Phonological skills and disfluency levels in preschool children who stutter

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Abstract

The relation between stuttering and aspects of language, including phonology, has been investigated for many years. Whereas past literature reported that the incidence of phonological difficulties is higher for children who stutter when compared to normally fluent children, the suggestion of association between the two disorders also drew several critical evaluations. Nevertheless, only a limited amount of information exists concerning the manner and extent to which the speech sound errors exhibited by young children who stutter, close to stuttering onset, is related to the characteristics of their stuttering, such as its severity. Conversely, information is limited regarding the effects a child’s phonological skills may have on his/her stuttering severity. The current study investigated the mutual relations between these two factors in 28 carefully selected preschool children near the onset of their stuttering. The children, 20 boys and 8 girls, ranged in age from 25 to 38 months, with a mean of 32.2 months. The phonological skills of two groups with different ratings of stuttering were compared. Similarly, the stuttering severities of two groups with different levels of phonological skills (minimal deviations–moderate deviations) were compared. No statistically significant differences were found for either of the two factors. Inspection of the data revealed interesting individual differences.

Learning outcomes: The reader will be able to list: (1) differences in the phonological skills of preschool children whose stuttering is severe as compared to children whose stuttering is mild and (2) differences in stuttering severity in preschool children with minimal phonological deviations as compared to children with moderate phonological deviations.

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The relation between stuttering and linguistic aspects, including phonology, has been investigated for many years. Although the scientific literature makes frequent reference to a wide range of disorders that are present concomitantly with childhood stuttering (e.g., Arndt & Healy, 2001; Blood & Seider, 1981), much of this work has concentrated on the accompanying language and speech disorders of young children who stutter (see reviews by Bernstein-Ratner, 1997; Louko, 1995; Nippold, 1990, 2001, 2002, 2004; Watkins, Yairi, & Ambrose, 1999). A number of these studies have emphasized a relation specifically between stuttering and either delayed or different phonological development, suggesting that of all the speech–language problems that co-occur with stuttering, phonological difficulties\(^1\) are the most common (Bloodstein, 1987; Cantwell & Baker, 1985; Louko, Edwards, & Conture, 1990; St. Louis & Hinzman, 1988; Paden, 2004; Wolk, Edwards, & Conture, 1993). A majority of past research has focused on the incidence of disordered phonology in children who stutter, resulting in considerable disagreement regarding estimates. At the high end, St. Louis and Hinzman (1988) reported from 66 to 71% of 48 children who stuttered exhibited mild to moderate deviations in articulation, whereas according to more conservative low-end estimates, it appears likely that the co-occurrence is greater than the 2–6% expected in the general population (Beitchman, Nair, Clegg, & Patel, 1986; Hull, Mielke, Timmons, & Willeford, 1971). Thus, Wolk et al. (1993) concluded that, on average, 30–40% of children who stutter also exhibit disordered articulation or phonology.

Previous research into possible links between stuttering and delayed or different phonological development has included studies that approached this topic from different angles. These have included investigations into: (a) the correlation between the frequency of disfluencies with the number of phonological errors (Louko et al., 1990; Ryan, 1992, 2001; Yaruss & Conture, 1996); (b) the stuttering behavior of children with normal and disordered phonology (Wolk et al., 1993; Yaruss, LaSalle, & Conture, 1998); (c) the phonological behaviors of children who stutter and normally fluent children (Wolk et al., 1993); (d) phonological complexity/difficulty (e.g., syllable shape and length; location in utterance) and stuttering (Howell & Au-Yeung, 1995; Throneburg, Yairi, & Paden, 1994); (e) the relation between the development of stuttering and phonological skills (Paden & Yairi, 1996; Paden, Yairi, & Ambrose, 1999; Ryan, 2001; Yairi, Ambrose, Paden, & Throneburg, 1996).

Although relatively recent reports have raised arguments to shed doubts about the extent and strength of a stuttering–phonology link that must be considered in assessing current beliefs (Nippold, 1990, 2001, 2002), findings yielded by the University of Illinois Stuttering Research Program into the co-occurrence of stuttering and phonology provide rationale for continuation of research in this area. Those findings suggest that subtle phonological difficulties, presented at the very early stage of stuttering of preschool children, may be associated with the eventual course of the disorder, that is, whether the children’s stuttering persisted or later disappeared. Paden and Yairi (1996) used the Assessment of Phonological Processes—Revised (Hodson, 1986) to examine the early phonological differences of 36 children, 12 whose stuttering eventually persisted, 12 who eventually recovered early, 12 who eventually recovered after a longer period, and 12 controls. The mean ages were 47.2, 36.7, and 38.3 months, respectively. The examinations

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\(^1\) Earlier studies often have included the term “articulation” when investigating the co-occurrence (e.g., St. Louis & Hinzman, 1988; St. Louis, Murray, & Ashworth, 1991; Williams & Silverman, 1968).
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