

Clinical Implications of Attention-Deficit/Hyperactivity Disorder in Adults:

What New Data on Diagnostic Trends, Treatment Barriers, and Telehealth Utilization Tell Us

Gregory Mattingly, MD, and Ann Childress, MD

New data from the US Centers for Disease Control and Prevention (CDC) highlight the need for the development of guidelines for the diagnosis and treatment of attention-deficit/hyperactivity disorder (ADHD) in adults.¹

Long considered a condition primarily affecting children, ADHD is now recognized as one of the most common mental health conditions in adults, affecting both men and women almost equally.^{2,3} When left untreated, ADHD is associated with increased morbidity and mortality,⁴ low earning potential,⁵ poor physical health,⁶ relationship instability,⁷ and elevated comorbid mental health conditions.⁸ Untreated adult ADHD is often complex and comorbid with depression, anxiety, bipolar disorder, insomnia, substance use disorders, and trauma-related conditions.^{8,9}

Adult ADHD is associated with a 5-fold increased risk for anxiety disorders, a 4.5-fold increased risk for major depression, an 8.7-fold increased risk for bipolar disorder, and a 4.6-fold increased risk for substance use disorders.¹⁰ The risks and benefits of individualized ADHD treatment¹¹ must carefully be considered in these complex conditions¹² as ADHD and comorbid disorders present both diagnostic and treatment challenges. Patients who present with depressive and/or anxious symptoms may appear to be resistant to antidepressant treatment when underlying ADHD is not

detected and addressed.⁹ In contrast, treatment of ADHD comorbid with bipolar disorder may worsen bipolar symptoms if mood stabilizers are not used in conjunction with stimulants,¹³ and comorbid anxiety may impact stimulant tolerability.¹⁴

As numbers of comorbid conditions increase, mortality rates increase. Adults with ADHD and 2 comorbid conditions have an 8-fold increase in premature mortality as compared to adults without ADHD.¹⁵ Common treatment barriers include delayed diagnosis or misdiagnosis, limited access to available care, systemic inequities in marginalized communities, and limited education in the medical community regarding the persistent nature of ADHD in adulthood.^{16,17}

In an already fragile mental health system, the COVID-19 pandemic further stressed established treatment models.¹⁸ A record number of adults sought consultation for perceived cognitive difficulties and potential underlying ADHD.¹⁹ As a result, the number of stimulant prescriptions increased significantly during the pandemic.²⁰ Barriers to traditional care during the pandemic led to rapid adaptation of telehealth for ADHD diagnosis and management.²¹ Concerns arose, however, surrounding the potential risks and benefits of such online care. Further exacerbating problems obtaining care has been the nationwide shortage of stimulant medications with many pharmacies being out of stock and adults being

unable to fill their prescribed medications for weeks to months.^{22,23}

The *Morbidity and Mortality Weekly Report (MMWR)*; October 10, 2024) published by the CDC provides crucial updates on the public health burden of adult ADHD, including information on prevalence, treatment barriers, and telehealth utilization using the National Center for Health Statistics Rapid Survey System (RSS).¹ The RSS collects timely, relevant data on topics of public health importance. Surveys are conducted several times a year using probability-based, commercial online panels. RSS data collected from October through November 2023 included specific questions about ADHD prevalence and treatment. These RSS findings provide clinicians and policymakers with the first US national estimates on prevalence of current ADHD diagnosis and pharmacologic treatment among adults in more than 2 decades.^{8,24}

The RSS found that 6% of US adults had a current diagnosis of ADHD, with 8% of US adults reporting a past or present diagnosis.

- The RSS is the first national study to document that more than 50% of adults with ADHD were diagnosed in adulthood, thus documenting the public health burden of ADHD in this population.
- A total of 46% of adults with a current ADHD diagnosis reported ever utilizing telehealth for ADHD-related care.

- Additionally, 7 in 10 of those receiving stimulant pharmacotherapy reported difficulties obtaining their ADHD medication because the medication was unavailable.
- Taken together, these data highlight the significant public health burden of ADHD and challenges experienced by adults with this diagnosis. Common findings included delay in diagnosis, limitations in traditional health care, and a system plagued by pervasive medication shortages.

Further analysis of the underlying data shows a number of important findings within the ADHD health care system:

- **Prevalence**—These findings show that prior studies likely underestimate the current US prevalence, which was found to be 6% current and 8% lifetime ADHD diagnosis.
- **Age of diagnosis**—In addition to finding that more than 50% of adults were not diagnosed with ADHD until adulthood, the CDC survey found even larger discrepancies for women as compared to men; 45% of men were diagnosed before 11 years of age as compared to 25% of women, with 40% of men being diagnosed in adulthood as compared to 61% of women. Numerous prior studies have shown that delay in ADHD diagnosis is associated with the development of an array of both mental health and physical related sequelae. Previous CDC research found that the number of stimulant prescriptions in women of reproductive age increased by >10% between 2020 and 2021.²⁰ Emerging data during pregnancy and the postpartum period²⁵ also highlight the benefit of individualized ADHD treatment throughout the life cycle.²⁶ This further highlights the need for our

ADHD diagnostic and treatment models that improve upon the detection and engagement of girls and women with ADHD.

- **Medication shortages**—The RSS data highlight one of the nation's recent health care crises involving the widespread ADHD medication shortages and significant gaps in care. Approximately 70% of adults receiving stimulant medications stated that they had experienced difficulties obtaining their prescription. Given the well-established impact of ADHD medications not only for improving symptoms but also for decreasing associated risks, one can imagine the impact upon ADHD individuals and their families when medication shortages cause disruption of care. Branded stimulants may be available but can be cost prohibitive if not covered by insurance. Further research is needed to develop novel treatment options as consistent ADHD treatment has been shown to decrease suicide and suicidal behavior in at-risk individuals, is associated with a 25%–50% reduction in motor vehicle trauma, and promotes improvement in academic and occupational function.^{27,28}
- **Positive findings**—The CDC data confirm that patients, as well as clinicians, rapidly adapted to telehealth and alternative delivery models brought about during the COVID-19 pandemic. Nearly half of all adults with ADHD reported receiving some of their ADHD health care via telemedicine. These findings highlight the potential of telemedicine to improve access and potentially decrease systemic discrepancies in care. These benefits must, however, be balanced with the need for thorough diagnostic evaluation and follow-up for both the in person and virtual models of care.

The CDC's *MMWR* emphasizes diagnostic and treatment barriers for adults with ADHD and provides an updated understanding of the prevalence of the condition. These data highlight the importance of the upcoming American Professional Society of ADHD and Related Disorders' (APSARD) Adult ADHD Guidelines.²⁹ These will be the first US guidelines for the diagnosis and treatment of adults with ADHD and will provide a valuable framework of treatment for clinicians and families. While many unanswered questions remain, these findings bring us one step closer to a deeper understanding of the needs of adults with ADHD.

Article Information

Published Online: October 10, 2024.
<https://doi.org/10.4088/JCP.24com15592>

© 2024 Physicians Postgraduate Press, Inc.
J Clin Psychiatry 2024;85(4):24com15592

Submitted: September 3, 2024; accepted September 5, 2024.

To Cite: Mattingly G, Childress A. Clinical implications of attention-deficit/hyperactivity disorder in adults: what new data on diagnostic trends, treatment barriers, and telehealth utilization tell us. *J Clin Psychiatry*. 2024;85(4):24com15592.

Author Affiliations: Washington University, St Louis, Missouri (Mattingly); Department of Family Medicine, Kirk Kerkorian School of Medicine at UNLV, Las Vegas, Nevada (Childress); Touro University Nevada College of Osteopathic Medicine, Henderson, Nevada (Childress).

Dr Mattingly is the president of the American Professional Society of ADHD and Related Disorders (APSARD), and Dr Childress is the immediate past-president of APSARD.

Corresponding Author: Gregory Mattingly, MD, Washington University, 4801 Weldon Spring Parkway, Weldon Springs, MO 63304 (greg@mattingly.com).

Relevant Financial Relationships: None.

Funding/Support: None.

References

1. Staley SB, Robinson LR, Claussen AH, et al. Attention-deficit/hyperactivity disorder diagnosis, treatment and telehealth use in adults – National Center for Health Statistics Rapid Surveys System, United States, October – November 2023. *MMWR Morb Mortal Wkly Rep*. 2024;73(40).
2. Ayano G, Tsegay L, Gizachew Y, et al. Prevalence of attention deficit hyperactivity disorder in adults: umbrella review of evidence generated across the globe. *Psychiatry Res*. 2023;328:115449.
3. Faraone SV, Bellgrove MA, Brikell I, et al. Attention-deficit/hyperactivity disorder. *Nat Rev Dis Primers*. 2024;10(1):11.
4. Li L, Zhu N, Zhang L, et al. ADHD pharmacotherapy and mortality in individuals with ADHD. *JAMA*. 2024; 331(10):850–860.

5. Christiansen MS, Labriola M, Kirkeskov L, et al. The impact of childhood diagnosed ADHD versus controls without ADHD diagnoses on later labour market attachment—a systematic review of longitudinal studies. *Child Adolesc Psychiatry Ment Health*. 2021; 15(1):34.
6. Landes SD, London AS. Self-reported ADHD and adult health in the United States. *J Atten Disord*. 2021; 25(1):3–13.
7. Harpin V, Mazzone L, Raynaud JP, et al. Long-term outcomes of ADHD: a systematic review of self-esteem and social function. *J Atten Disord*. 2016; 20(4):295–305.
8. Kessler RC, Berglund P, Chiu WT, et al. The US National Comorbidity Survey Replication (NCS-R): design and field procedures. *Int J Methods Psychiatr Res*. 2004;13(2):69–92.
9. Katzman MA, Bilkey TS, Chokka PR, et al. Adult ADHD and comorbid disorders: clinical implications of a dimensional approach. *BMC Psychiatry*. 2017;17(1): 302.
10. Hartman CA, Larsson H, Vos M, et al. Anxiety, mood, and substance use disorders in adult men and women with and without attention-deficit/hyperactivity disorder: a substantive and methodological overview. *Neurosci Biobehav Rev*. 2023;151:105209.
11. Cortese S, Adamo N, Del Giovane C, et al. Comparative efficacy and tolerability of medications for attention-deficit hyperactivity disorder in children, adolescents, and adults: a systematic review and network meta-analysis. *Lancet Psychiatry*. 2018;5(9): 727–738.
12. Mattingly GW, Wilson J, Ugarte L, et al. Individualization of attention-deficit/hyperactivity disorder treatment: pharmacotherapy considerations by age and co-occurring conditions. *CNS Spectr*. 2021;26(3):202–221.
13. Chang Z, Ghirardi L, Quinn PD, et al. Risks and benefits of attention-deficit/hyperactivity disorder medication on behavioral and neuropsychiatric outcomes: a qualitative review of pharmacoepidemiology studies using linked prescription databases. *Biol Psychiatry*. 2019;86(5): 335–343.
14. Perugi G, Pallucchini A, Rizzato S, et al. Current and emerging pharmacotherapy for the treatment of adult attention deficit hyperactivity disorder (ADHD). *Expert Opin Pharmacother*. 2019;20(12):1457–1470.
15. Sun S, Kuja-Halkola R, Faraone SV, et al. Association of psychiatric comorbidity with the risk of premature death among children and adults with attention-deficit/hyperactivity disorder. *JAMA Psychiatry*. 2019;76(11):1141–1149.
16. Goodman DW, Surman CB, Scherer PB, et al. Assessment of physician practices in adult attention-deficit/hyperactivity disorder. *Prim Care Companion CNS Disord*. 2012;14(4):PCC.11m01312.
17. Shi Y, Hunter Guevara LR, Dykhoff HJ, et al. Racial disparities in diagnosis of attention-deficit/hyperactivity disorder in a US national birth cohort. *JAMA Netw Open*. 2021;4(3):e210321.
18. Kola L. Global mental health and COVID-19. *Lancet Psychiatry*. 2020;7(8):655–657.
19. Smith MCF, Mukherjee RAS, Muller-Sedgwick U, et al. UK adult ADHD services in crisis. *BJPsych Bull*. 2024; 48(1):1–5.
20. Danielson ML, Bohm MK, Newsome K, et al. Trends in stimulant prescription fills among commercially insured children and adults – United States, 2016–2021. *MMWR Morb Mortal Wkly Rep*. 2023; 72(13):327–332.
21. Hong J, Mattingly GW, Carbray JA, et al. Expert consensus statement for telepsychiatry and attention deficit hyperactivity disorder. *CNS Spectr*. 2024:1–34.
22. Department of Justice Drug Enforcement Administration [Docket No. DEA–1228P]. Proposed Aggregate Production Quotas for Schedule I and II Controlled Substances and Assessment of Annual Needs for the List I Chemicals Ephedrine, Pseudoephedrine, and Phenylpropanolamine for 2024. *Fed Reg*. 2023;88(211):75312–75323.
23. No end in sight for national ADHD drug shortage. Medscape. Accessed September 1, 2024. <https://www.medscape.com/viewarticle/no-end-sight-national-adhd-drug-shortage-2024a10004me?form=fpf>
24. Kessler RC, Adler L, Barkley R, et al. The prevalence and correlates of adult ADHD in the United States: results from the National Comorbidity Survey Replication. *Am J Psychiatry*. 2006;163(4):716–723.
25. Szpunar MJ, Freeman MP, Kobylski LA, et al. Risk of major malformations in infants after first-trimester exposure to stimulants: results from the Massachusetts General Hospital National Pregnancy Registry for Psychiatric Medications. *J Clin Psychopharmacol*. 2023;43(4):326–332.
26. Scoten O, Tabi K, Paquette V, et al. Attention-deficit/hyperactivity disorder in pregnancy and the postpartum period. *Am J Obstet Gynecol*. 2024; 231(1):19–35.
27. Boland H, DiSalvo M, Fried R, et al. A literature review and meta-analysis on the effects of ADHD medications on functional outcomes. *J Psychiatr Res*. 2020;123: 21–30.
28. Gjervan B, Torgersen T, Nordahl HM, et al. Functional impairment and occupational outcome in adults with ADHD. *J Atten Disord*. 2012;16(7):544–552.
29. Childress A, Sibley M, Solanto MV, et al. Guidelines in the United States for the diagnosis and treatment of attention-deficit/hyperactivity disorder in adults: why they are needed. *Psychiatr Ann*. 2023;53(10): 461–469.

Scan Now



Cite and Share
this article at
Psychiatrist.com