Focusing on Adult Attention Deficit Hyperactivity Disorder (ADHD) in Primary Care

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Jesse Markman, MD, MBA Disclosures:

Sadly, I have nothing to disclose

Objectives

- At the end of this workshop, participants will be able to:
  - Recognize and diagnose adult ADHD in the clinical setting
  - Describe common treatment interventions for patients with adult ADHD
  - Discuss their own personal limits for prescribing stimulant medications for cognitive benefit

Case # 1

Case # 1 - Chad

- Chad is a 44 yo cis man (he/him/his) you have seen in clinic for the past couple of years. He presents for his annual visit and complains about inability to get things done at work. He took on a new role, which was a promotion for him at his tech company, but it's been a rough go of it. He tells you that he can't seem to get enough done to keep up and finds himself disorganized and frustrated. He also describes feeling restless and anxious. Chad tells you that he is in danger of losing his job because of poor performance.

Case # 1 - Chad

- You ask him a bit more about his mental health and history and he provides the following information:
  - He has been struggling with anxiety, restlessness, low mood, poor appetite, difficulty falling asleep, guilt about work performance, low energy, and poor concentration, but no SI or hopelessness.
  - When you ask him about childhood and past school performance, he tells you that he was known as a "wild child" and got in trouble a lot a school, but did fine in classes because school wasn't that hard. He never had formal psychological testing or any sort of treatment.
  - When he was in college then graduate school, things went fine, but he would sometimes get some Adderall from a buddy to help him study for big tests.

Pair and share time

What is your differential from a MH standpoint?

What would help you tease this out?

Let's Hear It

What do you think?

Some definitions, epidemiology, and phenomenology

DSM: ADHD - Adult

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning, as characterized by (1) and/or (2)

1. **Inattention:** at least **FIVE** of the following symptoms have persistent for at least 6 months to a degree that negatively impacts directly on social and academic/occupational activities:
   a. Often fails to give close attention to details or makes careless mistakes at work or during other activities
   b. Often has difficulty sustaining attention in tasks
   c. Often does not seem to listen when spoken to directly
   d. Often does not follow through on instructions and fails to finish duties
   e. Often has difficulty organizing tasks and activities
   f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort
   g. Often loses things necessary for tasks or activities
   h. Is often easily distracted by extraneous stimuli or thoughts
   i. Is often forgetful in daily activities

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision. American Psychiatric Publishing. Arlington, VA. 2022.

DSM: ADHD - Adult

A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning, as characterized by (1) and/or (2)

2. Hyperactivity and impulsivity: at least **FIVE** of the following symptoms have persistent for at least 6 months to a degree that negatively impacts directly on social and academic/occupational activities:

a. Often fidgets with or taps hands or feet or squirms in seat
b. Often leaves seat in situations when remaining seated is expected
c. Often feels restless
d. Often unable to take part in leisure activities quietly
e. Is often "on the go" acting as if "driven by a motor"
f. Often talks excessively
g. Often blurts out an answer or cannot wait for turn in conversation
h. Often has trouble waiting their turn (e.g. while in line)
i. Often interrupts or intrudes on others

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision. American Psychiatric Publishing. Arlington, VA. 2022.

DSM: ADHD - Adult

B. Several inattentive of hyperactive-impulsive symptoms were present **before age 12 years**

C. Several inattentive of hyperactive-impulsive symptoms are present in **two or more settings**

D. There is clear evidence that **the symptoms interfere with, or reduce the quality of, social, school, or work functioning**

E. The symptoms do not occur exclusively during the course of another psychiatric disorder and are not better explained by another mental disorder

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision. American Psychiatric Publishing. Arlington, VA. 2022.

ADHD – Epidemiology

- More common in children than adults
  - Children ~7.5% prevalence
  - Adults ~2.5% prevalence
- A larger gender gap is present in children, but this is reduced to 1.6:1 for M:F
- It's very possible that we may see some of these statistics shift over time, but that is complex and remains to be seen

Anbarasan, D, Kitchin, M, Adler, LA. Screening for Adult ADHD. Curr Psychiatry Rep. 2020;22:72.

Dobrosavljevic, M, Larsson, H, Cortese, S. The diagnosis and treatment of attention-deficit hyperactivity disorder (ADHD) in older adults. Expert Review of Neurotherapeutics. 2023;23(10):883-893.

Psychiatric Comorbidities

- Psychiatric comorbidities are extremely common and studies vary in reporting comorbidity rates
  - Substance use disorders: 2-40%
  - Depression: 15-40%
  - Bipolar disorder: 5-35%
  - Anxiety disorders: 4-47%
- Screening for co-occurring disorders should be the rule rather than the exception

Choi W, et al. The prevalence of psychiatric comorbidities in adult ADHD compared with non-ADHD populations: A systematic literature review. PLoS ONE. 2022;17(11):1-28.

Clinical Presentation

- **ADHD**
  - Described symptoms
    - Inattention
    - Difficulty with concentration
    - Hyperactivity/impulsivity
      - Bit less common, but sometimes you see this in the office
  - Can describe anxiety and/or anxious restlessness
  - Intelligence and coping strategies help until they don't
  - Symptoms are consistent and present in multiple spheres
    - Don't just think work, manifestations are also seen in someone's personal life

- **Major Depressive Disorder**
  - Substantial and predominant clinical symptoms of depression
    - This includes:
      - Poor attention
      - Difficulty with concentration
  - Symptoms are episodic

- **Anxiety disorders**
  - Substantial and predominant anxiety symptoms
    - This includes:
      - Poor attention
      - Difficulty with concentration
  - Symptoms are more consistent, but attention and concentration should improve with decreased anxiety

- **Bipolar Disorder**
  - Substantial clinical symptoms dominated by disorganization, elevated mood, excessive goal directed activity, and impulsivity
    - This can include:
      - Poor attention
      - Difficulty with concentration
  - Symptoms episodic and pt returns to baseline between episodes

So how do we make this diagnosis?

- Gold standard:
  - Clinical history and presentation + rating scales
  - Additional collateral history and ratings demonstrating:
    - Childhood symptoms
    - Presence of symptoms in multiple life areas
- But…
  - Collateral is extremely time consuming
  - Childhood experiences vary and memory is highly fallible

And…

- If individuals think they have ADHD (or want that diagnosis), it is very easy to answer rating scales in a way that confirms their beliefs
- Multiple independent studies have shown that very little education is needed to answer our most common ADHD rating scales to net the diagnosis
  - Participants could accurately “fake” the diagnosis 75-93% of the time
  - The Connors’ Adult scale and ADHD rating scale were some of the easiest to ”fake”
- Better scales exist and can be obtained from neuropsychologists

Sansone, RA, Sansone, LA. Faking Attention Deficit Hyperactivity Disorder. Innovations in Clinical Neuroscience. 2011;8(8): 10-13.

What about cooccurring disorders and treatment?

- Comorbid psychiatric disorders are common
- Often providers will treat mood and anxiety disorders “first” in an attempt to see if residual attention symptoms remain, but this varies based on the presentation
- There is nothing wrong with concurrent treatment

You Made It!!

Now back to Chad

So what do you want to do for Chad?

- He is presenting with:
  - Difficulty with attention and concentration
  - Poor work performance
  - Distress
  - Complaints of anxiety
  - Maybe some history of symptoms of inattention and hyperactivity as a child
- He's afraid he's going to lose his job and wants to know what to do?

Let's Hear It

What do you think?

What can we do to treat ADHD in adults?

Treatment - Stimulants

- **Stimulant medications**
  - LOTS of them… but they are all either:
    - **Methylphenidate** (or some analog)
      - Ritalin; Concerta; Daytrana; others
    - **Amphetamine** (or some analog)
      - Dexedrine; Adderall; Vyvanse (lisdexamfetamine)

- Work by facilitating norepinephrine and dopamine release and preventing their reuptake
- Effect sizes similar between the two and generally around 1.0
- Controlled substances
  - Logistically a pain

Faraone, SV, Glatt, SJ. A Comparison of the Efficacy of Medications for Adult Attention-Deficit/Hyperactivity Disorder Using Meta-Analysis of Effect Sizes. J Clin Psychiatry. 2010;71:754-763.

Stahl, SM. Stahl's Essential Psychopharmacology: Prescriber's Guide. Eighth Edition. Cambridge University Press. New York. 2024.

Stimulants

- Prescription rates have increased 250% from 2006 to 2016
- Notable side effects:
  - Insomnia, reduced appetite, headache, anxiety symptoms, irritability, tremor, dizziness
- Cardiac side effects:
  - Increase in SBP by 2-7 mmHg
  - Increase in HR by 6-10 bpm
  - These impacts are consistent across all stimulants
- Cardiac side effects are most concerning in elderly patients, but controlled trial data is limited

Paulmann, R, et al. Cardiovascular Safety of Amphetamine/Dextroamphetamine versus Methylphenidate in Older Adults. Journal of Pharmacy Practice. 2024;37(5):1116-1120.

Stahl, SM. Stahl's Essential Psychopharmacology: Prescriber's Guide. Eighth Edition. Cambridge University Press. New York. 2024.

Treatment Recommendations - Stimulants

- There is a lack of direct comparator trials – pooled meta-analyses do not demonstrate any one stimulant class being better than the other
  - Individual patients will have preferences
- In adults I generally start with an amphetamine agent in an extended release formulation
  - If they have positive history with an agent or preconceived positive regard for something – work with that
  - Start low and see how people do
  - I am NOT a fan of weight based dosing in adults

Faraone, SV, Glatt, SJ. A Comparison of the Efficacy of Medications for Adult Attention-Deficit/Hyperactivity Disorder Using Meta-Analysis of Effect Sizes. J Clin Psychiatry. 2010;71:754-763.

Treatment Recommendations - Stimulants

Treatment side effect	Recommendation
No effect of any kind	Switch to alternative stimulant base agent
Some effect	Increase dose slowly
Insomnia	Reduce dose or switch to short acting from XR
Poor appetite	Reduce dose or switch to short acting from XR
Loss of efficacy in the afternoon	Add second daily dose (generally IR – watch for insomnia or anorexia)
“Crash” later in the day	Switch to XR or different XR formulation of same base agent
Feeling too “jittery”	Lower dose, switch to XR or different XR formulation of same base agent, can also try other base agent

Treatment Recommendations - Stimulants

- Consider treatment agreements
  - Just like opiate treatment agreements
  - Sets clear limits and boundaries
    - What will your refill policy/practices be?

- Random urine drug screens are now general standard of care
  - Remember that methylphenidate will not show up in a standard urine drug screen

What about treatment?

- **Non-Stimulant Medications:**
  - Not as effective as stimulants, but effective – Effect size ~0.4
  - Not controlled substances
    - Logistically much easier
  - Effects substantially delayed
    - Need to wait 8-12 weeks for full effect at a given dose
- **Atomoxetine**
  - Norepinephrine reuptake inhibitor – indirectly increases dopamine in the prefrontal cortex
- **Bupropion** (Not FDA approved)
  - Unclear mechanism of action, increases levels of multiple neurotransmitters including norepinephrine and dopamine
- **Clonidine, guanfacine**
  - FDA approved to treat ADHD in children and adolescents, generally not used in adults

Faraone, SV, Glatt, SJ. A Comparison of the Efficacy of Medications for Adult Attention-Deficit/Hyperactivity Disorder Using Meta-Analysis of Effect Sizes. J Clin Psychiatry. 2010;71:754-763.

Stahl, SM. Stahl's Essential Psychopharmacology: Prescriber's Guide. Eighth Edition. Cambridge University Press. New York. 2024.

Treatment Recommendations – Non-stimulants

- **Atomoxetine** – FDA approved
  - Go-to for ADHD + anxiety or depression
  - Start with 40 mg once a day, then increase
  - WAIT for effect
- **Bupropion** – Not FDA approved
  - Go to for ADHD + smoking or depression
  - Not the first choice for those with anxiety
  - Start with XL formulation at 150 mg and increase to 300 mg or more
  - WAIT for effect

Psychotherapy for ADHD

- Psychotherapy for ADHD does exist, though data and practice are not as robust as for other psychiatric diagnoses
  - The most robust data exists for CBT protocols
    - Many of these studies lack adequate control groups and/or blinding
  - Pure attentional and organizational skills training can also be effective
  - There may be some promise for mindfulness based therapies, DBT, and even hypnotherapy
- Limited data exist to compare psychotherapy alone to medication based treatment
- Likely best used as an augmentation agent or a solo treatment strategy for more mild symptoms

Nimmo-Smith V, et al. Non-pharmacological interventions for adult ADHD: a systematic review. Psychological Medicine. 2020; 50:529-541.

Case # 2

Case # 2 - Chris

- Chris is a 24 yo cis man (he/him/his) who presents to your clinic to see you for the first time. He is a first year medical student and relates that he has really been struggling with school. College was a breeze, but the modules of first year are not. It's true that he does not have grades, but he does need to pass his classes and and has failed multiple quizzes. He feels like there are so many facts to memorize and he just struggles with how much studying he is supposed to do. He knows he's really smart so there must be something going on. He tells you that his mood has been good and he has been stressed out because he's not doing as well as he wants, but otherwise he denies other psychiatric symptoms.
- He then tells you he took his roommate's Adderall and things were "amazing." He studied like a champ and rocked his quiz.
- He's hoping you might be able to hook him up with the good stuff

Pair and share time

- What are some obvious difficulties with this presentation?

- What do you feel is going on here and what do you want to do about it?

Let's Hear It

What do you think?

Cognitive enhancement

- Stimulants improve performance for most people
  - Regardless of if they have ADHD or not
- Use of stimulant medications for cognitive enhancement is very real
- This is in line with increased cognitive and academic demands for young people
- It's also in line with American societal ideals
- Provider limits are often personal and there are few lines in the sand

Sansone, RA, Sansone, LA. Faking Attention Deficit Hyperactivity Disorder. Innovations in Clinical Neuroscience. 2011;8(8): 10-13.

Misuse on college campuses

- A substantial proportion of students who are legitimately prescribed stimulant medication divert that medication to others
- Studies of student's rate of misuse of stimulant medications vary
  - 5%-30%
- Benefits range outside of academic performance alone
- Perception of harmfulness is low

Sansone, RA, Sansone, LA. Faking Attention Deficit Hyperactivity Disorder. Innovations in Clinical Neuroscience. 2011;8(8): 10-13.

We shouldn't forget that treating ADHD is good for people

- ADHD symptoms are very real and impact quality of life
- An observational nationwide cohort study in Sweden looked a mortality rates for individuals with ADHD ages 6 through 64
  - Those who experienced treatment initiation had:
    - Lower all-cause, 2-year mortality by 8.9 per 10,000 individuals
    - Lower unnatural-cause, 2-year mortality by 7.4 per 10,000
    - No difference in natural cause mortality

Li et al. ADHD Pharmacotherapy and Mortality in Individuals With ADHD. JAMA.2024;331(10); 850-860.

My recommendations

- Think about your limits before appointments
  - Don't be shy about not making a snap judgement
  - What are the limits of your practice partners? Are you all consistent?
- Be sure that you and the patient are both clear on the goal
  - Particularly when you get outside of academic settings, this can become a bit elusive at times
- Discuss your limits openly with your patients and consider referrals for those who are dissatisfied

Case # 2 - continued

Case # 2 - Chris

- You remembered going to a really great talk about adult ADHD with a psychiatrist and he mentioned that you should always take a good psychiatric history when considering treatment. You already asked Chris about depression and anxiety symptoms, but you decide to do a bit of screening on substance use.
- He tells you that he drinks pretty occasionally, maybe once a month and 2-3 drinks in a setting. He does not use tobacco, but his roommate introduced him to cannabis and he does use "some."
- When you ask more about this, he describes that he mostly smokes it and smokes most nights to help him calm down, particularly now that he's more stressed about school.
- He struggles to tell you how much he uses, but says that a half ounce lasted him two weeks when he last purchased it

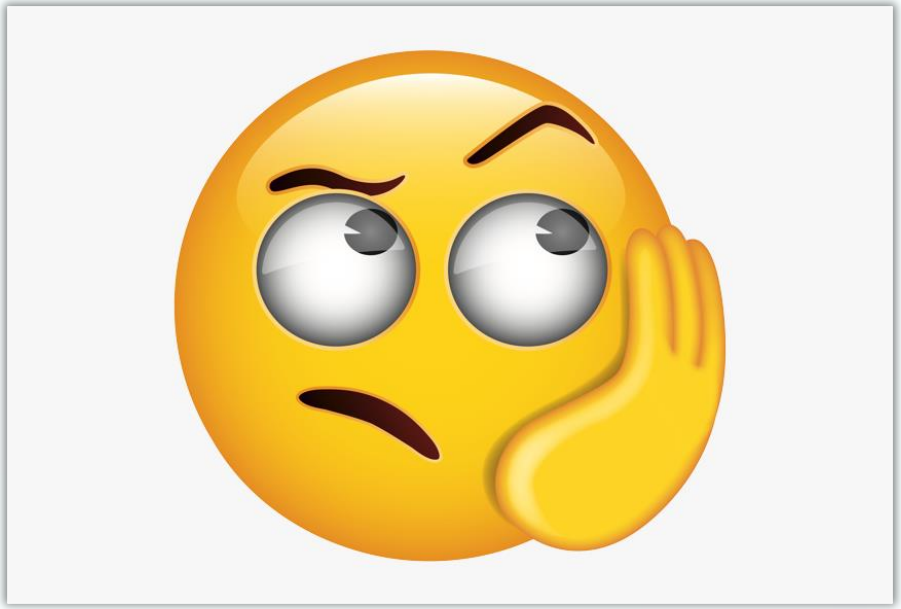
Would this change anything?

What do you think?

ADHD and Substance Use

- Comorbidity rates of substance use disorders are high
- Evidence does suggest that treatment of ADHD in the setting of a substance use disorder will still improve ADHD symptoms and lead to better outcomes
- Non-stimulant based treatment is generally favored for those with active substance use disorders
- Exact treatment recommendations are still an area of some disagreement
- **Think about your own limits before the visit**
  - **Particularly around non-problematic substance use**

Cunill R et al. Clinical practice guideline on pharmacological and psychological management of adult patients with attention deficit and hyperactivity disorder and comorbid substance use. Adicciones.2022;34(2); 168-178.



OK… but I'm a hospitalist

What is in this talk for me?

ADHD in the hospital setting

- Hospitalists are most likely to encounter ADHD as part of:
  - Medication interactions
  - Comorbid psychiatric illness
  - Maintenance of a home medication regimen
  - Challenges with attention, comprehension, impulsivity
    - This is rare
- **Overall, treatment of ADHD is not a psychiatric emergency**

ADHD in the hospital setting

- Stimulant medications can get in the way of things you might want to do
  - They do increase HR and BP
  - They are deliriogenic
    - Particularly in combination with other medications
      - Think opiates, steroids, anticholinergics
    - Particularly in elderly and very medically ill patients
- I would have a low threshold for stopping these medications if there is clinical concern
  - This will not be dangerous and they can be restarted later

Take Home Points

- Adult ADHD is very real and benefits from treatment
- Both stimulant and non-stimulant based medication therapy can be effective in treating ADHD
- Treatment for cognitive enhancement and challenges in making accurate diagnoses make the job of the primary care provider much more challenging