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Review

Stuttering in relation to anxiety, temperament, and personality: Review and analysis with focus on causality

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ABSTRACT

Anxiety and emotional reactions have a central role in many theories of stuttering, for example that persons who stutter would tend to have an emotionally sensitive temperament. The possible relation between stuttering and certain traits of temperament or personality were reviewed and analyzed, with focus on temporal relations (i.e., what comes first). It was consistently found that preschool children who stutter (as a group) do not show any tendencies toward elevated temperamental traits of shyness or social anxiety compared with children who do not stutter. Significant group differences were, however, repeatedly reported for traits associated with inattention and hyperactivity/impulsivity, which is likely to reflect a subgroup of children who stutter. Available data is not consistent with the proposal that the risk for persistent stuttering is increased by an emotionally reactive temperament in children who stutter. Speech-related social anxiety develops in many cases of stuttering, before adulthood. Reduction of social anxiety in adults who stutter does not in itself appear to result in significant improvement of speech fluency. Studies have not revealed any relation between the severity of the motor symptoms of stuttering and temperamental traits. It is proposed that situational variability of stuttering, related to social complexity, is an effect of interference from social cognition and not directly from the emotions of social anxiety. In summary, the studies in this review provide strong evidence that persons who stutter are not characterized by constitutional traits of anxiety or similar constructs.

Educational Objectives: This paper provides a review and analysis of studies of anxiety, temperament, and personality, organized with the objective to clarify cause and effect relations. Readers will be able to (a) understand the importance of effect size and distribution of data for interpretation of group differences; (b) understand the role of temporal relations for interpretation of cause and effect; (c) discuss the results of studies of anxiety, temperament and personality in relation to stuttering; and (d) discuss situational variations of stuttering and the possible role of social cognition.

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1. Introduction

The symptoms of stuttering have led to many different theories about the cause of the speech disruptions. It has often been observed that stuttering changes from time to time, from situation to situation. For example, persons who stutter typically have the experience that it is easier to speak when alone than speaking in front of a group of people. It is conceivable that this type of observation has become extrapolated to also account for the cause of stuttering, leading to the theory that stuttering persons stutter because they tend to be more nervous and anxious than others.

In psychology the term "temperament" is often used to signify the part of the personality that is assumed to be constitutional, biologically determined (e.g., Rothbart, Ahadi, & Evans, 2000). Others have used the term temperament differently, for example as "individual differences in emotion-based habit patterns" (Cloninger, 1994, p. 266). Personality and temperament in relation to stuttering have been the focus of a significant amount of research. When Charles Van Riper (1982) reviewed the literature on stuttering he found no evidence for any substantial difference in personality. Still, during the last two decades the assumption that persons who stutter tend to have a more emotionally sensitive/reactive temperament has become widespread. Emotionally reactive temperament means having strong emotional reactions in various situations, for example reactions of frustration, fear, or anger. The supposed sensitivity/reactivity in persons who stutter has been included in a theoretical framework of a multifactorial model, in which emotional sensitivity/reactivity is suggested to interact with linguistic or motor problems. Further, these traits have also been proposed to increase the risk of developing chronic stuttering, because sensitive/reactive persons are assumed to respond stronger to disruptions in speech fluency, for example with more muscular tension (e.g., Guitar, 2005; Walden et al., 2012). Lately a series of articles has claimed that stuttering in adults often is associated with personality disorders (Iverach, O'Brian, et al., 2009), mental health disorders (Iverach, Jones, et al., 2009), and certain traits of personality such as high neuroticism (Iverach et al., 2010).

The review below will begin with a discussion of some fundamentals, such as the concepts used in this type of research. Thereafter, each of the main sections will be dedicated to different questions, in the following order: (a) Are there any specific constitutional traits in persons who stutter? (b) Will emotional reactivity increase the risk for persistent stuttering? (c) Is there a development of social anxiety in persons who stutter? (d) Does anxiety or temperamental traits 'drive' the motor symptoms of stuttering? (e) Will changes in fluency affect the level of anxiety, and vice versa? The review will end with a discussion of situational variability of stuttering. It is proposed that *social cognition* is a factor which tends to interfere with speech motor control in persons who stutter, rather than the *emotional* reaction of social anxiety.

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