

Arguments About Whether Overdiagnosis of ADHD is a Significant Problem*

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most commonly diagnosed mental disorder among children and adolescents. The Centers for Disease Control and Prevention (CDC) report a steady increase in prevalence, from 6.9% in 1997 to 9.5% in 2007.

With increased diagnoses has come widespread concern about the degree of overdiagnosis. This concern is compounded by related increases in use of medications to treat ADHD.

Over the years, prevalence has increased steadily with each new version of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) published by the American Psychiatric Association. Concerns have been expressed that prevalence will further increase with the latest version (DSM-5). The questions arise: Do ongoing refinements in the DSM and available assessment procedures enable better differential diagnosis? Do they overdiagnose ADHD?

Errors are common when diagnoses of ADHD are made. These include indicating a person has ADHD when they do not (designated as a false positive), indicating a person doesn't have ADHD when they do (designated as a false negative), or misclassifying the person's problem. In this respect, some argue that rising ADHD prevalence rates reflect many false positives; others argue the increases reflect a reduction in false negatives.

Those arguing that overdiagnosis is a significant problem suggest that:

- *Practitioners' Overdiagnose.* Both empirical and observational studies are cited as revealing that practitioners often diagnose ADHD despite limited assessment. For example, in a study of 1,000 clinicians assessing ADHD, only 15% reported regularly using information from multiple sources and settings; other studies have demonstrated false negatives resulting from gender and ethnic bias in the diagnosis process.
- *Conflicting Interests.* The relationship between medical/psychiatric diagnosticians and pharmaceutical companies is pointed to as the type of conflict of interest that contributes to ADHD overdiagnosis.
- *Criteria are Pathologically Biased.* Diagnostic criteria in the DSM have been described as blurring the line between behaviors that warrant diagnosis and behaviors that reflect a commonplace developmental trajectory. For instance, DSM-5 is seen as further widening the definition of ADHD with the inclusion of more behavioral descriptions and delays the maximum onset age to include late-onset diagnosis. The term "clinically significant" in previous editions is seen as having been revised into more lenient descriptions (e.g., behavior that "interferes with or reduces the quality of social, academic, or occupational functioning"). The concern is that changes in DSM may further increase ADHD diagnosis among individuals who display ADHD symptoms but who only manifest minor functional impairment.

*The material in this document was culled from the literature and drafted by Joyce Cheng as part of her work with the national Center for Mental Health in Schools at UCLA. Key references used are cited in the reference list at the end of the document.

- *Forces are at Work that Produce Uncritical Consumer Demand.* General and social networking media and ADHD organizations are seen as contributing to increasing demand, overdiagnosis, and overprescription. For example, a variety of websites promote initial home-diagnosis based on a small set of symptom-related questions. Relatedly, direct-to-consumer pharmaceutical advertising is seen as the type of mass promotion of ADHD that fuels demand for and overdiagnosis of ADHD along with overprescription of medication (e.g., a particular focus is on parents of students doing poorly at school).
- *Cognitive Biasing Factors.* Research emphasizes various cognitive biases that can lead observers to misattribute the source of problems and overestimate prevalence. For example, availability bias suggests there is a tendency to inflate the likelihood of an event based on a few salient examples. Confirmation bias suggests the tendency for one to become attached to an unconfirmed hypothesis and subsequently only attend to and seek information that support the hypothesis while disregarding and minimizing counter-evidence. Attribution bias suggests the tendency for observers to attribute an actor's (e.g., a student's) problem behavior to a stable, internal cause. Such biasing factors are seen as playing a role in disparate overdiagnosis of males, adolescents, and some racial groups.

Examples of efforts to counter such arguments point to:

- *Underlying biasing factors.* The claim is that biasing factors have reified the view that diagnostic rates are excessive. Such bias is seen as perpetuated by media through sensational portrayals of ADHD false positives that mislead people to believe that overdiagnosis is more prominent than it really is. Widely presented anecdotal accounts of children receiving unwarranted ADHD diagnosis along with aggressive pharmacological treatment are cited as misleading the public into overestimating the prevalence of false positives in ADHD. Moreover, the bias against ADHD diagnoses is seen as colluding with the tendency to overemphasize false positives, while deemphasizing estimates of false negatives. Furthermore, cognitive biases (e.g., information availability and confirmation) leading to judgments of overdiagnosis are viewed as reinforced by reports that overstate the case for overdiagnosis. In particular, mass promotion of the idea that ADHD overdiagnosed is seen as contributing to the tendency for people to become attached to an unconfirmed.
- *Improved diagnostic practices.* It is widely stressed that changes in DSM-5 are intended to and will reduce clinician subjectivity in the diagnostic process and increase diagnostic reliability by providing additional behavioral descriptions that include developmentally appropriate examples. It is also emphasized that just because many of the behaviors viewed as ADHD symptoms are commonplace is not a sound reason to question the validity of ADHD diagnoses.
- *About data related to race.* Claims of overdiagnosis due to racial factors are seen as ignoring findings that report racial minority children were less likely than their white peers to receive ADHD diagnosis across early to middle childhood. Related to this, data are referenced indicating racial differences in parental reports about ADHD symptoms in their children, with parents of racial minorities less likely to report such symptoms compared to parents of non-Latino whites.

About School Accountability Policy and ADHD Diagnosis

The U.S. has the highest rate of diagnosed ADHD -- 11% compared to a rate of around 5% in countries such as Brazil, China, and Europe. Variations within and across nations suggest the role of cultural and societal factors in determining rates of diagnosis. For example, in the U.S., cultural attitudes about special education labels such as ADHD and LD, and school accountability policies and pressures have been identified as playing a role in overdiagnoses. For example, in order to meet accountability standards and avoid being designated as low performing schools, districts try to exclude or at least ensure special accommodations for special education students in order to report higher test score averages.

In their 2014 book, *The ADHD Explosion*, Hinshaw and Scheffler discuss the impact of school accountability legislation as a major factor leading schools to increase their special education population. As a prime example, they focus on North Carolina, where school accountability legislation was enacted that specified rewards for schools performing up to a standard and penalized those that did not. The critical accountability measure was academic test scores. Hinshaw and Scheffler suggest that to maximize test scores schools sought to have underachieving students diagnosed and treated for ADHD so they would be put on “attention-enhancing” medications and/or receive testing accommodations. To back up this suggestion, they report research indicating a positive correlation between the increasing accountability demands and increases in ADHD diagnosis over the years.

Moreover, public schools in low-income communities are typically the most vulnerable when it comes to the negative impact of school-accountability policy. And indications are that the rate of increase in ADHD diagnosis is related to low socioeconomic students. Hinshaw and Scheffler report increases as high as 59% for ADHD diagnosis among youngsters from low-income homes after the launching of school accountability laws compared to a less than 10% increase among middle- and high-income children. Those who argue that overdiagnosis of ADHD is not a problem suggest that such a discrepancy is an indication of a long-standing failure to address ADHD among low-income populations. Hinshaw and Scheffler argue that the discrepancy is better explained by school accountability policy.

As a footnote to all this: In a recent interview with the *Los Angeles Times*, Scheffler made it clear that the current process for diagnosing ADHD depends heavily on the subjective judgments from parents, clinicians, as well as youngsters themselves. This reality alone makes false positive diagnoses of students a likelihood and provides a cautionary warning about the need to counter overdiagnoses.

References Used

- Adelman, H.S. & Taylor, L. (2010). *Mental health in schools: Engaging learners, preventing problems, and improving schools*. Thousand Oaks, CA: Corwin Press.
- Batstra, L.. & Frances, A. (2011). Holding the line against diagnostic inflation in psychiatry. *Psychotherapy and psychosomatics*, 81, 5-10.
- Bruchmüller, K., Margraf, J., & Schneider, S. (2012). Is ADHD diagnosed in accord with diagnostic criteria? Overdiagnosis and influence of client gender on diagnosis. *Journal of Consulting and Clinical Psychology*, 80, 128.
- Castle, L., Aubert, R. E., Verbrugge, R. R., Khalid, M., & Epstein, R. S. (2007). Trends in medication treatment for ADHD. *Journal of Attention Disorders*, 10, 335-342.
- Centers for Disease Control and Prevention (2010). Increasing prevalence of parent-reported attention-deficit/hyperactivity disorder among children --- United States, 2003 and 2007. *MMWR*. 2010;59(44):1439-1443.
- Center for Mental Health in Schools (2013). *Schools and the challenge of LD and ADHD misdiagnoses*. Los Angeles: Author at UCLA.
<http://smhp.psych.ucla.edu/pdfdocs/lmisdiagnoses.pdf>
- Cohen, M.J., Riccio, C.A., & Gonzalez, J.J. (1994). Methodological differences in the diagnosis of attention-deficit hyperactivity disorder: Impact on prevalence. *Journal of Emotional and Behavioral Disorders*, 2, 31-38.
- Desgranges, M. K., Desgranges, L., & Karskv, K. (1995). Attention deficit disorder: Problems with preconceived diagnosis. *Child and Adolescent Social Work Journal*, 12, 3-17.
- Elder, T. E. (2010). The importance of relative standards in ADHD diagnoses: Evidence based on exact birth dates. *Journal of Health Economics*, 29, 641-656.
- Green, J. G., Gruber, M. J., Kessler, R. C., Lin, J. Y., McLaughlin, K. A., Sampson, N. A., Zaslavskv, A. M. and Alegria, M. (2012). Diagnostic validity across racial and ethnic groups in the assessment of adolescent DSM-IV disorders. *International Journal of Methods in Psychiatric Research*, 21, 311–320. doi: 10.1002/mpr.1371
- Handler, M. W., & DuPaul, G. J. (2005). Assessment of ADHD: Differences across psychology specialty areas. *Journal of Attention Disorders*, 9, 402-412.
- Hillemeier, M. M., Foster, E. M., Heinrichs, B., Heier, B., & Conduct Problems Prevention Research Group. (2007). Racial differences in parental reports of attention-deficit/hyperactivity disorder behaviors. *Journal of Developmental and Behavioral Pediatrics*, 28, 353.
- Hinshaw, S. P., & Scheffler, R. M. (2014). *The ADHD explosion: Myths, medication, money, and today's push for performance*. Oxford University Press.
- Kessler, R. C., Avenevoli, S., Costello, E. J., Georgiades, K., Green, J. G., Gruber, M. J., & Merikangas, K. R. (2012). Prevalence, persistence, and sociodemographic correlates of DSM-IV disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Archives of General Psychiatry*, 69, 372-380.
- Morgan, P. L., Staff, J., Hillemeier, M. M., Farkas, G., & Maczuga, S. (2013). Racial and ethnic disparities in ADHD diagnosis from kindergarten to eighth grade. *Pediatrics*, 132, 85-93.

- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, 2, 175-220.
- Polanczyk, G., de Lima, M., Horta, B., Biederman, J., & Rohde, L. (2007). The worldwide prevalence of ADHD: A systematic review and metaregression analysis. *American Journal of Psychiatry*, 164, 942-948.
- Poulton, A. S., Melzer, E., Tait, P. R., Garnett, S. P., Cowell, C. T., Baur, L. A., & Clarke, S. (2013). Growth and pubertal development of adolescent boys on stimulant medication for attention deficit hyperactivity disorder. *Medical Journal of Australia*, 198, 29-32.
- Ruggiero, S., Rafaniello, C., Bravaccio, C., Grimaldi, G., Granato, R., Pascotto, A., & Capuano, A. (2012). Safety of attention-deficit/hyperactivity disorder medications in children: an intensive pharmacosurveillance monitoring study. *Journal of Child and Adolescent Psychopharmacology*, 22, 415-422.
- Schwarz, A., Cohen, S. (2013, March 31). A.D.H.D. seen in 11% of U.S. children as diagnoses rise. *The New York Times*. Retrieved from http://www.nytimes.com/2013/04/01/health/more-diagnoses-of-hyperactivity-causing-concern.html?pagewanted=all&_r=0
- Shaffer, D. (2013, May 8). The big impact of small changes for DSM-5 ADHD diagnosis. *KevinMD.com*. Retrieved from <http://www.kevinmd.com/blog/2013/05/big-impact-small-dsm5-adhd-diagnosis.html>
- Skounti, M., Philalithis, A., & Galanakis, E. (2007). Variations in prevalence of attention deficit hyperactivity disorder worldwide. *European Journal of Pediatrics*, 166, 117-123.
- Sciutto, M. J., & Eisenberg, M. (2007). Evaluating the evidence for and against the overdiagnosis of ADHD. *Journal of Attention Disorders*, 11, 106-113.
- Thomas, R., Mitchell, G. K., & Batstra, L. (2013). Attention-deficit/hyperactivity disorder: Are we helping or harming? *British Medical Journal*, 347. <http://www.bmj.com/content/347/bmj.f6172>
- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive psychology*, 5, 207-232.
- Visser S, Danielson M, Bitsko R, et al. (2013). Trends in the parent-report of health care provider-diagnosis and medication treatment for ADHD disorder: United States, 2003–2011. *Journal of the American Academy of Child and Adolescent Psychiatry*, 53, 34-46. [http://www.jaacap.com/article/S0890-8567\(13\)00594-7/abstract](http://www.jaacap.com/article/S0890-8567(13)00594-7/abstract)
- Waschbusch, D. A., & King, S. (2006). Should sex-specific norms be used to assess attention-deficit/hyperactivity disorder or oppositional defiant disorder?. *Journal of Consulting and Clinical Psychology*, 74, 179.
- Zuvekas, S., Vitiello, B., & Norquist, G. (2006). Recent trends in stimulant medication use among US children. *American Journal of Psychiatry*, 163, 579-585.