mulcahy, Hennessey, Beilby, & Byrnes, 2008), while by adulthood, around 40% who have chronic stuttering will meet criteria for social anxiety disorder, symptoms of which include experiencing extreme social embarrassment and intense fear of scrutiny related to social contexts such as restaurants, cafes, social gatherings and work related meetings (Blumgart, Tran, & Craig, 2010; Iverach et al., 2009). Chronic stuttering has also been found to have a considerable negative impact on health related wellbeing in areas such as vigor, emotional and social functioning, and mental health domains (Craig, Blumgart, & Tran, 2009).

Given the potential negative impact of chronic stuttering on the capacity to speak fluently and to thus interact socially, it is not surprising that a common concomitant of chronic stuttering is elevated anxiety in many people who stutter regardless of whether they have sought treatment for stuttering or not (Craig, Hancock, Tran, Craig, & Peters, 2003; Tran et al., 2011). Few clinicians in the area would question the observation that people who stutter often experience emotional reactions such as fear and anxiety associated with their stuttering in social contexts perceived as demanding (Attanasio, 2000). Irrespective of this, the relationship between chronic stuttering and anxiety has been a matter of debate and contention over at least the past 20–30 years (Attanasio, 2000; Craig, 1990).

Emotions have been defined as complex psychophysiological reactions to perceived threats involving cognitive, behavioral, and patterned somatic reactions (Folkman & Lazarus, 1988). In a developmental sense, fear and anxiety serve to stimulate coping behavior, driving a person to deal with immediate or less immediate threats (Scherer, 1994). Conversely, fear and anxiety can also disrupt functioning. For instance, anxiety can overload the capacity of the speech motor system and thus disrupt speech processing, as well as disturb adaptive behavior (Alm & Risberg, 2007; Attanasio, 2000; Folkman & Lazarus, 1988; Neilson & Neilson, 1987). It has already been correctly asserted that there is little gain in debating whether anxiety plays a potential disruptive role in the speech of people who stutter (Attanasio, 2000). As stated above, most clinicians involved in the treatment of stuttering are aware that anxiety can worsen stuttering frequency, as well as increase likelihood of maladaptive coping (Attanasio, 2000). This is of course, not unique to stuttering. Anxiety can disrupt adaptive coping in people with a wide range of physical disorders in which people struggle with adversity (Craig, 2012; Craig, Blumgart, & Tran, 2011; Craig, Tran, Wijesuriya, & Middleton, 2012).

It is likely that a person who stutters will experience emotional upset (e.g. anger, sadness, frustration, anxiety) related to a stuttering moment without developing chronically elevated trait or social anxiety. Of course, many people who do not stutter will also experience occasions of adversity without becoming chronically anxious. However, the issue of interest in this paper is whether people who have chronic stuttering and who therefore are likely to experience frequent occasions of emotional upset in perceived important social contexts, are more likely to have chronically elevated trait and/or social anxiety. Trait anxiety involves a stable tendency to be anxious in many life domains while social anxiety involves a stable tendency to be anxious in different social situations or contexts (Kraaimaat, Vanryckeghem, & Van Dam-Baggen, 2002). Accordingly, the question of interest is whether levels of trait and/or social anxiety in people who stutter are substantially elevated compared to people who do not stutter. This is a relevant question to ask, as clinical implications arise if it is empirically and reliably shown that anxiety is substantially elevated in people who stutter. If trait and/or social anxiety are elevated, recommendations for non-pharmacologic anxiolytic treatments for people seeking treatment for their stuttering will be discussed.

To provide clarification on this question, a systematic literature review and meta-analysis of research that investigated levels of anxiety in adult people who stutter was conducted. The literature review and meta-analysis were restricted to studies that met scientifically rigorous conditions, such as the use of validated psychometric measures of anxiety and publication in a scientifically refereed publication. The aim of the meta-analysis was to provide an empirical basis for evaluating whether or not adult people who stutter have substantially elevated levels of trait and/or social anxiety.

2. Method

2.1. Inclusion criteria and literature search strategy

Studies were only selected for analysis that met the following inclusion criteria: (i) the study employed psychometric measures of trait and/or social anxiety that have demonstrated validity (e.g. content and construct validity) and which have been shown to produce similar results under consistent conditions (e.g. test–retest reliability and internal consistency). (ii) The study compared levels of anxiety in people who stutter to people who do not stutter, and the number of participants was provided; (iii) the study presented central tendency statistics including the mean and standard deviation for levels of

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