

# SPECIFIC LEARNING DISORDERS and COMMUNICATION DISORDERS

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# Objectives

- Discuss the diagnostic criteria, and screening and evaluation process of Specific Learning Disorders:
  - Reading, Mathematics, and Writing
- Discuss the diagnostic criteria, and screening and evaluation process of certain Communication Disorders:
  - Speech and Sound Disorder
  - Language Disorder
- Discuss what school-based and community interventions and services are beneficial.

# Specific Learning Disorders

- Reading
- Mathematics
- Writing

# DSM 5: Specific Learning Disorders

- Skills are substantially and quantifiably below those expected for the individual's chronological age, and cause significant interference with academic or occupational performance, or with activities of daily living, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessment.
- For individuals age 17 years and older, a documented history of impairing learning difficulties may be substituted for the standardized assessment.
- Learning difficulties begin during school-age years but may not become fully manifest until the demands for those affected academic skills exceed the individual's limited capacities
- Learning difficulties are not better accounted for by intellectual disabilities, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language of academic instruction, or inadequate educational instruction.

# DSM 5 Specific Learning Disorder: Reading

Inaccurate or slow and effortful word reading

- Reads single words aloud incorrectly or slowly and hesitantly
- Frequently guesses words
- Has difficulty sounding out words

Difficulty understanding the meaning of what is read

- May read text accurately but not understand the sequence, relationships, inferences, or deeper meanings of what is read

# What is Reading Disability (Dyslexia)?

- Difficulty with fluent and accurate word recognition
  - Problems with decoding
- Difficulties with spelling
- Adequate intelligence and schooling
- Not due to a primary sensory deficit (blindness or deafness)

finding dawn has be the missing link in my children's learning. As this years I was so emotional when both of my children one Book awards at school. And they both has dyslexia and I has disprassica as well so I had a overwelming thanks towards Dawn of the support and understaning of my children's different way of learning. and her dedication to help

# Reading Facts

- Prevalence is approximately 9%
  - About 1 out of 10 children
- Slightly more boys than girls (1.5 to 1), but many more boys than girls identified
- Etiology is multifactorial
  - Genetic
  - Specific environmental effects
    - Instructional quality
    - Home language/literacy environment

# Neuropsychology of Reading Disorder

## □ Deficits:

Phonological Awareness - ability to manipulate and attend to individual sounds in words (phonemes)

- How many sounds in “cat”? In “check”?
- Say “split” - Now say “split” without the /p/.
- Say “funny” backwards.

Dysphonetic errors in spelling:

- Dress = drst

Phonologically-based speech errors

- Volcano for tornado

Rapid Naming deficits

- Colors, objects, letters & numbers



# Screening

- What types of books is he/she reading?
- Difficulty with spelling
- Difficulty learning letter names
- Difficulty learning phonics (sounding out words)
- Read slowly
- Read below grade or expectancy level
- Required extra help in school because of problems in reading and spelling

# Testing from Evaluations

- **General Intelligence**

  - Wechsler Intelligence Scale for Children – IV Ed.

- **Academic Skills**

  - Timed word and nonword recognition

  - Spelling

  - Paragraph-level reading fluency

  - Reading Comprehension

- **Phonological Processing**

  - Phoneme Awareness

  - Rapid Naming

# Recommendations & Interventions

## □ Individualized Education Program (IEP)

Provide explicit instruction in reading

- Phonics-based approach

Work on mechanics (e.g. rules of capitalization and punctuation), spelling, and higher-level writing skills (e.g. sentence structure and organization).

Do not penalize for spelling errors

Extra time on assignments and tests

Audio books and assistive technology

# Specific Learning Disorders:

- ~~Reading~~
- Mathematics
- Writing

# DSM 5 Specific Learning Disorder: Mathematics

- Difficulties mastering number sense, number facts, or calculation
  - Has poor understanding of numbers, their magnitude, and relationships.
  - Counts on fingers to add single-digit numbers instead of recalling the math fact as peers do.
  - Gets lost in the midst of arithmetic computation and may switch procedures.
- Difficulties with mathematical reasoning
  - Has severe difficulty applying mathematical concepts, facts, or procedures to solve quantitative problems.

# Math Facts

- Ranges from 3-11% depending of cutoffs (SS=85 versus 92) and comorbidity.
- Etiology is multifactorial
  - Genetic
  - Specific environmental effects
  - Instructional quality

# Neuropsychology of Math Disorder

- Preverbal numerical abilities
  - ‘Number sense’ that becomes subitizing
- Number (magnitude) representation problems
  - Number symbol, word, and mapping to the underlying magnitude, speed of digit magnitude judgments
- Counting problems and speed
- Number fact storage problems
  - Learning and storing the solutions to math facts

# Screening

- Can she add, can she put together two sets of items and add them together?
- Can she subtract sets (5 balloons and you take away three, how many are left)?
- Does she recognize numbers and differentiate from letters?
- Does she understand place value (259, 9 are units, 5 is tens, 2 are hundreds)?
- Can she count by sets, (tens, twos, threes)? Does she have a sense of that, mainly 10 by 10s?
- Can she add, subtract, multiple, divide. Can she do it with single, double digits?



# Testing from

- **Math Achievement**

  - Math Fluency

  - Calculations

  - Applied Problems

- **Math skills**

  - Number sets

- **Visual Spatial Skills**

  - Copying drawings

# Recommendations & Interventions

## □ Individualized Education Program (IEP)

Math instruction and remediation

- Step by step procedures

Extra time on tests and assignments

Teachers and parents may find the Jump Math curriculum ([Jumpmath.com](http://Jumpmath.com)) to be a good resource.

# Specific Learning Disorders:

• ~~Reading~~

• ~~Mathematics~~

• Writing

Asam walk and to <sup>listen</sup> lisheng the  
whistling with his ear phones to walk  
his friend shoulder Asam. Asam did not  
hear his friend is <sup>talking</sup> toking with he.  
<sup>Suddenly</sup> Sadenli his friend <sup>touched</sup> thack his  
<sup>shoulder</sup> shoudel Asam shocked and the noodle  
<sup>fall</sup> fould down the man shoudel. The man  
shoudel is <sup>painful</sup> paful.  
The customer is apologised the  
<sup>children</sup> chikhorren. Aman says, "Sorry" <sup>because</sup> becane  
he do his shirt <sup>wet</sup> weat.

# DSM 5 Specific Learning Disorder: Writing

- Difficulties with spelling

  - May add, omit, or substitute vowels or consonants.

- Difficulties with written expression

  - Makes multiple grammatical or punctuation errors within sentences.

  - Employs poor paragraph organization.

  - Written expression of ideas lacks clarity.

# Writing Facts

- Prevalence rates of writing disorder varied from 6.9% to 14.7% depending the score cut-offs.
- Boys were 2 to 3 times more likely to be affected than girls.
- About 25% of children who have a writing disorder do not have a Reading Disorder.

# Screening

- Can he write complete sentences?
- Can he write a narrative that has a sequence? Do ideas flow?
- Does he use punctuation appropriately?
- When he is writing a story, does he only write a few lines? Or is there a substantial story?
- Does he have trouble finishing tests because of writing too slowly?
- Does writing homework take more time because it is more effortful?

# Testing from Evaluations

- **Written Expression**

  - Spelling

  - Writing Fluency

  - Writing Samples

# Recommendations & Interventions

## □ Individualized Education Program (IEP)

Direct instruction to assist in developing her written language skills. Provide extra time for completion of written tasks, and written assignments may need to be minimized in order to reduce frustration.

Use of oral expression or demonstration rather than written tests may also be appropriate.

Use of multiple choice or true/false formats rather than excessive writing may also be helpful.

Learn to use a word-processor to enable her to use a spell-checker.

Permit the use of a hand-held spell-checker (e.g., Franklin Ace Speller) for in-class work.

Write:OutLoud is simple to use and reads words as they are written, providing real-time auditory feedback.



# Specific Learning Disorders:

- ~~Reading~~
- ~~Mathematics~~
- ~~Writing~~

# DSM 5 Specific Learning Disorders

- 315.00 (F81.0) With impairment in reading:
  - Word reading accuracy
  - Reading rate or fluency
  - Reading comprehension
- 315.2 (F81.81) With impairment in written expression:
  - Spelling accuracy
  - Grammar and punctuation accuracy
  - Clarity or organization of written expression
- 315.1 (F81.2) With impairment in mathematics:
  - Number sense
  - Memorization of arithmetic facts
  - Accurate or fluent calculation
  - Accurate math reasoning

# Factors to Consider

- Specific learning disorder is frequently but not invariably preceded, in preschool years, by delays in attention, language, or motor skills that may persist and co-occur with specific learning disorder.

## Comorbidity

- Diagnostic criteria are to be met based on a clinical synthesis of the individual's history (developmental, medical, family, educational), school reports, and psychoeducational assessment.
- Associated with increased risk for suicidal ideation and suicide attempts in children, adolescents, and adults.

# Communication Disorders

- Speech and Sound Disorder
- Language Disorder

# DSM 5 Speech and Sound Disorder

- Persistent difficulty with speech sound production that interferes with speech intelligibility or prevents verbal communication of messages.
- Disturbance causes limitations in effective communication that interfere with social participation, academic achievement, or occupational performance, individually or in any combination.
- Onset of symptoms is in the early developmental period.
- Difficulties are not attributable to congenital or acquired conditions, such as cerebral palsy, cleft palate, deafness or hearing loss, traumatic brain injury, or other medical or neurological conditions.

# Speech Facts

- Among typically developing children at age 4 years, overall speech should be intelligible, whereas at age 2 years, only 50% may be understandable.
- Incidence of childhood stuttering is highest between a child's second and fourth birthdays, ultimately affecting 4% to 5% of the population.

# Screening

- Is he omitting sounds in a word or words? Or is he distorting words?
- Does he ever say any words that are not real words?
- Does he make paraphasic errors (i.e. semantic, phonemic or neologism)?
- Does he stutter?
- Does he repeat at the beginning of a sentence, or clause boundary (at a comma)?
  - Does he block?
  - Does he repeat syllables, single sounds or whole words?
- Does he have secondary movements of his eyes?

# Testing and Interventions

- Speech and language evaluation
- Speech and language therapy via an IEP
- Tips:

Adding rhythm to their speech, including foot-tapping, finger-tapping, and arm-swinging.

Trace an imaginary figure-eight, timing their breathing and speech to various points on the figure.

Relaxation and breathing patterns



# Communication Disorders

- ~~Speech and Sound~~  
Disorder
- Language Disorder



# DSM 5 Language Disorder

- Persistent difficulties in the acquisition and use of language across modalities (i.e., spoken, written, sign language, or other) due to deficits in comprehension or production that include the following:

Reduced vocabulary (word knowledge and use).

Limited sentence structure (ability to put words and word endings together to form sentences based on the rules of grammar and morphology).

Impairments in discourse (ability to use vocabulary and connect sentences to explain or describe a topic or series of events or have a conversation).

# DSM 5 Language Disorder

- Language abilities are substantially and quantifiably below those expected for age, resulting in functional limitations in effective communication, social participation, academic achievement, or occupational performance, individually or in any combination.
- Onset of symptoms is in the early developmental period.
- Difficulties are not attributable to hearing or other sensory impairment, motor dysfunction, or another medical or neurological condition and are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

# Language Facts

- Most children with severe language difficulties are probably identified before they start school, but many may not be identified until they start formal education.
- Estimates of the prevalence of language difficulty in
  - preschool children are between 2% and 19%.
- LD has a prevalence of approximately 7% in children entering school and is associated with later difficulties in learning to read.
- Substantial evidence illustrates possible familial transmission of LD. The incidence in families with a history of LD is estimated at 20%-40%.

# Screening

- Does he have trouble conjugating verbs?
- Does he have trouble using pronouns?
- Does he have trouble explaining past and future events?
- Can he retell a short story with good chronology (1<sup>st</sup>, 2<sup>nd</sup> 3<sup>rd</sup>). Is it coherent?
- Can he tell you about something he did that day with enough detail, coherence, and chronology?
- Does he understand 1, 2, 3 step directions?
- Can he follow a conversation?
- Does he mainly understand what, where and who? Or can he understand why and how?
- Does he understand sentences that have temporal words (e.g., before, after, when, tomorrow)?
- Does he understand sentences that are compound sentences (instead, however, although, and, either, or)?

# Testing from Evaluations

- Wechsler Intelligence Scale for Children, 4<sup>th</sup> Edition

- Language Fundamentals

  - Expressive

  - Receptive

  - Pragmatic

# Recommendations and Interventions

## □ Individualized Education Program (IEP)

Speech and language therapy

Reduce verbal demands by shortening utterances and simplifying vocabulary and syntax.

Special attention should be given to improving her vocabulary skills. As her vocabulary skills improve, it is likely that her comprehension will improve as well.

Highlight important concepts to be learned in a lesson, text, or publication by modulating voice loudness, voice pitch, and rate of speech; make the important concepts stand out.

Repeat verbal instructions before initiating a task.

Repeat important concepts at least twice.

Use brief, precise, and concrete instructions and make sure that she understands them. Don't expect her to automatically generalize instructions. Avoid using vague terms (e.g., "why did you do that"), double meanings and sarcasm.

# DSM 5 Communication Disorders

- 315.39 (F80.9) Language Disorder
- 315.39 (F80.0) Speech Sound Disorder
  
- Not Discussed:
  - 315.35 (F80.81) Childhood-Onset Fluency Disorder (Stuttering)
  - 315.39 (F80.89) Social (Pragmatic) Communication Disorder
  - 307.9 (F80.9) Unspecified Communication Disorder



## References

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