

Overview of Phonological Disorders: The Language-Based Speech Sound Disorder

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Short Communication

Recently, the American Speech Language Hearing Association (ASHA) has prescribed to the umbrella term, speech sound disorders, to refer to, “any combination of difficulties with perception, motor production, and/or the phonological representation of speech sounds and speech segments (including phonotactic rules that govern syllable shape, structure, and stress, as well as prosody) that impact speech intelligibility” [1]. A phonological disorder is considered to be a speech sound disorder and can be defined as impairment in the comprehension and in the use of a speech sound system and its governing rules [2].

Perhaps one of the most confusing controversies surrounding phonological disorders is the variability in terminology used to describe phonological and other speech sound disorders. For instance, the term ‘phonological disorder’ may sometimes be used as an umbrella term for articulation and phonological disorders. Other terms used interchangeably with phonological disorder are functional phonological disorder and developmental phonological disorder. This confusion can be easily remedied by following the advice of Bowen [2] (p. 67), “Clarity is achieved when ‘articulation disorder’ is taken to mean phonetic-level difficulties and ‘phonological disorder’ implies phonemic or cognitive-linguistic organization of the speech sound system.” Achieving this clarity has important implications for assessment, diagnosis, and treatment. For the purposes of this editorial, the author prescribes to the terminology and definition cited above by Bauman-Waengler [2] and Bowen [3].

Several studies have found correlations between phonological disorders and language skills such as morphosyntax and literacy skills such as decoding and phonological awareness [4-7]. For instance, lexical characteristics such as phonotactic probability and phonological neighborhood density may influence how children produce words [8]. Central to the literacy difficulties children with a phonological disorder may face are phonological processing deficits [9]. Phonological processing deficits impact coding and processing of sounds in an individual’s language. Speech-language pathologist (SLPs) have been delegated the responsibility of not only assessing and treating communication disorders but preventing them as well. This delegation has implications for the assessment and treatment of phonological disorders. For example, during an initial referral concerning speech sound production, an SLP would include literacy and language screenings as a part of the assessment. During treatment, the SLP would embed language and literacy activities as a prevention strategy although the individual passed the aforementioned screenings.

As one of several speech sound disorders, a phonological disorder may often mimic the characteristics of apraxia of speech or articulation disorders such as the deletion or substitution of speech sounds.

Consequently, completing a comprehensive assessment is fundamental to making a differential diagnosis. The components below are necessary to make an appropriate diagnosis, to determine possible impact on other language and/or literacy processes, and to rule out comorbid communication disorders.

Case history, parent interview, hearing screening, oral-motor/motor speech examination, articulation and phonological assessment (or relational and independent analyses); contextual testing, stimulability testing, phonological contrast testing, speech-language sample, literacy and language screenings, measures of intelligibility and severity, voice and fluency screening

Not all of the components listed above require direct interaction from the child. The components consist of pre-assessment tasks (e.g., case history), face-to-face assessments (e.g., phonological assessment), and post-assessment tasks (e.g., analyzing and scoring assessments). The purpose and scope of the current manuscript does not allow the explanation of each of the comprehensive assessment components listed above; however, it is important to note that evaluation components implemented often vary from SLP to SLP. Consequently, an appropriate diagnosis may not be given and the subsequent treatment may not be suitable.

Since a phonological disorder is language-based, utilizing motor-based approaches (e.g., traditional articulation approach), sound approximations, and nonspeech oral motor exercises (NSOMEs; Forrest and Iuzzini [10] for controversial issues surrounding the use of NSOMEs) are contraindicated unless the individual has comorbid articulation and phonological disorders. As with the nomenclature surrounding the label for phonological disorders, many labels are used to describe phonological treatment including linguistically-based and phonemic-based treatment. Several principles inform phonologically-based approaches. First, treatment begins at the word level. Target and error phonemes are typically arranged contrastively using minimal or ‘near’ minimal pairs. The target and error phoneme minimal pairs also help to signal meaning differences within an individual’s phonological system. Many evidence-based phonological treatments target speech sound production solely. These include minimal contrast, maximal opposition, or cycles training therapy. The principle of these treatments include presenting a child with minimal pairs, ensuring the child is able to discriminate between the words, allowing the child to produce word pairs, and facilitating generalization of target sound (s) early on. Other phonological treatments may focus on literacy and language skills as well and include metaphon, naturalistic, and whole language therapy. These therapies focus on establishing the organization of a child’s phonological system but also attempts to remediate or prevent difficulties with language skills, literacy skills, or both. For example, whole language intervention focuses on increasing the complexity of

language outputs through various avenues such as narrative generation and increasing overall speech intelligibility.

It is hopeful that external evidence informing the assessment, diagnosis, and treatment process for individuals with speech sound disorders will continue to increase in upcoming years. This is especially important given the high percentage of co-occurrence of phonological and language disorders (e.g., Shriberg, Kwiatkowski, Best, Hengst, Terselic-Weber as cited in [11,12] and phonological and literacy disorders.

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