

Approaching Adult ADHD Diagnosis and Treatment: Embracing the Complexity

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Leah Bauer, MD: No disclosures

Andrea Truncali, MD, MPH: No disclosures

Note: We come with our own biases as SUD providers

Objectives

To broaden perspective on adult ADHD and cultural and societal influences on its presentation

To refine approaches to patients seeking ADHD diagnosis and treatment

To understand the risks and potential harms of prescription stimulant therapy

Don't get too excited...



**“Next time, don’t start the presentation by asking,
‘Can you tolerate ambiguity?!’”**

Attention-Deficit Hyperactivity Disorder (ADHD) defined

Persistent pattern of **inattention** and/or **hyperactivity-impulsivity**

Interferes with functioning or development

Onset of symptoms before age 12

Present in two or more settings

Not better explained by another mental disorder

Symptoms include:

- Difficulty sustaining attention, completing tasks, careless mistakes, organizational challenges
- Fidgeting, talking excessively, interrupting, "driven by a motor"
- Executive function deficits (working memory, time management, planning)
- Emotional dysregulation

ADHD in Adults

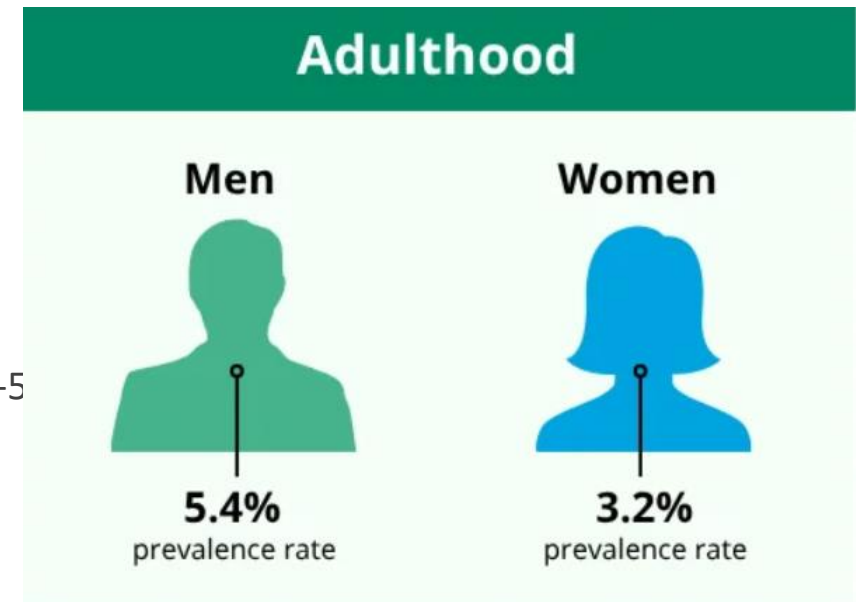
3-7% adults have ADHD ^{1,2}

- Onset is in childhood (prevalence 10-11% in kids)
- Some "grow out of it" or find ways to adapt
- Others were not diagnosed in childhood

10-21% of those with Substance Use Disorder have ADHD ³⁻⁵

ADHD is associated with increased risk of:

- Unemployment
- Car accidents
- Mortality
- Impaired relationships



1. Song et al, J Glob Health, 2021
2. Kessler et al , Arch Gen Psy, chiatry 2005
3. van Emmerik-van Oortmerssen et al, Drug Alc Dep, 2012
4. Rohner et al, Int J Env Res Pub Hlth, 2023
5. Huntley, et al. BMC Psychiatry 2012

Is ADHD Over-Diagnosed?

It is likely both over and under-diagnosed

High degree of symptom overlap with other psychiatric conditions is major cause of misdiagnosis

There is clear evidence of overdiagnosis

- Evidence of less efficacy for individuals with milder symptoms ²
- Children born earlier in the school year are diagnosed and treated with greater frequency than those born later in the year ³
- Exaggeration and malingering are well documented and effective - especially with the use of symptom scales alone ⁴⁻⁸
- Broadening of criteria --> higher prevalence of ADHD₁

1. Matte, 2015

2. Kazda, JAMA Network Open, 2021

3. Layton, et al, NEJM, 2018

4. Marshall, 2021

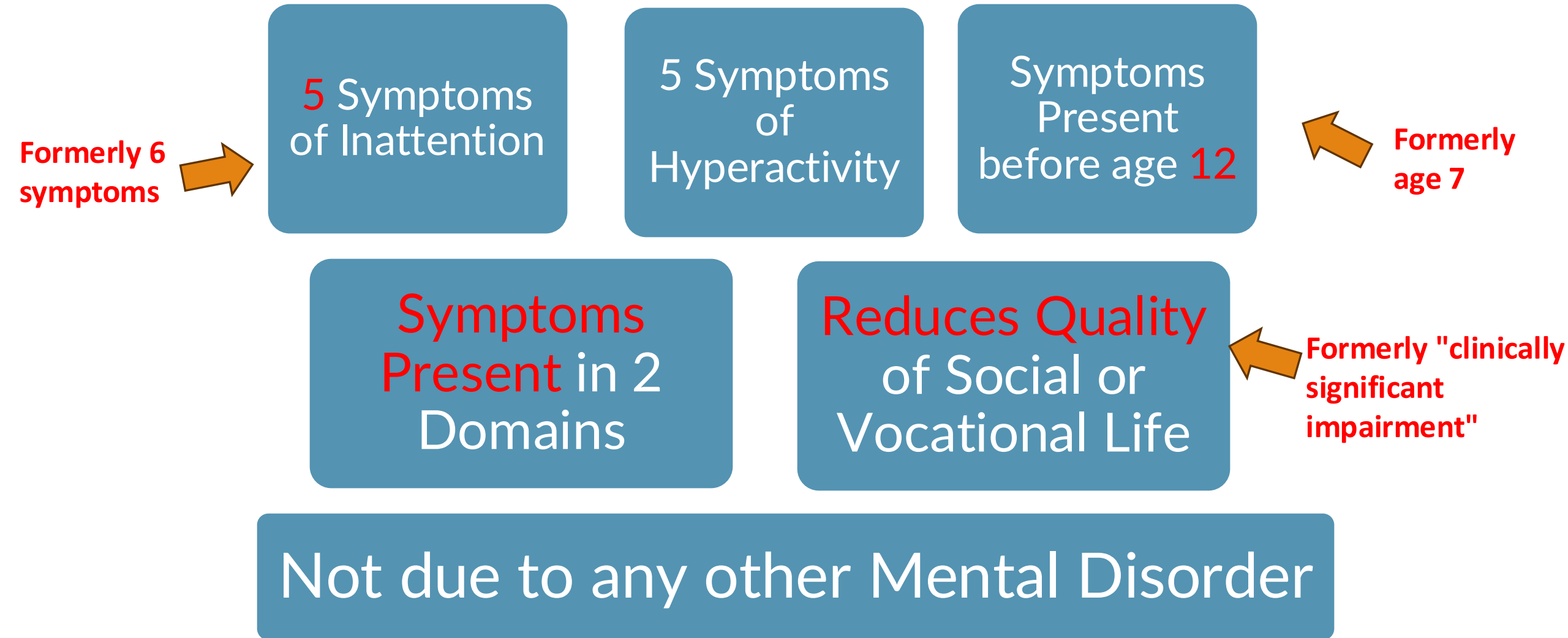
5. Fuermaier et al., J Neural Transmission, 2021

6. Sollman et al., Psychological Assessment, 2010

7. Quinn CA, Arch Clin Neuropsychol, 2003

8. Booksh et al., J Atten Disorders, 2010

DSM-5 Broadened Diagnostic Criteria:



Where is ADHD under-diagnosed?

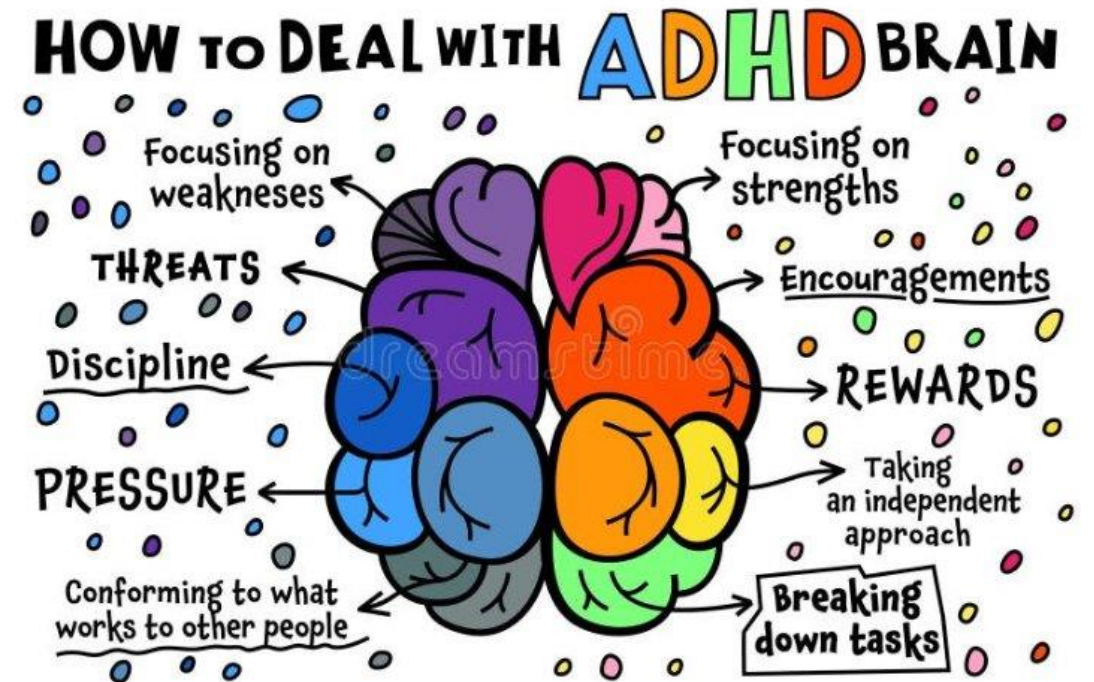
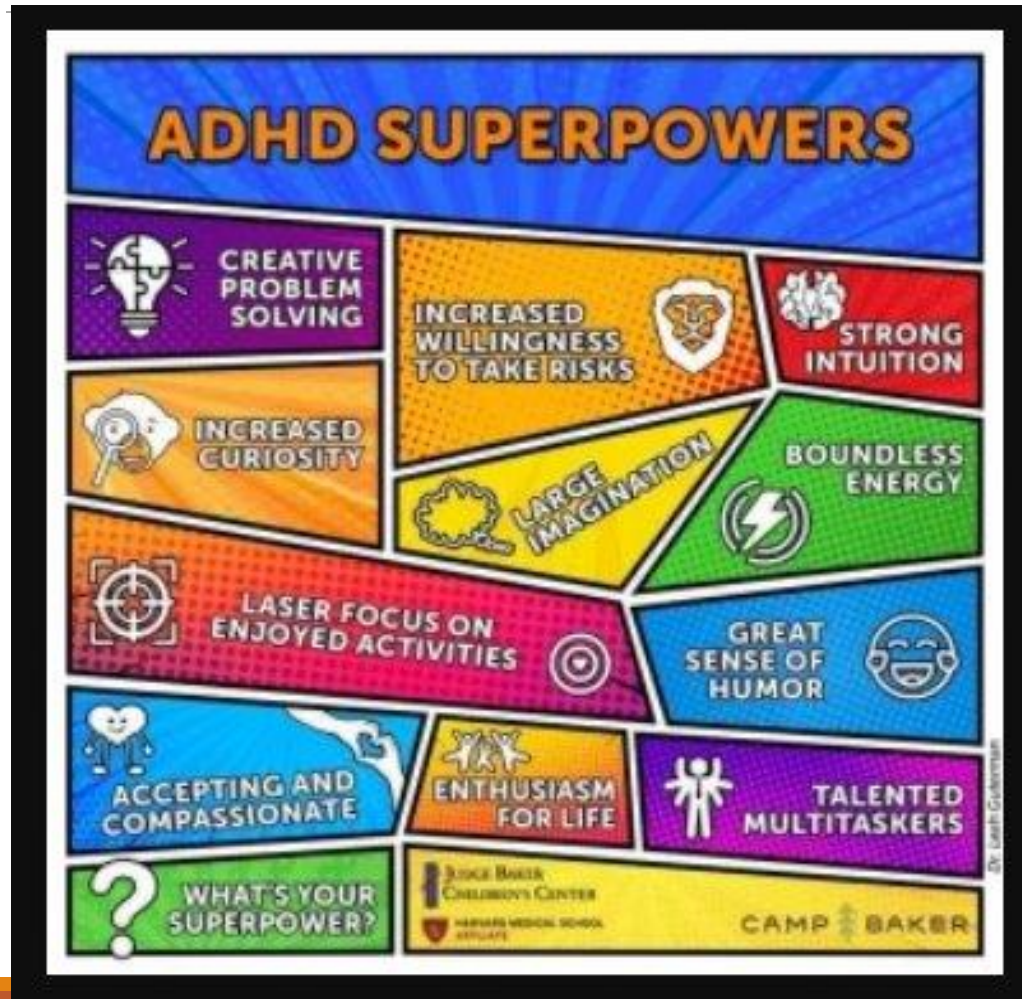
Women and girls

- Females diagnosed 1.7-4 years later than males
- Due to:
 - Predominantly inattentive symptoms
 - More likely internalizing vs externalizing symptoms
 - Diagnostic overshadowing: anxiety/depression
 - Compensatory strategies (masking)

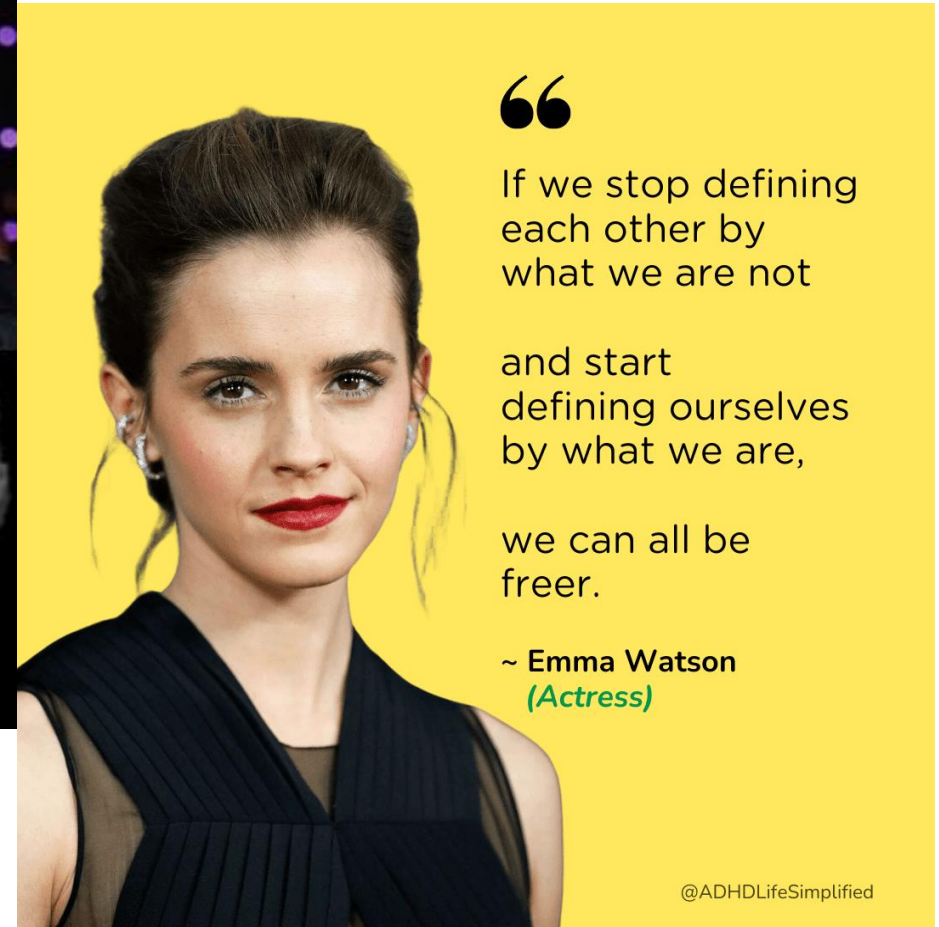


(Martin, 2024)

ADHD: not necessarily a "disorder"?



ADHD can be a secret to success

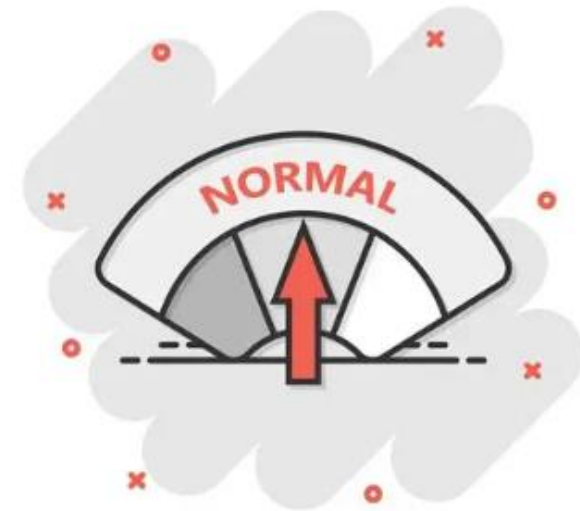


What even *is* normal?

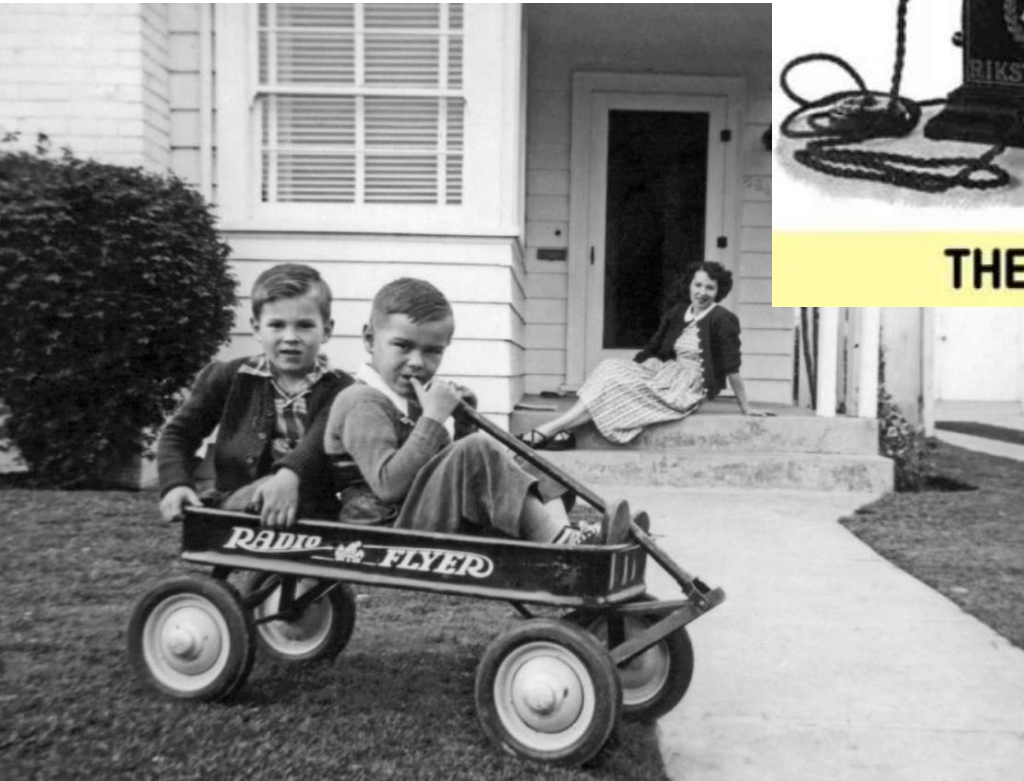
ADHD is a **real neurodevelopmental condition** with biological underpinnings.
But whether it becomes *disabling* depends heavily on **environmental fit**.
Modern attention-fragmenting environments may **amplify or mask** symptoms

Our culture shapes our behavior

- Traditional school settings
- Digital distractions, smart phones, video games
- Social media
- Productivity/hustle culture



What role does our environment play?



THEN



NOW



It's Easy to Relate

https://youtube.com/shorts/TW_3a16iax4?si=7MfVYj4hnbMBUxrz

5 secret behaviors

<https://www.youtube.com/shorts/MzUN2J3e1o0>

adhd "test"

<https://www.youtube.com/shorts/5X8m4HrWBQo>

adhd rage triggers

<https://www.youtube.com/shorts/PWi9uz3ThJs>

adhd walk



"Of the 100 videos meeting inclusion criteria, 52% were classified as misleading, 27% as personal experience, and 21% as useful. Videos on the platform were highly understandable by viewers but had low actionability."

-Yeung, Can J Psych, 2022

It's (maybe a little too?) easy to get treatment

Take Your ADHD/ADD Assessment Test

Take our quick and insightful ADHD assessment to better understand your focus, energy, and behavior patterns. Easy, engaging, and designed to help you gain clarity and take the next step toward personal growth.

TAKE YOUR TEST

Online

Curious about stimulant or non-stimulant approaches?

Diagnosis Treatment Pricing Referrals Resources Patients Start Now

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Assessment & Diagnosis Cost

We believe everyone should have access to an ADHD assessment that meets high clinical standards, without the high costs.

That's why we've made it affordable to receive a diagnostic evaluation for ADHD from licensed psychologists.

Adult ADHD Assessment & Diagnosis	ADHD Online	Traditional In-person ¹
Cost	\$199	\$1,689
Wait time to take the assessment	None	1-3 months

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https://www.adhdadvisor.org › treatment

ADHD Doctors in Maine | No Office Visit Required

Sponsored Get ADHD care from \$130/month with therapy and medication support when appropriate. ADHD treatment in Maine may include medication if appropriate.

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Take ADHD Assessment

ADHD Diagnosis Online

ADHD Medication

Already Diagnosed?

Treatments

New Jersey

Get your ADHD Prescription Online Today

Start by taking your online assessment

In the next few hours

Tomorrow

This week

Not sure

Trends in rates of new stimulant recipients in Ontario, Canada

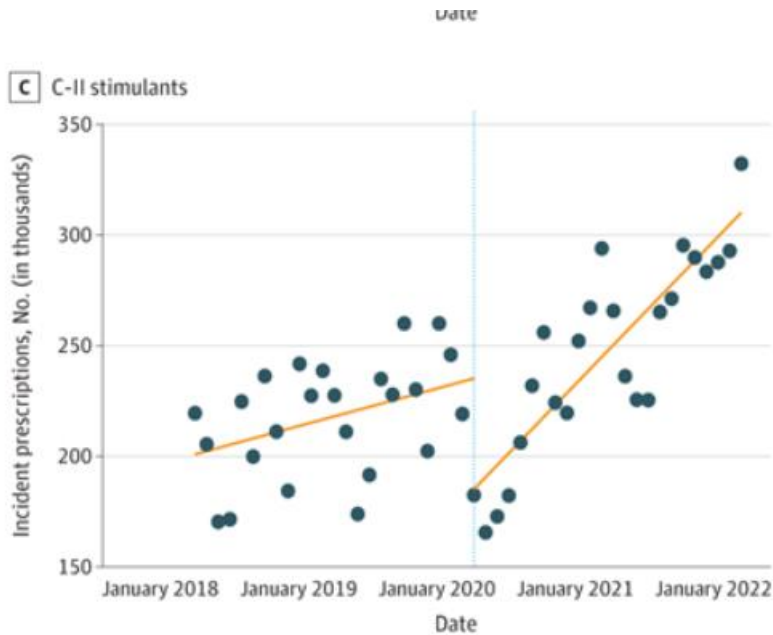
"The rising impact of social media influencers on ADHD awareness in young adults, as well as the rapid evolution of virtual health services that support online assessments and treatment, may also be contributing to misdiagnoses and potential harm." - Mina Tadrous PhD (senior author)

2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |

Year and month

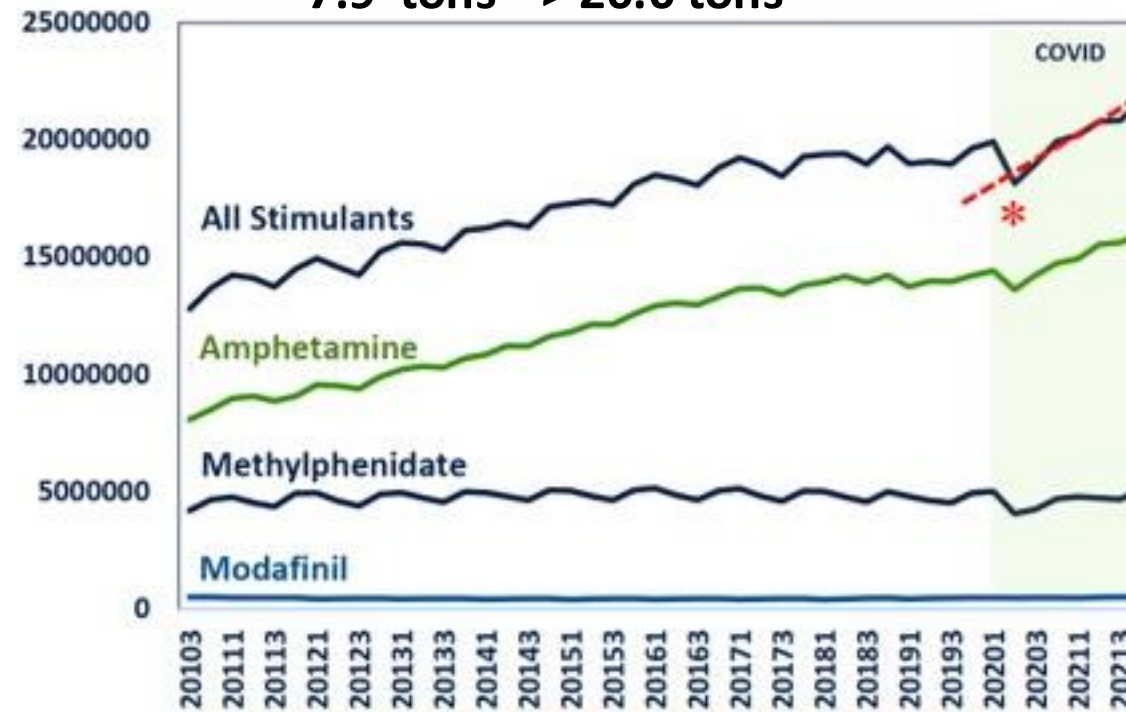
Tara Gomes et al. CMAJ 2026;198:E313-E325

Stimulants prescriptions are skyrocketing



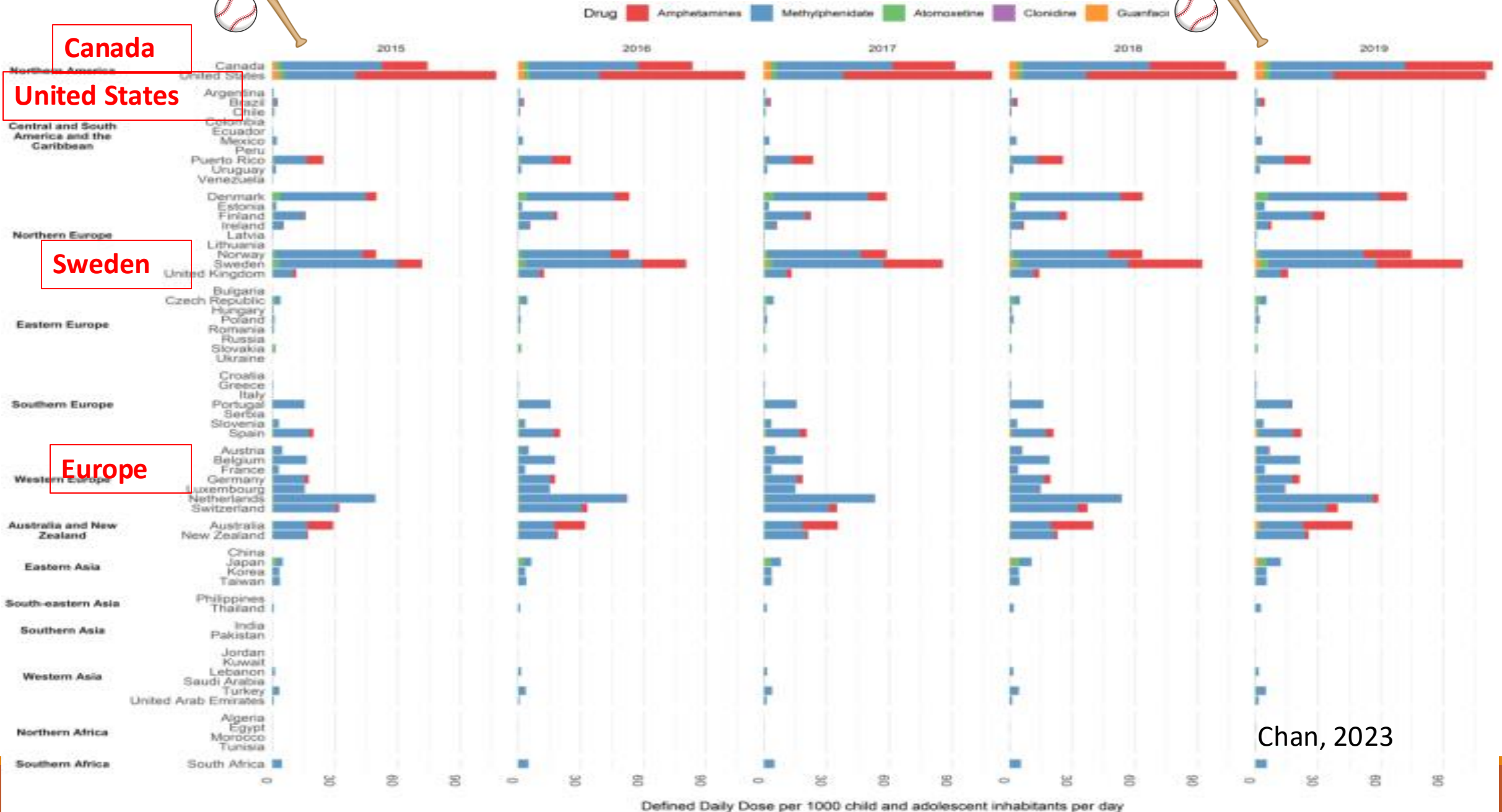
Chai, Jama Psych, 2024

2006 --> 2016
7.9 tons --> 20.0 tons



(Piper, 2018)

Amphetamines are All-American



Chan, 2023

Clinical Diagnosis

How is ADHD diagnosed?



No definitive diagnostic test

Structured clinical evaluation of DSM5 criteria

Validated rating scales

Input from parents/teachers/others

Rule out co-morbidities that contribute to poor attention:

- anxiety, depression, PTSD, bipolar disorder, lifestyle factors (poor sleep, stress), sleep disorders

Labs or imaging of no use

Neuropsych testing?

(Pediatrics, 2019)

The Role of Neuropsych Testing

Not shown to increase diagnostic accuracy

ADHD does not have a unique neuropsychological profile

Good PPV, low NPV (lots of false negatives)

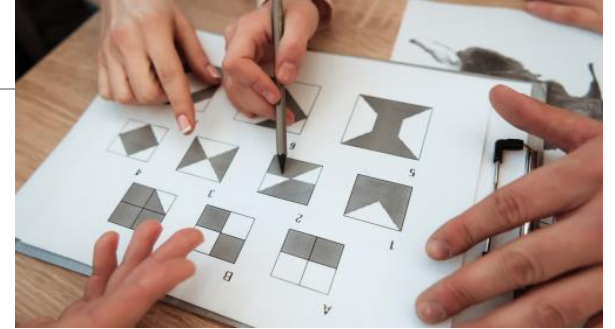
- Up to ¼ of children with ADHD test normal

Identifies comorbid learning disorders, cognitive strengths and weaknesses

Helps with symptom validity when concerns for malingering/exaggeration of symptoms

Often not practical: \$\$\$, long wait times

When used along with clinical data can help piece the full picture together



(Pettersson, J Atten Disord, 2018)

Conditions that share symptoms with ADHD

Psychiatric

- MDD
- GAD
- Bipolar disorder
- Borderline PD
- PTSD
- ASDs
- SUDs
- Learning disorders

Medical

- Sleep disorders (OSA in 1/3 of US adults, 80% undiagnosed)
- Anemia
- Thyroid abnormalities
- Medication side effects (steroids, Anti-cholinergics)
- Concussion/TBI
- Seizure disorders

Cannabis Considerations

Cannabis intoxication **mimics symptoms of ADHD, deficits in:**

- Attention
- Working memory
- Decision-making

Effects can persist beyond intoxication in heavy-using youth. (Delazizzo, Addiction, 2022)



"But it helps me!!!":

- Lower mental frustration though cognitive impacts worse across the board
- One RCT of cannabis for ADHD exists: results were negative (Cooper, Eur Neuropsychopharm, 2017)

"If you're regularly getting high, will you *really* use your meds as prescribed?"

About 1/3 of ADHD patients that use cannabis misuse stimulants (Ryan, J Atten Dis, 2026)

Approaching Diagnosis

Slow it down: set expectation that you won't Rx at initial visit

Limitations and utility of assessment tools

- ASRS has PPV of 0.26 (26% of people who score positive actually have it)

Obtain Collateral: parents, partners, co-workers, clinicians

Inheriting patients: do your own homework!

Evaluate longitudinally

Stabilize co-occurring SUD or other psych conditions first

Pharmacologic Treatment of ADHD

Performance
enhancement:
Why not treat
everyone?



What are the effects of stimulants
on individuals without ADHD?



What are the ethical
considerations?

Effectiveness of stimulants on performance in healthy adults

- No support for improvement in overall cognitive ability¹
 - Minimal effects on inhibitory control and short term memory in subgroups, with evidence of publication bias ^{2,3}
 - RCT of amphetamines showed no effect on objective performance but did show an effect on perception of performance ¹
 - Theoretically, U shaped curve, with optimal performance occurring at "moderate arousal" such that higher performers will worsen with introduction of stimulants ⁴
 - Possibility of paradoxical reduction in neuroplasticity and increase in cognitive decline and addictive behavior ⁵
1. Ginschgl, Physics Life Revs, 2025
 2. Ilieva, Cog Nsci, 2015
 3. Roberts Eur Neuropsychopharm, 2020
 4. Lonrad and Dresler, 2025
 5. Schifano, Drugs, 2022

Performance enhancement: Ethical considerations

- **Coercion** -pressure to use stimulants to be competitive
- **Distributive justice** - unequal access to enhancement and to managing negative consequences
- **Authenticity**- is an enhanced mind an authentic mind?
- Does a medication which affects emotions and decision making undermine **autonomy** it is meant to serve?
- **Risk-benefit favors risk at the present time**
 - Public messaging generally overemphasizes benefit and underestimates risks
- What is the **public health impact** of a widely available addictive substance?

Maslen, Front Systems Nsci, 2014

Larriviere, AAN, 2009

Maier, Plos one, 2015

What is the evidence
base for
pharmacologic
treatment of adult
ADHD?

THE SHORT VERSION

Conflicts of interest are the rule

Researchers

- Most prominent researchers have or had pharmaceutical ties¹
- Senate Investigation, 2008 – Biederman, Wilens and Spencer
- Cochrane review on methylphenidate in adults, 2016, retracted for COIs

DSM Panel

- Majority of panel members responsible for widening definition of ADHD& allowing adult ADHD diagnosis have ties to industry³

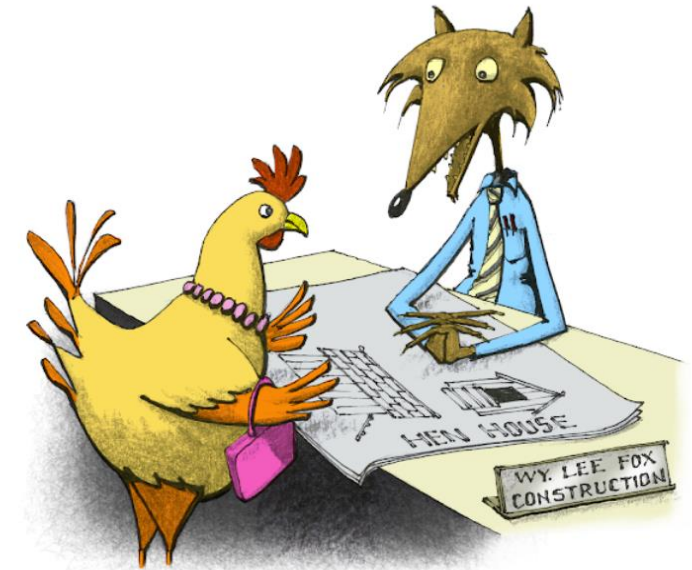
Clinicians

- 2014-2018 \$7B in marketing to physicians for lisdexamfetamine alone²
- Increasing: 2021-2023 \$1.8-->3.6M for physicians and \$0.5 to 1.6M to ACPs⁴

○ Patient/family advocacy groups

- Founded, supported and/or supervised by pharmaceutical companies or connections^{1,5}
- Used as a part of pharma's direct to consumer marketing strategy⁵

THE RIGHT BRAIN
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"...CONFLICT OF INTEREST?"

1. Schwarz, ADHD Nation, 2016
2. Donahoe et al, JAMA Pediatrics, 2025
3. Hadland et al., JAMA Pediatrics, 2020
4. Moynihan et al., PLOS Medicine, 2013
5. Citizens Commission on Human Rights, CCHR.org

Why do we treat adult ADHD?

Subjectively feel better/reported reduction in MH symptoms

Employment

Accidents/Injuries

Relationships

?Reduce SUD/support recovery

What outcomes would support treatment?

Symptom scales

Psychiatric assessment

Retention in care (+-)

Employment history

Traffic safety data

Hospitalizations/ER visits

Social history data

Substance use

How long would it take to see these outcomes?

RCT Evidence for effectiveness

- Vast majority of studies were pharmaceutical funded (16 of 19 in last Cochrane review on amphetamines)^{1, 2}
- Data quality considered low to very low¹⁻² mostly due to:
 - Lack of blinding (placebo comparisons), with subjective outcomes
 - Short duration 5.3weeks on average ¹
- Outcomes measured (often not declared *a priori*): symptom reduction / clinician assessment
 - Clinician rating: SMD -0.90(-1.04, -0.75) change of 1-2/7 points on Clinical Global Impression Scale
 - Methylphenidate had no effect on missed days of work at 13wks (low certainty evidence)

1 Castells, Cochrane, 2018

2 Boesen, Cochrane, 2022

Stimulants vs non stimulants

A few small head to head comparisons done in adults show no difference in adhd symptoms ¹⁻⁴

- Paroxetine vs dex-amp (both up to 40mg/day) x20wks
- 3 trials comparing methylphenidate to atomoxetine

1. Weiss and Hechtman, J Clin Psychiatry, 2006
2. Ni, et al. Journal of Psychopharmacology, 2016
3. Ni et al. J Atten Disord 2017
4. Shim et al, Clin Psychopharmacol Neurosci. 2022

Functional Outcomes

Studies in adults are observational (comparing on/off treatment or treated vs not treated), where prescription stimulants are associated with:

- Decreased car accidents¹; Decreased unemployment among women, not men²
- 2025 Swedish database study³:

Suicidal behavior: 2.9 vs 3.4%
Substance misuse: 11.2 vs 12.9%
Transport accidents: 4.8 vs 5.4%
Criminality: 12.4 vs 14.1%
Accidental injury: no effect

Magnitude of associations are decreasing as prescribing prevalence increases⁴

1. Chang et al., JAMA Psychiatry, 2017

2. Li et al., JAMA Network Open, 2022

3. Zhang et al, BMJ (Clin Res), 2025

4. Li, et al, JAMA Psychiatry, 2025

Risks/Harms

Quality of data on harms for FDA approval

	General Recommendations ³	Flovent (fluticasone) ²	Stimulants ¹
Short term studies	300-600 pts ≥ 6 months	1,090 patients total 3-4months	20 stimulant drugs: 70 pts (median), 4weeks (median). - 11 stimulant drugs approved with total of < 100 patients and 5 drugs approved with < 4 weeks of data
Long term/post marketing	100 patients ≥ 1 year	507 patients in 12-month safety study	Required data for 6 drugs but only 2 of the 6 required studies were performed

Conclusion: Pre-marketing data grossly insufficient to determine safety

***5/2023 – Boxed warning r/t risk of misuse and addiction**

1. Bourgeois et al., PLOS One, 2014
2. <https://www.accessdata.fda.gov/>

3. International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use. ICH Guidelines.

Quality of data on harms is limited

“Taking into account both efficacy and safety, evidence from this meta-analysis supports ...amphetamines in adults, as preferred first-choice medications for the short-term treatment of ADHD.” - Cortese, 2018

- Excluded studies with high doses (e.g., 40 mg of mixed amphetamine salts)
- Excluded people with psychosis, hypertension or tics
- Tolerability measured by study withdrawal due to side effects
 - **Not observing long enough or with the testing needed to detect SUD**
- Criticized in editorials ²⁻⁴ “important AEs not included” i.e., sleep disturbance, appetite suppression”, but lack of attention to SUD was not noted
 - Reminiscent of opioids in the era of marketing about opioid and chronic pain⁶

1. Cortese, et al. Lancet Psychiatry, 2018

2. Editorial, Warren, Nov 2018

3. Editorial, Wang and Zheng, Nov 2018

4. Editorial, Faltinesen et al, Nov 2018

5. Authors Reply, Cipriani, Nov 2018

6. Katz, Clin J Pain, 2007



Cardiovascular risks

Stimulants increase blood pressure and heart rate ¹

Studies tend to exclude individuals with pre-existing cardiovascular disease:

Non-elderly adults 25 – 64 years ²

- No increased risk of serious cardiovascular events (stroke, MI, sudden cardiac death)

Adults > 65 years ³

- 40% increased risk of serious cardiovascular events within first 30days, decreased to zero over one year (driven largely by ventricular arrhythmias HR 3.0, stroke/TIA 1.6)

Swedish registry data, ages 13+ evaluated HTN and vascular disease risk ⁴

- AOR 1.72, 1.51-1.97 for 3-5yrs
- Increased risk of 4%/yr. Followed x14yrs

1. Chan, et al Cochrane Database Sys Rev, 2025

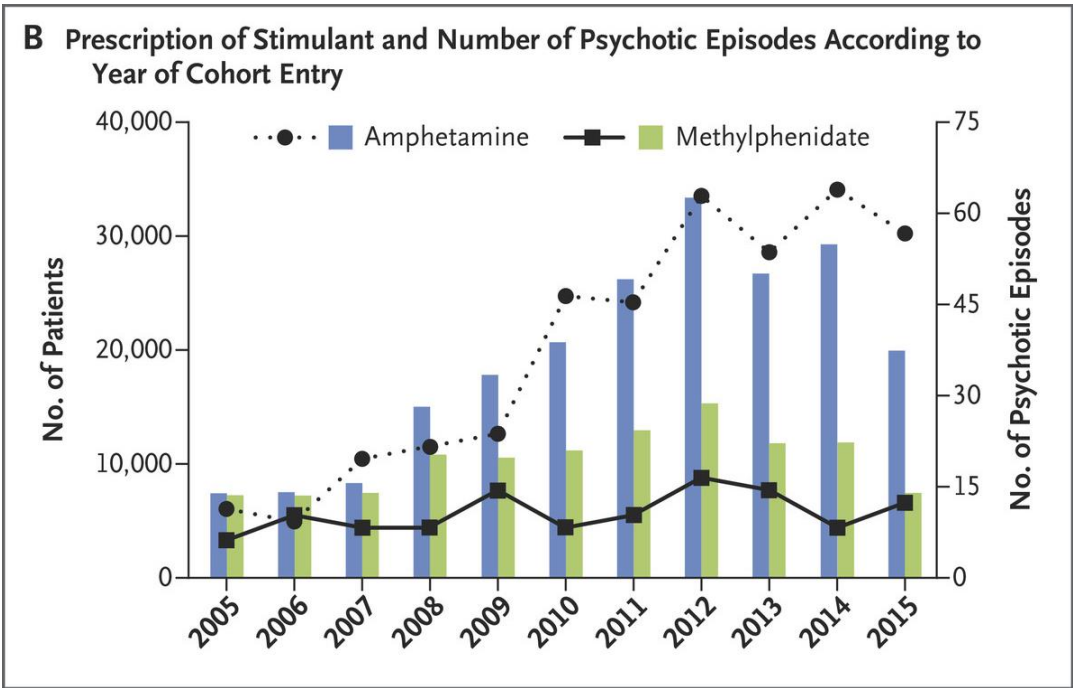
2. Habel et al., JAMA 2011

3. Tadrous et al., JAMA Network Open, 2021

4. Zhang et al, JAMA Psychiatry, 2024

Psychosis

Risk Of New Onset Of Psychosis: Amphetamines > Methylphenidate ¹



Dose Dependent Increase In First Episode Psychosis/Mania²

	Controls	Cases	Adjusted OR ± 95% CI
Dextroamphetamine Equivalents			
None	2,538 (92.9%)	1,170 (87.7%)	Reference
Low: ≤ 15 mg	96 (3.5%)	54 (4.1%)	1.74 (1.13, 2.72)
Medium: > 15 & ≤ 30 mg	65 (2.4%)	61 (4.6%)	3.54 (2.21, 5.66)
High: > 30 mg	34 (1.2%)	50 (3.8%)	5.28 (3.21, 9.68)

Dextro >30, roughly equivalent to 40mg mixed amphetamine salts

1. Moran et al., NEJM, 2019
2. Moran et al., Am J Psychiatry, 2024

Misuse and Diversion among those using prescription stimulants

Adults (ages 18-64): 25.3% reported misuse and 9.0% met SUD criteria

- Misuse in amphetamine users 3.1x that of methylphenidate users

College students: 24.9% reported misuse

- 62% lifetime prevalence of diversion of prescribed stimulants to peers
- Higher misuse with increase in university level prescription rates

Young adult women (18-25): Highest misuse rate at 36.8% of users

Adolescents (12-17): 1.2% past-year nonmedical use, with a declining trend

- nonmedical use lowest in 2023 at 4.69% lifetime and 1.15% current, even as medical use remained stable

Han, JAMA Psych 2025
Edinoff, Psych Intl, 2022
Unwin, AFP, 2021
Summit, Addiction, 2025

Comparison of Problem Use During Increases in Prescribing

	Stimulants 2021-2022, age 18-64	Opioids in 2015, age 18+
Prevalence of misuse and use disorder among those using prescribed drug	Misuse: 25% Use Disorder: 9%	Misuse: 12.5% Use Disorder: 2.1%
Use disorder among those reporting misuse	20%	16.7%

Han et al, Ann Int Med, 2017

Han, JAMA Psych, 2025

Parallels with the Opioid Crisis

Start with a likeable medication...

- Expansion of Target Population
- Evidence for treatment
 - heavily influenced by pharma
 - based on subjective outcomes
 - ignores important safety outcomes, especially SUD

- Rapid Rise in Prescribing^{1,2,3}
- “Non-addictive” Formulations³
- Higher Acceptable Doses³

Increase in Stimulant Related OD Deaths

- 57% of all fentanyl ODs in 2023 vs ~8% in 2011⁴
- Declining more slowly than opioid involved OD⁵

1. MMWR, 2023

2. Piper, 2018, *PloS one*

3. Carpentier & Levin, *Har Rev Psy*, 2017

4. Zhu, *Sub Use Misuse*, 2025

5. Post, *JAMA Network Open*, 2025

Approaching Treatment

You can provide validation without medication

Treat co-occurring disorders

Start with behavioral strategies

- Sleep hygiene, exercise, mindfulness, scheduling
- Is your life set up to support your strengths?

Consider a non-stimulant trial first

Set realistic expectations

- “This isn’t going to turn you into a person without ADHD”
- What would we expect to improve with medical treatment?
- Goal is not “to feel something”

Routinely start with abuse-deterrent formulations



1. Volkow et al, NEJM 2013
2. Curran et al, Nature Reviews, 2016

Functional Outcomes: In the clinic

In what ways are you not functioning well now that we can track together?

Job

- Specific tasks
- Feedback from supervisors
- Punctuality, completing tasks, errors

Home Life

- Managing responsibilities, housework, projects, appointments
- Parenting

Social

- Feedback from loved ones
- Listening, interrupting, emotional regulation

Monitoring Stimulant Therapy: Best Practices

Track functional outcomes

Rating scale with initiation and dose changes

Monitor for psychotic symptoms

Monitor HR and BP after dose changes and
~q6months (130/80)

Regular PDMP review

Urine Drug Screening

- Methylphenidate and alcohol don't show on routine testing!

When other stimulant or substance use manifests

- Have an honest conversation
- Increase frequency of monitoring, shorten Rxs
- Discontinue the stimulant and treat the SUD

Take Home Points

- ADHD is a complex and evolving construct with biologic, environmental, and cultural influences
- Diagnosis of ADHD in adults is multifaceted, imperfect, and best done over time
- Treatment of ADHD requires management of patient expectation, careful assessment of risk/benefit balance, and ongoing monitoring
- Stimulant medications have the potential to cause harm and should be used judiciously

Thank you!

QUESTIONS?

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