ADHD and Autism Spectrum Disorder: They can and do co-exist

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In accordance with the ACCME policy on relevant financial disclosure, all were asked to reveal any relevant financial relationship, and no one had anything to disclose.
Overview

- Brief Refresher on ADHD
- An Overview of Autism Spectrum Disorder (ASD)
- The overlap between ADHD and ASD
- Symptoms that relate and are disparate
- Treatment strategies for ADHD+ASD
- Lengthier discussion of Executive functions
- References and Discussion
- Case Study?
What is ADHD?

- "my child doesn’t listen."
- "my child can’t finish assigned tasks."
- "my son can’t get the work done on his own."
- "he goes from one thing to another."
- "she can’t follow any lengthy commands."
- "she just doesn’t learn from her mistakes."
“ADHD is a developmental disorder of self-control”

Russell Barkley, Ph.D. (1997)

- Impacts attention span, impulse control, and activity level
- Impacts the capacity to control behavior relative to the passage of time
- The inability to keep future goals and consequences in mind
- It is a disorder of poor self-control
Task load and selective attention

- Attention is more like resources
  - Kahneman’s (1973) capacity theory
  - When a particular task demands lots of processing resources, then other tasks get fewer resources.
What is ADHD Not?

- It is not a normal phase of childhood
- It is not caused by parental failure to discipline or "control the child"
- It is not an abnormality or defect in the "badness gene"
Consensus Definition

• A developmental disorder of:
  – inattention and/or
  – hyperactivity-impulsivity

• Developmentally inappropriate levels of symptoms

• Childhood onset (symptoms-impairment)

• Cross-setting occurrence of symptoms

• Significant impairment in major life activities

• Exclusion of other developmental disorders (MR, PDD, psychosis)
Autism Spectrum Disorder
Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) revisions

- Autism spectrum disorders
  - Includes autism, Asperger syndrome, PDD-NOS, and child disintegrative disorder (CDD)
  - Concentrates on required features
    - Social/communication deficits
    - Restricted, repetitive patterns of behavior, interests, activities
      - Addition of sensory criteria
  - Increases specificity while maintaining sensitivity
    - Important to distinguish spectrum from non-spectrum developmental disabilities
    - Improves stability of diagnosis
DSM-5 Criteria: Social Communication

- Persistent deficits in social communication and social interaction across contexts, not accounted for by general developmental delays, manifested by all of the following:
  - Deficits in social-emotional reciprocity
  - Deficits in nonverbal communicative behaviors
  - Deficits in developing and maintaining relationships appropriate to the developmental level
DSM-5 Criteria: Restricted/Repetitive Behaviors

- Restricted, repetitive patterns of behavior, interests, or activities as manifested by at least 2 of the following:
  - Stereotyped or repetitive speech, motor movements, or use of objects
  - Excessive adherence to routines
  - Highly restricted, fixated interests that are abnormal in intensity or focus
  - Hyper- or hypo-reactivity to sensory input or unusual sensory interests
DSM-5 Criteria

- Symptoms must be present in early childhood.
- Symptoms together limit and impair everyday functioning.
Autism Prevalence On The Rise
There has been a 600% increase in prevalence over the last two decades.

AUTISM SPEAKS™
It’s time to listen.
www.AutismSpeaks.org
Autism Spectrum Disorder
Comorbidities
ADHD Comorbidities

• Symptoms of ADHD overlap with other disorders
  – ODD (35-65%)
  – Conduct D/O (20-56% children, 44-50% adolescents)
  – LD (~8-39%)
  – Communicative disorders (10-54%)
  – MDD (25%)
  – Bipolar D/O (6%)
  – Anxiety (25%)
  – Tourette Syndrome (54%)
  – Epilepsy (25-50%)
  – High Functioning Autism (29-85%)
Balancing Two Spectrums
ASD+ADHD Symptom Overlap

Figure 1
Mean Total scores of ADHD-symptoms (DCL-HKS, DIS-YPYS) for the four diagnostic groups.

Sinzig, J, et al. (2008)
ASD+ADHD Symptom Overlap

Figure 2
Mean Total scores of ASD-symptoms (DCL-TES, DISYPS) for the four diagnostic groups.

Sinzig, J, et al. (2008)
Comorbid ADHD and ASD

• Both disorders impact fronto-striatal and fronto-parietal circuits.
• Genetic studies are suggesting that similar gene sets are impacted in ADHD and ASD
• Complicated by increased awareness and perhaps increased over diagnosis of ASD.
Comorbid ADHD and ASD

- Greater learning difficulties and lower cognitive scores
- More severe social problems
- More pronounced Maladaptive behaviors
- More pronounced stereotyped restricted behaviors
Why is identifying Comorbidities Important?

- Interventions can be custom tailored based on the condition(s)
- Treatment can be more successful when more variables are understood
- May shed light on the underlying etiology
- Better understanding of all the variable can help with prognostication (additivity hypothesis)
But, Does Diagnosis Really Matter?

- Diagnosis can help treating clinicians convey a lot of information quickly.
- Diagnosis can help to guide initial treatment planning.
- Diagnosis can help with school placement.
- Diagnosis can help with research parameters.
- But, at the end of the day, though the goal is to treat symptoms, not diagnosis.
How does a clinician make a diagnosis

- History (developmental, medical, academic, social)
- Observation
- Formal test measures
- Look for a convergence of information
GAME TIME!
The Symptom Game: Is it ADHD or ASD?

- Too wide a focus (scattered).
The Symptom Game: Is it ADHD or ASD?

• Too wide a focus (scattered).

Children with ADHD tend to be very scattered and sensory seeking, often as a way to alleviate boredom.
The Symptom Game: Is it ADHD or ASD?

• Too wide a focus (scattered).

Children with ADHD tend to be very scattered and sensory seeking, often as a way to alleviate boredom.

Children with ASD can become overstimulated due to anxiety, difficulty with regulation, etc., and this can look like being scattered.
The Symptom Game: Is it ADHD or ASD?

• Too narrow a focus (laser beam attention).
The Symptom Game: Is it ADHD or ASD?

• Too narrow a focus (laser beam attention).

A stereotypical trait for children with ASD. Often these children have restricted interests and prefer activities that capture their interests. They tend to be fully absorbed in their interests at the expense of other expectations.
The Symptom Game: Is it ADHD or ASD?

• Too narrow a focus (laser beam attention).

A stereotypical trait for children with ASD. Often these children have restricted interests and prefer activities that capture their interests. They tend to be fully absorbed in their interests at the expense of other expectations.

Children with ADHD also hyper focus. “Jimmy can play Xbox or Legos for hours.” Often the distinction is whether the child can engage with others about their interests.
The Symptom Game: Is it ADHD or ASD?

• Can’t concentrate and easily distracted.
The Symptom Game: Is it ADHD or ASD?

- Can’t concentrate and easily distracted.

Children with ADHD are often easily distracted but children with ASD also struggle to concentrate on non-favored activities.
The Symptom Game: Is it ADHD or ASD?

- Doesn’t think before reacting.
The Symptom Game: Is it ADHD or ASD?

- Doesn’t think before reacting.

Often Children with ADHD know the rules but can’t or don’t think of them in the moment.
The Symptom Game: Is it ADHD or ASD?

• Doesn’t think before reacting.

Often Children with ADHD know the rules but can’t or don’t think of them in the moment.

In ASD, these children tend to not get the rules or don’t generalize the rules to multiple settings.
The Symptom Game: Is it ADHD or ASD?

• Difficulty with flexibility and changes in routine.
The Symptom Game: Is it ADHD or ASD?

- **Difficulty with flexibility and changes in routine.**

  Children with ASD struggle with the unknown and prefer sameness and routine (predictability).

  Children with ADHD do better with changes in routine but do not like to disengage from preferred activities.
The Symptom Game: Is it ADHD or ASD?

• Short fuse and quick to snap back without thinking
The Symptom Game: Is it ADHD or ASD?

• Short fuse and quick to snap back without thinking

This tends to be common for most children but we see these behaviors in ADHD and ASD. The helpful distinction is in understanding the antecedents.
The Symptom Game: Is it ADHD or ASD?

• Struggles to make friends
The Symptom Game: Is it ADHD or ASD?

- Struggles to make friends

Social Problems are not part of the core diagnostic criteria for ADHD, but children with ADHD experience significant social difficulties.
Struggles to make friends

Social Problems are not part of the core diagnostic criteria for ADHD, but children with ADHD experience significant social difficulties.

Children with ASD often have difficulty with relating to others and picking up on social cues. This often impacts similar age peer relationships.
The Symptom Game: Is it ADHD or ASD?

- Struggles to keep friends
The Symptom Game: Is it ADHD or ASD?

- Struggles to keep friends

Children with ADHD are more likely to be rejected by their peers and have fewer friends.
The Symptom Game: Is it ADHD or ASD?

- Struggles to keep friends

Children with ADHD are more likely to be rejected by their peers and have fewer friends.

Children with ASD can also push others away, especially when they fail to recognize how their behaviors can impact relationships.
The Symptom Game: Is it ADHD or ASD?

• Has no interest in making or keeping friends
The Symptom Game: Is it ADHD or ASD?

- Has no interest in making or keeping friends

It is a common misconception that children on the ASD spectrum do not want friendships. In fact, most children with high functioning autism would like social connections.
The Symptom Game: Is it ADHD or ASD?

• Has no interest in making or keeping friends

It is a common misconception that children on the ASD spectrum do not want friendships. In fact, most children with high functioning autism would like social connections.

Children with ADHD enjoy making and keeping friends but may reject friends more readily in favor of new more high stimulation friends.
The Symptom Game: Is it ADHD or ASD?

- Restricted interests and tremendous knowledge for certain topics
The Symptom Game: Is it ADHD or ASD?

- Restricted interests and tremendous knowledge for certain topics
  - What about idiosyncratic interests?
    - preoccupation with Pokemon?
    - preoccupation with Mario Cart?
The Symptom Game: Is it ADHD or ASD?

- Restricted interests and tremendous knowledge for certain topics
  - What about idiosyncratic interests?
    - preoccupation with Pokemon?
    - preoccupation with Mario Cart?
    - preoccupation with windshield wipers?
    - preoccupation with pencil lead?
    - preoccupation with fans, train engines, or vacuums?
The Symptom Game: Is it ADHD or ASD?

- Hyperactive
The Symptom Game: Is it ADHD or ASD?

- Hyperactive
  - What about hyperactive when agitated?
  - What about hyperactive when bored?
  - What about hyperactive when anxious?
The Symptom Game: Is it ADHD or ASD?

• Hyperactive
  – What about hyperactive when agitated?
  – What about hyperactive when bored?
  – What about hyperactive when anxious?

• It is sometimes difficult to distinguish ADHD from ASD from General Anxiety Disorder.
So, how do we differentiate?

- In ASD there is impairment in the basic understanding of social rules and conventions.
- In ASD, there is lack of the ability to have empathy, whereas in ADHD there is no time for empathy.
- In ADHD it is not noticing or encoding the social cues. In ASD it is an inability to recognize the cues.
Recap

• ADHD
  – Inattention
  – Hyperactivity/Impulsivity

• Autism Spectrum Disorder (ASD)
  – Deficits in social-emotional reciprocity
  – Deficits in nonverbal communication
  – Restricted, repetitive patterns of behavior
For those keeping score...

• There is a lot of symptom overlap between ADHD and ASD.
• The distinctions tend to be subtle
• Severity of symptoms may dictate diagnosis
• We are treating symptoms, not diagnoses
Treatment Considerations for ADHD+ASD

- Greater likelihood of learning disability
- Greater likelihood of general cognitive deficits
- Increased risk for deficits in social functions and daily living skills
- Increase risk for additional comorbidities (anxiety and depression)
Psychosocial Treatment for ASD+ADHD

- Behaviorally focused (as with ADHD or ASD alone)
- Major distinction is in the family component
  - ADHD = Parent training
  - ASD = Parent education
Medications in Treatment for ADHD and ASD

• Fewer children with comorbidities are responders
• Side effects are more common with comorbid diagnoses
• Polypharmacy is often indicated
• The goal is to treat symptoms not diagnoses
Stimulant Medication in ASD+ADHD

• Response rates for ADHD alone are much better than for ADHD+ASD
• Improved initiation of joint attention, better affect control and regulation
• Side effect profile is fairly similar
  – Irritability can be more of a problem with ADHD+ASD
Non-Stimulant Medication in ASD+ADHD

• Atomoxetine
  – perhaps better tolerated
  – Improvements seen in hyperactivity and impulsivity but less effect of attention

• Alpha-2 Agonists
  – verdict is still out but preliminary data looks promising