The Phenomenon of ADHD: A Cultural and Historical Perspective on the Rapid Rise of Attention-Deficit

Joshua M. Boden
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Joshua M. Boden
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Messiah College
# Table of Contents

- Introduction .................................................................................................................. 3

- A Brief History of ADHD .............................................................................................. 4
  - Psychopharmacology and the Rise of Ritalin ............................................................... 7
  - 1980s and Beyond ......................................................................................................... 9

- Diagnosing ADHD ......................................................................................................... 11
  - Classification and Symptoms ....................................................................................... 11
  - DSM-IV Criteria ........................................................................................................... 13
  - ICD-10 Criteria ............................................................................................................ 14
  - Issues in Diagnosing ADHD ....................................................................................... 15

- ADHD: Facts and Figures .............................................................................................. 17

- The Controversy over ADHD ......................................................................................... 22
  - The International Consensus Statement on ADHD ..................................................... 22
  - Critique of the Statement ............................................................................................ 22
  - ADHD Through International Eyes ........................................................................... 24

- ADHD and Culture ......................................................................................................... 25
  - ADHD as Culturally Contingent .................................................................................. 27

- Concluding Thoughts .................................................................................................... 29

- Survey Research ............................................................................................................. 32
  - Discussion .................................................................................................................... 34

- Conclusion ..................................................................................................................... 35

- References ..................................................................................................................... 37
**Introduction**

Attention-Deficit Hyperactivity Disorder. It’s a disorder that has gone by many names, and by many definitions. But the most consistent fact of this disorder is also the most unsettling – its prevalence. It is strikingly common, and, curiously, its diagnoses are only increasing in number. Present statistics and rates of diagnoses lead many to quite reasonably assume that we are experiencing an astonishing ADHD epidemic. Around the world, physicians and psychologists are discovering and diagnosing millions of cases each year, while educators and parents alike are increasingly concerned about this disorder and baffled about what to do with it. To combat the symptoms of ADHD, a booming pharmaceutical industry has developed, while innumerable experts are speaking and writing on the processes of diagnosis and treatment. It seems this is an epidemic that requires strong and immediate combat.

Yet there are those who find the sudden and drastic rise of ADHD among the western world to be a development worth questioning. A number of respected psychiatrists have argued that the best way for understanding ADHD is as a construction of a paranoid Western culture. And others still have argued that we should abandon the concept of ADHD altogether, and just let kids be kids, people be people, and the inattentive among us remain inattentive.

To understand this confusing debate requires a thorough examination of the historical and cultural antecedents of ADHD and the worldviews that underlie it all. This essay is a critical exploration of ADHD’s development – its history and surprising discovery; its early diagnostic methods and conflicting interpretations; its symptoms and its controversial treatments; its manifestations across lines of state, country and culture; its gradual scientific acceptance and increasing prevalence; and its repercussions for school systems, politics, and pharmaceutical corporations.

Part historical survey, part review of current literature, and part reflective analysis, along the way I hope to answer some key questions: What exactly is ADHD? How did it appear so suddenly? Why is it diagnosed so widely? Why is it so prevalent in some places and not in others? Are there cultural preconditions that contribute to its grip on North American society specifically? Considering ADHD is the most commonly diagnosed and most widely researched pediatric mental illness, one would assume answers to these questions had been provided long ago. Yet the questions are seldom asked, and the answers, admittedly, are hard to find. Though none of these questions have quick or simple answers, their answers are very much worth pursuing.
A Brief History of ADHD

It would certainly be fitting to begin a paper on ADHD by giving definition to the subject matter. Yet what I hope to communicate is how our understanding of ADHD has been continually revised over the past century. What stands as ADHD today will most likely not resemble the ADHD of the next generation. And how we have chosen to define ADHD in our time is as much a product of the past as a product of the most current scientific findings.

Surely many children have always had difficulty behaving and paying attention, but what we’ve called that behavior has changed significantly over the years, and frequently in the past century. What we now call Attention Deficit/Hyperactivity Disorder did not gain that title until the release of the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders – Third Edition (DSM-III) in 1980. Previously, it was called Attention Deficit Disorder, and it was the formal result of almost a century of research and speculation about the disorder. That century was comprised of several noteworthy discoveries, some brilliant pioneering research, and a great amount of confusion about the whole thing. Debates raged over the causes and best treatments for this new syndrome, as it took on over 20 different names before finally arriving at “ADHD”. To this day, more research is conducted on ADHD than almost any other pediatric mental illness, but some important questions still remain (Mayes, Bagwell & Erkulwater, 2009). As the psychiatric world constantly strives to improve treatments and diagnostic procedures for the disorder, an exploration of ADHD’s complicated past may help us better understand just exactly what we are dealing with.

The core tenets of ADHD, as we understand it today, are hyperactivity, impulsivity, and inattentiveness. Undoubtedly, these characteristics have been found in children for all of human history, and have always been a disruption to educators and parents. The earliest recorded medicalization of these behaviors was in a series of lectures by George Frederic Still in 1902. Still was an English doctor and a member of the Royal College of Physicians, to whom he delivered these seminal lectures concerning 20 children in his clinical practice (Armstrong, 1997). This significant inability, however, could not be attributed to any obvious mental deficiency, and thus Still characterized the cause of the abnormal behavior as a marked moral defect in the children, likely with hereditary origins.

Researchers today view Still’s lectures as laying the groundwork for all we continue to learn about ADHD behaviors. One prominent researcher has noted that the children in Still’s practice were most likely suffering from ADHD combined type, with comorbid conduct disorder (Barkley, 2006). Yet for however much Still’s work is appreciated today, there is no evidence that the scientific community of his own time viewed Still’s work as anything more than a mildly interesting idea. Working around the same time and in the same country, Alfred Tredgold was Britain’s leading scholar on issues of mental deficiency. When education became compulsory in England in the late 19th century, a group of students emerged who could not rightly be classified as “imbeciles” nor as capable as normal children. Tredgold called these children “feeble-minded” and noted that their abnormal behavior was marked frequently by inattentiveness (Mayes, Bagwell & Erkulwater, 2009).

Research into feeble-mindedness and disability continued after an epidemic of encephalitis lethargica killed nearly 20 million people throughout the 1920s. Some children who
survived the influenza later showed symptoms of impulsiveness, hyperactivity and antisocial behavior – all without any signs of cognitive damage. Though this condition was notably different from modern conceptions of ADHD, it paved the way for further studies into the links between mild brain damage and mild behavioral disturbances (Mayes, Bagwell & Erkulwater, 2009).

Interest in these discoveries was less than overwhelming, however, and further studies in this area were few and far between. To our 21st century minds, it may be hard to understand the post-Victorian world in which Still was working, and in which he had made a bold assertion (Wallis, 1994). For all of human history, bad behavior in children was the fault of the child and his parents. If a child didn’t listen to directions, he or she needed to be disciplined. If a child was easily distracted, then they would do poorly in school and that, more often than not, was their own problem. It was nature, not nurture, found at fault in Still’s misbehaving children. Naturally this led to the question: if there is a genuine mental disorder at the root of such hyperactivity, what could be done about it? Because Still could not satisfactorily answer this question, research into ADHD came to a virtual halt for several decades.

The earliest research into treatments for children’s impulsivity and inattentiveness began 30 years after Still had first identified the presence of a disorder. In 1934, researchers writing in an American medical journal identified abnormal behavior and hyperactivity in children with no history of neurological trauma. Again, enthusiasm for the findings was limited, except in a residential facility for emotionally disturbed children in Connecticut. The home had been founded by a wealthy couple whose daughter was mentally disabled by the aforementioned 1918 influenza. The facility, known as the Bradley Home, was directed by psychiatrist Dr. Charles Bradley, who welcomed intriguing new research into child psychopathology. This openness to experimentation, though shockingly unethical by today’s standards, paved the way for what would be one of the most significant psychopharmacological discoveries of all time – and, like many brilliant medical advances, it was entirely accidental.

The earliest treatment for the disturbed children at the Bradley Home was a spinal tap known as a pneumoencephalogram, based upon the thinking that behavioral abnormalities were caused by problems with the central nervous system. But not only was the procedure extremely painful and admittedly ineffective, it left many of the children suffering from severe headaches. To ease the children’s pain, Dr. Bradley tried a new amphetamine called Benzedrine that was expected to increase the flow of spinal fluid and shorten the headaches. The headaches were not diminished, but the 30 children who received the drug suddenly showed a marked improvement in school-related behavior. They focused better, were far less disruptive, and seemed genuinely more interested in learning. These findings were corroborated by a simultaneous discovery of the positive effects of Benzedrine with achievement tests on children who had suffered no neurological trauma. It did not take long for Bradley’s children to begin referring to this miracle drug as their “arithmetic pills” (Mayes, Bagwell & Erkulwater, 2009, p. 54).

But this seemingly simple solution did not come without some concerns. In concluding his 1937 article, Bradley warned against arbitrary uses of the new drug that may overlook other physical, psychological, or social factors imperative to understanding the children’s disorder. His words were a prescient remark on an issue and an industry that would grow beyond anything Bradley or his colleagues could have imagined. And though Bradley hypothesized regarding the causes of the misbehavior and the drug-induced changes, he was arguably as far from any proven
etiology as researchers still are to this day. Interestingly, Bradley’s explanation for the efficacy of the medicine was that the children were simply deeply unhappy, and the stimulation of Benzedrine countered their desire to convey their unhappiness through misbehaving.

In the late 1940s, a disconcerting concept was introduced in the study of ADHD that would persist for decades. Researchers in Wisconsin argued they had further support for Still’s initial assertion that hyperactive behavior is not the fault of the environment, but of the brain. They hypothesized that minimal brain damage was the cause of such misbehavior in children, even if no obvious lesions could be detected. Strauss and Lehtinen (1947) argued that the children’s inattentiveness and over-activity were not the result of genetics or environment, but that each of these children suffered from a physical brain abnormality, likely originating in fetal development. Though their findings could not be replicated, or even specified, their descriptions of children with “minimal brain damage” resonated with parents and educators across North America working with children to whom “scoldings or deprivations, reasoning, subtle approaches by precept or by example [were] equally ineffectual” (Strauss & Lehtinen, 1947, in Mayes, 2009).

The first formal name for the specific symptoms of ADHD was “hyperkinetic impulse disorder”, named by Maurice Laufer, Eric Denhoff, and Gerald Solomons (1957). Laufer was Charles Bradley’s successor at the Bradley Home and had continued Bradley’s research into children’s unruly behavior. The disorder he had isolated, and newly named, was marked most strongly by hyperactivity. Poor powers of concentration were also noted, and were most striking under school conditions. The disorder, though given a new name, was still linked with minimal brain damage, specifically to the diencephalon, which is responsible for ensuring the cerebral cortex is not overwhelmed by stimuli.

Laufer’s article addressed numerous facets of the disorder and the various struggles hyperkinetic children were facing. In that regard, it was arguably the first systematic exposition of ADHD as we now understand it, and the authors were emphatic that they were referring to a “very specific entity” that could be specifically treated with amphetamines. Nevertheless, they did sound a word of warning that “disturbed behavior in children should not be treated indiscriminately with amphetamine” and that hyperactivity “may reflect in emotional disturbance entirely and not anything of an organic nature” (Laufer, Denhoff, & Solomons, 1957, pp. 624). Further, they argued that psychotherapy should always be included in treatment so that children and their parents do not focus on organic factors and risk “dismissing any responsibility for making changes in the situation” (ibid).

Laufer and his team were not oblivious to the significance of their research. They noted, interestingly, how relieved families were to hear the diagnosis of hyperkinetic impulse disorder in their children, as it if absolved them of some blame for what seemed wrong with their children. And since at that time there was little research supporting programs for special education, their work was praised by educators across the country (Mayes, Bagwell & Erkulwater, 2009). But for all Laufer’s premonitions and warnings, it is doubtful he or his team could have foreseen what would happen in the treatment and study of hyperkinetic impulse disorder in the following decades. One of Laufer’s colleagues, Eric Denhoff, commented on the rapid, and worrisome, state of affairs less than 15 years after their first article.
“In the 1950s, educators learned about [the] … psychopharmacological aspect of behavior modification, and began to encourage parents to seek such help from the child’s physician. Soon it became evident that these drugs were being used indiscriminately – prescription would depend mostly upon a description of behavior by a teacher or parent. There was little awareness or use of the supporting information required to differentiate the hyperkinetic impulse disorder from other types of behavior disorders in which overactivity was also a prominent feature” (Denhoff, 1971, pp. 469).

Psychopharmacology and the Rise of Ritalin

Though this paper is not a study of pediatric psychopharmacology, one cannot study the rise of ADHD without understanding the pharmaceutical developments that, in many ways, fueled its growth. To that end, arguably nothing was more significant in the advent of ADHD than the stimulant drug Ritalin.

In the 1950s, a wave of new psychiatric drugs became available for treating adult mental illness. Previously common maladies such as mood disorders and different manifestations of psychosis could suddenly be treated effectively with psychotropic drugs, which began to be marketed and used widely. Meanwhile, a Swiss pharmaceutical company had been working for more than a decade to synthesize a drug that would work as well as Benzedrine and other amphetamines on calming excessively hyperactive children, but without the negative side effects. In 1955, they finally succeeded in a stimulant called methylphenidate, gave it the brand name “Ritalin”, and began marketing it. Surprisingly, the earliest marketed application for Ritalin was for treating narcolepsy in elderly patients (Mayes, Bagwell & Erkulwater, 2009).

In 1961, the Food and Drug Administration approved the use of Ritalin for children with behavioral problems. Following this, two of the most prominent pediatric psychiatrists of their time, Leon Eisenberg and Keith Conners (1963), published a controlled, double-blind study of the effects of Ritalin with an endorsement for its use in “disturbed children.” They found statistically significant decreases in impulsivity and improvements in attention in their sample, with the only negative side effects being a “high report (70%) of appetite loss in the drug group.” In concluding their findings, Connors and Eisenberg urged that other factors influencing responsiveness to the drugs should be studied thoroughly before “blanket endorsements can be given for general use” (Connors & Eisenberg, 1963, pp. 462).

This charge to consider further factors in childhood mental disorders, specifically hyperkinetic impulse disorder, permeated much of Eisenberg’s celebrated work. He was quoted at one point as saying,

“Whereas the adult comes for treatment largely because of his own distress and at his own initiative, the child comes to our attention because of his family’s or his community’s initiative. Who, then, are we to classify diagnostically: the child, the family, the community, or all three?” (Eisenberg, in Mayes, Bagwell & Erkulwater, 2009).

And another time,
“It’s time to stop pulling drowning kids out of the river and start heading upstream to see who is pushing them in.” (ibid)

By the time the second edition of the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (DSM-II) was released, the connection between hyperkinetic impulse disorder and brain damage was increasingly being questioned (Barkley, 1990). Many children with the disorder showed absolutely no sign of any kind of brain damage, or even brain dysfunction. Thus, the DSM-II (1968) referred to the disorder only as “hyperkinetic reaction of childhood,” reflecting the psychodynamic influence still prevalent in psychiatry at that time. It was described in the general terms of overactivity and distractibility. Though such an understanding of the disorder is limited compared to current definitions, the DSM-II label represented the first time uniform guidelines for identifying ADHD-type behaviors in children had been published in a preeminent psychiatric text. Over 60 years after Still’s work was published, the way had finally been paved for universal diagnostic strategies and treatments of ADHD (Anastopoulos & Shelton, 2001).

By the beginning of the 1970s, it seemed the foundation had been set for research to continue rapidly into this new disorder without a hitch. Yet there was one obstacle in the study and treatment of ADHD that had been there since the start, and, in fact, has never gone away.

The problem in the summer of 1970 was the perceived scandal of labelling and medicalizing the seemingly normal behavior of rambunctious children. In the middle of that summer, news broke of a shocking practice in Omaha, Nebraska schools. According to reports, up to 10% of school children were taking “behavior modification drugs” to improve their behavior and enhance their ability to learn (Smith, 1970). Though the information was not entirely accurate (the percentages referred only to the number of special education students using the drugs) the story gained widespread attention, generated loud controversy, and ultimately led to a congressional hearing.

The congressional debates brought the realities and controversies of medicating ADHD children to the national spotlight. They are worth quoting, for the debate has really not changed in the 40 years since.

Representative John Wydler (R-NY): Don’t most children have a problem of attention span and things of this nature? This is almost natural. I would think that is a normal problem. I have that problem myself.

Dr. Ronald Lipman (NIMH): I think we all do … all I am saying is that hyperkinesis is frequently something that brings the child into conflict with his parents, peers, and teachers…. But, as you know, hyperkinesis is a medical syndrome. It should be properly diagnosed by a medical doctor. (Mayes, 2009, pp. 64)

Following these hearings, Congress enforced strict regulations on the manufacture and distribution of stimulants like Ritalin. This allowed for thorough tracking of the numbers of stimulants produced, which has continued to this day (Mayes, 2009). Even so, the company that patented Ritalin earned nearly $70 million on the drug in 1971 alone (adjusted for inflation) (Conrad, 1975). Because of these hearings, and the controversy that caused them, debate on stimulant medication and childhood behavior modification raged on. Countless books and...
articles were written by prominent voices on both sides of the debate, while researchers continued to amass an expansive body of research refining categories and diagnostic processes.

One of the strongest voices in the debate was a sociologist by the name of Peter Conrad, who published his thoughts in a classic article entitled “The Discovery of Hyperkinesis: Notes on the Medicalization of Deviant Behavior” (1975). The article outlined the development of hyperkinesis in light of greater developments in “medical social control” throughout the 20th century. He argued that many of the past’s great sins, were now the present’s great illnesses, including “alcoholism, violence, and drug addiction as well as hyperactive behavior in children” (Conrad, 1975, pp. 18). While acknowledging the humanitarian benefits of a medical model for deviant behavior (less condemnation and stigma), Conrad also sounded a warning about what may result when deviant behavior is no longer punished, but merely treated with medicine.

“Hyperkinesis minimizes parents’ guilt by emphasizing "It’s not their fault, it’s an organic problem" and allows for non-punitive management or control of deviance. Medication often makes a child less disruptive in the classroom and sometimes aids a child in learning. Children often like their ‘magic pills’ which make their behavior more socially acceptable …. ” (Conrad, 1975, pp. 17)

1980s and Beyond

In 1980, the American Psychiatric Association released the third edition of the DSM. This publication would have an indelible impact on the world of mental health, and would, in many ways, set the course for revolutions in research and treatment (namely, through increased use of psychotropic medication). The hyperkinesis label was, by this point, long overdue for a revision, as many scholars argued that inattention was as much a hallmark feature of the disorder as hyperactivity. The new name thus became “Attention Deficit Disorder with or without Hyperactivity,” and came to be commonly known as A.D.D. (Anastopoulos & Shelton, 2001). This new diagnosis came with much more specific symptom lists and cut-off scores, guidelines for duration of symptoms, and information about age of onset, complications, and comorbidity. Interestingly, though the new A.D.D. label included the subcategories of with or without hyperactivity (+H or –H), there was virtually no empirical support for these categories. Years of thorough research into the categories would follow, but, at the time, the very diagnosis to be used by practitioners was awaiting validation from researchers (Barkley, 1990).

With a new operational definition of A.D.D. in place, researchers and psychiatrists were poised to begin diagnosing children across the country. Yet it would take a few key developments, in several policies and industries, to provide the impetus for a truly remarkable surge in identified cases. As Americans grew increasingly concerned with their own mental health, spending on mental health services and treatments skyrocketed in the 1980s, with a notable expansion of inpatient psychiatric services for adolescents. This gave way to the introduction of managed care to help employers and insurers reduce their costs.

These managed care behavioral health companies emerged in the late 1980s with the primary goal of finding the cheapest ways for treating mental disorders that were suddenly on the rise. The solutions included: decreased hospitalizations, shorter lengths of stay, greater use of primary care physicians, limited psychotherapy, and increased use of psychotropic drugs. An additional converging factor was the rising prominence of the ADD advocacy group, Children
ADHD Phenomenon
Josh Boden

and Adults with Attention-Deficit Disorder (CHADD). The convergence of all of these things led to what many saw as an unbelievable increase in the use of stimulant drugs during the 1980s. In 1980, 28% of ADHD patients were prescribed stimulant drugs. In 1990, that number increased to 86% (Mayes, Bagwell, & Erkulwater, 2008).

The pressure of activists and lobbying groups influenced several significant developments throughout the 1990s. These groups (including CHADD) pushed for more expansive categories for inclusion into disability aid programs, arguing that children with any disability, including ADHD, should have equal access to accommodations and assistance. In 1990, the Supreme Court voted to include low-income ADHD children in the Supplemental Security Income system, granting them and their families access to financial assistance for simply having the disorder. Naturally, diagnoses of ADHD increased nearly threefold. Though this policy was rescinded later in the 1990s, the awareness it created remains to this day.

In 1991, the Individuals with Disabilities Education Act (IDEA) included ADHD as a protected disability, making ADHD children eligible for special accommodation on everything from homework to the SATs. And finally, around the same time, Congress drastically expanded the number of people eligible for Medicaid and increased spending on psychotropic drugs ($0.6 billion in 1991, $6.7 billion in 2001). As the number of qualifying diagnoses for ADHD was growing concurrently, government spending on stimulant medication grew dramatically and fueled an equally dramatic rise in stimulant usage. From 1990 to 1993 alone, the national number of ADHD cases more than doubled, and the amount of Ritalin produced in the U.S. grew fourfold (Mayes, Bagwell, & Erkulwater, 2008).

In spite of all of these dramatic political and medical developments, the general public’s awareness and understanding of ADHD was still rather limited in the early 1990s. The year 1994, however, was a landmark year in the history of ADHD. First, the American Psychiatric Association published the DSM-IV, which expanded the diagnostic criteria in significant ways, introducing new subtypes and adult symptom criteria (Anastopoulos & Shelton, 2001). At the same time, a book by Edward Hallowell and John Ratey, Driven to Distraction, brought the disorder to a popular audience, and is still considered a classic in ADHD literature. Also in that year, TIME Magazine ran a cover story on the disorder, with the provocative subtitle, “Doctors say huge numbers of kids and adults have attention deficit disorder. Is it for real?” (Wallis, p. 43, 1994). The TIME piece publicized the prominence and controversy surrounding ADHD, and called ADHD awareness “an industry, a passion, an almost messianic movement” (Wallis, p. 46, 1994).

Perhaps unsurprisingly, there was a serious mainstream backlash against ADHD even as it was gaining its most prominent mainstream acceptance. The same arguments about overmedicalization of behavior, lazy teachers, poor parenting, and greedy pharmaceutical companies were revisited and reinforced. But by this point, the pharmaceutical companies, in many ways, were the ones leading the charge forward. In 1997, the FDA provided incentives to companies to develop better ADHD medication, and pediatric psychopharmacology went through something of a revolution with the introduction of long-acting stimulants. These pills could be taken once daily, lessening the burden on school personnel, decreasing the stigma for children, and lowering the risk of other children abusing the drugs.
ADHD Phenomenon
Josh Boden

The pace of growth in ADHD diagnoses and treatments has not abated since the 1990s, and it shows no signs of doing so. The growing prominence of the disorder in the public consciousness over the past 20 years has been spurred by innumerable innovations, studies, debates, articles, speeches, policy changes, and lawsuits. Certainly much more could be written on the technical developments in assessment and treatment in that time, but by this point we have come to see the antecedent historical factors that have shaped our modern conceptions of ADHD. Though we are as far from universal agreement on the disorder as we have ever been, practitioners have reached a general consensus on the specifics of the disorder, and it is worth noting.

Diagnosing ADHD

Classification & Symptoms

The late 1980s was a period of tremendous change in the psychiatric world, especially concerning diagnoses and medical treatments. Among these changes was the revised version of the DSM (DSM-III-TR, 1987) that differentiated the ADD diagnosis into Undifferentiated Attention-Deficit Disorder (UADD) and Attention-Deficit Hyperactivity Disorder (ADHD). The list of classifiable symptoms was expanded to 14, with the stipulation that 8 of the 14 symptoms had to be present to a greater degree than most people of the same mental age for a diagnosis to be given. This developmental deviance was a critical component for determining a diagnosis, yet no guidelines were provided for any baseline comparison. It was up to practitioners (and often still is) to determine what might classify as developmentally abnormal, compared with their own observations of other children.

With the introduction of the DSM-IV came a significant progression down a path begun in the late 1960s, when the DSM-II reclassified the ADHD diagnosis based on symptom-based descriptions instead of etiologically-based descriptions. This was helpful in clarifying the process of identifying the disorder, but the move towards symptom-only diagnoses is a significant move away from etiological considerations. The DSM-IV categories of ADHD, still in use today, may reasonably be criticized for ignoring the causes of the disorder being presented. Nevertheless, the DSM-IV represented, and, indeed, even dictated, some very important changes in how we understand ADHD.

The DSM-IV renamed what had previously been Attention-Deficit Disorder of two possible types into one new disorder called Attention-Deficit/Hyperactivity Disorder. The three primary symptoms of the disorder were lumped into two: inattention and hyperactivity-impulsivity. The full symptom list was expanded to 18, nine for inattention and nine for hyperactivity-impulsivity, and the ADHD diagnosis was divided into three possible subtypes: combined, predominantly inattentive, and predominantly hyperactive-impulsive.

The DSM-IV diagnostic criteria are the standard for most professionals in the U.S. However, among the global population, the DSM is used far less than the International Statistical Classification of Diseases and Related Health Problems, known as the ICD-10 (see below). The ICD-10 does not list a disorder exactly identical to the DSM’s ADHD, but it does include a classification called Hyperkinetic Disorder. The DSM and ICD criteria for this disorder are
ADHD Phenomenon
Josh Boden

similar with a few critical criteria: the appearance of symptoms before the age of 7, symptoms observed consistently for at least six months, the presence of symptoms that are developmentally abnormal at a clinically significant level, and the exclusion of other developmental disorders, such as Pervasive Developmental Disorder, Anxiety Disorder, Psychotic Disorder, Mood Disorder, or Personality Disorder (DSM-IV-TR, 2000, 4th ed., text rev.) (ICD-10, 1993).

However, there are some noteworthy differences. For instance, while both categories ensure a distinction between the attention disorder and other mental disorders, the DSM allows for comorbidity, while the ICD-10 disqualifies a person from receiving the hyperkinetic diagnosis if they present with another disorder. Furthermore, the ICD-10 does not allow for the same subtyping as the DSM. ICD-10 subtypes are Hyperkinetic Disorder - disturbance of activity and attention, and Hyperkinetic Conduct Disorder. Because there is essentially only one type for Hyperkinetic Disorder, fewer individuals would be expected to receive the diagnosis. According to some scholars this may have significant clinical and research implications, namely in withholding proper identification and treatment from a population in need (Anastopoulos & Shelton, 2001).

As an example of this, Swiss researchers (2009) compared the frequency of diagnosis between the ICD-10 and the DSM-IV-TR and discovered that a diagnosis of Hyperkinetic disorder is less likely than a diagnosis of ADHD, using the ICD and DSM criteria, respectively. Using an international Parent Rating Scale for ADHD, parents rated their children’s behaviour, resulting in prevalence rates of 11.5% according to the DSM and only 3.4% by the ICD standards. This is undoubtedly part of the reason for the great disparity among international prevalence rates.
Diagnostic Criteria: DSM v. ICD

DSM-IV Criteria for ADHD

I. Either A or B
   A. Six or more of the following symptoms of inattention have been present for at least 6 months to a point that is disruptive and inappropriate for developmental level:
      Inattention
      1. Often does not give close attention to details or makes careless mistakes in schoolwork, work, or other activities.
      2. Often has trouble keeping attention on tasks or play activities.
      3. Often does not seem to listen when spoken to directly.
      4. Often does not follow instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions).
      5. Often has trouble organizing activities.
      6. Often avoids, dislikes, or doesn’t want to do things that take a lot of mental effort for a long period of time (such as schoolwork or homework).
      7. Often loses things needed for tasks and activities (e.g., toys, school assignments, pencils, books, or tools).
      8. Is often easily distracted.
      9. Is often forgetful in daily activities.
   B. Six or more of the following symptoms of hyperactivity-impulsivity have been present for at least 6 months to an extent that is disruptive and inappropriate for developmental level:
      Hyperactivity
      1. Often fidgets with hands or feet or squirms in seat.
      2. Often gets up from seat when remaining in seat is expected.
      3. Often runs about or climbs when and where it is not appropriate (adolescents or adults may feel very restless).
      4. Often has trouble playing or enjoying leisure activities quietly.
      5. Is often “on the go” or often acts as if “driven by a motor.”
      6. Often talks excessively.
      Impulsivity
      1. Often blurts out answers before questions have been finished.
      2. Often has trouble waiting one’s turn.
      3. Often interrupts or intrudes on others (e.g., butts into conversations or games).

II. Some symptoms that cause impairment were present before age 7 years.

III. Some impairment from the symptoms is present in two or more settings (e.g., at school/work and at home).

IV. There must be clear evidence of significant impairment in social, school, or work functioning.

V. The symptoms do not happen only during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder. The symptoms are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).

Based on these criteria, three types of ADHD are identified:
   1. ADHD, Combined Type: if both criteria 1A and 1B are met for the past 6 months
   2. ADHD, Predominantly Inattentive Type: if criterion 1A is met but criterion 1B is not met for the past 6 months
   3. ADHD, Predominantly Hyperactive-Impulsive Type: if Criterion 1B is met but Criterion 1A is not met for the past six months

F90 HYPERKINETIC DISORDERS

G1. Demonstrable abnormality of attention, activity and impulsivity at home, for the age and developmental level of the child, as evidenced by (1), (2) and (3):

(1) at least three of the following attention problems:
   (a) short duration of spontaneous activities;
   (b) often leaving play activities unfinished;
   (c) over-frequent changes between activities;
   (d) undue lack of persistence at tasks set by adults;
   (e) unduly high distractibility during study e.g. homework or reading assignment;

(2) plus at least three of the following activity problems:
   (a) very often runs about or climbs excessively in situations where it is inappropriate; seems unable to remain still;
   (b) markedly excessive fidgeting & wriggling during spontaneous activities;
   (c) markedly excessive activity in situations expecting relative stillness (e.g. mealtimes, travel, visiting, church);
   (d) often leaves seat in classroom or other situations when remaining seated is expected;
   (e) often has difficulty playing quietly.

(3) plus at least one of the following impulsivity problems:
   (a) often has difficulty awaiting turns in games or group situations;
   (b) often interrupts or intrudes on others (e.g. butts in to others' conversations or games);
   (c) often blurts out answers to questions before questions have been completed.

G2. Demonstrable abnormality of attention and activity at school or nursery (if applicable), for the age and developmental level of the child, as evidenced by both (1) and (2):

(1) at least two of the following attention problems:
   (a) undue lack of persistence at tasks;
   (b) unduly high distractibility, i.e. often orienting towards extrinsic stimuli;
   (c) over-frequent changes between activities when choice is allowed;
   (d) excessively short duration of play activities;

(2) and by at least three of the following activity problems:
   (a) continuous (or almost continuous) and excessive motor restlessness (running, jumping, etc.) in situations allowing free activity;
   (b) markedly excessive fidgeting and wriggling in structured situations;
   (c) excessive levels of off-task activity during tasks;
   (d) unduly often out of seat when required to be sitting;
   (e) often has difficulty playing quietly.

G3. Directly observed abnormality of attention or activity. This must be excessive for the child’s age and developmental level. The evidence may be any of the following:

(1) direct observation of the criteria in G1 or G2 above, i.e. not solely the report of parent or teacher;
(2) observation of abnormal levels of motor activity, or off-task behaviour, or lack of persistence in activities, in a setting outside home or school (e.g. clinic or laboratory);
(3) significant impairment of performance on psychometric tests of attention.

G4. Does not meet criteria for pervasive developmental disorder (F84), mania (F30), depressive (F32) or anxiety disorder (F41).

G5. Onset before the age of seven years.

G6. Duration of at least six months.

G7. IQ above 50.

F90.0 Disturbance of activity and attention

The general criteria for hyperkinetic disorder (F90) must be met, but not those for conduct disorders (F91).

F90.1 Hyperkinetic conduct disorder

Both the general criteria for hyperkinetic disorder (F90) and conduct disorder (F91) must be met.

F90.8 Other hyperkinetic disorders

F90.9 Hyperkinetic disorder, unspecified

This residual category is not recommended and should be used only when there is a lack of differentiation between F90.0 and F90.1 but the overall criteria for F90.- are fulfilled.
Issues in Diagnosing ADHD

“It is obvious that overdiagnosis and overmedication exist... And I do think that a certain portion of what is sometimes labelled as pathology in children can be attributed to poor parenting, poor schools, and the pathological levels of stress and pressure that kids (and adults) now experience... But there’s a difference between people who exhibit these signs of distress under certain conditions and those who show consistent signs of disorder under all conditions. Overdiagnosis is surely happening within the former group. But the latter group, in many communities, actually remains underdiagnosed” (Warner, 2007).

There is debate and controversy concerning virtually all areas of ADHD and its treatment. But whether one argues for current under-identification or over-identification of the illness, all acknowledge that if anything needs to change it is the diagnostic procedures available to those who make the ADHD diagnoses, to help control what many see as rampant overidentification. One recent study (White, 2012) found that ADHD diagnoses in children have risen 66% just in the past decade. Researchers attribute this rise to an increased level of awareness about the disorder, almost like a snowball effect – if more people know about it, more people will have it (White, 2012).

Though the definitions of ADHD have been continually refined in recent decades, the methods of assessment and diagnosis have arguably yet to be uniformly established. The ADHD diagnosis can be made by primary care paediatricians, family practitioners, neurologists, psychologists, and psychiatrists, upon the referral of teachers and parents. However, there are notable differences in the rates of diagnosis among these professionals, which leads to concern about inconsistent criteria. It has been shown that family practitioners diagnose ADHD more frequently, and prescribe more stimulant medication for treatment, than psychiatrists or psychologists. According to one source, primary care physicians account for the vast majority, up to 90%, of ADHD diagnoses today (Parens & Johnston, 2009).

The higher ADHD rates among this group may be simply a matter of time constraints. When a concerned and frustrated family brings in their hyperactive child to the family doctor’s office at the teacher’s suggestion, the physician has a very limited time to assess and make a diagnosis. Often the simplest way to determine whether the behaviour is a symptom of ADHD is to prescribe ADHD medication, and determine the diagnosis based on response to medication. Not only is this approach invalid but it is a leading contributor to rising rates of what many see as excessive medication of children. Furthermore, a physician’s hastily drawn conclusions can often result in a failure to carefully consider comorbid disorders or alternative treatment options (Matthews, 2002).

With all of these well-documented discrepancies, it seems puzzling that the combined force of thousands of researchers has yet to pin down a fail-proof method for making diagnostic practices consistent. Yet if we actually consider what ADHD is, we realize its diagnosis is an extremely difficult one. ADHD is a label for what really could be a variety of symptoms manifested in any level of severity, from hyperactivity to inattention to impulsivity, from mild to very severe, from inconvenient to completely debilitating, found in people from innumerable places, backgrounds, and age groups. This ambiguity allows for, and even requires, a great amount of subjective interpretation of symptoms from the assessing professional (Parens & Johnston, 2009).
ADHD Phenomenon
Josh Boden

The issue gets even thornier when considered in the context of school districts and funding for special education. The DSM criteria are generally held to firmly by private clinicians, but in school systems it is often public disability examiners that are making the decisions. In these cases, DSM is only a starting point. The real world of clinical practice, crowded classrooms, over-worked teachers, financially strapped schools, and concerned families is much more complicated than any DSM criteria can account for. For many school officials, the issue is not so much what the most accurate diagnosis may be, but that there is a diagnosis of something to open up the door for services (Mayes, Bagwell, & Erkulwater, 2009).

Certainly classification will always be difficult, and it is notoriously so in the field of mental health. In the preface to the ICD-10, the renowned psychiatrist Norman Sartorius writes that a classification is simply a way of seeing the world at a single point in time. Further, “no classification is ever perfect: further improvements and simplifications should become possible with increases in our knowledge and as experience with the classification accumulates” (ICD-10, 1993, p. 10). In a similar vein, psychiatrist Steven Hyman urges all of us to remember that DSM categories are abstractions we have created, and not entities we have discovered (Parens & Johnston, 2009).

In concluding these thoughts, it may be pertinent to address some of the underlying philosophy of psychiatric classification. Since the 1960s, the world of psychiatry has moved further into a scientific medial model for mental health, wherein researchers look for causes within a person instead of without. There are strengths to this approach (empirical supports for treatment), but also some serious limitations (neglect of contextual etiological factors). It is imperative, therefore, that clinicians recognize the medical approach as a theoretical orientation, and use it for its merits but avoid adopting it uncritically.

The following list (taken from Nigg, 2006) contains some of the possible factors contributing to the overdiagnosis of ADHD, beyond misuse of diagnostic criteria. Some of these are discussed in this paper, but others could be discussed in greater detail in future writings:

- The simple fact that ADHD, as a mental disorder, is an “open concept” – a construction based on social need, values, and context – and will continually undergo construct validation
- Popular media attention to ADHD, leading to referral and diagnosis by parents
- Increased expectations for children, based on competition in schools and society
- Fiscal pressure on schools unable to provide adequate services for children with learning problems
- Financial strains on health care systems that encourage cheap medication over more thorough (and costly) assessments and treatments
- The aggressive marketing of pharmaceutical companies and their documented influence in some significant scientific research
ADHD Today: Facts and Figures

- Official numbers from the American Psychiatric Association put the prevalence rates of ADHD in school-aged children at 3% - 7%, but more recent sources broaden to 2% - 12% (Fasmer, et. al., 2011)
- A recent study claims diagnoses of ADHD have risen 66% over the past 10 years (10.4 million in 2010 versus 6.2 million in 2000) (Garfield, 2012).
- If teacher ratings are used alone, prevalence is 15% in the same population
- The National Comorbidity Study reports the lifetime prevalence of ADHD in adolescents (13 to 18 year olds) to be 9.0%. In males, this figure is 12.9%; in females, 4.9%.
- Parents report that approximately 9.5% (5.4 million) of school-aged children have ever been diagnosed with ADHD.
- The ratio of boys to girls with ADHD is approximately 3:1
- Of all children seen in psychiatric clinics, 50% have been diagnosed with ADHD
- 50% - 80% of children with ADHD will continue to show symptoms into adolescence and adulthood
- Adult ADHD rates are estimated to be from 1% - 4% of the general population

**Attention Deficit Hyperactivity Disorder**

**Lifetime Prevalence of 13 to 18 year olds**
- Lifetime Prevalence: 9.0% of 13 to 18 year olds
- Lifetime Prevalence of “Severe” Disorder: 1.8% of 13 to 18 year olds have a “severe” disorder

**Demographics (for lifetime prevalence)**
- **Sex and Age**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-14</td>
<td>12.8</td>
</tr>
<tr>
<td>15-16</td>
<td>10.0</td>
</tr>
<tr>
<td>17-18</td>
<td>8.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>4.9</td>
</tr>
<tr>
<td>Males</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Medication

- Approximately 66% of those with a current diagnosis receive medication for the disorder.
- Including the adult population, the prevalence of drug treatment for ADHD has risen by 12% every year since 2000.
- Global use of medication tripled from 1993 to 2003, with the U.S. share of the global market at 83%.
- The per capita consumption of methylphenidate in the US between 2003 and 2005 was approximately six times greater than that of Australia, eight times greater than that of Spain, and 18 times greater than that of Chile. (Paren & Johnston, 2009).
- According to my survey, only 6% of first-year college students believe that medication is the only way to treat ADHD.

![EXHIBIT 5](image.png)

Global Volume Of Attention Deficit Hyperactivity Disorder (ADHD) Medications, By Category, 1993–2003

<table>
<thead>
<tr>
<th>SU (millions)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2,500</td>
<td>Total</td>
</tr>
<tr>
<td>2,000</td>
<td>Short-acting</td>
</tr>
<tr>
<td>1,500</td>
<td>Long-acting</td>
</tr>
<tr>
<td>1,000</td>
<td>Other</td>
</tr>
<tr>
<td>500</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1993</td>
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<tr>
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<td>1994</td>
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<tr>
<td></td>
<td>2002</td>
</tr>
<tr>
<td></td>
<td>2003</td>
</tr>
</tbody>
</table>

**NOTE:** SU is standard units.

![EXHIBIT 2](image.png)


<table>
<thead>
<tr>
<th>SU (millions)</th>
<th>U.S. volume</th>
<th>Global volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,500</td>
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<td></td>
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<tr>
<td>2,000</td>
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<td></td>
</tr>
<tr>
<td>1,500</td>
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<td>1,000</td>
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<tr>
<td>0</td>
<td>1993</td>
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<td></td>
<td>2002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Volume adjusted to generate dosage equivalence between short- and long-acting medications. Long-acting medications are weighted twofold over short-acting medications. SU is standard units.
Geography

- The number of youths ever diagnosed with ADHD varies widely from state to state (5.6% in Nevada; 15.6% in North Carolina

Figure 3.
**Figure 4.** Prevalence estimates of parent-reported ADHD among children 4-17 years, by sociodemographic characteristics – National Survey of Children’s Health, United States, 2003 and 2007.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2003 %</th>
<th>2007 %</th>
<th>PR</th>
<th>(95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>7.8</td>
<td>9.5</td>
<td>1.22</td>
<td>(1.14–1.31)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11.0</td>
<td>13.2</td>
<td>1.20</td>
<td>(1.11–1.30)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female</td>
<td>4.4</td>
<td>5.6</td>
<td>1.28</td>
<td>(1.12–1.46)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age group (yrs)§</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4–10</td>
<td>5.7</td>
<td>6.6</td>
<td>1.16</td>
<td>(1.03–1.30)</td>
<td>0.013</td>
</tr>
<tr>
<td>11–14</td>
<td>9.8</td>
<td>11.2</td>
<td>1.14</td>
<td>(1.03–1.27)</td>
<td>0.016</td>
</tr>
<tr>
<td>15–17</td>
<td>9.6</td>
<td>13.6</td>
<td>1.42</td>
<td>(1.25–1.61)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Highest education in household</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>6.5</td>
<td>8.4</td>
<td>1.30</td>
<td>(0.99–1.69)</td>
<td>0.055</td>
</tr>
<tr>
<td>High school graduate</td>
<td>8.6</td>
<td>12.2</td>
<td>1.42</td>
<td>(1.24–1.63)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>More than high school</td>
<td>7.6</td>
<td>8.7</td>
<td>1.15</td>
<td>(1.06–1.25)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>8.6</td>
<td>9.9</td>
<td>1.15</td>
<td>(1.06–1.24)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Black</td>
<td>7.7</td>
<td>10.1</td>
<td>1.31</td>
<td>(1.09–1.57)</td>
<td>0.004</td>
</tr>
<tr>
<td>Multiracial</td>
<td>9.7</td>
<td>14.2</td>
<td>1.46</td>
<td>(1.07–2.00)</td>
<td>0.017</td>
</tr>
<tr>
<td>Other</td>
<td>4.5</td>
<td>5.0</td>
<td>1.11</td>
<td>(0.72–1.71)</td>
<td>NS</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>3.7</td>
<td>5.6</td>
<td>1.53</td>
<td>(1.16–2.02)</td>
<td>0.002</td>
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<tr>
<td>Non-Hispanic/Latino</td>
<td>8.6</td>
<td>10.5</td>
<td>1.22</td>
<td>(1.14–1.31)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Primary language in home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>8.6</td>
<td>10.5</td>
<td>1.22</td>
<td>(1.14–1.30)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Any other language</td>
<td>1.3</td>
<td>2.3</td>
<td>1.82</td>
<td>(1.15–2.90)</td>
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<tr>
<td>Poverty level§</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>≤100%</td>
<td>9.3</td>
<td>11.6</td>
<td>1.25</td>
<td>(1.06–1.47)</td>
<td>0.007</td>
</tr>
<tr>
<td>&gt;100% to ≤200%</td>
<td>7.9</td>
<td>10.3</td>
<td>1.31</td>
<td>(1.11–1.54)</td>
<td>0.001</td>
</tr>
<tr>
<td>&gt;200%</td>
<td>7.3</td>
<td>8.6</td>
<td>1.18</td>
<td>(1.08–1.29)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Any health-care coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8.1</td>
<td>9.8</td>
<td>1.21</td>
<td>(1.13–1.30)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Medicaid</td>
<td>10.8</td>
<td>13.6</td>
<td>1.26</td>
<td>(1.12–1.41)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Non-Medicaid</td>
<td>7.0</td>
<td>8.1</td>
<td>1.16</td>
<td>(1.06–1.27)</td>
<td>0.001</td>
</tr>
<tr>
<td>No</td>
<td>4.9</td>
<td>6.7</td>
<td>1.38</td>
<td>(1.00–1.90)</td>
<td>0.050</td>
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<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>7.4</td>
<td>9.4</td>
<td>1.27</td>
<td>(1.09–1.49)</td>
<td>0.003</td>
</tr>
<tr>
<td>Midwest</td>
<td>7.9</td>
<td>9.9</td>
<td>1.25</td>
<td>(1.13–1.39)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>South</td>
<td>9.1</td>
<td>10.9</td>
<td>1.20</td>
<td>(1.09–1.32)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>West</td>
<td>5.8</td>
<td>7.0</td>
<td>1.20</td>
<td>(0.96–1.51)</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Abbreviation:** CI = confidence interval; NS = not statistically significant (p≥0.1); PR = prevalence ratio (the ratio of the percentage of children with ADHD among the sociodemographic group in 2007 to the percentage of children with ADHD among the sociodemographic group in 2003).

* Estimates do not include children aged 2–3 years with reported ADHD diagnosis because small sample sizes yield substantial (>30%) relative standard errors in the 2003 survey sample.

† The analytic sample included totals of 79,264 children aged 4–17 years in 2003 and 73,123 children aged 4–17 years in 2007.

Economics

- The estimated annual societal cost of ADHD in the U.S. is $42.5 billion, based on a prevalence rate of 5%.
- The personal cost is estimated at about $14,576 for individuals with ADHD.

EXHIBIT 4


Dollars (millions)  U.S. volume  Global volume
2,000
1,500
1,000
500
0

NOTES: Spending is deflated to 2003 U.S. dollars using the U.S. Consumer Price Index. Cross-sectional variation from country to country was accounted for by IMS Health, which had converted all local currencies to U.S. dollars using purchasing power parity (PPP) methods. SU is standard units.
The Controversy over ADHD

Critical to understanding the current cultural climate surrounding ADHD is a thorough understanding of the ongoing controversy surrounding the disorder. We have seen that throughout the past century there has been lively debate about whether ADHD is a real disorder or just a construct of a medicalized culture. In many regards, the mainstream view has been one of general acceptance for developing definitions of the disorder, for new diagnostic criteria, and for increased medicalization of treatment. Yet there has been a strong and steady voice of dissent since the inception of ADHD as a psychiatric disorder, and perhaps today, with growing volumes of published material on the subject, this debate is becoming more and more prominent.

As we attempt to comprehend our culture’s current understanding of ADHD, we must acknowledge the deep division. Put most simply, it is the debate between those who argue that ADHD is real, and those who argue that it is not; those who argue for more diagnoses, and those who argue for fewer; those who argue for increased use of medicine for treatment, and those who argue for the cessation of medical treatments altogether.

The International Consensus Statement on ADHD

In 2002, as ADHD prevalence rates were steadily climbing the world over, and treatments and diagnostic practices (not to mention opinions) were increasingly diversifying, the need was seen for a professional consensus on the reality of the disorder. Thus, the International Consensus Statement on ADHD (Barkley, et. al, 2002; Retrieved from: http://www.russellbarkley.org/content/Consensus2002.pdf) was written by Dr. Russell A. Barkley, an American psychiatrist and one of the leading figures in ADHD research and promotion, and co-signed by nearly 100 of the top researchers and practitioners in the field.

The consensus is a tidy summary of all the major arguments for the existence of ADHD as a valid disorder, and the need for more diagnoses and treatments. The authors express their concern about the portrayal of ADHD in media reports, as arguments continue to arise in the popular media questioning the validity of the ADHD diagnosis. The authors are worried that thousands of people suffering from the disorder will not seek treatment and will continue to suffer without helpful psychiatric intervention unless the reality of ADHD is clarified once and for all.

Critique of the Statement

Anyone working in a field related to ADHD will acknowledge the need for a consensus statement on the disorder, and for unity, as opinions on ADHD continue to fragment. The characteristics of the disorder may sometimes be ambiguous, but if there is one dependable characteristic it seems to be its resistance to being definitively characterized.

Thus the signees of this Consensus Statement were motivated by a desire to unite their profession. But I am not convinced that their approach is unbiased. On the contrary, their careers have been defined by a disorder that is hard to define, and their success (and survival) as academicians and clinicians depends on people’s acceptance of their work. Further, the rhetoric is polemical, and, as is often the case, the aggression seems to betray a kind of defensiveness. These scientists have devoted entire careers to the study of ADHD, as they admit in the introduction, so of course there is no room for debate among their ranks. They call proponents of
contrasting views “nonexpert doctors”, and their own views the reflection of mainstream science. In reality, the most vocal critics of ADHD are researchers and practitioners as well. Library shelves house numerous books by doctors, psychiatrists, psychologists and educators cautioning about excess identification and treatment of ADHD. None of these authors are “nonexperts”.

Yet Barkley and the other authors of the Consensus argue that any dispute about the credibility of ADHD is merely peripheral, and that the scientific community is firmly convinced that ADHD is real. Though if there was really “no such disagreement” as the authors insist, why write such a public Consensus Statement, and why argue so boldly with such an apparently inconsequential, invalid minority?

I contend that the arena of child mental health is not the arena for the type of posturing we see in the political world. It is imperative that professionals on all sides of the issue continue to think critically about their own positions. Sami Timimi, a British psychiatrist and one of the most outspoken critics of ADHD’s validity writes, “Not only is it completely counter to the spirit and practice of science to cease questioning the validity of ADHD as proposed by the consensus statement, there is an ethical and moral responsibility to do so” (Timimi, et. al, 2004).

Timimi’s words were part of a published response to the International Consensus. The statement was authored by Timimi and co-endorsed by 33 fellow psychiatrists and researchers, the majority of whom practice in the U.K., but some in the U.S. as well. Yet Timimi is not the only one to advance such an argument. When one does a basic search for literature on ADHD, one finds innumerable articles and books. Yet along with the parental gui
debates and scientific findings, one finds many other titles provocatively challenging the dominant view on ADHD. Indeed, even the fact that Timimi’s article appeared in the same journal as Barkley’s less than two years later means that the debate is not merely a peripheral issue, but a serious challenge.

Even so, Barkley’s two-page Consensus Statement devotes significant attention to explaining why arguing ADHD is a myth is “tantamount to declaring the earth flat, the laws of gravity debatable, and the periodic table in chemistry a fraud” (Barkley, et. al., p. 90, 2002). Samimi rejoins by arguing that such an attitude is hardly becoming to the dialogic nature of academia. Further, we must always seriously consider cultural realities and influences in our own understandings of mental illness.

To me it seems almost medieval to denounce an opposing scientific view as utter nonsense. Certainly we have progressed beyond the point of name calling and blanket generalizations in our scientific world. I do not posit that Barkley’s arguments are unfounded, but I do think a sincere dialogue is required for science to progress. And even if contrary views persisted after genuine dialogue, it would be prudent for all those invested in the debate to acknowledge the strengths of the other side, or at least refrain from a rather rude dismissal of their basic intellectual credibility. As Joel Nigg, a prominent ADHD researcher and author of What Causes ADHD writes, “The societal criticisms of the ADHD construct can be healthy for deepening our understanding. Certainly it is healthy for scientific discussion to be reminded that the medical perspective is not the only way to view a phenomenon such as ADHD” (Nigg, 2006).

**ADHD through International Eyes**
All of this debate about the “international consensus” raises a very important question: how does the rest of the world view ADHD? Incidentally, if there were an international consensus on ADHD, it would likely not look anything like The International Consensus Statement on ADHD. As it stands, Barkley’s International Statement is hardly international at all. Of the 100 co-endorser of the Statement, only 10 are from countries outside North America. Even then, the countries represented are almost exclusively Western, including Norway, the United Kingdom, and Australia. There are no signatures from anywhere in Central Europe, Asia, Africa, or Central or South America.

The consensus on ADHD that we have arrived at, then, is not really a consensus at all. Even if all the people in each signee’s respective country were in full, unanimous agreement with the Statement, far less than a billion people, out of 7 billion in the world, would technically be in support (that’s 6 billion people with no voice in the International Consensus). Yet, as we have seen, even the Western world is deeply divided on the nature of this disorder. So what we have is a portion of the developed Western world making a generalized statement of consensus for all the world to ascribe to. Such a statement is assuredly necessary, but Barkley’s is unduly conclusive and far too ambitious.

According to my survey of first-year students, 78% believe that ADHD exists in every part of the world even if it is not diagnosed. Given this general belief in the universality of the disorder, it is worth considering the complex cross-national variation in ADHD. Some researchers have suggested that underlying cultural differences play the biggest role in the discrepancy of prevalence rates across the globe, but others argue that this is not the case. Hinshaw et. al. (2011) argue that the great disparity in numbers is not due to culture, but to methodological differences. This team of researchers even claims to have found ADHD in indigenous children from a remote Amazonian community in Brazil (Hinshaw et. al., 2011).

Hinshaw (2011), an American researcher, examined diagnostic and treatment methods for nine countries. The qualitative data reveals that there are very significant variations across countries and cultures, but concludes that the variation in incidence is not as great as one might expect. Rather, the primary causes for such vast statistical differences, they argue, are social and historical attitudes toward the disorder. ADHD in countries like China, the authors say, is severely underdiagnosed because of a persistent stigma about mental illness, especially in an educational system built on emphasizing high achievement. Broader cultural belief systems also play a role. In the words of the authors,

“The prevalence of medical treatment was often limited by ideologies based on particular theories, the population’s lack of acceptance of ADHD on cultural grounds, or the impact of organizations that deny the existence of ADHD” (Hinshaw, et. al, 2011, p. 460).

It is interesting how Hinshaw and his coauthors, and indeed many other North American scholars, view other countries’ “persistent stigma” about ADHD. Is it a stigma, really, or just a different perspective? If another culture has a different view of mental illness than our own, does that mean that their view is wrong? And is it arrogance for Western scientists to presume that their view of mental health and child behavior is the only correct one?

These issues seem to expose the fact that if it were only a matter of scientific or medical advancement, the global disparity of ADHD could be lessened severely. We would be able to
send our American-made diagnostic tools and find the same prevalence of ADHD in any place we visited. Yet the numbers don’t lie. The fact is people are just not as concerned about the disorder in other cultures as they are in this one.

ADHD is a neurobehavioral disorder that primarily affects productivity. And our understandings of what kinds of behavior and what levels of productivity are appropriate are deeply embedded in our culture. Thus, there is a cultural component to this disorder that must not be ignored. Acknowledging the cultural interaction does not validate or invalidate the ADHD diagnosis, but it does give us much to consider.

**ADHD and Culture**

We live in an ADHD culture – a culture that both defines and is defined by this curious disorder of attention and hyperactivity. Everyone is talking about ADHD, and every mental health professional is invested in it in some way. Nearly 3,000 new articles and book chapters were released on the topic from 2001 to 2005 alone (Nigg, 2006). As mentioned earlier, diagnosis rates continue to skyrocket and show no signs of slowing down. But this is not just an issue of rising numbers and research quantity.

One of the most striking realities of ADHD in everyday life, is how the terms “ADHD” or “ADD” are so ingrained in our vernacular. It is not at all uncommon for someone to refer to their own ADHD in casual conversation, as if it were a part of themselves as apparent and acceptable as the color of their hair. This is a fascinating development; not just that people do not hide their ADHD, but that they will admit it voluntarily. In many cases the confession seems intended to excuse deviant behavior. Remarks such as, “Sorry for being so random, I’m just really ADD,” or “If I can’t sit still, it’s because of my ADHD” often punctuate the conversations of people with ADHD.

If people feel free to openly discuss (and even laugh about) their mental disabilities, this transparency should be commended. Yet is rather curious. For no other mental illness would one likely be so forthcoming. We would not expect to hear someone follow an unexpected remark with “Ah, sorry about that; I’m really bipolar”. Nor would we take it lightly if an acquaintance suddenly said over coffee, “I’m sorry if I suddenly switch personalities on you; I didn’t take my meds today.”

This openness in our culture to talking about ADHD is indicative of a larger shift in our understanding of what it means to have a mental disorder. For many with ADHD, the label itself provides a convenient name for their own quirks and eccentricities. They don’t focus as well as other people and they may have a harder time sitting still and controlling their energy levels, yet our service-oriented, education-focused culture demands a high level of focus and self-control. “I have ADHD” is a convenient way for many to say, in effect, “Please pardon my distractedness; I’m not trying to be rude or lazy.”

But it’s not just ADHD children and adults who use the label as a description. In my survey, 27% of respondents who have never been diagnosed with ADHD still feel that they sometimes have it. These are likely people who sometimes can’t focus or who often feel restless. It may be a telling fact of our society that the most common way to describe these behaviors now is not as “easily distracted” or just “hyper” but with a diagnostic label.
Doctors and researchers dating back to the 1940s and 1950s noted how parents and educators reacted to hearing the news of a hyperkinesis or minimal brain dysfunction diagnosis in their children. More often than not, they were relieved, not at all how parents would normally respond to a diagnosis for their child. No diagnosis of a physical ailment would ever be greeted with relief, except as an antecedent to direct and immediate treatment. But what sort of mental health diagnosis would be welcomed with relief or even gratitude? It seems one that provides a sense of relief and assurance to the parents. And with ADHD, this is the relief that the child is not a failure, and neither are the parents.

Some have argued that this absolution of blame is the wind behind the sails of modern psychiatry, that the showering of diagnostic labels speaks freedom into the troubled minds of parents of broken homes and teachers in failing classrooms. They drink it all up, and come back to professionals begging for more – for more answers to the perennial question, “What are we doing wrong?” A diagnosis, in this state of affairs, quells the desperation with the resounding reply: “Nothing.”

The fault is not in the hands of the parents, or the plans of the teachers, or even in the system encompassing it all. Neither is the fault in the student himself. The fault lies in the neuropsychology of a person’s mind, or, more foundationally, in the flawed evolutionary process. And if it all comes down to a glitch in the DNA, a slow-release stimulant drug is a quick and easy solution for a problem none of us created.

Peter Conrad (1975) and many others (Timimi, 2004; Armstrong, 1997) have argued against this medicalization of deviant behavior. As Conrad argues, it is dangerous for us to turn yesterday’s sins into today’s illnesses. We could lose a sense of accountability. For this reason, University of Nebraska in Lincoln professor Robert Reid says ADHD is alluring as a “label of forgiveness” (Wallis, 1994).

Yet if all the world’s faults are the cause of neurological misfiring, it’s hard to know where to make changes. As Harvard psychologist Richard Bromfield puts it, “Some people like to say, ‘The biological devil made me do it’” (Wallis, 1994). Can we still blame a child for acting out and discipline him accordingly, if he does not have complete control of his behavior? These are profound and timely questions that, as of now, teachers and parents are figuring out how to answer in their own ways.

In the meantime, the proliferation of the ADHD diagnosis and ADHD medication is causing serious problems in a surprising place – college campuses. The number of college students reporting ADHD continues to grow, up to 8% according to one study (DuPaul, Weyandt, O’Dell, & Varejao, 2009). It has been shown that these students are at a significantly higher risk of alcohol and tobacco abuse, in addition to other problems they may face in a college environment (Glass & Flory, 2011). Abuse of stimulant drugs by non-ADHD students is an epidemic problem on many college campuses as well, with approximately 7% of college students reporting this behavior (DuPaul, Weyandt, O’Dell, & Varejao, 2009). Surprisingly, according to my study, 47% of students report knowing someone who uses non-prescribed ADHD medication to enhance their academic performance.

The reason for this dangerous trend is that, the vast majority of the time, ADHD medications work for everyone. This casts some uncertainty on the not-uncommon practice of
naming a diagnosis after seeing if the medication has an effect. But it also illuminates the great and persistent ambiguity surrounding ADHD and its treatment. Novartis, the company that produces Ritalin, the widely used stimulant, acknowledges that the “mode of therapeutic action in ADHD is not known, [but Ritalin] is thought to block the reuptake of norepinephrine and dopamine into the presynaptic neuron” (Novartis, 2011). Uncertain they may be, but the company still brought in $550 million on Ritalin sales in 2011 alone – a 19% increase from the year before. Regardless of where one sides on the ADHD debate, it must be acknowledged that ADHD treatment is a booming, profit-driven industry.

Despite all the progress in our knowledge of ADHD, and an endless stream of research into the disorder over the past two decades, great disparity remains in how the disorder is understood and treated. As we have discussed, there is great international variation in prevalence, but there is also great variation within the United States (see Figure 3 and Figure 4). Prevalence of ADHD ranges from 5.6% in Nevada to 15.6% in North Carolina. Are American children in North Carolina really that much more hyperactive and/or inattentive than their Nevadan peers? Likely not, so why the difference?

The answer is a complex mix of policy and cultural values. The political issues of state qualifications for disability and special education cannot be analyzed deeply here (see Bagwell, Erkulwater, & Mayes, 2009). Yet the cultural values should be examined more closely. Though both are American states, Nevada and North Carolina are separated by great distances and social make-up. Figure 4 breaks down the demographics of parent-reported child ADHD prevalence across America (CDC, 2010). In 2007, national rates reached 10.5% for Non-Hispanic children. For Hispanic children, the rate was only 5.6%. And if the primary language at home was anything other than English, rates were only 2.3%. Incidentally, Nevada’s Hispanic population is 26.53%, while North Carolina’s is only 8.39% (Courtesy: PolicyMap). Clearly cultural values do play a role in the identification of ADHD.

ADHD as Culturally Contingent

I propose that Attention-Deficit Hyperactivity Disorder, as an illness, is culturally contingent. It is a real psychiatric disorder of over-activity and inattention, as modern psychiatry informs us, but it is culturally informed and culturally triggered. This explanation, I believe, is the best way to account for the extreme disparity in prevalence rates between countries, cultures, and even states. It does not account for it exclusively, but contributes significantly in a way that should not be ignored.

Some have argued that the disorder is a cultural construct (Timimi, 2004), but that is not my argument. It is one thing for a disorder to exist within and because of a specific culture, but it is another thing to say the disorder is constructed by that culture. The latter argument views ADHD as a fabrication, as a false disease manufactured by a paranoid and profit-driven society. It sees ADHD as an unnecessary and unhealthy label for kids (and adults) who misbehave or cannot conform to the rules set by those in authority. The label is unnecessary because it denotes an illness that is not actually there, and it is unhealthy because it attaches a medical label to ordinary deviance.

Proponents of this view also decry the expansion of the broader world of child psychiatry as it pathologizes age-old child behaviors. Kids who used to be hyperactive or inattentive were
considered unruly or just a little quirky. But now they are sick, and often the primary remedy is to fill them with behavior-altering stimulant drugs. Researchers study the disorder incessantly and help practitioners see ADHD in more and more children, while pharmaceutical companies cheer them all on and watch their own fortunes grow. For many, this is a frightening state of affairs that must be stopped.

Though this is a compelling argument, I consider it also a bit sensational. There are problems with the industrialization of child mental health, to be sure, but I do not discount the validity of ADHD for that reason alone. Instead I propose that the disorder is very real and that it afflicts many people. Yet it cannot exist apart from specific cultural preconditions that allow it to thrive in Western societies, and in individuals within those societies.

Different cultures have different “local normative expectations” for certain behaviors. In other words, the same active and distractible child could, in one culture, be tolerated and disciplined mildly, but in another be seen as impaired (Paren & Johnston, 2009). A major reason for this is the expectations for behavior in each culture. In a competitive, highly educated society, docility and focus are highly valued traits for the young learner. And if that culture is exceedingly medicalized (as in the U.S.), a medical diagnosis and pharmaceutical treatment will be the best solution.

Perhaps the best way to understand this is to draw an analogy to another similarly culture-bound mental illness. Since the 1960s, eating disorders like Anorexia Nervosa (AN) and Bulimia Nervosa (BN) have been studied for their cultural etiology (Keel & Klump, 2003). For a long time, it was thought that AN and BN were exclusively found in affluent North American females. Though the disorders have been found in populations around the world, they continue to exist most profoundly (and fatally) in the United States (Nationmaster, 2011). What are we to make of this significant difference? Clearly Western cultures, specifically the United States, are different in a critical way – enough to cause an epidemic of a mental illness not found to the same degree in other cultures.

What we arrive at, then, is the proposition that ADHD is an authentic disorder that inhibits the productivity of many people, but it is culturally bound and contingent. Interestingly, this argument is nothing new. Even Ratey and Hallowell (1994) in their landmark book on the disorder, Driven to Distraction, suggested that American life is “ADD-ogenic”, creating ADHD-type symptoms in all of us.

The nature of these ADHD-inducing factors cannot be adequately explored here. Further research could be undertaken, and indeed much already has, to explore what the antecedent factors are in this wildfire growth of ADHD in North America. As a preliminary list, we could discuss the influence of technology, the erosion of nuclear family structures, and the restrictions of a rigid educational system that demand compliance and pathologize the outliers. But the most critical factor, I believe, is how we choose to view mental illness.

Developed western cultures were the birthplace of psychotherapy and psychiatry. And it is in these cultures that we continue to find a deep mainstream acceptance of these industries. As people become more and more individualistic, more isolated from their families and more transient in their community lives, we seek other means to discover what is wrong with us and to make it all better. We want professionals to tell us what is wrong, why we feel sad all the time,
why we hear voices in our heads, why we have compulsive habits, and, for some of us, why our kids can’t sit still and focus in school. We are a heavily medicalized society – every physical illness has a remedy (or teams of researchers trying to find one), so why not expect the same for mental illness?

If we acknowledge that our cultural orientation and experience makes all our views culturally biased in some way, then we must conclude that even our science of mental health can be biased too. Importantly, this view frees us from demanding that other cultures, and other parts of the world, conform to Western categories and conclusions about human thought and behavior. Each culture plays host to different issues that must be addressed with unique cultural solutions. The way we understand ADHD in this part of the world is very distinctly North American, and, thus, it needs to be treated in this part of the world in a distinctly North American way. If we realize the profound etiological impact of culture in ADHD around the world, each culture should be free to address the issue of ADHD in their own terms, by their own standards. In some cultures it may be that there is no need for the label, the diagnostic category, or the treatment at all. ADHD is real, but it is not universally so.

So it follows that our understanding of ADHD in North America, as best articulated by the International Consensus Statement, is not international at all. The authors of the statement are correct in their assessment of ADHD in the developed West, but since their perspective, as culturally embedded researchers and practitioners, is all they can know, it is ill-advised for them to extrapolate their findings to the rest of the world. The statement would perhaps be better titled, the Developed Western World’s Consensus Statement on ADHD.

Concluding Thoughts

ADHD is growing faster than it should, and it may be that many practitioners and leading researchers do not fully understand the complex nature of what they are working with (and what their work is affecting). Critics of this overdiagnosis are right to be concerned. But their concerns will be increasingly marginalized as long as their views continue to diverge more from the dominant cultural perspective. In many ways, whether the disorder is real or constructed doesn’t really matter. It is a very real part of our culture, and thus it exists and cannot be completely dismissed, as some critics seem to be advising. We must address it as a reality, but still analyze it critically, recognizing the risks to individuals and society if we should get it wrong.

What, then, do we do? Well, the first and most important step – for practitioners, for families, and even for patients – is to think critically and research independently. The power is in the people, and the responsibility rests with them to probe these issues and determine for themselves if their ADHD is real, why they have it, and if drugs are the best treatment.

The Hastings Center, a research institution dedicated to bioethics, released an update on ADHD controversies in 2009. The article (Parens & Johnston, 2009) included arguments for expanding our conception of ADHD, exploring why it is so difficult to find true consensus on ADHD’s nature and best treatment. I conclude my own paper with several points based upon this report as well as on my own research. The following points are to be taken as a summation of the controversies surrounding ADHD, and a call to action, of sorts, for where to go from here.
1. In the field of psychiatry, and in many of the debates that rage within it, the historical perspective seems oft-neglected. We do not often think to look into the past when we consider the most pressing and prevalent mental illnesses, but I would argue that we should. By examining the history of ADHD, we see an illness that was difficult to discover, difficult to name, eventually quite easy to treat, but extraordinarily difficult to define. Even in the earliest days of ADHD, as the disorder moved from the pages of psychiatrists’ notebooks to the consciousness of the masses, there was controversy and disagreement. This may not serve to settle our ongoing debates, but it may illuminate the fact that for the past century, professionals have never really agreed on what they’ve been dealing with. If we realize this, we might come to realize that ADHD is not just a true or false entity, but an inherently contentious one that continues to require our most critical evaluation.

2. All those invested in ADHD, whether they are school psychologists, parents, teachers, paediatricians, legislators, or children, must recognize the ambiguity of ADHD. This ambiguity is a critical reality of ADHD, and if it is accepted, so too will unending disagreements be better understood. The symptoms of ADHD are heterogeneous and dimensional, meaning that ADHD is a single label for several disparate behaviors that exist across a spectrum (not in distinct categories). Yet ADHD is diagnosed based on an evaluation of symptoms – symptoms that may be interpreted in many different ways. This is the core reason that so many well-meaning, well-educated professionals can disagree about when ADHD is present and when it is not. Subjectivity and medical treatment do not blend well, which explains even further the reasons for debate.

3. Culture, with all its specific norms and expectations, should be recognized as a valid etiological factor in ADHD. We may not fully understand why or how environmental and cultural factors exactly influence the development of ADHD, but that is no reason to dismiss them. Time and time again, research has shown that the same behaviors are viewed very differently in different cultures. An American researcher is trained to see ADHD in any child who exhibits a specific list of symptoms, but that child will not truly be deserving of a diagnosis unless his behavior impairs his performance within the cultural system he inhabits. That said, we can recognize ADHD as contingent upon cultural preconditions, but no less valid or impairing because of that. This means there is nothing less advanced about societies with lower rates of ADHD, either in their diagnostic tools or in their thinking. A different perspective is not an incorrect one, but, in fact, may be very helpful to balance our shared understandings.

4. It is not just cultures that hold specific values, but individuals as well. Indeed, in our own culture there seems to be a dominant view of psychiatry with a majority assenting to all its tenets, but there are also strong and vocal dissenters, and many more that fall in the middle. No matter what stance we take on ADHD, either as professionals or as patients, we must recognize how our own values inform our positions. For children who fall in the “zone of ambiguity” for diagnosis, personal values trump facts in the professional’s decision. The line between a “quirky” child and a mentally ill one is extremely fine. Further, the line is not inscribed in nature, as we see by the fact that the two most widely used diagnostic systems, DSM and ICD, draw it at different places. The fact of the matter
is that ADHD is real, but how we understand it depends on our cultural values and constructions. Many scientists will not like to think of their work as value-based and culturally constructed, but ADHD, for all the reasons described above, requires constructed opinions. In this light, it behooves us to construct these opinions as carefully as we can.

5. Lastly, the reasons for increasing prevalence are likely to be numerous. No single explanation can account for all the intricacies and complexities of this phenomenon, and clinicians and researchers should at least acknowledge this fact. We are not forced to choose whether the disorder originates within-child or without-child, or whether the growth is fueled by shifting cultural attitudes, or whether poor parenting to blame, or whether so much technology is making all of us a little bit ADD. The fact is, it very well could be all of the above.
Survey

Researchers can debate amongst themselves all day long, but I am interested in uncovering just how the disorder is viewed, not by doctors and scientists, but by ordinary people. With all of this contested history, etiology, and treatment of ADHD, what does the general public think about the disorder and its presence in our culture? To gauge these perspectives, a qualitative study was conducted through an online survey of Messiah College students.

Participants

A survey was distributed through direct email to 296 first-year Messiah College students, with 131 choosing to respond. No incentives were provided. Of the 131 participants 46 were male and 85 were female. Average age was 18.65. Nine respondents (7%) claimed to have ever been diagnosed with ADHD, consistent with current estimated national prevalence rates. Participants could stop the survey at any time.

Methods

The survey was constructed and distributed to first-year students living in residence at Messiah College. The survey contained two questions to determine gender and age. Participants were then asked if they had ever been diagnosed with ADHD, and could only respond with “yes” or “no”. Those who responded with “no” to this question were then asked if they ever felt like they had ADHD. Thirty-three (27%) responded with “yes”.

The remaining questions were presented in the form of statements that could only be responded to with “agree” or “disagree.” The statements (N = 8) all correlated with a specific component of my paper, but were presented in a random order. These eight statements were:

- The number of people with ADHD increases every year.
- ADHD has always existed.
- Medication (Ritalin, Concerta, etc.) is the only way to treat ADHD.
- ADHD is a real disease.
- ADHD exists in every part of the world, even if we haven’t diagnosed it yet.
- I know people without ADHD who use ADHD medication to help them perform better in school.
- Too many people are diagnosed with ADHD.
- ADHD is not real. It is a label for kids who misbehave.

Upon completing their responses, participants were presented with a message thanking them for their cooperation with the study.

Results

All 131 participants chose a response of either “agree” or “disagree” for each statement. The only exception is the eighth statement (# 12) with 130 responses. The following tables display the responses by percentage and raw number in agreement or disagreement with each statement.
### 5. The number of people with ADHD increases every year.

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Agree</td>
<td></td>
<td>111</td>
<td>85%</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td></td>
<td>20</td>
<td>15%</td>
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<tr>
<td></td>
<td>Total</td>
<td></td>
<td>131</td>
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</table>

### 6. ADHD has always existed

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agree</td>
<td></td>
<td>87</td>
<td>66%</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td></td>
<td>44</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>131</td>
<td></td>
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</tbody>
</table>

### 7. Medication (Ritalin, Concerta, etc.) is the only way to treat ADHD.

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<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
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<tbody>
<tr>
<td>1</td>
<td>Agree</td>
<td></td>
<td>8</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td></td>
<td>123</td>
<td>94%</td>
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<tr>
<td></td>
<td>Total</td>
<td></td>
<td>131</td>
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### 8. ADHD is a real disease.

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<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agree</td>
<td></td>
<td>110</td>
<td>84%</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td></td>
<td>21</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>131</td>
<td></td>
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</tbody>
</table>

### 9. ADHD exists in every part of the world, even if we haven't diagnosed it yet.

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<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agree</td>
<td></td>
<td>102</td>
<td>78%</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td></td>
<td>29</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>131</td>
<td></td>
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Discussion

These results revealed some surprising things. Only 6% of respondents said that medication is the only way to treat ADHD, which is seemingly inconsistent with the dominant medical approach, wherein the vast majority of ADHD patients are prescribed stimulant medication. Even more surprising was how 47% of respondents reported knowing someone without ADHD who takes ADHD medication. As discussed earlier, the latest research on that behavior puts its prevalence at about 7% among college students.

Questions 5 and 6 were designed to correlate with the historical perspective on ADHD. As I have done early in this paper, it is not difficult to track the discovery and development of ADHD, and even to highlight specific points in history where new articles and arguments gave ADHD more validity. Yet 66% of students were in agreement with the statement, “ADHD has always existed.” This reveals a treatment-oriented medical perspective on the disorder, similar to how we might say that diabetes has always existed, even though we could point to the exact moment when insulin was discovered as the only effective treatment. Before that moment, it was just an inconvenience (albeit sometimes fatal) and a medical mystery.

Eighty-five percent of students believe that the number of people with ADHD is rising every year. This is consistent with the latest statistics on prevalence rates, so it is not surprising.
This result reveals that most students are aware of the trends in ADHD treatment. Though it’s unlikely they have been keeping up with the latest research, they believe the numbers are growing simply because they know more and more people who are being diagnosed. Their opinion on the issue is not being asked here, but their awareness of a critical component of the issue is made evident.

Question 9 explores the related issue of international ADHD prevalence, with 78% agreeing that ADHD exists everywhere even if it is undiagnosed. Again, this connects to the medical perspective seen in question 6. According to this view, ADHD exists whether it is labelled or not, in the same way that cancer is cancer no matter what we call it.

Questions 8, 11, and 12 are designed to specifically gauge opinions on ADHD. The most pointed statement, “ADHD is a real disease”, found 84% of students in agreement. Question 12 inverted the statement and made it even more obviously directed. For the bold statement, “ADHD is not real. It is a new label for kids who misbehave” 88% expressed their disagreement. Yet that leaves 12%, a certainly significant number, agreeing that ADHD is a fabricated label for timeless misbehaviour.

Throughout these questions, there appears a group that is in consistent disagreement with the mainstream views on ADHD (i.e. Barkley and the International Consensus). Around 15% to 20% appear to disagree with this more popular perspective (see questions 5, 8, 9, and 12), which is even more surprising when considering that likely all of the respondents know someone with the disorder. Even if they do not know someone personally, they are aware of what it is and how present it is in our society and in our schools and still choose to disagree with how it is diagnosed and treated.

Yet perhaps the most interesting result is revealed in question 11. This question follows up with question 5, asking participants’ opinions on the apparent increase in ADHD prevalence after 85% said it was growing every year. Though it was consistently shown that nearly 80% of respondents believe strongly that ADHD is a real and universal disorder, 76% stated their opinion that “too many people are diagnosed with ADHD.”

Even if we were to include the aforementioned dissenters (roughly 20%) in this number, that still leaves over 50% of the self-declared ADHD supporters admitting that there is something wrong in the system. They believe that ADHD is real, they believe that ADHD has always existed, and they believe that ADHD is universal, yet they also believe that “too many people” are being diagnosed with it.

What does this mean? What does it mean for a real disorder to be over-diagnosed? Would anyone ever say that “too many people” are diagnosed with Alzheimer’s or arthritis? Perhaps a regrettably high number, yes, but “too many”? To say “too many” is to say that there is a problem somewhere in the system, that somehow people who should not be diagnosed are getting diagnosed. Of course, in the discourse surrounding ADHD this is not a novel idea, but now we see that it is, in fact, the majority opinion.

**Conclusion**

It is ever-advisable that those in power seek and heed the opinions of the masses. In politics, this is a fact of the trade. But psychologists would do well to heed the opinions of the
people they seek to understand. As individual psychologists, our work is generally focused on individual people. But as we counsel and assess and diagnose individuals we are inadvertently counseling and assessing and ultimately diagnosing an entire society. And in the process it might be prudent for us to stop and ask just what the people think about everything we’re doing.

Debates in the world of psychology happen in the esteemed halls of academia, in the pages of obscure journals, and occasionally in the crowded rooms of professional conferences. But since our trade is human experience, it behooves us to consider the experience of the humans we seek to help. This is a simple idea, but the raging academic debates between both sides of the ADHD debate seem to pay little attention to the opinions of regular people. I direct these thoughts most pointedly to Barkley and his colleagues from the International Consensus Statement, those who relegated ADHD dissenters to the class of ignorant pseudo-scientists. Perhaps they might consider the results of this modest survey, wherein the majority of “ADHD believers” expressed their opinion that ADHD is being over-diagnosed.

In the meantime, however, it is encouraging to see that people are thinking critically about ADHD. We must continue to do so, to ask questions, to seek answers, and to value the opinions of professionals without devaluing our own. ADHD is a problem for individuals and increasingly a serious problem for our society. And the only true solution will be people who think seriously about ADHD, and, most importantly, think for themselves.
References


Novartis information (http://www.pharma.us.novartis.com/product/pi/pdf/ritalin_la.pdf)


