

DISORDERS 2

COMD570: Language Development

Sign(s) of the day

- Cochlear implants:
- <https://youtu.be/zXNrQKPsac0>
- <https://youtu.be/fY4G9mgHKQs>

Language disorders & atypical development

- Late Talkers
- Deafness and hearing loss
 - Cochlear implants (CI) and effects of sign language on oral speech development in deaf kids with CI
- Autism Spectrum Disorder (ASD)
- **Dyslexia**
- **Specific Language Impairment (SLI) / Developmental Language Disorder (DLD)**
- **Relationship between dyslexia & SLI**

DYSLEXIA

Dyslexia

- What is Dyslexia?
 - Original definition: a severe difficulty learning to read, despite:
 - Normal vision
 - Adequate instruction
 - Average intelligence
 - Good oral language abilities
- (Ruling out other potential explanations of the deficit)

Dyslexia

- Difficulties with accurate and/or fluent word recognition and spelling
- Prevalence: ~7-15% of school-age children
- Strong genetic component (family history)
- Reading problems likely stem from broader phonological issues
 - Difficulty decoding phonemes from letters
 - Also have deficits in phonological working memory

More on Dyslexia

- Dyslexia test: https://youtu.be/Jd_T6CzWpHM
- Adult adaptation to dyslexia: <https://youtu.be/w8e-Pi66qIA>

SPECIFIC LANGUAGE IMPAIRMENT (SLI) / DEVELOPMENTAL LANGUAGE DISORDER (DLD)

SLI/DLD

- Significant deficits in speech production (and usually comprehension) of language in the absence of intellectual disability, hearing loss, etc.
- Prevalence: ~7.6% of otherwise healthy 5-year-olds
- Strong genetic component (family history)
- Often co-occurs or runs in families with reading impairment and auditory processing difficulties
- Alternative terminologies: **specific language impairment (SLI)** (older, more specific to morphology and syntax) and **developmental language disorder (DLD)** (newer, more general description of language deficits)

SLI/DLD

- Very heterogeneous, an “umbrella”
- Common profile:
 - Mild-to-moderate weakness in vocabulary
 - Significant deficit in grammar
 - Potential phonological deficit (disputed)
- **Telegraphic speech** persists for a long time:
 - Omission of grammatical morphemes (function words, inflections)

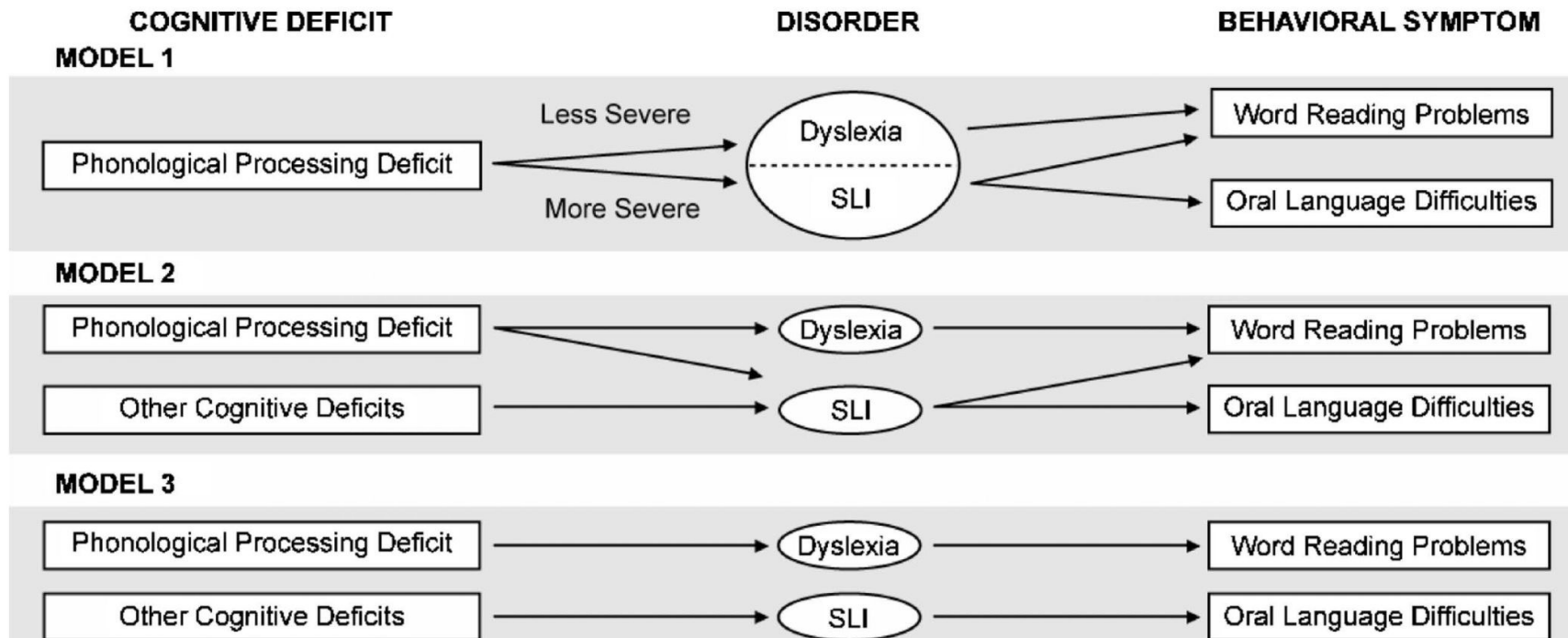
SLI/DLD

- Difficulties with subject-verb agreement and/or tense
- Poor working memory/discrimination ability
- Many children will have problems into adulthood
- <https://www.youtube.com/watch?v=Pqu7w6t3Rmo>

SLI/DLD and Dyslexia: possible relationships

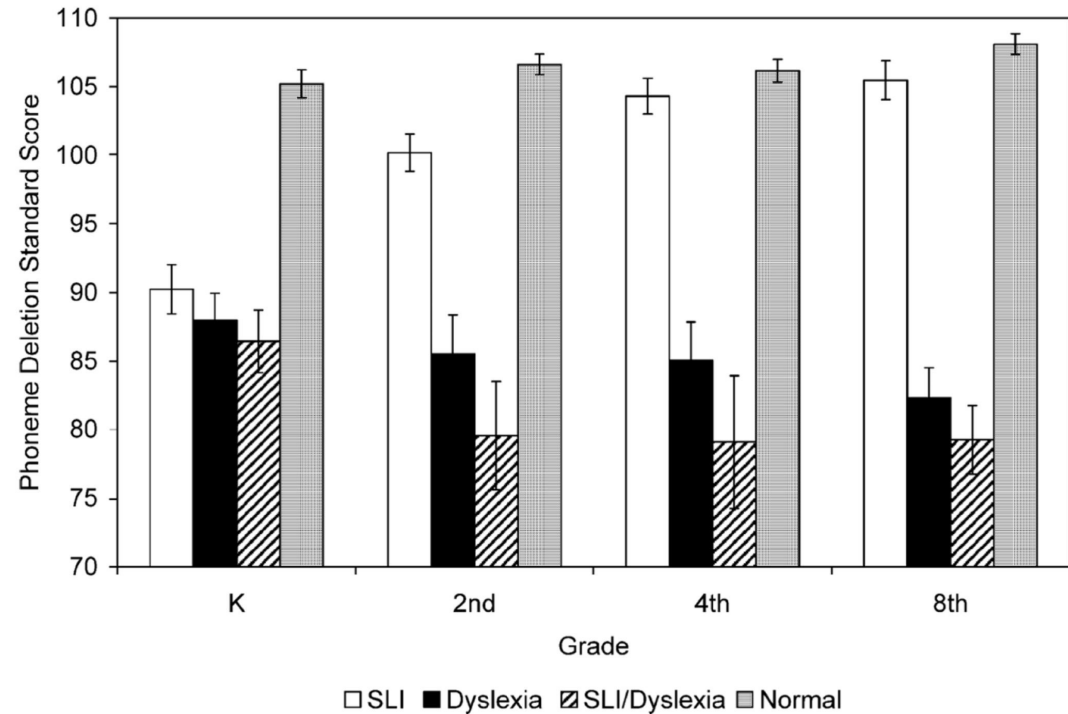
- Possible relationship between dyslexia and SLI/DLD:
 - Children with dyslexia may show some issues with syntax & semantics (typically characteristic of SLI/DLD)
 - Children with SLI/DLD may show phonological processing deficits (typically characteristic of dyslexia)
- About twice as many children met criteria for both disorders than would be predicted given the base rate of either disorder
 - Base rate of dyslexia in the population: 8.6%-9.7%
 - 17%-24.5% of kids with SLI/DLD also have dyslexia
- **Are these two disorders subtly different manifestations of the same underlying phonological deficit?**

SLI/DLD and Dyslexia: possible relationships



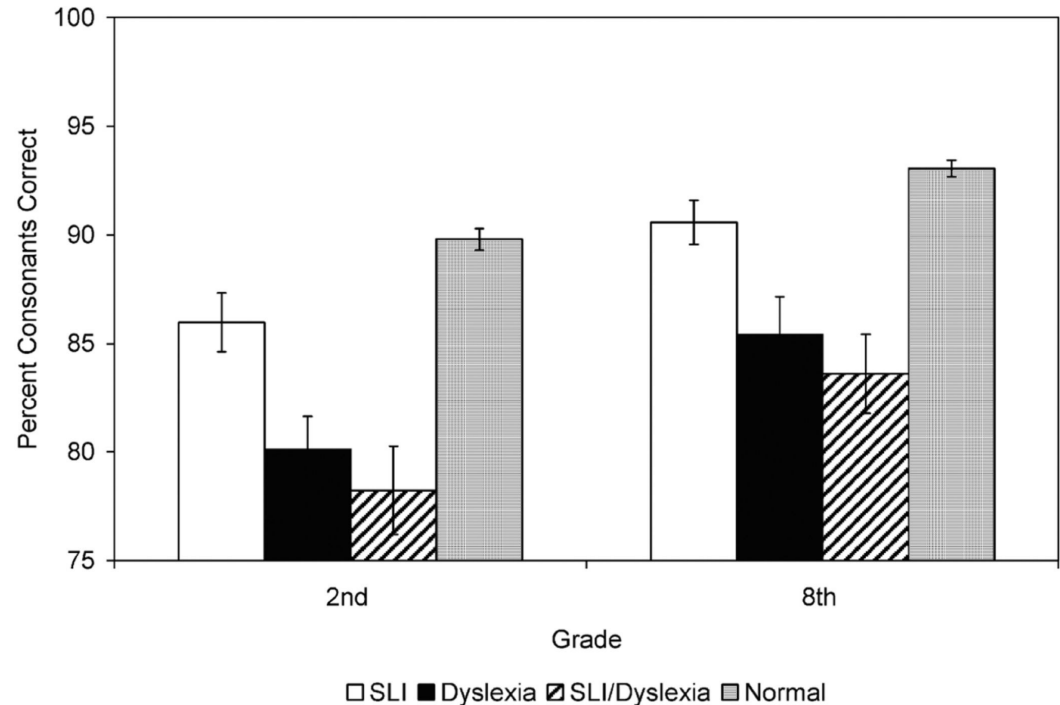
Phonological Awareness

- Kids with SLI/DLD alone perform similarly to kids without SLI/DLD or dyslexia on a metalinguistic phoneme/syllable deletion task
- Kids with dyslexia performed significantly worse



Nonword repetition

- Kids with SLI/DLD alone perform similarly to kids without SLI/DLD or dyslexia on a nonword repetition task
- Kids with dyslexia performed significantly worse



Language vs. Reading skills

- Kids with dyslexia alone perform more similarly to kids without SLI/DLD or dyslexia on composite complex language measure
- Kids with SLI/DLD performed significantly worse
- Reverse profile found for word recognition (i.e., ability to pronounce words and nonwords)

Language and word recognition profiles of Study 2 subgroups.

	SLI only (<i>n</i> = 43)		Dyslexia only (<i>n</i> = 21)		SLI and dyslexia (<i>n</i> = 18)		Normal (<i>n</i> = 165)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Language (K)	77.0	5.6 _a	90.4	8.1 _b	76.9	5.9 _a	106.5	13.2 _c
Word recognition (4th grade)	105.7	6.1 _a	75.1	6.4 _b	67.7	12.1 _c	109.3	7.9 _a

SLI and Dyslexia

- Double dissociations on phonological (deficits in Dyslexia) vs. higher-order language measures (deficits in SLI/DLD)
 - Suggest that the two disorders are largely distinct from each other
- The source of the somewhat higher comorbidity between these two disorders relative to chance is unclear
 - Could be some kind of interaction effect among the types of disorders
 - But, many kids have one disorder and not the other!

Recap

- Dyslexia
- Specific language impairment (SLI)
- Relationship between SLI & Dyslexia