Adult ADHD: Diagnostic Issues and Psychopathology

Mark A. Stein, Ph.D., ABPP

UW MEDICINE

2026

CONFIDENTIAL – DO NOT DISTRIBUTE

UW Medicine

Presenter's Disclosure: Mark A. Stein

Source	Consultant/Advisory	Stock	Speaker	Research
Medice	X			
Supernus	X			
Maxis Health	X			
Collegium	X			
Azurity	X			

Learning Objectives

By the end of this presentation, participants will be able to:

1. **Describe the epidemiology and course of ADHD**
   Summarize prevalence, persistence, and the educational, occupational, and health consequences of ADHD from childhood through adulthood.

2. **Apply DSM-5 criteria in adults**
   Recognize how inattention, hyperactivity, impulsivity, and emotion dysregulation present in adults, and place them in their etiologic context.

3. **Differentiate ADHD from mimics and comorbid conditions**
   Distinguish ADHD from anxiety, mood, trauma, sleep, thyroid, and medical mimics, and recognize substance use, cannabis use, and stimulant misuse.

4. **Conduct a structured evaluation and link it to treatment**
   Use screening scales, clinical interview, and selective neuropsychological testing, and explain how treatment changes outcomes.

Case: Jesse, a 19-Year-Old College Student

"Do I have ADHD, like all my friends…?"

FAMILY & SCHOOL HISTORY

- Older sibling is an A student and varsity athlete
- B student in high school; always tested well

CURRENT PROBLEMS

- On academic probation
- Misses classes, does not complete work, procrastinates, crams

SUBSTANCE USE

- Frequent cannabis use
- Tried friends' Adderall: able to focus, think clearly, and sustain attention while studying

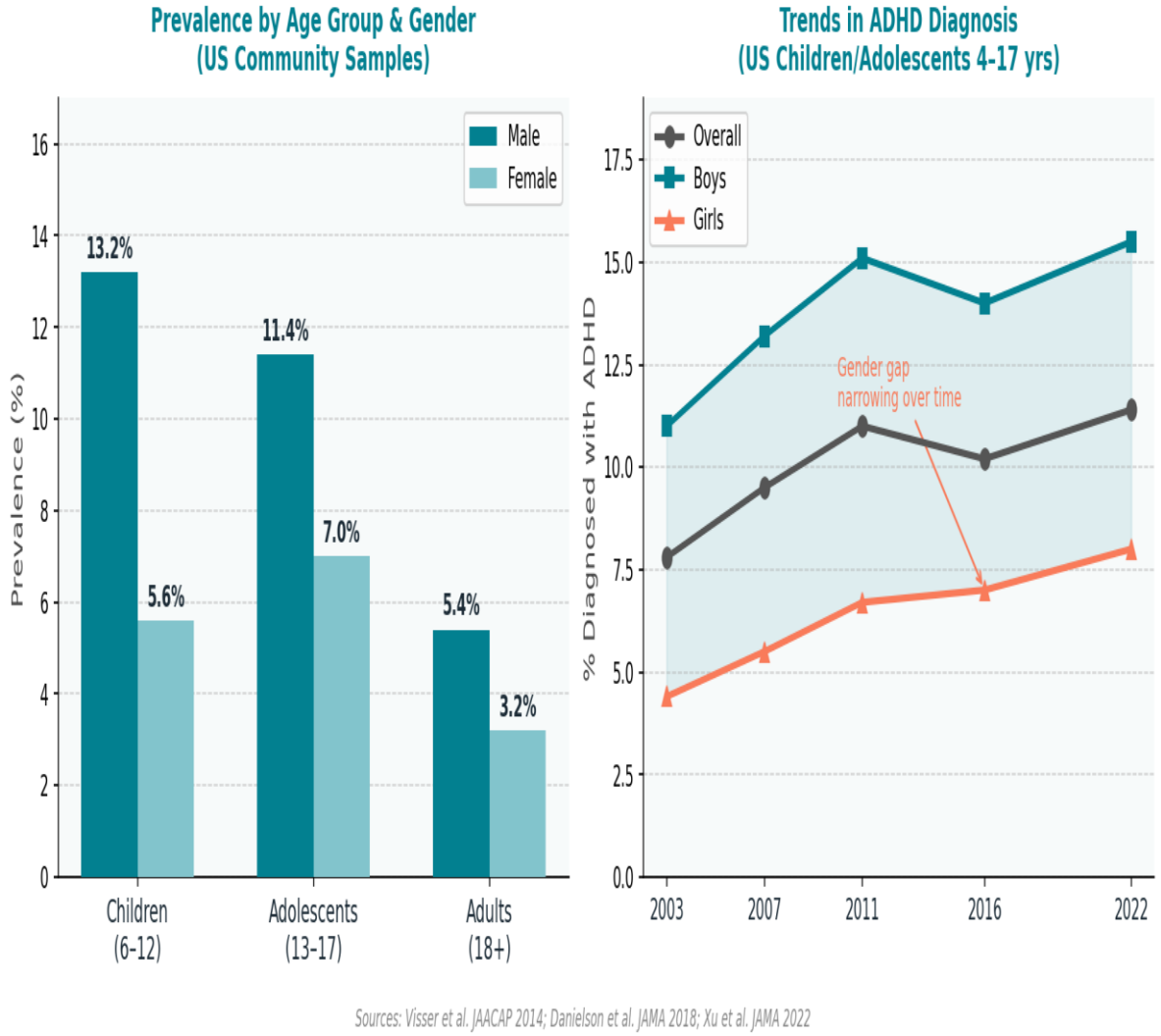
DISCUSSION Evaluation procedures • Impairment • Comorbidity • Childhood symptoms and factors that could cover them up

Prevalence of ADHD Across the Lifespan

Children
- 8–13% overall; boys 2–3x more often diagnosed than girls

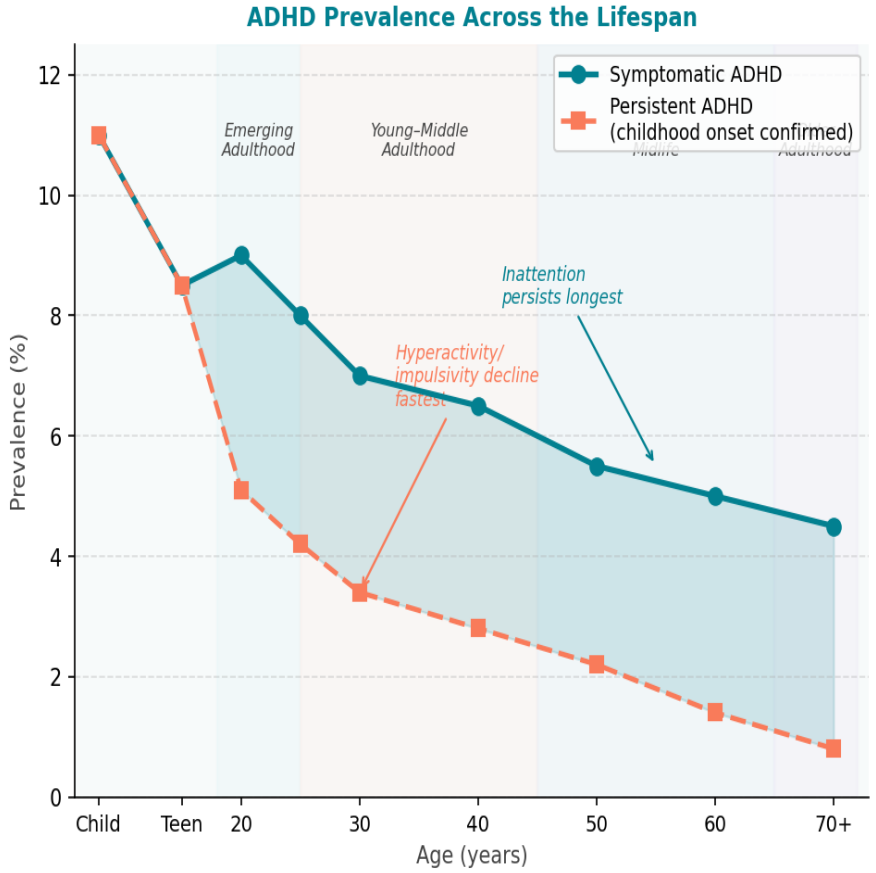
Adolescents
- 75% of childhood ADHD persists into adolescence
- Female diagnosis rates rising — gender gap narrowing

Adults
- 4.4% prevalence (NCS-R)
- Only 11% of adults with ADHD are treated
- 4.7% by self-report (driver's license applicants)
- 4% of college students meet DSM criteria



Visser et al. JAACAP 2014; Kessler et al. Am J Psychiatry 2006; Danielson et al. JAMA Pediatr 2018; Barkley RA et al. Pediatrics 1996; Heiligenstein E et al. Am J Coll Health 1998

ADHD Across the Lifespan: Course, Persistence & Consequences



Emerging Adults (18-25)

- ~60% of childhood ADHD persists
- Only 9% reach full remission by 25
- High-stakes transitions: college, work, relationships
- SUD risk peaks; driving accidents 2–4x higher
- Late diagnosis surge driven by academic demands

Young-Middle Adults (26-50)

- Hyperactivity fades; inattention dominates
- Impact: job instability, divorce, financial mismanagement
- 3x higher unemployment; income ~$10K/yr lower
- New Dx increasingly common — especially in women
- Cognitive compensatory strategies may mask severity

Midlife & Older Adults (50-64)

- Prevalence ~2.2%; undertreated (tx rate 0.09%)
- ADHD + menopause: hormonal changes unmask symptoms
- Higher cardiometabolic burden compounds impairment
- Increased risk of MCI — symptom overlap challenging
- 2.77x elevated dementia risk (Levine et al., JAMA 2023)

Seniors (65+)

- Prevalence ~0.8–2.2%; frequently missed or misdiagnosed
- Inattention remains dominant; hyperactivity minimal
- Distinguishing ADHD from MCI/early Alzheimer's critical
- ADHD genetic risk predicts faster cognitive decline
- Treatment evidence emerging; stimulants viable in selected patients

Sources: Song et al. Lancet Psychiatry 2021; Sibley et al. Am J Psychiatry 2017; Levine et al. JAMA Neurology 2023; Dobrosavljevic et al. Neurosci Biobehav Rev 2023; Cortese et al. World Psychiatry 2025

Persistent consequences across all ages: Lower education & earnings ● 3x unemployment ● 4x STI risk ● 2x arrest rate ● 5x license suspension ● 2.1–2.9x all-cause mortality ● 9–13 life-years lost

Song et al. Lancet Psychiatry 2021; Sibley et al. Am J Psychiatry 2017; Levine et al. JAMA Neurology 2023; Dobrosavljevic et al. Neurosci Biobehav Rev 2023; Cortese et al. World Psychiatry 2025; Barkley RA 1998/2006; Biederman et al. J Clin Psychiatry 2006

ADHD: DSM-5 Diagnostic Criteria

FIVE DIAGNOSTIC CRITERIA

A. Symptom Threshold

≥6 inattention and/or hyperactivity-impulsivity symptoms for ≥6 months (≥5 in adults ≥17 years)

B. Early Onset

Several symptoms present before age 12

C. Cross-Setting Impairment

Symptoms present in ≥2 settings (e.g., school, work, home)

D. Functional Impairment

Clear evidence of interference with social, academic, or occupational functioning

E. Rule Out Other Causes

Not explained by another mental or physical disorder

PRESENTATIONS

- **Predominantly Inattentive** — ≥6 inattention symptoms; most common in adults
- **Predominantly Hyperactive-Impulsive** — ≥6 H/I symptoms; more common in young children
- **Combined Presentation** — criteria met for both; most impairing overall

ADULT CONSIDERATIONS

- Symptom threshold lowered to 5 (vs. 6 in children)
- Hyperactivity often manifests as restlessness or subjective sense of being driven
- Retrospective childhood history required — WURS or parental report useful
- Severity specifiers: Mild, Moderate, Severe
- "In partial remission" specifier available when full criteria no longer met

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-5). Washington, DC: APA; 2013.

Inattention Symptoms and their Manifestation Across the Lifespan

Inattention-related problems and executive dysfunction represent leading reasons for seeking treatment in all age groups, and especially adolescents and adults.

DSM-5 Symptom Domain	Common Adult Manifestation

• Difficulty sustaining attention
• Does not listen
• No follow-through
• Cannot organize
• Loses important items
• Easily distractible, forgetful
	• Poor time management
	• Difficulty
	  – Initiating/completing tasks
	  – Changing to another task
	  – Multi-tasking
	• Procrastination
	• Avoids tasks that demand attention
	• Adaptive behavior can mitigate
	  – Self select lifestyle; Support staff

American Psychiatric Association, 2013; *ADHD in Adulthood 1999*, Weiss, Hechtman, and Weiss.

Hyperactivity Symptoms and their Manifestation Across the Lifespan

Aimless restlessness often migrates to _purposeful_ restlessness in adolescents and adults; and is generally less impairing with age.

DSM-5 Symptom Domain	Common Adult Manifestation

• Squirms and fidgets
• Cannot stay seated
• Runs/climbs excessively
• Cannot play/work quietly
• "On the go"/ "driven by motor"
• Talks excessively
	• Adaptive behavior
	  – Work long hours
	  – Do many activities, multiple jobs or a very active job
	• Constant activity/inability to settle down
	• Avoids situations requiring low activity; easily "bored"
	• Often felt rather than manifested

American Psychiatric Association, 2013; *ADHD in Adulthood 1999*, Weiss, Hechtman, and Weiss.

Impulsivity Symptoms and their Manifestation Across the Lifespan

Impulsivity often decreases with age, but when present, often carries serious consequences.

DSM-5 Symptom Domain	Common Adult Manifestation

• Blurts out answers
• Cannot wait turn
• Intrudes/interrupts others
	• Low frustration tolerance
	  – Quitting a job
	  – Ending a relationship
	  – Losing temper
	  – Driving too fast
	• Makes hasty decisions
	• Impulsive aggression
	  • Verbal predominates

American Psychiatric Association, 2013; *ADHD in Adulthood 1999*, Weiss, Hechtman, and Weiss.

Etiology of Adult ADHD

ADHD is a complex neurodevelopmental disorder with multifactorial etiology — genes account for the majority of risk

GENETIC FACTORS

Heritability

- **Children:** h^2 = 70–80% across 37 twin studies (Faraone & Larsson, 2019)
- **Adults (self-report):** h^2 = 30–40%; lower estimates reflect rater/measurement effects, not true biological difference (Larsson et al., 2013)
- **Clinically diagnosed adults:** h^2 similar to childhood ADHD when multi-informant assessment used; persistent ADHD is highly familial (Faraone et al., 2005)

Family & Adoption Studies

- 9x elevated risk in first-degree relatives of ADHD probands vs. controls (Biederman et al., 1992)
- Adoption studies confirm familial risk is genetic, not shared environment; biological relatives carry risk regardless of rearing

Molecular Genetics

- GWAS (n=225,000+): 27 genome-wide significant loci; polygenic with many small-effect common variants (Demontis et al., 2023)
- SNP heritability ~22% (⅓ of twin h^2); remainder from rare variants and G×E interactions
- Key candidate genes: DAT1, DRD4, DRD5, SNAP25, COMT — DA and NE transporter/receptor pathways

NEUROBIOLOGY

Neurotransmitter Systems

- **Dopamine:** reduced PFC synthesis/reuptake; impairs working memory, motivation, reward processing (Volkow et al., 2009)
- **Norepinephrine:** locus coeruleus dysregulation; impairs sustained attention, arousal regulation, and signal-to-noise filtering
- **Serotonin (5-HT):** modulates impulsivity and emotional dysregulation; reduced 5-HT implicated in hyperactive/impulsive symptoms; 5-HT1B, 2A, 2C receptors and SERT associated with ADHD (Hou et al., 2018; Pourhamzeh et al., 2022)
- **GABA (inhibitory):** reduced GABA in ACC and striatum during attention tasks; impairs behavioral inhibition, response suppression, and cortical E/I balance (Bollmann et al., 2015; Tian et al., 2021)
- **Glutamate (excitatory):** GABA/glutamate cycling disrupted in fronto-striatal circuits; elevated striatal Glx linked to impulsivity; modulates DA release (Maltezos et al., 2014)

Brain Structure & Cognition

- Reduced PFC, basal ganglia, and cerebellar volume; delayed cortical maturation ~3 yrs (Shaw et al., 2007)
- DMN fails to deactivate; EF deficits: inhibition, working memory, planning; delay aversion toward immediate rewards

ENVIRONMENTAL RISK

Prenatal Exposures

- **Maternal smoking:** most replicated; ~2x ADHD risk; disrupts dopaminergic development (OR ≈ 2.1)
- **Alcohol exposure:** FASD/ARND overlap with ADHD; affects 10–15% of pregnancies
- **Maternal stress:** elevated cortisol disrupts fetal HPA axis and PFC maturation

Perinatal & Early Life

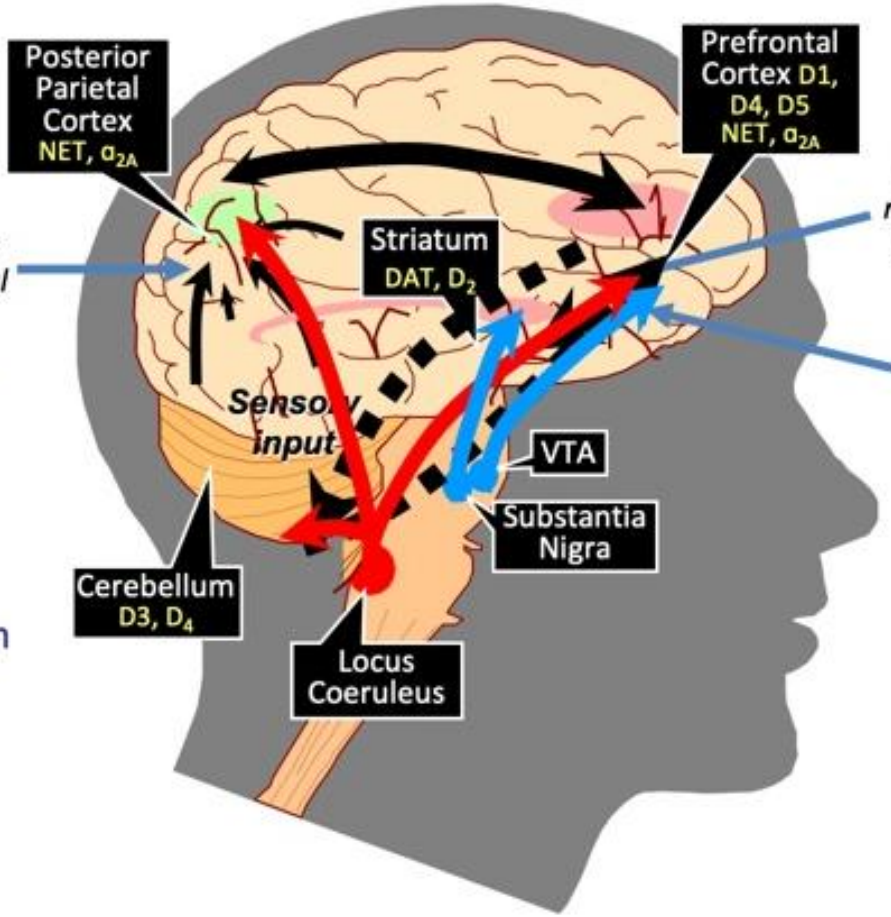
- Low birth weight / prematurity — consistently replicated; OR ≈ 2–3 for ADHD diagnosis
- Severe early adversity / institutional deprivation (ACEs) — disinhibited attachment phenotype; mimics and/or triggers ADHD

Environmental Toxins

- Lead exposure — strongest toxin evidence; disrupts dopaminergic signaling; even low-level exposure is harmful
- Organophosphate pesticides and PCBs — associated with attention and EF deficits in exposed children

Faraone SV & Larsson H. Mol Psychiatry 2019;24:562-575. | Demontis D et al. Nat Genet 2023. | Larsson H et al. J Child Psychol Psychiatry 2013. | Faraone SV et al. Biol Psychiatry 2005;57:1442-1451. | Shaw P et al. PNAS 2007;104(49):19649-19654. | Volkow ND et al. PNAS 2009. | Hou Z et al. Front Psychiatry 2018. | Pourhamzeh M et al. Front Synaptic Neurosci 2022. | Bollmann S et al. Transl Psychiatry 2015. | Tian L et al. medRxiv 2021. | Maltezos S et al. Transl Psychiatry 2014. | Biederman J et al. Arch Gen Psychiatry 1992.

Neurobiology of ADHD: Multiple Brain Networks, Receptors & Candidate Genes



- Modulators
  - *Nicotinic/ Cholinergic*
  - *5-HT$_{1A, 1B}$*
  - *H_3*
  - *Adenosine 2_a*
- Synthesis/ metabolism
  - *DBH*
  - *COMT*
  - *MAO (A)*
- Interface with:
  - *Glutamate*
  - *NMDA/ AMPA*
  - *GABA*
  - *Opioid*

Slide courtesy of J. Newcorn

DA = Dopamine • NE = Norepinephrine • 5-HT = Serotonin • GABA = Inhibitory • Glut = Excitatory • DAT = DA Transporter • NET = NE Transporter • VTA = Ventral Tegmental Area | **Slide courtesy of J. Newcorn, MD**

The Utah Criteria for Adult ADHD

Wender PH, 1995 — first systematic criteria recognizing adult persistence and emotional dysregulation

REQUIRED (both must be present)

① **Childhood history of ADHD** — both inattentive and hyperactive symptoms dating to childhood; confirmed by WURS or parental report

② **Persistent adult symptoms** — ongoing attention difficulties AND motor hyperactivity/restlessness in adulthood without remission

PLUS ≥2 OF 5 ADDITIONAL SYMPTOMS

- **Affective lability** — mood swings not sustained; normal or near-normal mood between episodes
- **Hot temper / emotional overreactivity** — short-fuse outbursts, low frustration tolerance
- **Impulsivity** — acting before thinking; interrupting; poor social judgment
- **Inability to complete tasks / disorganization** — projects started but not finished; chaotic daily functioning
- **Stress intolerance** — easily overwhelmed by ordinary demands; emotional crises under pressure

WRAADDS — 7 RATED DOMAINS

Attention difficulties • Hyperactivity/restlessness • Temper • Affective lability • Emotional overreactivity • Disorganization • Impulsivity

Clinician-rated; each domain scored 0–4; domain positive if ≥3 (Wender & Reimherr, 1995; Marchant et al., 2013)

WHY THE UTAH CRITERIA MATTER

- First criteria to formally recognize **emotional dysregulation** as a core adult ADHD feature — predating DSM by decades
- Required **childhood onset documentation** — directly motivated development of the WURS retrospective scale
- WURS AUC = 0.956 — among the highest diagnostic accuracy of any adult ADHD scale (Brevik et al., 2020)
- Grounded in RCT evidence from methylphenidate trials (Wender, Wood & Reimherr, 1985)



Drs. Reimherr, Wender & Newcorn

Wender PH. Attention-Deficit Hyperactivity Disorder in Adults. Oxford University Press, 1995. | Ward MF, Wender PH, Reimherr FW. Am J Psychiatry 1993;150(6):885-890. | Marchant BK et al. Psychol Assessment 2013;25(3):942. | Brevik EJ et al. Brain Behav 2020;10:e01605. | Wender PH, Wood DR, Reimherr FW. Am J Psychiatry 1985;142:547-552. | Stein MA et al. Psychopharmacol Bull 1995;31(2):425-433.

Emotion Dysregulation in ADHD

DEFINITION

Emotion dysregulation (ED) refers to difficulty modulating the intensity, duration, or appropriateness of emotional responses relative to situational demands.

Core Features

- **Low frustration tolerance** — rapid onset of anger or distress
- **Emotional impulsivity** — acting on emotions before reflection
- **Rejection sensitive dysphoria** — intense response to perceived criticism
- **Mood lability** — rapid, reactive mood shifts
- **Deficient self-regulation** — poor inhibition of emotional expression

PREVALENCE

Adolescents with ADHD

- ~45–70% exhibit clinically significant emotion dysregulation (Shaw et al., 2014)
- ED predicts greater peer problems, academic failure, and higher rates of anxiety/depression
- Risky behavior and substance use more likely in teens with ADHD + ED

Adults with ADHD

- ~34–70% of adults with ADHD report significant emotional dysregulation (Barkley & Fischer, 2010)
- ED is one of the strongest predictors of functional impairment — often exceeding core ADHD symptoms
- Associated with occupational difficulties, relationship conflict, and co-occurring mood disorders
- Not currently a DSM-5 criterion, yet reported as most impairing symptom by many adults

Barkley RA & Fischer M. ADHD in Adults. 2010; Shaw P et al. Am J Psychiatry. 2014;171(3):276-93; Surman CBH et al. J Atten Disord. 2013;17(1):70-78

Newly diagnosed (more of a diagnostic challenge)

Hitting the wall

- Milder cases or those with compensatory skills/supports
  - helicopter parents, giftedness, small classrooms
  - Environmental factors-frequent moves, school issues
- Misattributions (red herrings) that delay identification and Rx
  - Trauma (ACES),
  - exposures,
  - mild anxiety, sensory disorder?
- More prominent comorbidity
  - Substance use or Conduct Problems
  - Depression (vs. demoralization)
  - Traumatic brain injury

Impairments in College-Age Youth with ADHD

~17% of undergraduates report ADHD (ACHA, 2024) • 55% have at least one comorbid disorder • College is a "perfect storm" of increased demands and reduced support

ACADEMIC IMPAIRMENT

- **Lower GPA** — avg ~2.5 vs >3.0 in controls across all four years; inattention is the primary driver (Henning et al., 2022)
- **Reduced completion rates** — 49% graduate (no Rx) vs. 59% without ADHD; 54% with medication (DuPaul et al.)
- Fewer credits earned per semester, more academic probation, late/missed assignments, higher dropout
- Only ~25% access disability services despite eligibility; stigma and lack of documentation are key barriers (Wolf, 2001)

EXECUTIVE FUNCTION DEFICITS

- Time management failures: chronic lateness, underestimating task time, missing deadlines without external scaffolding
- Planning and organization breakdowns; inability to self-initiate studying without high-interest motivation
- Loss of structured supports (parents, IEPs, teachers) precipitates decompensation — Anastopoulos' "perfect storm" model (Anastopoulos & King, 2015)

MENTAL HEALTH

- 55% have ≥1 comorbid diagnosis — most commonly depression or anxiety (Anastopoulos, DuPaul & Weyandt longitudinal study, n=456)
- **Suicidal ideation and NSSI** — significantly elevated vs. non-ADHD peers; mediated by depression and substance use (Zolezzi et al., 2022)
- Emotional dysregulation mediates impairment in academic performance, relationships, and QoL beyond ADHD symptoms alone

SOCIAL & RISKY BEHAVIOR

- **Substance use** — elevated alcohol, cannabis, and stimulant misuse; nonmedical stimulant use prevalent at 5–10% on campuses
- **Driving risk** — speeding, weaving, and accident rates elevated; young adults with ADHD are at highest overall driving risk (Barkley & Cox, 2007)
- **Peer and roommate conflict** — impulsive communication, forgetfulness, and disorganization strain social bonds
- **Sleep impairment** — delayed sleep phase and irregular schedules worsen inattention and emotional regulation
- **Financial mismanagement** — impulsive spending, missed bills, and debt accumulation increase financial stress and dropout risk

ACHA National College Health Assessment 2024. | Anastopoulos AD et al. J Consult Clin Psychol 2021;89(1):21-33. | Henning C et al. J Atten Disord 2022;26(5):634-645. | DuPaul GJ & Weyandt LL. J Atten Disord 2006;10:9-19. | Wolf LE. J Learn Disabil 2001;34(6):487-496. | Zolezzi DM et al. Front Psychiatry 2022. | Barkley RA & Cox D. J Driving Safety Res 2007. | Anastopoulos AD & King SL. Curr Psychiatry Rep 2015.

Workplace Difficulties in Adults with ADHD

PERFORMANCE & PRODUCTIVITY

- **Incomplete projects** — difficulty initiating and sustaining effort to completion
- **Poor time management** — chronic lateness, missed deadlines, underestimating task duration
- **Disorganization** — difficulty prioritizing tasks, managing paperwork, and tracking obligations
- **Distractibility** — susceptibility to interruptions and off-task behavior in open-plan environments

EMPLOYMENT INSTABILITY

- 3x higher unemployment rate vs. general population (Barkley et al., 2008)
- Frequent job changes, poor discipline, and lack of defined career goals
- Lower annual income (~$10,000–$15,000 less) and reduced likelihood of managerial roles (Biederman & Faraone, 2006)

INTERPERSONAL & SUPERVISORY

- **Interpersonal conflict** — impulsive communication, poor frustration tolerance, difficulty with feedback
- **Emotional dysregulation at work** — outbursts, rejection sensitivity, low frustration tolerance with colleagues
- **Impaired self-monitoring** — limited awareness of how behavior affects coworkers or supervisors

ECONOMIC & SOCIETAL BURDEN

- Estimated annual productivity loss of $19.4 billion in the US due to adult ADHD (Kessler et al., 2009)
- Average 22 lost workdays per year due to ADHD-related impairment vs. 9 in controls (Kessler et al., 2005)
- Workplace accommodations (structured tasks, flexible scheduling, written instructions) improve outcomes
- ADHD treatment associated with significantly reduced absenteeism and improved work performance (Ginsberg et al., 2014)

Weiss M et al. Johns Hopkins Univ Press 1999; Barkley RA et al. J Atten Disord 2008;12(2):194-200; Biederman J & Faraone SV. Am J Psychiatry 2006; Kessler RC et al. Am J Psychiatry 2005;162(6):1138-1149; Kessler RC et al. J Occup Environ Med 2009;51(7):765-774; Ginsberg Y et al. J Atten Disord 2014;18(7):567-574

Case Discussion: Adult ADHD and AIDS — A Differential Diagnosis Teaching Case

*Stein MA, Rubinoff A, Pliskin N, Weiss RE. Adult ADHD and AIDS [Letter to the Editor]. **Am J Psychiatry.** 1995;152(7):1100. PMID: 7793455 ● Chicago, IL*

The Case: Mr. A

49-year-old single man — self-referred after watching a TV news segment on adult ADHD

Presenting Symptoms

- Trouble concentrating; difficulty making decisions
- Excessive talking, mood lability, hypersomnia, restlessness
- No previous psychiatric treatment or family psychiatric history

Evaluation Findings

- **WURS:** Childhood symptoms NOT consistent with ADHD or learning problems
- Neuropsychological testing: IQ=106 (average); memory encoding and retrieval problems present
- Academic testing in average range; no prior learning disability
- **Physical exam:** Asymptomatic generalized lymphadenopathy, leukoplakia, Kaposi's sarcoma
- **Western blot:** HIV infection confirmed

Actual Diagnosis

→ **HIV encephalopathy — NOT ADHD**

Why ADHD Was Initially Suspected

- Current symptoms matched adult ADHD profile on self-report
- Media exposure drove self-identification — a common referral pattern in the 1990s

What Ruled Out ADHD

- **Memory deficits** on NP testing atypical for ADHD; encoding and retrieval impaired
- **No childhood history** of attention or learning problems — WURS negative
- **Physical exam findings** (lymphadenopathy, Kaposi's) redirected workup to infectious etiology

Key Teaching Points

- HIV encephalopathy mimics ADHD in 20–40% of cases: mental slowing, impaired attention, forgetfulness
- Childhood onset is required for ADHD diagnosis — adult-onset attention symptoms demand full medical workup
- Misdiagnosis of ADHD to the exclusion of other disorders carries serious, potentially life-threatening consequences
- ADHD evaluation should include: psychiatric interview + physical examination + retrospective childhood ratings (WURS) + NP testing

Authors' Conclusion: "All complaints of attention problems do not reflect ADHD. There is a significant false positive rate of diagnosing ADHD in adults with attentional symptoms but no childhood history."

doi: 10.1176/ajp.152.7.1100 ● Janssen RS et al. Ann Neurol 1988;23:49–55 (HIV encephalopathy ref) ● Ward MF et al. Am J Psychiatry 1993;150:885–890 (WURS)

Adult ADHD Evaluation: Suggested Diagnostic Procedures

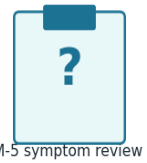
START HERE

1 History & Physical Exam



- Vital signs & BMI
- Neurological screen
- Thyroid / metabolic labs
- Cardiac exam (BP, HR)
- TSH, CBC, BMP, lipids
- Rule out medical causes

2 Clinical Interview



- DSM-5 symptom review
- Onset before age 12
- Cross-setting impairment
- Psychiatric comorbidities
- Substance use / SUD
- Developmental history

3 Patient Rating Scales



- ASRS v1.1 (screener)
- CAARS – Self-Report
- Brown EF Scales
- Conners Adult (CAARS)
- Self-report: impairment

4 Informant Rating Scales



- Spouse / partner
- Parent (WURS)
- Employer / teacher
- Observer CAARS
- Childhood Sx confirmation

5 Medical & ucational Records



- School report cards
- Prior Dx / evaluations
- IEP / 504 plans
- Prior psychiatric Tx
- Medical history review

6 Formulation & Plan



- Diagnosis confirmed?
- Comorbidities?
- Tx targets & priorities
- Medication selection
- Psychoeducation
- → Refer if complex

↗ When to Refer to a Specialist

Consider referral to psychiatrist, psychologist, or neurologist when:

- Complex or ambiguous presentations (comorbid psychosis, bipolar, TBI, autism)
- Significant diagnostic uncertainty after full evaluation
- Patient requests or requires neuropsychological testing
- Treatment-refractory ADHD or multiple failed medication trials

⚠ Critical Training Gap

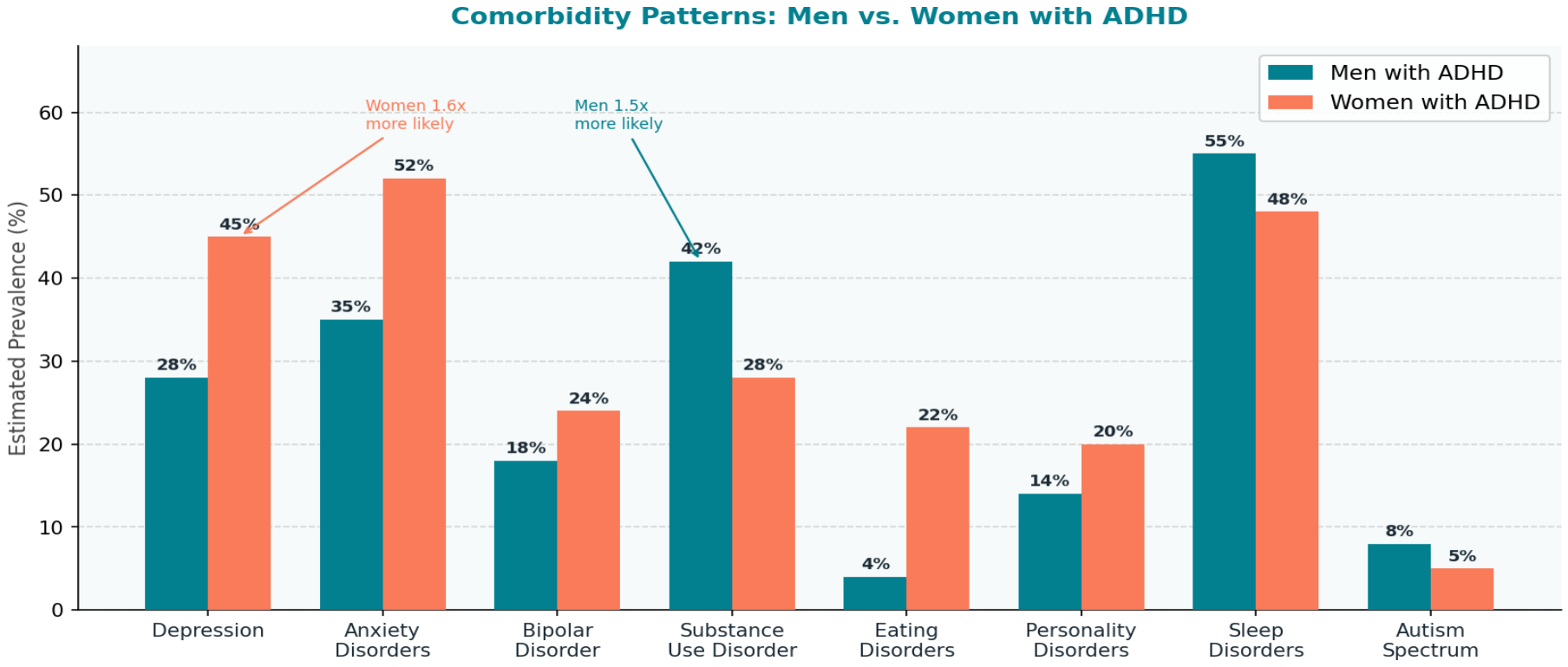
Many medical specialists lack advanced training in adult ADHD evaluation:

- Neurologists, cardiologists, & internists may not be equipped to diagnose ADHD
- Even psychiatrists may have limited exposure to adult ADHD assessment
- Psychologists trained in child ADHD may not generalize well to adults

→ Referral ≠ expertise — verify the specialist's ADHD competency

Key scales: CAARS = Conners' Adult ADHD Rating Scales ● ASRS = Adult ADHD Self-Report Scale ● WURS = Wender Utah Rating Scale (childhood retrospective) ● Brown EF = Brown Executive Function Scales ● DSM-5 threshold: ≥5 symptoms in adults (vs. 6 in children)

Comorbidity Patterns: Men vs. Women with ADHD



Estimates based on: Biederman et al. Am J Psychiatry 2004; Quinn & Madhoo. Prim Care Companion CNS Disord 2014; Nussbaum NL. Neuropsychol Rev 2012

Men with ADHD: Higher SUD, sleep problems, conduct disorder; externalizing presentations often lead to earlier diagnosis

Women with ADHD: Higher depression, anxiety, eating disorders; internalizing profile frequently leads to delayed or missed diagnosis

Biederman et al. Am J Psychiatry 2004; Quinn & Madhoo. Prim Care Companion CNS Disord 2014; Nussbaum NL. Neuropsychol Rev 2012; Wilens et al. Biol Psychiatry 2009

Pseudo-ADHD: Mimics of Adult ADHD

20–30% of adults report elevated ADHD-like symptoms on screening; be alert to false positives (Sibley et al., 2018; Chamberlain et al., 2021)

Conditions presenting similarly to ADHD with distinct etiology and treatment

Psychiatric Conditions

- **Anxiety / Mood disorders** — key diagnostic challenge; fear-based inattention vs. ADHD trait
- **PTSD / Trauma history** — dissociation and hypervigilance mimic inattention and hyperactivity
- **Learning disabilities** — avoidance and frustration mimic attention problems
- **Bipolar disorder** — racing thoughts, impulsivity, and distractibility overlap significantly

Medical / Neurological

- **Thyroid dysfunction** — hyper/hypothyroid; resistance to thyroid hormone (Weiss, Stein & Refetoff, 1993)
- **Sleep disorders** — OSA, delayed sleep phase syndrome; deprivation causes distractibility and emotional dysregulation
- **COVID-19 cognitive effects** — "brain fog," post-viral fatigue, and executive dysfunction
- **Normal variation / high-demand environment** — situational stress without cross-setting impairment

PREVALENCE IN ADHD-REFERRED ADULTS

Anxiety disorders **25–50%**

In adults presenting for ADHD evaluation; most common psychiatric mimic (Stein, CNS Spectrums 2008)

Major Depression / Dysthymia **18–53%**

Poor concentration and psychomotor slowing overlap with inattentive presentation (Choi et al., 2022)

PTSD **12–34%**

In clinical ADHD samples; history of ACEs substantially elevates PTSD likelihood (Pearl, Weiss & Stein, 2015)

Sleep disorders (OSA, DSPS) **43–83%**

Insomnia highly prevalent; deprivation mimics all three ADHD symptom domains (Brevik et al., 2017)

Thyroid dysfunction **5–15%**

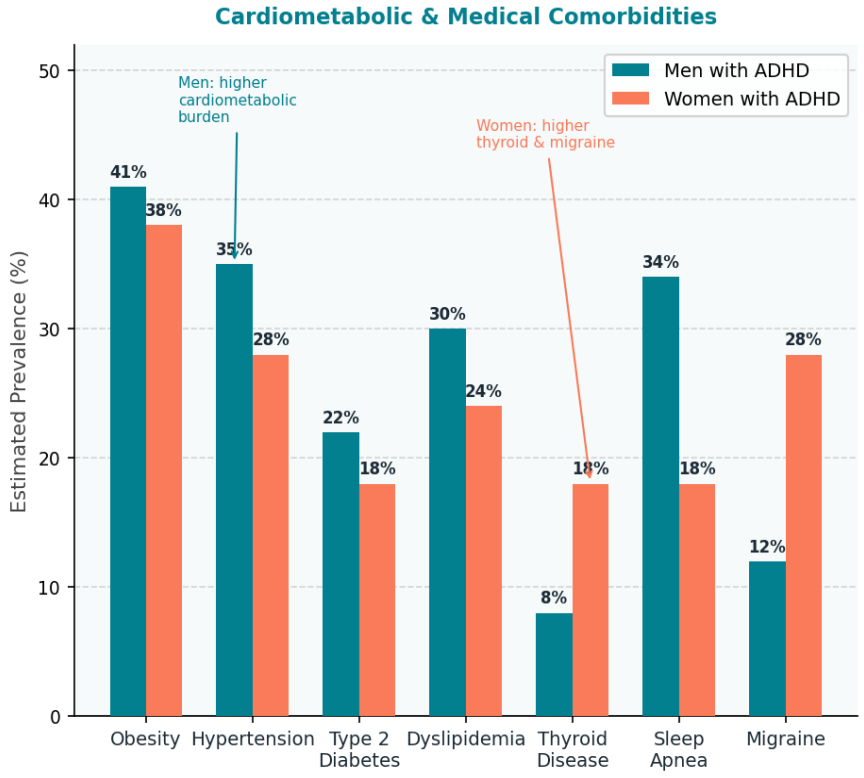
Resistance to thyroid hormone (RTH) particularly mimics ADHD neurocognitive profile (Weiss, Stein & Refetoff, 1993)

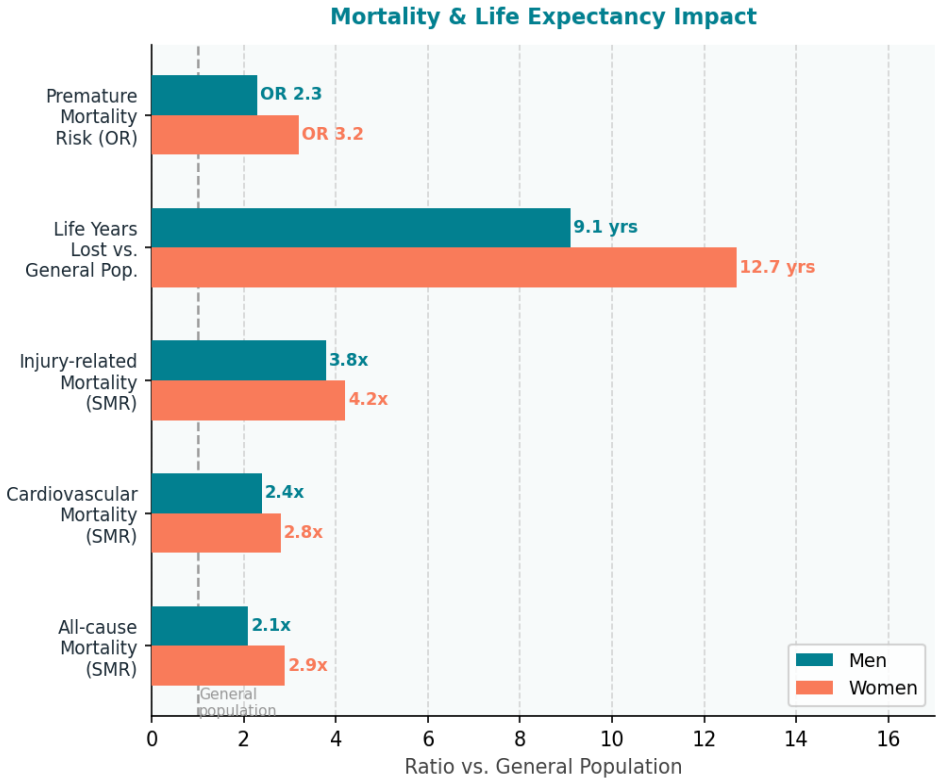
REFERRAL / SITUATIONAL PATTERNS

- Social media / self-identification without objective impairment or childhood history
- August / back-to-school referral surge; academic demand mismatch
- Stimulant-seeking; diversion risk highest in college-age adults (Wilens et al., 2008)

Pearl PL, Weiss RE, Stein MA. Mimics of ADHD: Medical and Neurological Conditions. In: Adler LA et al. (eds). ADHD in Adults and Children. Cambridge Univ Press, 2015:150–160. | Stein MA. Medical mimics and differential diagnosis in adult ADHD. CNS Spectrums 2008;13(S15):14–16. | Stein MA. Impairment associated with adult ADHD. CNS Spectrums 2008;13(S12):9–11. | Weiss RE, Stein MA et al. J Pediatrics 1993;123:539–545. | Sibley MH et al. Psychol Med 2018. | Choi WS et al. PLoS One 2022.

Medical Comorbidities & Mimics: Men vs. Women with ADHD





Sources: Dalsgaard et al. Lancet 2015; Gunther et al. Eur Child Adolesc Psychiatry 2021; Meier et al. JAMA Psychiatry 2021; Cortese et al. Lancet Psychiatry 2016

Men: Higher cardiometabolic burden (HTN, dyslipidemia, sleep apnea). Obesity and SUD compound CV risk. Externalizing symptoms can mask metabolic screening gaps. SMR ~2.1x general population.

Women: Higher thyroid disease and migraine prevalence — both are ADHD mimics that must be ruled out. Women lose ~12.7 life-years vs. general population; SMR ~2.9x, exceeding men with ADHD.

Dalsgaard et al. Lancet 2015; Gunther et al. Eur Child Adolesc Psychiatry 2021; Meier et al. JAMA Psychiatry 2021; Cortese et al. Lancet Psychiatry 2016; Instanes et al. Neurosci Biobehav Rev 2018

Screening for Adult ADHD: Tools, Accuracy & Limitations

No single self-report scale is sufficient for diagnosis — all require clinical confirmation. Use to screen and triage, not to diagnose.

Tool	Items / Time	Sens.	Spec.	AUC	Focus	Primary Use & Notes
● **ASRS-5 (WHO/DSM-5)**	5 items ~1 min	91–96%	72–96%	0.90	Current symptoms	First-line primary care screen. Free, WHO-endorsed, ~1 min. High false-positive rate in general population — use as triage only.
● **ASRS-6 (DSM-5 revised)**	6 items ~1 min	83%	87%	0.92	Current symptoms	Best overall accuracy in 2024 systematic review (58 studies, 84 tools). Updated 2024 Likert scoring. Recommended for primary care.
● **WURS-25**	25 items ~7 min	86–96%	94–99%	0.87–0.93	Childhood onset	Gold standard for retrospective childhood onset (DSM-5 requirement). Pair with ASRS. Cut-off ≥46; discriminates ADHD from depression.
CAARS-S:SV (Conners)	30 items ~10 min	~78%	~83%	0.88	Current symptoms	Subscales for inattention, hyperactivity, impulsivity + ADHD index. Better for dimensional profiling than initial triage.
ASRS v1.1 Part A only	6 items ~1 min	~100%	71%	0.90	Current symptoms	Excellent NPV — rules out ADHD reliably. Low specificity = high false positives (PPV ~0.52). Still widely deployed.
DIVA 2.0 (structured interview)	~45 min	High	High	~1.0 (select studies)	DSM-5 full criteria	Structured interview: childhood + adult symptoms, impairment, informant report. Highest accuracy but not feasible in primary care.

● = Recommended for primary care Sens. = Sensitivity | Spec. = Specificity | AUC = Area Under ROC Curve | NPV = Negative Predictive Value

Eom & Kim (2024) Gen Hosp Psychiatry (58 studies, 84 tools); Kessler et al. (2005/2007); Ustun et al. (2017); Ward et al. (1993) Am J Psychiatry

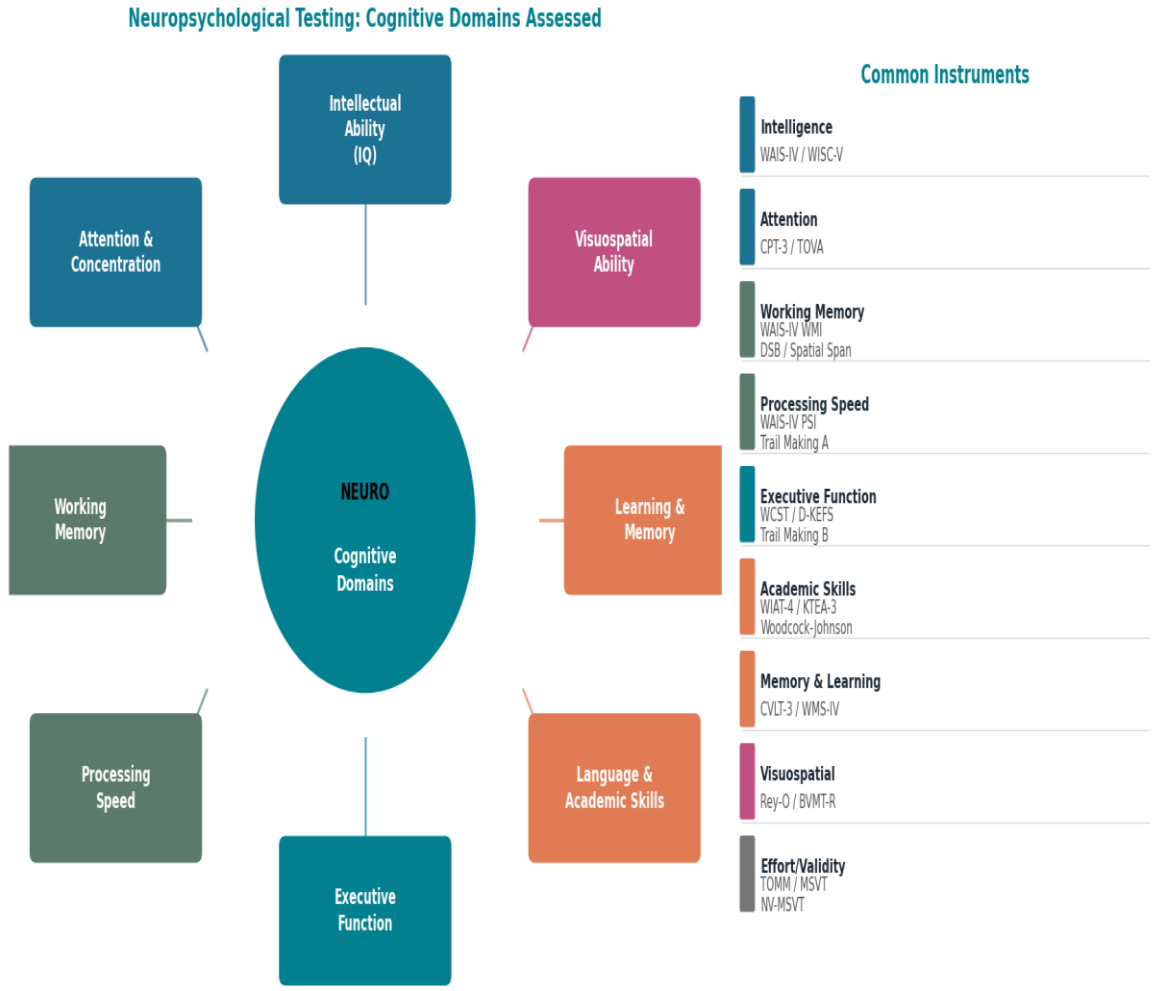
Neuropsychological Testing in ADHD: Indications & Instruments

✓ When Testing IS Indicated

- Suspected learning disorder (dyslexia, dyscalculia, DCD)
- College students seeking academic accommodations
- Cognitive deterioration in older adults (rule out dementia)
- Setting appropriate expectations & career planning
- Complex diagnostic picture (ASD, TBI, giftedness)
- Medico-legal evaluation or disability determination

✗ NOT Required for ADHD Diagnosis

- Normal NP testing does not rule out ADHD
- CPT performance lacks sufficient sensitivity/specificity
- Diagnosis is clinical — based on history & behavior ratings



WAIS=Wechsler Adult Intelligence Scale; CPT=Conners Continuous Performance Test; WCST=Wisconsin Card Sorting Test; D-KEFS=Delis-Kaplan Exec Fn System; WIAT=Wechsler Individual Achievement Test; CVLT=California Verbal Learning Test; TOMM=Test of Memory Malingering

Barkley RA. ADHD and the Nature of Self-Control 1997; Gordon M & Barkley RA. Guilford 1998; Frazier TW et al. J Child Psychol Psychiatry 2004; Kaufman AS. Intelligent Testing with the WISC-V 2015

Performance Enhancement vs. Mild ADHD: A Clinical Challenge

5–10% of college students misuse stimulants • 71% of misusers screen positive for ADHD symptoms • 87% cite academic reasons

THE MISUSE LANDSCAPE

- Highest nonmedical stimulant use in 18–25 year-olds (SAMHSA 2021); academic enhancement cited in 50–89% of cases
- Lifetime diversion rate among college students: 15–30%; obtained from peers with prescriptions (Sadek, 2022)
- Misuse correlated with **lower** academic functioning — perceived benefit driven largely by placebo effect and expectation bias
- Faking ADHD: self-report scales can be gamed — 20–30% of adults screen positive for ADHD-like symptoms but ~90% are false positives (Sibley et al., 2018)

DO STIMULANTS ENHANCE COGNITION IN NON-ADHD INDIVIDUALS?

- **MPH:** small effects on recall, inhibitory control and sustained attention in healthy adults; no GPA benefit (Repantis et al., 2020)
- **Amphetamine (Adderall):** no significant enhancement across EF, memory, creativity, or standardized tests in healthy adults (Ilieva et al., 2013)
- Perceived benefit is largely expectation and placebo — students report improvement even on placebo (Weyandt et al.)

MILD ADHD: DIAGNOSTIC CHALLENGE

- ADHD symptoms exist on a continuum — mild cases with high IQ, compensatory skills, or structured environments may not present until college demands escalate
- Key distinction: **true ADHD requires childhood onset + cross-setting impairment + functional interference** — not just stress-induced difficulty concentrating
- Misuse as self-treatment: 71% of stimulant misusers screen positive for ADHD — represent a pool of undiagnosed/undertreated individuals (Rabiner et al., 2010)
- Social media and celebrity disclosures are driving unprecedented referral surges — objective impairment evaluation is essential

RISKS OF STIMULANT MISUSE

- CV: tachycardia, hypertension, cardiomyopathy, risk of sudden death in susceptible individuals
- Psychiatric: anxiety, insomnia, agitation, psychosis at high doses; dependence with chronic use
- Legal: Schedule II — distribution/diversion is a federal felony; may impair sports eligibility (WADA/NCAA prohibited)

Rabiner DL et al. J Atten Disord 2010. | Sadek J. Brain Sci 2022. | Repantis D et al. Neurosci Biobehav Rev 2020. | Ilieva IP et al. Neuropharmacology 2013. | Sibley MH et al. Psychol Med 2018. | SAMHSA National Survey on Drug Use 2021. | Wilens TE et al. J Am Acad Child Adolesc Psychiatry 2008.

ADHD and Substance Use Disorders: Overlap and Management

25–40% of adults with SUD have ADHD • ADHD confers 2–3x elevated lifetime SUD risk • Comorbidity is the rule, not the exception

EPIDEMIOLOGY

- Alcohol and cannabis most common; cigarette dependence 2–3x higher in adults with ADHD vs. controls
- Onset of SUD earlier in ADHD — often begins in adolescence; risk highest with comorbid conduct disorder
- Comorbid ADHD+SUD: greater severity, more polydrug use, higher suicidality, more hospitalizations, lower treatment adherence (Crunelle et al., 2023)

SHARED MECHANISMS

- Hypodopaminergic state and low reward responsiveness shared by ADHD, conduct disorders, and SUD — drugs of abuse increase DA signaling
- High impulsivity and sensation-seeking shared across all three conditions; overlapping genetic architecture
- Self-medication hypothesis: substance use to regulate inattention, restlessness, and emotional dysregulation in undiagnosed ADHD

TREATMENT APPROACH

① **Mild/moderate SUD:** treat ADHD concomitantly — ADHD treatment may reduce self-medication and improve SUD outcomes

② **Severe active SUD:** address SUD first; ADHD pharmacotherapy after stabilization or abstinence period

③ **Recalcitrant SUD:** use CBT + nonstimulants (atomoxetine, bupropion) or extended-release stimulants with lower abuse liability

STIMULANT TREATMENT & SUD RISK

- **Early stimulant Tx does NOT increase SUD risk** — meta-analyses and MTA longitudinal data show no increase; may reduce cigarette smoking (Wilens et al.)
- Prefer extended-release formulations — lower street value and abuse potential; lower diversion risk vs. immediate-release
- Multimodal treatment (medication + CBT + motivational interviewing) recommended throughout; psychoeducation essential
- Guidelines recommend treatment decisions based on severity of each disorder — not automatic deferral of ADHD treatment (CHADD, 2022)

Wilens TE & Morrison NR. Eur Neuropsychopharmacol 2012. | Wilens TE. Curr Treat Options Psychiatry 2016. | Crunelle CL et al. J Clin Med 2023. | Capusan AJ et al. J Atten Disord 2019. | McCabe SE et al. Psychiatr Serv 2024. | Kaminski & Wilens. Textbook of SUD, 2019.

Cannabis and ADHD: What the Evidence Shows

Lifetime CUD prevalence in ADHD: 27% • ~3x greater risk vs. general population • Cannabis is the most common illicit substance used in ADHD

EPIDEMIOLOGY

- Lifetime CUD: 26.9%; current CUD: 19.2% — nearly 3x the risk vs. general population (Froude et al., 2024, meta-analysis n=14 studies)
- Lifetime cannabis use: 66% in ADHD vs. 47% in non-ADHD; youth with ADHD have ~3x the likelihood of ever using cannabis (Biederman et al.)
- ADHD prevalence in cannabis treatment-seeking patients: 34–46% — routine ADHD screening in CUD settings is warranted

ENDOCANNABINOID SYSTEM (ECS)

- The ECS regulates mood, memory, attention, reward, and impulse control — functional domains impaired in ADHD
- Dopaminergic dysregulation underlies both ADHD and CUD — THC acutely increases DA but chronic use depletes dopaminergic responsiveness
- ECS is an emerging therapeutic target for ADHD; preclinical data promising but human RCT evidence remains very limited (Ryan et al., 2024)

SELF-MEDICATION & PERCEIVED EFFECTS

- Adults with ADHD frequently report using cannabis to manage restlessness, hyperactivity, sleep, and mental frustration (Mitchell et al., 2016)
- **Only one RCT exists** — cannabinoid medication (Sativex, 1:1 THC:CBD) showed **no significant effect** on primary ADHD outcome (QbTest); some secondary improvements in hyperactivity/impulsivity (Cooper et al., 2017)
- Inattention effects are mixed; >50% report cannabis worsened memory; effects on hyperactivity/impulsivity more positive in patient self-report (but not in controlled trials)

HARMS — ESPECIALLY IN YOUTH WITH ADHD

- Chronic use impairs sustained attention, working memory, learning, inhibitory control, and processing speed — same domains already impaired by ADHD (meta-analyses)
- Early onset (<16 yrs) associated with brain structure changes (hippocampus, temporal lobe), poorer cognitive outcomes, and worse mental health trajectories (Cawkwell et al., 2021)
- Chronic THC alters dopamine signaling; long-term use may worsen ADHD symptoms and increase risk of hypodopaminergic anhedonia over time
- **Clinical bottom line:** evidence does **not support** cannabis as a treatment for ADHD; risks outweigh unproven benefits, particularly in adolescents and young adults. Cannabis use may signal undertreated ADHD — optimize evidence-based treatment first

Froude AM et al. J Psychiatr Res 2024;172:391-401. | Francisco AP et al. J Affect Disord 2023. | Ryan JE et al. Dev Psychobiol 2024;66:e22540. | Cooper RE et al. Eur Neuropsychopharmacol 2017. | Cawkwell PB et al. Harv Rev Psychiatry 2021;29(4):251-261. | Dhamija D et al. Cureus 2023. | Mitchell JT et al. J Atten Disord 2016. | Biederman J et al. J Nerv Ment Dis 2009. | Capusan AJ et al. J Atten Disord 2019.

ADHD and Occupational Fit: What the Evidence Shows

ENTREPRENEURSHIP (Strongest Evidence)

- Clinical ADHD diagnosis nearly doubles the likelihood of entrepreneurial venturing (Lerner et al., 2019, *Small Business Economics*)
- Population study (N=7,208) found hyperactivity symptoms specifically associated with self-employment (OR=1.19); attention-deficit symptoms were not (Wiklund et al., 2016)
- **Caveat:** self-employment rates are higher but earnings are often lower than in waged work (Patel et al., 2019)

MANUAL & CREATIVE ROLES

- Narrative review evidence supports thriving in hands-on and creative roles where novelty-seeking and hyperfocus are assets (Gómez-Pérez & López-Morales, 2025)
- Systematic review: rapid task-switching, increased vigor, and cross-domain creative thinking observed in employed adults with ADHD (Hotte-Meunier et al., 2024)
- High-stimulation environments (ER, sales, first responder, skilled trades) cited clinically but lack controlled occupational outcome data

CONDITIONS THAT PREDICT SUCCESS

- **Early stimulant treatment** — strongest single predictor of adult employment (OR=3.2; Halmøy et al., 2009)
- **Low comorbidity burden** — depression, anxiety, and SUD are primary drivers of occupational failure, outweighing ADHD severity
- **Job autonomy & flexibility** — self-directed schedules and varied tasks reduce constraint-related impairment
- **Clear structure & feedback** — well-defined duties, regular feedback, and explicit deadlines mitigate executive dysfunction
- **Interest-domain alignment** — hyperfocus is most accessible in areas of high intrinsic motivation; career fit matters more than job category

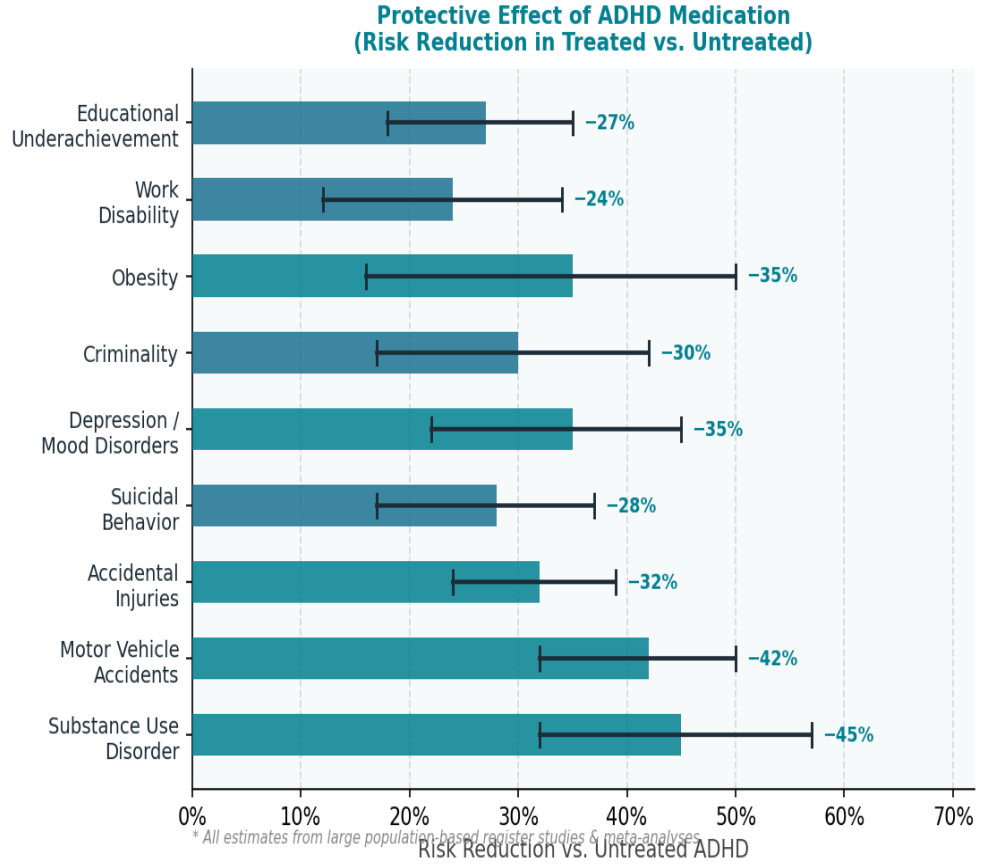
IMPORTANT CAVEAT

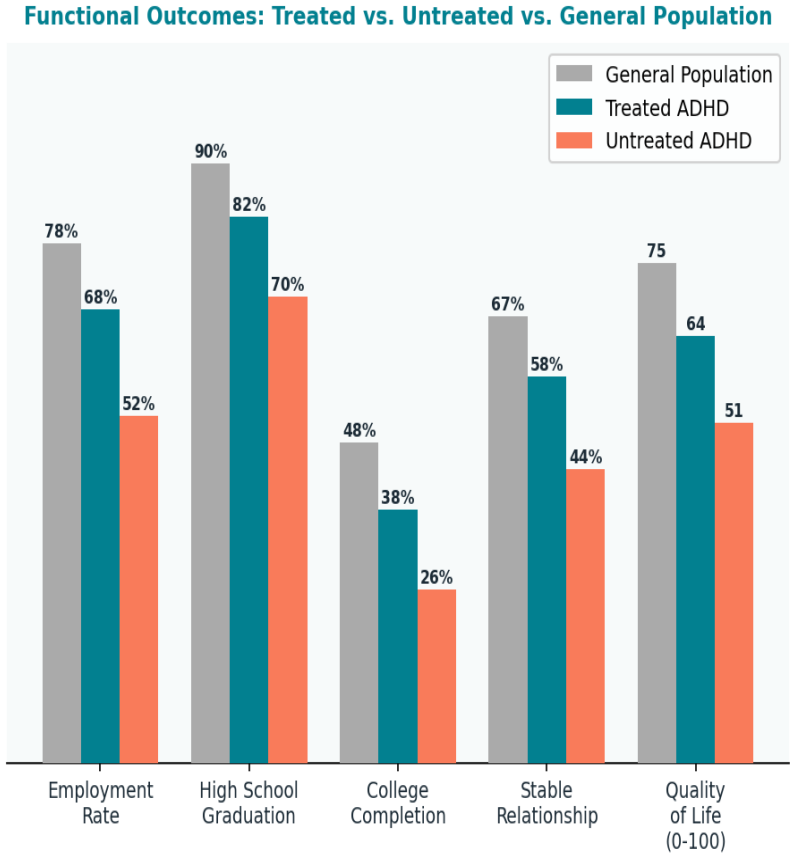
- Most occupation-specific claims are qualitative, cross-sectional, or anecdotal. No large prospective RCTs identify specific “best” careers. Person–environment fit is more predictive than job title (Wiklund et al., 2017, *Academy of Management Perspectives*)

Lerner DA et al. Small Bus Econ 2019; Wiklund J et al. J Bus Venturing 2016; Patel PC et al. 2019; Halmøy A et al. J Atten Disord 2009;13:175-187; Hotte-Meunier A et al. Work 2024; Gómez-Pérez & López-Morales. PMC 2025; Wiklund J et al. Acad Manage Perspect 2017

ADHD Treatment vs. No Treatment: Medical, Psychiatric & Functional Outcomes

Evidence from large population-based register studies (Sweden, US, Taiwan) and meta-analyses — predominantly pharmacotherapy (stimulants & non-stimulants). Treatment improves but does not fully normalize outcomes.





Sources: Chang et al. JAMA Psychiatry 2023; Ghirardi et al. Lancet Psychiatry 2020; Bogdan et al. BMJ 2021; Lichtenstein et al. NEJM 2012; Dalsgaard et al. Lancet 2015; Biederman et al. 2020 (functional outcomes meta-analysis); Cortese et al. World Psychiatry 2025.
Note: functional outcome values are estimated from published range data.

Important caveat: Long-term CV safety data are reassuring for most patients (Zhang et al. JAMA Psychiatry 2023) ● Stimulants associated with modest BP/HR increases ● Treated patients with more severe ADHD may still carry worse outcomes ● Multimodal Tx (medication + CBT) outperforms medication alone on QoL and emotional regulation

Chang et al. JAMA Psychiatry 2023; Ghirardi et al. Lancet Psychiatry 2020; Bogdan et al. BMJ 2021; Lichtenstein et al. NEJM 2012; Biederman et al. J Clin Psychiatry 2020; Cortese et al. World Psychiatry 2025; Lauder et al. 2024

Summary: Adult ADHD — Key Takeaways

PREVALENCE, COURSE & CAUSES

- 4.4% of adults have ADHD, yet only about 11% are treated
- Impairment persists across the lifespan: lower education and earnings, 3x unemployment, 2.1–2.9x all-cause mortality, 9–13 life-years lost
- Highly heritable, polygenic neurodevelopmental disorder involving dopamine, norepinephrine, and fronto-striatal circuits, with prenatal and early-life environmental contributions

DIAGNOSIS & PSYCHOPATHOLOGY

- DSM-5 in adults: ≥5 symptoms, onset before age 12, impairment in ≥2 settings
- Inattention and executive dysfunction dominate; hyperactivity becomes inner restlessness; impulsivity carries the costliest consequences
- Emotion dysregulation (34–70% of adults) is often the most impairing feature, though not a DSM criterion
- Childhood history is essential; adult-onset symptoms require a medical workup

COMORBIDITY, MIMICS & RISK

- Mimics: anxiety, depression, PTSD, bipolar disorder, sleep disorders, thyroid disease, HIV and other medical causes
- Men: more SUD and externalizing; women: more depression and anxiety, and diagnosis is delayed
- Cannabis use disorder in ~27% of adults with ADHD; cannabis is not a treatment
- Stimulant misuse is common on campuses (5–10%); perceived cognitive benefit is largely expectation

EVALUATION & TREATMENT

- Screening scales triage but do not diagnose: ASRS rules out better than it rules in; WURS-25 documents childhood onset
- Neuropsychological testing is not required; use it for learning disorders, accommodations, or complex cases
- Pharmacotherapy improves but does not normalize outcomes; adding CBT improves quality of life and emotion regulation
- Long-term cardiovascular safety data are reassuring; monitor BP and HR

Kessler et al. Am J Psychiatry 2006; Cortese et al. World Psychiatry 2025; Barkley & Fischer 2010; Lauder et al. 2024

Clinical Applications: Putting It Into Practice

SCREEN & ASSESS

- Screen adults with unexplained job failure, depression, anxiety, SUD, or relationship problems, not only those who request evaluation
- Use the ASRS as a first pass, then confirm by clinical interview; no scale alone is diagnostic
- Document childhood onset (WURS-25, parent or school records) and cross-setting impairment; gather collateral from partner, parent, or employer
- Hold to objective standards when referrals follow social media or stimulant-seeking is suspected

RULE OUT MIMICS & COMORBIDITY

- New adult-onset attention symptoms: check thyroid, sleep, and medical causes, including HIV, before diagnosing ADHD
- Screen systematically for anxiety, depression, PTSD, bipolar disorder, and substance use, including cannabis
- Actively screen women with depression or anxiety for undiagnosed ADHD
- Monitor cardiovascular risk in men with obesity or hypertension; close metabolic screening gaps

TREAT

- Start pharmacotherapy together with psychoeducation; do not wait for coaching or therapy to begin
- Add CBT for residual executive dysfunction, emotion dysregulation, and quality-of-life goals
- Mild to moderate SUD: treat ADHD concurrently; severe active SUD: stabilize first; favor extended-release or nonstimulant options with close monitoring
- Monitor BP and HR; counsel against cannabis as self-treatment

SUPPORT FUNCTION & ACCESS

- Pair accommodations (structured tasks, extended test time, reduced-distraction settings) with treatment, not instead of it
- Refer for neuropsychological testing for suspected learning disorder, complex presentations, or documentation
- Coordinate prescribers, therapists, and educational supports; plan transitions as structure falls away
- With only ~11% of adults treated, closing the diagnosis-to-treatment gap is a public health priority

Cortese et al. World Psychiatry 2025; Quinn & Madhoo. Prim Care Companion CNS Disord 2014; Wilens & Morrison, Cambridge Press 2015; Stein MA et al. Am J Psychiatry 1995

Optional Slides

Adult ADHD in Primary Care: Screening Protocol & Key History Questions

Screen in adults with unexplained occupational failure, depression, anxiety, SUD, or relationship difficulties — not only those who self-request evaluation

Recommended 2-Step Primary Care Protocol

1 Step 1: ASRS-6

Administer at intake or when cognitive/behavioral symptoms arise. Positive (≥14) → Step 2. Negative → ADHD unlikely (NPV ~95%); re-screen if suspicion persists.

2 Step 2: WURS-25

Documents childhood onset required by DSM-5. Positive (≥46): strong childhood ADHD evidence. Negative → reconsider diagnosis.

3 Step 3: Clinical Interview

Confirm cross-setting impairment. Rule out mimics:

Key History Questions

Childhood onset (required — DSM-5)

- *"Were you always like this, or did it start as an adult?"*
- *"How were you in school — could you focus, sit still, finish homework?"*
- *"Did teachers say you were distracted or not working to your potential?"*

Current adult impairment

- *"Do you lose things, miss deadlines, or forget important tasks regularly?"*
- *"Is finishing projects hard — do you start but not complete things?"*

Cross-setting (both required by DSM-5)

- *"Does this happen at work AND at home, not just one setting?"*
- *"Has a partner, supervisor, or family member noticed these problems?"*

Rule-out / differential questions

- *"Do you sleep well? Any snoring / stopping breathing?"* → *OSA*
- *"Any worsening anxiety or depression?"* → *mimics*
- *"Thyroid problems or significant weight change?"* → *thyroid*

When to Refer & Key Cautions

Refer to Psychiatry / Psychology

- Complex comorbidity (bipolar, PTSD, SUD, ASD)
- Suspected LD requiring NP testing
- College accommodations documentation
- Stimulant-seeking / diversion concerns
- Diagnosis unclear after full workup
- Diagnostic clarity needed before prescribing

Clinical Cautions

- No scale alone is diagnostic — needs clinical validation
- High false-positive rate in general population (PPV ~52%)
- Social media self-ID surge — maintain objective standards
- Childhood onset required — adult-onset → medical workup

No screening scale has sufficient specificity to diagnose ADHD. Positive screens require clinical interview + WURS-25 childhood history + rule-out of mimics. Scales rule out better than they rule in (NPV > PPV).

NICE NG87 (2018); AAFP (2020); Eom & Kim (2024) Gen Hosp Psychiatry; Kessler (2007) Int J Methods Psychiatr Res; Ward et al. (1993) Am J Psychiatry; Kraut et al. (2026) Front Psychiatry

Controversy: Impairment Criterion — Relative to Potential, or to Peers?

An unresolved DSM-5 ambiguity with significant diagnostic, ethical, and equity implications — and no clear answer

Position A: Vs. Average Peers

- **Objective & measurable**
  Chronic unemployment, accidents, and repeated grades are clear benchmarks
- **Limits diagnostic inflation**
  Avoids explosion of prevalence — essential given ADHD's dimensional nature (Cortese et al., 2025, World Psychiatry)
- **Consistent with DSM-5 text**
  "Interfering with or reducing the quality of social, academic, or occupational functioning"
- **Reduces affluent bias**
  Less susceptible to over-diagnosis driven by resource access and ability to navigate systems

Position B: Vs. Own Potential

- **High-IQ ADHD is clinically valid**
  High-IQ adults with ADHD show same impairment, familiality & comorbidity as average-IQ ADHD (Biederman et al., 2008; Antshel et al., 2007)
- **High IQ masks ADHD — delays diagnosis**
  High-IQ children diagnosed ~2 years later; compensatory strategies hide impairment until demands exceed capacity (J Child Psychol, 2023)
- **"The struggling physician" problem**
  A moderately successful professional may be impaired vs. their potential despite performing above average (Cortese, 2025)
- **Real functional cost even above average**
  Untreated high-IQ ADHD: lower QoL, more accidents/arrests, higher depression and anxiety vs. high-IQ controls (Biederman, 2008)

What Does DSM-5 Say?

DSM-5 requires symptoms to "interfere with or reduce the quality of" functioning — but does NOT specify the reference group.

This ambiguity is intentional but unresolved. Clinician judgment determines whether a high-functioning individual is "impaired enough."

Cortese et al. (2025, World Psychiatry) identify this as one of the two core unresolved impairment controversies in adult ADHD.

The Equity Problem: Diagnosis & Treatment Access Widens the Rich–Poor Gap

Racial/ethnic underdiagnosis persists

Black & Hispanic children less likely to be diagnosed despite similar symptom rates, even controlling for income (Morgan et al., 2016; Zhao et al., 2023)

"Relative to potential" = a de facto wealth test

IQ testing, NP evaluations, and private diagnoses are costly — making potential-based impairment inaccessible to under-resourced families

SES drives both over- and under-diagnosis

High SES: over-diagnosis via system navigation. Low SES: under-diagnosis via access barriers OR over-diagnosis via poor quality care (CHADD, 2023)

Accommodations amplify structural advantage

Extended time, college supports, and 504 plans disproportionately benefit families who can afford private evaluation — conferring competitive advantage (Claremont, 2024)

Takeaways

- Document both: compare to peers AND to estimated potential — note the discrepancy explicitly
- High IQ ≠ protection from ADHD impairment and should not preclude diagnosis
- Absence of diagnosis may reflect access barriers, not absence of disorder
- Potential-based standards require equitable access to evaluation — not gatekeeping
- DSM revision needed: field calls for explicit guidance on the impairment reference group

Cortese et al. (2025) World Psychiatry; Biederman et al. (2008) Psychol Med; Antshel et al. (2007) J Child Psychol Psychiatry; Morgan et al. (2016) Pediatrics; Zhao et al. (2023) Adm Policy Ment Health; CHADD (2023); Hinshaw et al. (2022)

Academic Accommodations for College Students with ADHD

EVIDENCE-SUPPORTED ✓

- **Extended test time (1.5–2x)** — most studied; improves exam performance and reduces time-pressure errors (Lewandowski et al., 2013)
- **Reduced-distraction testing environment** — separate rooms or distraction-reduced settings improve performance (DuPaul et al., 2012)
- **Coaching & skills training** — ADHD coaching targeting time management and executive function has RCT support (Prevatt & Yelland, 2015)
- **Pharmacotherapy continuation** — stimulant treatment improves GPA, retention, and degree completion; strongest evidence base overall
- **CBT adapted for college students** — structured programs (e.g., ACCESS) targeting organizational skills show significant GPA gains (Anastopoulos et al., 2021)

COMMONLY USED, LESS STUDIED

- Priority registration (reduced scheduling conflict)
- Note-taking assistance or recorded lectures
- Preferential seating (front of classroom)
- Reduced course load or deadline flexibility
- Use of assistive technology (text-to-speech, smart pens)
- Written assignment outlines or chunked deadlines

CLINICAL NOTES

- Only ~25% of college students with ADHD access disability services; disclosure barriers and stigma are key obstacles (Wolf, 2001)
- NP evaluation is often required by institutions to document disability — appropriate referral supports access
- Accommodations are most effective when combined with treatment; neither alone is sufficient (DuPaul & Weyandt, 2006)

Lewandowski LJ et al. J Learn Disabil 2013; DuPaul GJ et al. J Atten Disord 2012; Prevatt F & Yelland S. J Atten Disord 2015; Anastopoulos AD et al. J Consult Clin Psychol 2021; DuPaul GJ & Weyandt LL. J Atten Disord 2006;10:9-19; Wolf LE. J Learn Disabil 2001;34(6):487-496

Estrogen & ADHD Medication: Synergistic Interactions

Complementary dopaminergic mechanisms — with dose-sensitive clinical implications

Why They Work Together

Stimulants block DA/NE reuptake in PFC

Estrogen boosts DA synthesis + receptor density

Combined → greater dopaminergic tone than either alone

HRT → restores the neurochemical floor for stimulants

Estrogen loss = stimulant efficacy drop at same dose

↓ Estrogen → ↓ Effect | ↑ Estrogen (HRT) → monitor dose

Key Evidence: LDX (Vyvanse)

39%	reduction in executive dysfunction in menopausal women — ADHD Dx not required (Epperson RCT)
3.64×	more likely to be responders vs. placebo (p<0.001)
fMRI	LDX increased DLPFC activation and normalized prefrontal glutamate (Shanmugan et al.)
Key:	Benefit seen without ADHD diagnosis — hormonal dopamine deficit responds to stimulant support

Clinical Guidance

↓ Estrogen → titrate stimulant up

Perimenopausal waning → increase dose before adding a new medication

↑ Estrogen (HRT start) → dose down

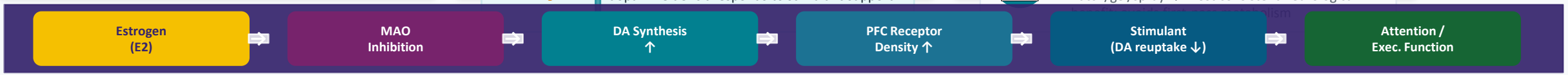
Monitor for anxiety, insomnia, tachycardia as dopaminergic tone is restored

Avoid synthetic progestins

Allopregnanolone inhibits PFC dopamine → prefer micronized progesterone (Prometrium)

Prefer transdermal estrogen

Patch/gel/spray → most consistent neurological



Epperson et al. (2015) Psychopharmacology; Shanmugan et al. (2017) Neuropsychopharmacology; de Jong et al. (2023) Frontiers in Psychiatry; Osianlis et al. (2025) J Atten Disord

Perimenopause & ADHD: Unanswered Questions and Clinical Implications

Unresolved Research Questions

No RCTs in women with ADHD

Most evidence from women without ADHD — the field's most critical research gap.

Optimal timing of HRT initiation

"Window hypothesis": earlier may be neuroprotective; late initiation may be neutral or harmful.

Individual variation in hormone sensitivity

Why do some women feel worse on oral contraceptives? Dopamine receptor genotype likely key.

Standardized stimulant dosing protocols

No clinical guidelines for cycle-based or perimenopause-transition dose adjustment exist yet.

Long-term safety: combined HRT + stimulants

CV monitoring, BP effects, and appetite interactions need prospective study.

Clinical Implications for Practice

Screen all women 35–55 with cognitive complaints

Add hormonal history to every ADHD eval: menstrual irregularity, vasomotor symptoms, timing.

Co-manage with gynecology / menopause specialist

Don't treat in silos. Coordinate stimulant dose changes with HRT. Alert all prescribers.

Consider cycle-informed stimulant dose flexibility

Premenstrual or perimenopausal worsening → structured dose increase trial (de Jong et al., 2023).

New cognitive complaints ≠ automatic ADHD diagnosis

Perimenopause alone can fully account for inattention and emotional reactivity.

Kooij et al. (2025) Frontiers; de Jong et al. (2023); Epperson et al. (2015); ADDitude/SAGA cohort (2024); Osianlis et al. (2025) J Atten Disord