



A comparison of language deficits in children with autism spectrum disorders and specific language impairment

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Background

Autism Spectrum Disorders (ASD) and Specific Language Impairment (SLI) have become controversial in the field of Speech Pathology. Much of the recent research about these disorders has focused on a comparison of deficits in order to determine if a shared etiology exists. Developmental disorders, such as ASD and SLI, are difficult to diagnose clinically because of overlapping symptomatology and uncertain etiologies (Gibson, Adams, Lockton, & Green, 2013).

Specific Language Impairment

Osman, Shohdi, & Aziz define SLI as a child's language development veering from the course of normal development with no apparent cause (2011). SLI is characterized by poor grammatical development accompanied by poor vocabulary, which is also known as structural language (Tomblin, 2011). Structural language deficits are the defining quality of SLI, but the severity of the deficits vary greatly on a continuum. Because children with SLI have deficits in structural language, they may have difficulty using language to attain their wants and needs (Osman, Shohdi, & Aziz, 2011). The criteria for diagnosing SLI clinically are as follows (Tomblin, 2011):

1. Language test scores between -1.0 and -1.5 standard deviations below the age specific norms
2. Nonverbal IQ scores of 85 or higher
3. No other sensory or developmental impairments

A diagnosis of SLI does not distinguish between the different aspects of language (Tomblin, 2011), so any various combination of language deficits could lead to a diagnosis. Pragmatic language difficulties are often noted, but they are overlooked during clinical evaluations (Osman, Shohdi, & Aziz, 2011). If pragmatic language difficulties are identified when evaluating a developmental language disorder, a diagnosis of ASD must be completely ruled out before SLI can be diagnosed. The criteria for diagnosing SLI do not allow for ASD to be present (David Williams, Jill Boucher, & Nicola Botting, 2008). The pragmatic impairments associated with SLI are attributed to linguistic deficits rather than being purely pragmatic in nature (Osman, Shohdi, & Aziz, 2011). While a diagnosis of SLI prohibits co-morbidity of ASD, ASD does permit co-occurring SLI (Tomblin, 2011).

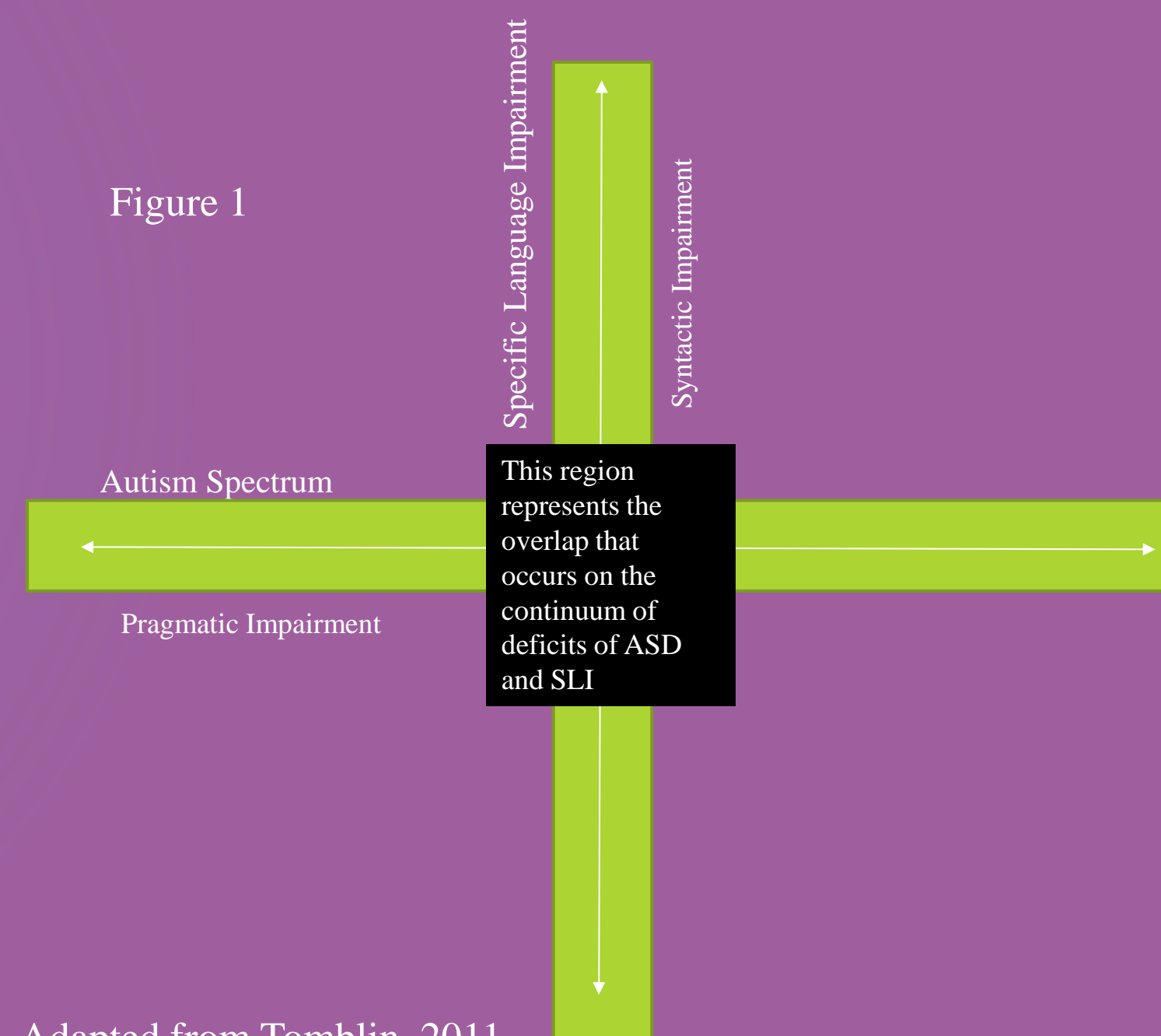
Autism Spectrum Disorders

ASD is characterized by three main components: impairment of social interaction, communication, and behavioral flexibility (Botting, Boucher, & Williams, 2008). The criteria for diagnosing ASD are as follows (Gibson, Adams, Lockton, & Green, 2013):

1. Average or above average IQ
2. Impairments in the social and functional aspects of language development (pragmatics)

Structural language deficits in children with ASD vary greatly (David Williams, Jill Boucher, & Nicola Botting, 2008). Some children with ASD are completely non-verbal, others have structural language abilities that are slightly below normal, and still, others present with no structural language deficits at all (Tomblin, 2011). More enduring than the structural deficits of ASD are the social impairments (David Williams, Jill Boucher, & Nicola Botting, 2008). Similarly to SLI, the severity of symptoms in ASD vary on a continuum (David Williams, Jill Boucher, & Nicola Botting, 2008)

Figure 1



Adapted from Tomblin, 2011

Comparison of Disorders

While there is no direct link between ASD and SLI at this point in time, many similarities have been established between the two disorders. While a lot of similarities exist between ASD and SLI, there is still not enough evidence to indicate a shared etiology (David Williams, Jill Boucher, & Nicola Botting, 2008).

Figure 2	Autism Spectrum Disorder (ASD)	Specific Language Impairment (SLI)
General Impairment (Tomblin, 2011)	Poor spoken communication skills	Poor spoken communication skills
Articulation & Phonology	Strong, often unimpaired (Cleland, Gibbon, Peppé, O'Hare, & Rutherford, 2010)	Highly variable (Tomblin, 2011)
Pragmatics (Tomblin, 2011)	Most significantly impaired	Highly variable
Structural Language	Highly variable	Most significantly impaired

*It is common for deficient communication skills present in SLI to be those most variable in ASD, and vice versa [See Figure 2] (Tomblin, 2011)

Tomblin suggests that there are three dimensions of language: structural language, speech-sound production, and pragmatics (2011). While each dimension is somewhat independent and has its own developmental milestones, a large amount of overlap occurs between the dimensions (Tomblin, 2011). Because of this crossover, deficits in one dimension will directly affect the development of the other dimensions (Tomblin, 2011). Since there is so much overlap between the symptoms of ASD and SLI, it is unlikely that two completely autonomous impairment profiles will ever be discovered. It is more likely that ASD and SLI exist as two overlapping continuums [see Figure 1]. The commonalities between these two developmental disorders are likely the result of existing within the same continuum.

Clinical Implications

- Once more research is done to determine a connection between ASD and SLI, clinical diagnosis and treatment of ASD and SLI could change drastically, especially if a shared etiology established.
- While a diagnosis of SLI rules out the presence of ASD, a diagnosis of ASD does not rule out any language impairment. More thorough evaluations should be performed on children with ASD in order to determine if SLI exists within ASD on a case by case basis. This would allow for more effective treatment to target each child's specific language needs.
- As of now, it has been recommended that thorough screenings of pragmatic skills be performed during the evaluation of the communication skills of children with SLI, allowing for more thorough diagnosis and intervention (Osman, Shohdi, & Aziz, 2011).

Future Research

Since no research has been able to pinpoint a shared etiology or even a consistent comparison of the ASD and SLI, future research is required to narrow down the possibilities. Here are some suggestions for future research that could prove beneficial in the comparison of ASD and SLI:

- Clearly defined dimensions of language deficits (David Williams, Jill Boucher, & Nicola Botting, 2008). Currently, there are no regulations of language impairments across studies. If future studies compared the same aspects of language, stronger correlations could be made.
- A focus on higher order language processing impairments, such as lexical processing, that are shared among ASD and SLI could be beneficial in identifying a shared etiology (David Williams, Jill Boucher, & Nicola Botting, 2008).
- Since spoken word recognition is often intact within SLI, further research done in this area may help illuminate deficits in the language processing systems that are possibly shared among SLI and ASD (Loucas et al., 2013).