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## Relation of emotional reactivity and regulation to childhood stuttering

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### Abstract

The purpose of the present study was to examine relations between children's emotional reactivity, emotion regulation and stuttering. Participants were 65 preschool children who stutter (CWS) and 56 preschool children who do not stutter (CWNS). Parents completed the Behavior Style Questionnaire (BSQ) [McDevitt S. C., & Carey, W. B. (1978). A measure of temperament in 3–7 year old children. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 19, 245–253]. Three groups of BSQ items measuring emotional reactivity, emotion regulation, and attention regulation were identified by experts in children's emotions. Findings indicated that when compared to their normally fluent peers, CWS were significantly more reactive, significantly less able to regulate their emotions, and had significantly poorer attention regulation, even after controlling for gender, age, and language abilities. Findings suggest that the relatively greater emotional reactivity experienced by preschool children who stutter, together with their relative inability to flexibly control their attention and regulate the emotions they experience, may contribute to the difficulties these children have establishing reasonably fluent speech and language.

**Learning outcomes:** The reader should be able to (1) define emotional reactivity and emotion regulation, (2) explain how emotional reactivity and emotion regulation relate to preschool stuttering, and (3) understand recent empirical evidence linking reactivity and regulation to preschool stuttering.

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Despite an extensive literature in psychology regarding emotional reactivity and regulation (see Eisenberg & Fabes, 1992, for a review) and an equally extensive literature in speech–language pathology regarding stuttering (e.g., Bloodstein, 1995; Conture, 2001; Guitar, 1998), in recent years there has been relatively little intersection between speech–language pathology approaches to stuttering and psychological approaches to emotion, stress and coping (for early, notable exceptions, see Murphy & Fitzsimons, 1960, and Brutten & Shoemaker, 1967). This is unfortunate given that emotional reactivity and regulation have been shown to influence a wide range of developmentally important outcomes such as communication (Dixon & Shore, 1997; Dixon & Smith, 2000; Karrass & Braungart-Rieker, 2003; Paul & Kellogg, 1997), school performance (Ialongo, Edelsohn, & Kellam, 2001), and psychopathology (Eisenberg et al., 1993; Eisenberg, Fabes et al., 1997) in children who do not stutter.

Given the relations among emotional reactivity and regulation and communicative development, there is reason to expect that reactivity and regulation may influence childhood stuttering, or at least possibly exacerbate or maintain the problem. This expectation is consistent with recent reviews and findings from empirical studies regarding the emotional development and behavior of children who stutter (e.g., Anderson, Pellowski, Conture & Kelly, 2003; Embrechts, Ebben, Franke & van de Poel, 1998; Wakaba, 1998; Wakaba, Iizawa, Gondo, Inque, & Fujino, 2003; Yairi & Williams, 1970), as well as adults who stutter (e.g., Alm, 2004; Craig, Hancock, Tran, & Craig, 2003; Ezrati-Vinacour & Levin, 2004; Guitar, 2003; Messenger, Onslow, Packman, & Menzies, 2004). Such speculation and empirical findings are also consistent with parent reports and clinical observations that children who stutter are “high-strung,” “excitable,” “timid,” and “restless,” with “exaggerated fears” (Glasner, 1949).

Likewise, these observations are also consistent with some recent models of stuttering (e.g., Conture et al., in press; Riley & Riley, 2000) that include temperamental/emotional characteristics as one of several components in a multi-dimensional or broad perspective on stuttering (see Smith & Kelly, 1997 for review). There is a developing body of knowledge suggesting that aspects of temperament may play a role in speech–language development and disorders in general (e.g., Dixon & Shore, 1997; Dixon & Smith, 2000; Karrass & Braungart-Rieker, 2003; Paul & Kellogg, 1997). Evidence has linked aspects of emotional reactivity to “late talking” (Paul & Kellogg, 1997), as well as stuttering in young children (e.g., Embrechts et al., 1998).

*Emotional reactivity* refers to the tendency to experience frequent and intense emotional arousal. Both the threshold and ease with which individuals become emotionally aroused and the intensity of emotional experiences are aspects of emotional reactivity. Although emotional reactivity is often thought of in terms of negative emotions, there are important individual differences in reactivity of positive emotions as well (Spinrad et al., 2004). *Emotion regulation* involves the process of initiating, maintaining, or modulating the occurrence, intensity, or duration of internal feelings and emotion-related physiological processes (Thompson, 1994). Emotion regulation is generally defined in terms of modulating internal emotional reactivity, whether positive or negative in valence (Ahadi & Rothbart, 1994). There are several strategies that people are thought to use to regulate their emotional reactivity. One regulatory strategy involves the allocation of attention and other resources to solve a problem or deal with challenge. *Attention regulation* typically involves

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