



## Behavioral profiles associated with auditory processing disorder and specific language impairment

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### ABSTRACT

**Purpose:** To describe and compare behavioral profiles associated with auditory processing disorder (APD) and specific language impairment (SLI) in school-age children.

**Method:** The participants in this cross-sectional observational study were 64 children (mean age 10.1 years) recruited through clinician referrals. Thirty-five participants had a clinical diagnosis of APD and 29 were receiving services for language impairment. Participants completed 18 behavioral measures of spoken language, auditory processing, reading, memory, and motor speed. Responses were used to classify children as affected/not affected with APD, and affected/not affected with SLI. Comparisons were made between children with and without an APD diagnosis, and between children assigned to the APD/not APD and SLI/not SLI groups. Agreement between clinical status and test-based classifications is also reported.

**Results:** There were no group mean differences between children with and without a clinical diagnosis of APD. Group mean differences on Cube Design and reading fluency were observed for children classified as APD/not APD; and group mean differences on nonword repetition, spatial working memory, and two auditory processing tests were observed for children classified as SLI/not SLI.

**Conclusions:** The behavioral profiles of children with APD and SLI were very similar. Although group mean differences were found, they were difficult to interpret in terms of current theories.

**Learning outcomes:** The reader will be able to: (1) describe similarities and differences found between children with SLI and children with APD and (2) discuss assessment problems posed by overlapping behavioral characteristics of SLI and APD.

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## 1. Introduction

Auditory processing disorder (APD) and specific language impairment (SLI) are developmental communication disorders that clinicians and researchers have investigated for decades (Jerger, 2009; Leonard, 1998). Auditory processing disorder (APD) is defined as “difficulties in the processing of auditory information in the central nervous system” (American Speech-Language-Hearing Association [ASHA], 2005, p. 1). The diagnosis is given when functional listening difficulties are observed in the presence of normal peripheral hearing and the child demonstrates deficits in one or more auditory skill areas that

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include discrimination, pattern recognition, temporal integration and ordering, dichotic listening, and the perception of degraded stimuli (ASHA, 2005). Children with APD often have difficulties with reading, spelling, and expressive and receptive language (ASHA, 2005; Dawes, Bishop, Sirimanna, & Bamiou, 2008; Jerger & Musiek, 2000; Sharma, Purdy, & Kelly, 2009).

Difficulties with reading, spelling, and expressive and receptive language are also observed in children with specific language impairment (SLI; Catts & Kamhi, 2005; Leonard, 1998). A diagnosis of SLI is given to children whose language abilities are not as well developed as those of other children who are the same age, exhibit the same level of nonverbal intelligence, and have similar opportunities for learning. Language deficits may be observed for expressive language only, or for expressive and receptive language. Possible reasons for language delay, including hearing loss, oral-motor dysfunction, cognitive impairment, and social-behavioral disorders, are ruled out in SLI (Leonard, 1998).

### 1.1. Controversy regarding APD

One controversy is whether there is truly a “disorder” of auditory processing with underlying etiological unity that is distinct from other learning disabilities (Cacace & McFarland, 1998; Dawes & Bishop, 2009; Moore, 2006). Clinical commentaries in textbooks (Bellis, 2003; Chermak & Musiek, 1997) and consensus statements (ASHA, 2005; Jerger & Musiek, 2000) assume the validity of APD as a construct; however, researchers have noted that individuals with APD often present with language and/or reading deficits similar to those observed in individuals with SLI. Studies by Sharma et al. (2009) and Dawes et al. (2008) have documented language and reading deficits in individuals with a clinical diagnosis of APD or laboratory test performance indicative of APD. In stating that APD “may lead to or be associated with difficulties in higher order language, learning, and communication functions” (p. 2) ASHA’s (2005) technical report not only notes that APD and SLI have overlapping symptoms, but also suggests that APD plays a causal role in some language impairments.

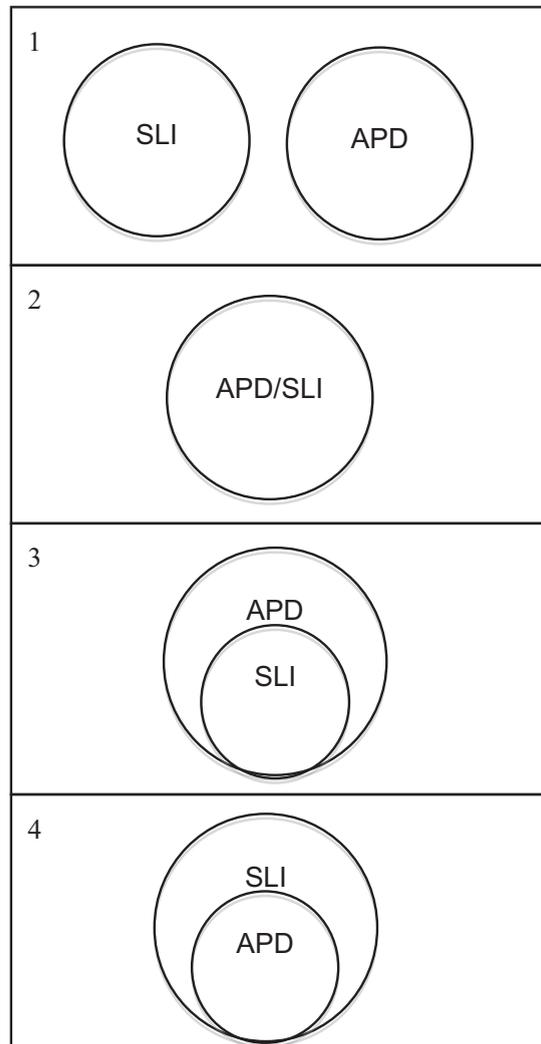


Fig. 1. Four possible relationships between the constructs of specific language impairment (SLI) and auditory processing disorder (APD).

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