Neuropsychological Evaluation and Intervention Strategies for Children with Autism Spectrum Disorder (ASD)

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Two Core Symptom Domains – DSM-5

- Social Communication/Interaction

- Restricted, Repetitive behaviors, and interests

Accompanied by a severity modifier for each domain to capture the spectrum of ASD

DSM-5

- 7 criteria (from 12 criteria from DSM-IV)

- 5 previously independent disorders in DSM-IV grouped as PDD, DSM-5 defines a single ASD

- New category of Social Communication Disorder

- Language development is treated as separate from ASD

- More inclusive age of onset criterion

DSM-5 Criteria for ASD

1. Persistent deficits in social communication and social interaction, have to have all 3 (currently or by history):

   a. Deficits in social-emotional reciprocity

   b. Deficits in nonverbal communicative behaviors used for social interaction

   c. Deficits in developing, maintaining and understanding relationships

   ** Specify current severity

DSM-5 Criteria

2. Restricted, repetitive patterns of behavior, interests or activities as evidenced by at least 2 of the following (currently or by history):

   a. Stereotyped or repetitive motor movements, use of objects or speech

   b. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of behavior of verbal or nonverbal behaviors

   c. Highly restricted, fixated interests that are abnormal in intensity or focus

   d. Hyper-or hypo reactivity to sensory input or unusual interest in sensory aspects of environment

DSM-5 (cont'd)

3. Symptoms must be present in early childhood (but may not become fully manifest until social demands exceed limited capacities or may be masked by learned strategies in later life).

4. Symptoms cause clinically significant impairment in social, occupational or other important areas of current functioning.

5. Not better explained by intellectual disability or global developmental delay. Intellectual disability and ASD frequently co-occur; to make co-morbid diagnosis, social communication should be below that expected for developmental level.

"Those with well-established DSM-IV diagnosis of ASD, AS, or PDD NOS should be given the diagnosis of ASD."

Autism Spectrum Disorder

- ASD can be conceptualized as a heterogeneous group of disorders or symptoms.

- Not a single disorder and there is no agreed upon single cause.

- Every child with ASD is unique.

- Key is to identify the symptoms so we can intervene.

- While symptoms are evident to parents by 12 months, the majority of children with ASD are not diagnosed until age 3-4 years.

Causes

- Genetic predisposition-most heritable disorder (risk for siblings is greater than 18%); 60-80% concordance in monozygotic twins, 90% if broader phenotype is used (Bailey et al., 1995)

- Some children with known genetic disorders have ASD (Fragile X)

- The pathogenesis of ASD is complex (not a single gene disorder)

- May be more than 1000 genes involved (less than 5% of all genes)

Brain Differences

- Too many neurons (brain cells) in areas responsible for social/emotional behavior and learning
- Too few cells in cerebellum
- Early differences in brain size
- Connectivity problem-white matter or fiber tracts not developing normally
- Structural differences in the brain
- (Ozonoff, Dawson, & McPartland, 2015)

Environmental

- Correlation with maternal and paternal age (Croen et al., 2007)

- Decreased risk in females

- Decreased risk if taking prenatal vitamins (especially folic acid)

- Exposure to toxins

- No support for vaccine (MMR) as a cause

Prevalence

- 1 percent of the world population has ASD
- Increased by 119 percent from 2000 (1 in 150) to 2010.
- Prevalence in US is 1 in 68 (1.5% of population).
- Fastest growing developmental disability.
- 4.5 times more common in boys (1 in 32) than girls (1 in 189).
- 35% of young adults (19-23) with ASD have not had a job or received postgraduate education after high school.

(CDC, 2014)

DSM-5 Criteria for Social (Pragmatic) Communication Disorder (SCD)

A. *Difficulties in social use of verbal and nonverbal communication as manifested by:*

1. Deficits in using communication for social purposes, such as greeting and sharing information, in a manner that is appropriate for the social context.

2. Impairment in the ability to change communication to match context or the needs of the listener and avoiding use of overly formal language.

3. Difficulties following rules for conversation and storytelling, such as taking turns in conversation, rephrasing when misunderstood, and knowing how to use verbal and nonverbal signals to regulate interaction.

DSM-5 Criteria for SCD cont'd

B. Deficits result in functional limitations in effective communication, social participation, social relationships, academic achievement, or occupational performance, individually or in combination.

C. Onset is early in the developmental period.

D. Symptoms are not attributable to another medical or neurological condition or to low abilities in the domains of word structure and grammar, and are not better explained by ASD, ID, global delay, or another mental disorder.

Comorbidity

- 64% poor attention span

- 43-88% unusual preoccupation

- 16-37% obsessive/compulsions or rituals

- 50-89% stereotypic utterances/mannerisms

- 17-74% anxiety/fears

- 9-44% depressive mood, irritability

- 43% self-injurious

Sleep Problems in ASD

- Individuals with ASD suffer from problems (insomnia) 40-80% more

- Those with hx of regression have more sleep problems

- Sleep problems can impact mood, attention, impulse control, daytime functioning in general & cause parental stress

- Daytime sleepiness may manifest as hyperactivity

(Cortesi, Giannotti, Ivanenko, & Johnson, 2010)

Sleep Problems (cont'd)

- Research shows effectiveness of behavioral interventions for sleep onset (sleep hygiene, visual supports, bedroom pass, routine, etc.)

- Several studies have shown abnormal melatonin levels in children with ASD (elevated daytime, sig lower nighttime)

- Genetic susceptibility region (chromosome 15q) may explain melatonin defect

  (Cortesi, Giannotti, Ivanenko, & Johnson, 2010)

Pediatric Neuropsychology

Professional specialty concerned with learning and behavior in relationship to a child's brain. A pediatric neuropsychologist is a licensed psychologist with expertise in how learning and behavior are associated with the development of brain structures and systems.

www.div40.org

What is a Good Evaluation?

- Looks at "whole" child/adolescent

- Tests administered depend on your concerns – have specific questions in mind

- Clearly delineates strengths and weaknesses

- Interprets test data for you in terms that you understand

- Uses the objective data from research-based methods/standardized tests to make specific, relevant and practical recommendations

What do we assess?

- General Intelligence

- Academic Achievement

- Language

- Phonological Processing

- Visual-Spatial Perception

- Memory

- Attention

- Executive Functions

- Processing Speed

- Fine Motor Skills

- Sensory Functioning

- Emotional/Behavioral/ Social Functioning

- Adaptive Functioning

Achievement

- Word Reading

- Reading Fluency

- Reading Comprehension

- Math Computation

- Math Story Problems

- Written Expression (Transcription and Generation)

Written Expression

- Transcription: production of letter and spelling that is necessary to translate ideas into a written product

- Generation: translations of ideas into language representations that must be organized, stored and then retrieved from memory

(Fletcher, 2012)

Evaluation Procedure

- Rating scales – input from parents/teachers

- Home videos

- Thorough diagnostic interview

- Observation

- Formal neuropsychological testing

- Referral to other specialists as needed

Evaluation Procedure

- Feedback to parents

- Do not just give label

- Provide concrete steps (in writing) for parents to follow

- Discuss results with child if appropriate

- Be available for follow-up with family and school

Neuropsychological Findings

- Have problems in comprehension of sentences

- Mental state verbs

- Reasoning

- Theory of mind tasks

- Prosody

- Pragmatics

Neuropsychological Findings

- Impaired memory for emotional events, faces and verbal information

- Sustained attention for non-preferred activities

- Impaired executive functions (set shifting, working memory, hypothesis testing)

- Impaired attention shifting

Executive Functioning

- Umbrella term for many complex cognitive processes that serves ongoing goal-directed behaviors

Most definitions of executive functions include the following:

- Goal setting and planning

- Organization of behavior over time

- Flexibility

- Attention and memory systems (working memory)

- Self-regulatory processes (self-monitoring)

Benefits of Executive Functions

- Academic success in school and life is increasingly dependent on a student's ability to plan, organize and prioritize information, distinguish main ideas from details, monitor their progress, and reflect on their work

(Meltzer & Krishnan, 2007)

Critical Elements Common to Programs

- Highly supportive environment

- A functional approach to problem behaviors

- Curriculum content that addresses communication, behavior and social skills

- Plans for transition from junior high & high school

- Focuses on the whole child

Intervention

- Education about ASD
- Individual/Family Therapy
- Behavior management techniques/Positive programming
- Primary focus is prevention of problems (be aware of sensory issues & coping skills)
- Social Skills Training (Social Stories/Scripts/Groups)
- Visual Supports
- Peer Mediated Intervention
- Medication

Eliminating Negative Behaviors

- Intervene when child shows initial signs of stress

- Provide visual support and assistance with communication

- When appropriate ignore

- Will perceive responses in "absolute value"

- FBA to identify antecedents

- Positive Behavior Plan; collect data to determine if plan is working

Self-Regulatory Strategies

- Identify signs of overload

- Identify potential problematic situations

- Strategies (effectiveness) child uses to manage stress

- Modify environment and adult response

- Try soothing music

- Exercise

- Technology

Calm Down Strategies

- Create cue cards or visual list of what to do when angry/stressed.

- When child shows card, direct to "quiet spot"

- Use social story to teach quiet spot

- When in quiet spot, direct to visual to show how to calm (take a deep breath, count to 100, recite Star Wars characters, listen to music on iPad)

- Use stress ball, notebook to write in/drawing, etc.

- When calm, return to activity

EF Interventions

- Use of everyday routine with (e.g., Goal-Plan-Do-Review)

- Support working memory with "visual copy" of routine

- Teach child how to formulate a plan, review their performance

- Teach to monitor their behavior

- Teach to become a self-advocate

Academic Interventions

- Highlight texts, study guides, notes

- Completed model of what is expected

- List of criteria for grading

- Decrease writing-verbal responses, computer, multiple-choice tests

Academic Interventions

- Priming

- Teaching outlining skills, how to pick out important details

- Graphic Organizers (*Framing Your Thoughts, Inspirations, etc.*)

- Provide enrichment activities in areas of strength (i.e., advanced classes in science, drama, art, etc.)

- Homework support – fax or email to parent or eliminate

Travel Card

Lists 4-5 target behaviors student is working on with a listing of the classes the student attends. Teacher marks travel card at the end of each class period. Designed to increase productive behaviors, facilitate collaboration, increase awareness of IEP goals, and improve home-school communication.

Smith Myles, B. & Adreon, D (2001)

Suggestions for Attention

- Allow individual own ways of attending

- Reduce distractions

- Exercise

- Use visual frames & graphic organizers

- Provide auditory frame (say what you are going to do and then do it)

- Break down lengthy assignments/lists

- Model goal directed behaviors

"Learning the R.O.P.E.S for Improved Executive Function"

(Schetter, 2004)

- Capitalize on visual strengths, practice and feedback in real-life situations, relies heavily on graphic organizers

wait   =   **hands and feet still**   **be quiet**   **1,2,3,4,5,6,7**   **count**

Write about your day:

Today I _____

_____

_____

My problem was _____

_____

_____

Draw about your day!

Name:_____ Date:_____

Social Skills

- Cue cards and scripts for interacting with friends

- List of reminders/rules for behavior (Cue cards to show how to deal with stressful situations (cue cards for stressful situations – too loud – get headphones or exit room)

- Never assume, always teach skill

- Use Social Stories

- Try Comic Strip Conversations

- List of activities, list of free-time options

- Dry erase board, white board, etc.

Social /Language Strategies

- Teach exceptions to rules

- Keep a double meaning word notebook to review and test

- Teach idioms

- Break down social skills (can't teach inferencing until child masters – ability to read facial expressions, recognize emotions in voices, read body language, predict outcomes, sequence events)

When I talk with friends:

1. If I want to talk to someone, I will first say their name so they will know I am talking to them

2. I will look at the person I am talking to

3. I will turn my body towards the person

4. I will try to listen to what the other person is saying

Social Checklist

1. Say "hi" to a friend._____

2. Ask a friend what his favorite movie is._____

3. Show a friend one of your favorite toys or favorite books._____

4. Say something nice to your teacher._____

Social Story

Sometimes at school I hear other students say words I have not heard before. They may say these words to get a reaction or to get me in trouble. Sometimes kids can be nice to me and other times they may be mean to me. When I hear new words, I will try to ask the teacher, my parents, or another adult what it means before I use the word.

Social Story (cont'd)

If I use the word and it is inappropriate, then I will get into trouble by my teachers and parents. I also need to understand that if some students laugh when I use a new word, they may be laughing at me and not with me. When I hear a new word and I don't know what it means, I will try to find out the meaning. Once I know what the word means, I can decide whether or not I want to use that word.

Responding to Bullying

- Know the facts and slang

- If someone upsets you, do not act dramatically (nonchalant; "so," "whatever")

- If they continue, make an excuse to get away

- Inform parents and/or counselor

- Stay safe, get away, tell trusted adult

- If someone approaches you online, tell parents ASAP

Sample Hidden Curriculum

- Know which kids to avoid.

- Do not pass gas, pick your nose, or scratch your private body parts in any class.

- Use a nice tone of voice when talking to teachers – they like it. Also, try to smile sometimes.

- Rules change from teacher to teacher. Do not focus on the fact that it might not be fair.

- If you do something funny, it is usually funny once. If you do it repeatedly, it makes you look goofy and people might make fun of you.

(Myles & Simpson, 1998, 2001)

Rules To Live By

Do not:

- Laugh when someone else is crying/angry

- Correct someone else's grammar when he/she is angry

- Ask to be invited to someone else's birthday party

- Tell a friend he/she has bad breath

- Do what actors do on television, actors are not the same as real life

(Myles & Simpson, 1998, 2001)

Technology to Improve Skills

- A personal digital assistant (PDA) – also helps by listing conversational tips (i.e., smile, make eye contact, don't interrupt, etc.)

- Can program it with lists of organizational tips, rehearsal strategies, track progress

- Use to record feelings/frustrations

- iPad, iPhone Apps – *Proloquo2Go*

- www.FizzBrain.com

- Software programs: *Dragon Naturally Speaking*

- *Iscribe DigiMemo4*

Benefits of PDA

- Provides meaningful and positive feedback

- Quick access to information

- Increase social awareness of own social behaviors

- Provides an outlet

- Goal is to increase self-awareness as well as social awareness by teaching how to scan the environment for cues

- Makes social situations more concrete and less ambiguous

Summary

- Prepare for transitions

- Provide structure and visual supports

- Establish routines and be consistent

- Limit verbalizations and avoid arguments

- Teach expectations for all new routines (lists, social stories)

- Never assume, first teach

- Focus on generalization

Summary (cont'd)

- Be aware of your own language, body posture, and stress level

- Provide choices (clearly label child versus adult choice time)

- Avoid (or explain) idioms, words that have double meanings, sarcasm, or nicknames

- Communicate clearly

- Avoid verbal overload

Resources

- Parent support groups/information (www.autism-society.org)

- Sibling support groups (www.thearc.org/siblingsupport)

- Respite services (CBDD)

- Other family members (www.asgc.org)

- Create informal network of other parents/families/professionals in community (www.milestones.org)

- Books/training modules (www.ocali.org; www.autisminternetmodules.org; www.autismspeaks.org)

Resources (cont'd)

- AIMS – Autism Internet Modules: Linking Research to Real Life (from Autism Interactive Collaborative Network group) www.autisminternetmodules.org

- Organization for Autism Research (OAR)

- Autism Speaks (www.autismspeaks.org)

  ❑ 100 Day Kit

  ❑ online screening tool--Modified Checklist for Autism in Toddlers (M-CHAT)

  ❑ Video clips/glossary

"Learn the Signs. Act Early"

- Free resource kits
- Downloadable materials: printable milestones checklists, interactive milestones table, parenting tips, etc.
- Great website with resources
  - www.cdc.gov/actearly

Websites

- www.amazon.com

- www.autismconsortium.org

- www.autism.com

- www.autism-resources.com

- www.autismsciencefoundation.org

- www.autism-society.org

- www.autismspeaks.org

- www.do2learn.com

- www.fhautism.com

- www.globalautismcollaboration.com

Websites (cont'd)

- www.milestones.org

- www.MonarchTT.com

- www.nationalreadingpanel.org

- www.oasis.com

- www.semel.ucla.edu/autism

- www.siblingsupport.org

- www.SpecialNeeds.com

- www.usdoj.gov/disabilities/htm

- www.usevisualstrategies.com

- www.wrightslaw.com

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April 2, 2017

www.worldautismawarenessday.org

www.autismspeaks.org

Questions

Monarch Center for Autism Services

- ❖ **Preschool**

- ❖ **Day School**

- ❖ **Transition Education Program**

- ❖ **Extended School Year Program**

- ❖ **Summer Social Language Leadership Program**

- ❖ **Boarding Academy**

- ❖ **Adult Autism Program**

- ❖ **Adult Autism Residence & Supported Living Settings**

- ❖ **Free Webinar & e-newsletter Series**

- ❖ **Online Resource Center**

- ✦ **Web: www.monarchcenterforautism.org**

- ✦ **Telephone: 216.320.8945 or 1-800-879-2522**

- ✦ **Address: 22001 Fairmount Boulevard, Shaker Heights, Ohio 44118**

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