

A Framework for Understanding Trends in ADHD Diagnoses and Stimulant Drug Treatment: Schools and Schooling as a Case Study

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Abstract

This article offers a socio-historical account of the development of the Attention Deficit/Hyperactivity Disorder (ADHD) diagnosis and methylphenidate treatment in America, attending particularly to the institutional and professional contexts that have supported this development. These historical developments frame a socio-cultural analysis that views contemporary schools and schooling practices as mediating factors in ADHD diagnoses and methylphenidate treatment. Consideration of the school as a mediating socio-cultural context illuminates important questions about the validity of the ADHD diagnosis, and about inter- and intra-national variations in the perception and tolerance of young children's behavior, educational and behavioral goals for children, and styles of treating problem behaviors in children. It is argued that both local and cross-national research on schools and schooling are important means of increasing understanding of the complex socio-cultural factors inherent in the global growth of ADHD diagnoses and methylphenidate treatment.

Keywords Attention Deficit/Hyperactivity Disorder, diagnosis, international, Ritalin, schools, schooling, stimulants, treatment

Perhaps more than any other diagnosis on the medical market today, Attention Deficit/Hyperactivity Disorder (ADHD) problematizes the assumption of an objective measure of 'normal' functioning, and points to the distinctly social task of judging normative behaviors, assigning diagnostic labels and deciding on, and responding to, medical treatments. The problematic boundaries between 'normal' and 'pathological' in relation to the ADHD diagnosis have been the subject of long-standing sociological critique (e.g. Conrad, 1975; DeGrandpre, 1999; Shrag and Divoky, 1975). As part of this critique, institutions such as

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the school and the clinic have come under particular scrutiny, theorized as oppressive mechanisms of state control of the individual. Much of this critique fails to integrate an understanding of the clinical realities of children's behavior problems and the important difference that successful psychotropic drug treatments can make to children and families. However, this work also points to the importance of attending to the power relations between individuals and institutions in relation to ADHD diagnosis and methylphenidate treatment. Moreover, we are reminded that this diagnosis and drug treatment are embedded in historical and national contexts, which nurture their development and rise. If we are to understand the contemporary national features of ADHD diagnosis and methylphenidate practices, we need to understand the local stories of how they came to be salient features of medical and educational settings, and part of a set of institutional strategies for supporting healthy child development and learning.

In what follows, I offer an historical account of the development of the ADHD diagnosis and methylphenidate treatment in America, attending particularly to the institutional and professional contexts that supported this development.¹ Following this historical perspective, I offer an in-depth analysis of one such context—US schools and schooling. I examine social, cultural and political aspects of this context in order to illustrate the layered complexities that reveal themselves when considering the school as a mediating context for US ADHD diagnoses and treatment strategies. I argue that such an analysis raises challenging questions about the validity of the ADHD diagnosis and supports the importance of further investigation of macro- and micro-level variations in perceptions and tolerance of young children's behavior, educational and behavioral goals for children, and styles of treating problem behaviors in children. The concluding argument draws upon observed similarities and differences in global ADHD diagnoses and methylphenidate consumption rates.

Development of ADHD diagnosis and Ritalin treatment

In 1937, Charles Bradley, a pediatrician, published the first article documenting experiments with the stimulant Benezdrine on children with a wide variety of 'behavior problems' in the *American Journal of Psychiatry* (Bradley, 1937). Bradley performed his experiment on 30 children, ages 5–14, who manifested a variety of behavior disorders ranging from specific educational disabilities to epilepsy. All the children had normal intelligence. He pronounced the results most 'striking' in the effect of benzedrine on school performance. Almost half the children responded in 'spectacular fashion', presenting with unusual motivation to work and an enhanced ability to read, comprehend and do arithmetic. In their 'emotional response' too, Bradley reports that half the children became 'more placid and easy-going', a clinical improvement in the opinion of the staff. In a series of subsequent articles, Bradley and his colleagues build on this body of work, publishing their results in the major psychiatric and medical journals of the day, such as the *Journal of the American Medical Association* and the *American Journal of Psychiatry*.

Early Benezdrine experimentation on children was embedded in a particular institutional culture, which combined educational, psychological and psychiatric approaches to

¹ Some of the material presented on the history of ADHD and stimulant drug treatment in children was previously published in Singh (2002). I am grateful to Cambridge University Press for permission to use this material.

children's behavior problems. Charles Bradley was the director of the Emma Pendleton Bradley Home in East Providence, Rhode Island, which opened in 1931 as the nation's first psychiatric hospital devoted to children. The Home was 'planned and equipped especially for the care of children with neurologic and behavior disorders' (Bradley, 1936: 651). In 1936, there were 269 patients at the Home, including 80 with behavior problems, 64 with convulsive disorders, 40 with CNS (central nervous system) birth disorders, 37 with mental deficiency and the remainder with a variety of disorders including reading disability and post-encephalitic syndrome.

The design of the Home, in Bradley's descriptions, appears to have been grounded in a combination of behaviorist, psychoanalytic and mental hygienist principles, emphasizing a natural, healthy and encouraging environment as essential to a child's mental well-being. Bradley contrasted this environment with the environment of the family home, which he felt was chaotic and troubling to his patients, often sending them into relapse upon their release from the hospital. Bradley felt that the Home's environment was particularly therapeutic for children with behavior problems, who benefited from multiple activities based in natural and cultural surroundings, reinforced by nurses and teachers 'who have combined the rare endowment of an attractive, unruffled and ingenious personality' (1936: 651). While Bradley grounded the plans for his patients' daily life in these environmental principles, however, he also emphasized more active biomedical interventions with patients. The Home was envisioned specifically as a hospital for treatment of children's psychiatric disorders, with the facilities and opportunity for therapeutic experimentation. A surgery handled the more extreme therapeutic interventions, while experiments with drug therapies were performed in a more naturalistic setting, but under closely controlled conditions. To add to the therapeutic mix, Bradley also had children undergo individual psychotherapy, believing that 'even the best environmental adjustment does not preclude the advisability of personal psychotherapy, particularly in cases in which a rather exhaustive analysis and reconstruction of the patient's personality are indicated' (1936: 652).

The original approach of the Bradley Home, and of Charles Bradley himself, appears to have eschewed professional and disciplinary boundaries for a more catholic approach to the problems of children. An in-patient institutional setting allowed Bradley to experiment with implementing in practice a variety of theoretical perspectives on the etiology of child behaviors and to try out varying, and sometimes divergent treatment strategies. However, by the late 1950s, the relatively comfortable alliances between biological and psychoanalytic approaches, which are evident in both the psychological and the pediatric literatures of the 1940s, were beginning to chafe against a new surge of biological psychiatry. The institutional setting of the Bradley Home provided a productive ground for incorporating a renewed emphasis on organic theories of mental health and behavior.

In 1957, Maurice Lauffer, the new director of the Bradley Home, coined a new term for the cluster of ADHD-like behaviors in children (these had previously been classified as 'emotional disturbance' or 'Minimal Brain Dysfunction'). The term was 'hyperkinetic disorder of childhood'. Writing in the *Journal of Pediatrics*, Lauffer and his co-author, Eric Denhoff, emphasized the 'organic components' of the disorder and recommended the use of 'amphetamine' for its treatment. With this move, Lauffer and Denhoff effectively narrowed MBD and emotional disturbance to one symptom through nomenclature and drug specificity, and grounded the new disorder in biological foundations (Lauffer and Denhoff, 1957).

Following Lauffer and Denhoff, psychiatrists urged the community to make up for its neglect of biology and organicity. In psychiatric journals, writers encouraged ‘the consideration of organic factors when diagnosing children’s behavior because the psychogenic factors have so often been exclusively emphasized’ (Knobel, 1959: 319). Others suggested that child psychiatrists look ‘as carefully among the myriad of possibilities of organic causation as we [they] have in the past among the interpersonal, deprivation and stress factors’ (Clements and Peters, 1962: 17).

Among childhood psychiatric disorders, ‘hyperkinetic syndrome’ held unique promise for a revived biological psychiatry because it was already connected to a specific drug treatment. Indeed, Lauffer and Denhoff claimed that ‘a favorable response to amphetamine is supportive evidence for a diagnosis of the hyperkinetic syndrome’ (1957: 473). As institutional and professional perspectives on child behavior problems narrowed, approaches to treatment did as well: in keeping with the need to strike a professionally coherent note, biological psychiatrists now emphasized medication not as an adjunct to psychoanalytic therapy, but as a therapy with its own specific role.

During this same period, a new stimulant drug called Ritalin, marketed by Ciba Pharmaceuticals (now Novartis) appeared on the market. In 1955 Ritalin was not initially indicated for hyperkinetic syndrome; instead it was a treatment for mild depression and narcolepsy. However, since stimulants were by this point an accepted form of treatment for behavior problems in children, Ritalin was, like Benzedrine, used off-label in pediatric psychiatry. Following the accumulation of clinical case studies (required for Food and Drug Administration [FDA] drug approval in the period before the FDA mandated clinical trials), Ritalin was indicated for treatment of ‘various behavior problems in children’ in 1961. Lauffer’s term, ‘hyperkinetic disorder of childhood’ made a lasting contribution in that it identified hyperactivity as one of the core symptoms of a common behavioral disorder in children. The label itself, however, did not take hold, perhaps because it appeared in the *Diagnostic and statistical manual of mental disorders (DSM)* as ‘hyperkinetic reaction of childhood’ [my emphasis], thereby giving it a psychoanalytic rather than a biological slant. Instead, until the more familiar term, ‘attention deficit disorder’ appeared in the 1980s, the professional label for children with ADHD-like behaviors continued to be Minimal Brain Dysfunction (MBD). By the early 1970s, Ritalin was being actively marketed to clinicians as a niche drug for MBD, which was at that point argued to be an organic condition in children (Singh, forthcoming).

Integration of medical and educational agendas in American schools

The modern school in some way resembles the original Bradley Home in that it encompasses far more than one basic set of services. Schools are institutions in which prominent social and political values and expectations are infused in developmental and learning processes of young people. In most Western contexts, schools are mandated to provide children with care not just for their minds, but also for their bodies and their souls, through exercise, sex education, meals, basic healthcare screening and moral education. To fulfill these mandates, schools are filled with medical, psychological and educational personnel—much like the Bradley Home. In terms of the mental well-being of children, the contemporary Western

school has arguably become fully integrated with the medical clinic: one has only to note that the visual slogan for Concerta, the first long-acting form of methylphenidate for children with ADHD, is the school-house. Moreover, if the recent presidential mandate to screen all US children for mental illness becomes national policy, schools are probably best positioned to support the implementation of some aspects of this national screening program (New Freedom Initiative, 2004).

If schools were originally designed to teach the three Rs—reading, writing and arithmetic (and religion, until the separation of Church and state in public education), it is worth considering how schooling in America has become integrated with a medical agenda for the care and prevention of mental illness in children. This level of integration arguably has its roots in the National Defense Education Act (NDEA) of 1958. In the US context, the war-time context had an important and interconnected impact on both the school and the clinic. The NDEA was enacted in part in order to help identify intellectually gifted leaders who could support and grow the nation's democratic ideals in a Cold War period. However, in the background of the NDEA lurked a story of mental failure and weakness, which had resulted in 12 per cent of World War II recruits being diagnosed with a predisposition to mental breakdown during pre-screening tests. In addition, over 1 million US soldiers suffered from some form of neurosis during the war (Herman, 1995). The NDEA reminded the public, and particularly parents and teachers, that a young boy's mental health was a matter of national security. A flood of experts entered the school—school psychologists, guidance counselors, social workers and nurses—armed with normative tests and a remit to identify not only intellectually gifted students but also those who were mentally and socially deviant. This agenda found strong reinforcement in the activities of the National Committee on Mental Hygiene (NCMH), part of whose mission was the prevention of mental illness. The NCMH was founded in 1910 and later merged with several other organizations to become the National Association for Mental Health in 1950. It had a major impact on reforming institutional and public understanding of mental illness, through successful measures such as law reforms, the dissemination of educational literature and the institution of child guidance clinics. The NCMH was particularly influential in the post-war period, when hygienists' focus on a child's adjustment or pre-delinquent states intersected with the national focus on nurturing vigorous, well adjusted young men. Combining psychoanalytic with biomedical understanding of disease prevention, hygienists saw schools as 'institution[s] to develop children's personality' (Cohen, 1983: 138). Combining psychoanalytic premises with biomedical understanding of disease prevention, hygienists' ideas for American education effectively resulted in what Sol Cohen (1989) has called the 'medicalization of American education'. Post-World War II, this process centrally involved the influx of newly trained personnel—psychologists, guidance counselors and social workers—whose job was to identify children's mental illness at the pre-delinquent stage (Singh, 2002). As this period of medicalization of education overlapped with the revival of biological psychiatry, organic ideas about childhood behavioral and mental disorders began to take hold in an educational context, providing further support for the idea that medical and psychological expertise was needed to foster children's overall development.

The process of implementing a preventive mental healthcare agenda in schools probably helped to establish the school and school personnel as legitimate primary diagnosticians

of children's cognitive and emotional problems. It also set up a potential tension between the school and the home, in relation to observation and definition of behavior problems in a child. Part of the original reason for preventive mental health strategies within schools was to deflect the authority of the home, specifically, of mother, in the trajectory of child development. When the NDEA was enacted, for example, there were suspicions of close links between the quality of mothering that neurotic recruits had received (enmeshed, smothering) and their adult psychological functioning (Ehrenreich and English, 1978; Fromm-Reichman, 1948; Strecker, 1946). Therefore the school needed to effectively separate the boy and the mother, in order to support the boy's healthy psychological development (Singh, 2002).

The level of integration amongst school, clinic, government policy and psychiatric understanding of child development may have resulted in a uniquely fertile ground for drug treatments for children's problem behaviors to find acceptance in the US context. While there is as yet very little cross-cultural understanding of the history of ADHD and methylphenidate treatment, one might speculate that in the UK context, for example, one of the key factors in the relatively late turn to acceptance of the ADHD diagnosis and drug treatment was the lack of such an integrated agenda. Another important factor was a long-standing understanding of hyperactivity and attentional problems as general features of child psychopathology—in particular, of conduct disorder—rather than as symptoms of a singular and specific organic disorder. Interestingly, understanding of child development in the UK was also influenced by the UK National Council on Mental Hygiene (founded in 1923); however, in this context, the Council appears to have encouraged an emphasis on psychosocial risk factors for mental illness and socially based treatments.²

Integration of home, school and clinic

While most American schools today ostensibly support an approach in which parents are invited to work with the school to support a child's development, there is, arguably, a lingering quarrel over whose perspective on the child is right. In cases where there is a question of ADHD, schools and homes—and specifically mothers and teachers—must frequently negotiate conflicting understandings of the child. There is often little objective perspective in this negotiation; not only do mothers and teachers have fundamentally different relationships to the child, the child will also often behave differently at home and in school, and he/she will behave differently for different members of the family, and/or for different teachers (Tallmadge and Barkley, 1983). One of the criteria of the *DSM-IV* diagnosis for ADHD is, in fact, that children's problem behavior should be consistently a problem at home *and* in school. This requirement can lead to several complicated scenarios in the clinical presentation and assessment. One is that home and school agree that there is a problem, but the understanding of the problem and perception of degree are inconsistent (Achenbach *et al.*, 1987).

In the US, where child psychiatric conditions are in general more widely diagnosed and treated, and where many more children are diagnosed with ADHD and treated with methyl-

2 The material on the UK context is drawn largely from an interview with Sir Michael Rutter, conducted by the author in January 2002. Substantive work on a US–UK comparative history of ADHD and methylphenidate treatment is being conducted by Marie Reinholdt, a PhD student at Manchester University, UK.

phenidate (Rose, 2004), teachers often know as much, or more than, parents about the disorder, and teachers are often the primary instigators of a process of evaluation for a child's behavior (Sax and Kautz, 2003). Moreover, since 1991, ADHD has been an eligible condition under the US Individuals with Disabilities Act (IDEA), which provides children with ADHD the right to special educational services (Hart *et al.*, 2006). While these resources primarily benefit children, when they come in the form of special teaching assistants or tutoring that takes place outside the classroom, the educational services provided by the IDEA may well benefit the child and an over-taxed teacher.³

Towards an understanding of schools as cultures

Like the home, the school can be viewed as a culture in which children's development intersects with prevailing expectations and values in relation to their behavior, performance and achievement. However, the individual school does not have the relative autonomy that exists within an individual home. In order to understand the culture of an individual school, it is also necessary to understand the school's position within a broader *national culture of schooling*. At the highest level, the national culture of schooling is part of a national educational agenda. The agenda is actualized through national education policies that define a set of educational expectations and goals, and determine the extent to which individual schools can act independently in interpreting national policies in relation to setting the curriculum, manner of teaching, make-up of the student body and so forth. In the United States, there exists an additional layer of interpretive complication, as national educational policies intersect with state educational policies.

Within this broader national culture of schooling, the individual school functions as a culture on two levels: it can function as a mechanism that *generates cultural knowledge about children's behavior*. In this way, the school, its personnel and its educational practices can generate expectations of and knowledge about children's behavior. Routine classroom practices come to be viewed as normative; for example, in most American primary schools, young children are asked to sit in their chairs, to focus on work, and to refrain from speaking to each other or to themselves. There are few breaks in the day during which children can run around and release physical energy; and there are few moments in the day when children are given time to pursue unstructured creative activities. Children are expected to be able to contain their physical energies and to focus their mental energies in order to perform these daily school tasks. In this way, classroom and schooling practices help to create cultural knowledge about what connotes 'normal' behavior and achievement for children at various stages of development. While there may be some variation in these classroom practices amongst individual schools, the remit to meet the standards of a broader national curriculum requires schools to uphold and instantiate this set of normative expectations.

Relatedly, schools must also have ways of interpreting and handling children who do not meet these normative expectations. Therefore, the school can also function as a *mediating mechanism to diagnosis*. In other words, school personnel may support, negotiate or instigate the pathway toward assessment and treatment of a child's behavior.

³ It is important to note that the IDEA can also financially burden schools with the requirement to provide these special educational services to a rising proportion of disabled students. Federal funds do not fully cover the needs of this group (Hart *et al.*, 2006).

Paradoxically, both the critique and the defense of ADHD and methylphenidate treatment have been built around this notion of the school as a key mechanism for embedding medico-cultural understandings of children. The critique has argued that schools support the medicalization of behavior in children and opt out of their pedagogical commitments: frustrated teachers are more likely to advise a parent of a misbehaving child to get a prescription for Ritalin than they are to utilize pedagogical techniques and resources to improve a child's behavior (e.g. Breggin, 1997; Diller, 1998; Walker, 1998). More resources—such as better classroom environments, more teachers, more special educational services, and smaller class sizes—are often seen as the key to improving students' behavior and, consequently, to reducing the need for more ADHD diagnoses and stimulant drug use in the classroom.

A defense of ADHD and methylphenidate treatment is built around a positive interpretation of the school as a mediating mechanism to diagnosis. According to this argument, schools can provide an opportunity for diagnosis of children and appropriate treatment, where previously proper understanding of a child's problem was lacking. Statistics on under-diagnosis and treatment of ADHD in areas such as the Great Smoky Mountains region underline the need for the supportive role of schools in identifying undiagnosed students (Angold *et al.*, 2000).

One major problem in the US context with both the critique and the defense of the school as a cultural mechanism that supports medicalization and diagnosis of children's behavior, is that there are few empirical investigations to justify either set of arguments. Research such as the Great Smoky Mountains Study points to the complications inherent in making generalizations about the culture of schools or schooling in the United States in relation to ADHD diagnosis and methylphenidate treatment. Regional differences in the US can be vast, as a function of geography, race/ethnicity, immigration patterns, religion, etc. All these factors inevitably impact the culture of schools and schooling in a given region, as well as the methods of evaluation and treatment of children's behavior disorders. Moreover, while broad regional or state-level data does provide a dimension of national analysis, such data nevertheless denies the complex within-region and within-state cultural differences. These cultural differences are likely to be most obvious at the level of different neighborhoods or school districts within a particular county (Olfson *et al.*, 2003).

The relational ecology of a school

Alongside building a sociological understanding of how the school functions as a cultural mechanism that produces knowledge about children's behavior and about appropriate treatment strategies, it is also important to carry out local empirical studies, within particular schools in particular regional settings, in order to begin to understand how a network of relationships supports the production of knowledge and defines potential pathways toward a resolution of the problem. I have argued elsewhere that ADHD is a relational issue in so far as a 'problem' child must be seen as existing within a network of relationships that define and shape perceptions of his/her behavior (Singh, 2004). In the context of the school, a series of hierarchical relationships arguably operate to produce an understanding of the child. At the micro-level there is the *relationship between the teacher and the child*; how does the teacher understand the child? What kind of relationship do they have? How long have they been working together? How experienced is the teacher? There is also the

relationship between the teacher and the school; to what extent do the school and the teacher support each other's educational vision and practices? What degree of independence does a teacher have in implementing educational strategies to deal with problem behaviors in the classroom? At the macro-level, there is *the school's relationship to broader state and national policies that govern children's intellectual and emotional development within the school setting*. Is this a public or a private school? Is this a school with an integrative approach to children with special needs? Does the school have the resources to support children with special needs and behavior problems? How does the school perform at the state or national level in educational achievement?

It must be pointed out that, within this hierarchy of relational engagements, race/ethnicity, gender and class are significant factors embedded in the processes through which children's behavior is perceived, evaluated and treated. Several community studies have shown that African American and Latino/Hispanic children are as likely to receive an ADHD diagnosis as White children, but they are significantly less likely to be treated with stimulant medication (Bauermeister *et al.*, 2003; Olfson *et al.*, 2003; Rowland *et al.*, 2002). However, despite criticisms that methylphenidate use is part of a middle-upper-class culture of elitist competitive schools and high achievement expectations for children, rates of treatment for ADHD have increased significantly across all socio-demographic groups, and in particular amongst children from poor and low-income families (Olfson *et al.*, 2003).

Along with race/ethnicity and SES, gender is still an under-analysed cultural feature of ADHD and methylphenidate treatment. A gender dynamic exists at the center of the ADHD phenomenon: boys are 3–4 times more likely to be diagnosed with ADHD than are girls; and women (mothers and teachers) are the primary instigators of ADHD evaluations. Moreover, as the ADHD diagnosis expands to include inattentive as well as hyperactive behavioral symptoms, there is a particular need to investigate whether conceptions of normative behavior in young girls are being impacted.

As any parent knows, perceptions of a child and his/her behavior are likely to be contingent on a particular teacher, a particular classroom (including the configuration of the peer group) and/or a particular school. This raises a question as to whether or not the procedures governing the identification and evaluation of a 'problem' child within the educational context should be, or could be, systematized and/or regulated. At the moment these procedures vary widely at every level: school, district, and state, not to mention nation. While systematization and regulation would require careful discussion about feasibility and appropriateness, just the consideration of this possibility raises at least two important concerns: the potential unfairness inherent in the variability of these procedures; and the ways in which this variability may contribute to further expanding an already ambiguous diagnosis. While the ADHD diagnosis has been criticized as part of psychiatry's growing effort to pathologize everyday life (e.g. Breggin, 1998), it seems important to note that the ambiguity and generosity that characterize this diagnosis do not exist only at the level of psychiatric classification. In other words, it isn't just psychiatrists who are using ambiguous and inconsistent procedures to understand children's behavior. Ambiguity and inconsistency are also evident in the contexts in which children's behavior is first identified as problematic—the school and the home.

In the US, where individual states have significant control over educational practices, it may be difficult to achieve national consistency in schools' approaches to children's problem

behaviors. On the state level, however, it seems important to institute measures that ensure internal consistency in relation to schools' evaluation procedures, expectations, and potential strategies for resolution and treatment, in cases of child behavior problems.⁴ In order to approach national consistency, state-level practices could be constructed in relation to national guidelines for good practice within schools.

Considering the classroom as a micro-culture

We can view the school as a micro-culture within the broader school ecology that frames child behavior and development. This perspective invites consideration of the ways in which this micro-culture mediates, manages and negotiates broader cultural ideals and expectations of appropriate child behavior. When we look more closely at the kinds of behaviors that constitute violations of normative expectations—e.g. inability to sit still for extended periods of time, difficulty retaining and following instructions, difficulty working quietly and independently, difficulty maintaining focus—it is clear that the extent to which these behaviors will be deemed problematic is context-dependent. While attention and focus are important in some organized play activities, ADHD behaviors are in general less obvious in the playground than they are in the classroom (Barkley, 1990).

If the school culture in general, and/or the classroom culture specifically, play a role in identifying behaviors as 'problematic', then it is important to query whether behavioral expectations of a child in a particular classroom setting are reasonable. A common critique of ADHD diagnoses and methylphenidate use claims that schools now require too much of children at a young age; schools are cutting down on unstructured time, adding to children's school and home-work, and initiating more standardized testing regimes designed to track intellectual development and progress. In an American 'culture of masculinity', these demands are thought to be particularly onerous for young boys (Pollack, 1998). Such demands may be more easily met when a child's attention and focus are amplified via stimulant drugs, resulting in benefits for parents and teachers, and arguably also for the child. Of course, medicating the child elides attention to the question of whether performance expectations that a school sets can be reasonably (that is non-pharmaceutically) met by most children. And yet even this question of reasonable expectations is not a universally shared concern. In high-achieving, competitive school cultures, prestige is attached to high—possibly unreasonable—academic expectations, and methylphenidate is increasingly seen as one of a number of pharmaceutical tools to enhance students' performance (Hart *et al.*, 2006). In such an environment, the concern is more about whether methylphenidate use confers a competitive advantage on some students over others, and the discussion is oriented around questions of distributive justice—should performance-enhancing drugs be available to all students in order to maintain standards of fairness (Elliott, 1999)?

⁴ Such implementation has been attempted at the community level in a remarkable series of case studies in North Carolina (Foy and Earls, 2005). In response to concerns about barriers to good care for children within the community and within the educational system, a process was implemented in order to 'develop a consensus among health care providers, educators, and child advocates regarding the assessment and treatment of children with symptoms of ADHD' (2005: 97). The result is a consensus-based protocol that is followed for up to ten years by school personnel and community physicians.

Conclusion

Charles Bradley probably could not have envisioned a time when 3.5 per cent of American school children were estimated to be taking stimulant drugs as treatment for ADHD; nor could he have envisioned a time when stimulant drugs were being debated as legitimate cognitive performance enhancers for the healthy population. But Bradley's vision of an environment in which psychological, educational and medical approaches would meet around the evaluation and treatment of children's behavior problems is realized in the modern American school. Much of the argument about cultures and schools in this article underlines the importance of local empirical work that seeks to understand variations both among and within American schools, and the relationship of particular educational cultures and processes to ADHD diagnosis and stimulant drug treatment in children. However, in this conclusion it seems important to make an additional statement about the importance and relevance of cross-national studies of ADHD and stimulant drug treatment.

For a long period of time, this diagnosis and the use of methylphenidate (and psychotropic drugs more generally) have been seen as a peculiarly American issue—a circumscribed cultural phenomenon. (Of course, as is repeatedly emphasized in this article, it is misleading to draw conclusions about ADHD diagnoses and methylphenidate treatment in America without taking into account cultural and regional variations at every level.) How then to understand the global growth of the use of methylphenidate for the treatment of ADHD over the past decade? Cross-national variation in rates of ADHD diagnosis and methylphenidate (e.g. Ritalin or Concerta) use is extraordinary, and, to date, almost totally unanalysed. Reliable diagnosis rates for ADHD are difficult to find in most national settings, but because methylphenidate is a controlled substance, a United Nations International Narcotics Control Board (UNINCB) keeps statistics on production and consumption. The UNINCB assumes that methylphenidate consumption is tied directly to ADHD diagnoses. This is not an unreasonable assumption, as methylphenidate is only rarely prescribed for diagnoses other than ADHD (such as narcolepsy), and black market sales of methylphenidate for recreational purposes are probably not significant enough at this point to warrant a separate category of recreational consumption rates. It is by now relatively common knowledge that American consumption of methylphenidate far outranks any other country in the world: Americans consume 85 per cent of the world's methylphenidate for medical purposes (UNINCB, 1999). What is far more surprising, however, is that *per capita* methylphenidate usage in Iceland is currently slightly *greater* than in the US (approximately 5.40 daily doses [DD] per 1,000 inhabitants, versus approximately 5.30 DD per 1,000 inhabitants). More predictably, *per capita* usage in Canada and the UK is lower than in the US (approximately 4.30 DD/1,000 inhabitants in Canada, and approximately 3.85 DD/1,000 inhabitants in the UK). However, consumption rates of methylphenidate have increased dramatically across the globe, with many countries seeing five-fold to seven-fold increases in consumption rates over the past decade. The notable exception to this trend is Israel, where, between 1999 and 2003, consumption rates fell slightly, from approximately 0.4 DD/1,000 inhabitants to approximately 0.25 DD/1,000 inhabitants (see Figure 1).

These figures present stark evidence that social, cultural and national factors are key to understanding ADHD diagnosis and methylphenidate treatment. This reality can be acknowledged alongside an understanding of ADHD as having an organic etiology; indeed,

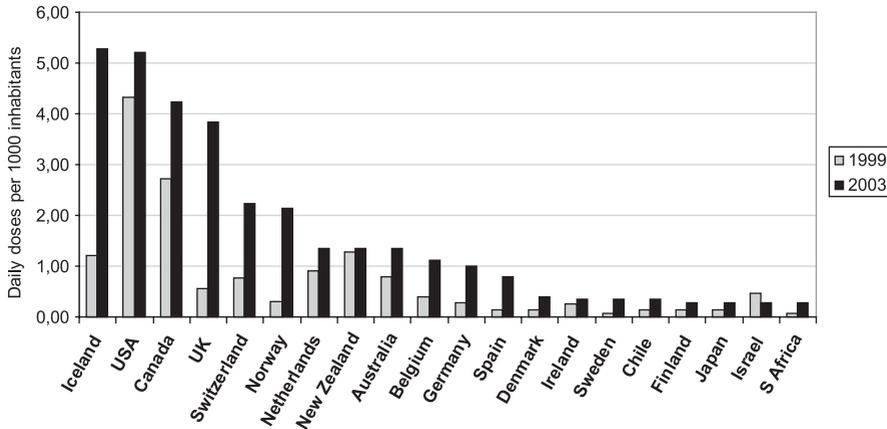


Fig. 1. International *per capita* consumption of methylphenidate, 1999 and 2003 (United Nations International Narcotics Control Board, 2005)

if progress in behavioral genetics over the past five years has shown anything, it is that the gene/biology–environment interaction is at the core of understanding complex human behaviors. As dialogue across Western nations emerges around ADHD, several points of overlap in the understanding of this diagnosis emerge. Most important, perhaps, is a general acknowledgment that there is a group of children with characteristic behaviors that fit ADHD diagnostic criteria (Cooper, 2002). This is not a confirmation of the validity of the ADHD diagnosis; rather it demonstrates cross-national agreement that there exists a group of children whose impulsive and hyperactive behaviors are qualitatively different, and more severe, than those of other groups of children.⁵ There is also general agreement that the diagnostic boundary between this group of children and other children is often difficult to draw. This is in part because core symptomatic behaviors (attention, hyperactivity and impulsiveness) are both widely distributed and common to some degree in most children; and because effective methylphenidate treatment of problem behaviors in children does not indicate accuracy of diagnosis. Methylphenidate has been shown to improve attention and focus in ‘healthy’ volunteers too (Rapoport *et al.*, 1978).

One promising path to unraveling the puzzle of variation in global growth of stimulant drug use is to perform empirical studies of particular socio-cultural arenas, in particular

5 Clinical understanding of children’s behavior is not necessarily consistent or coherent, and clinical understanding does not necessarily reflect parents’ or teachers’ (or children’s) understanding of children’s behaviors. There are different levels of integration of these multiple perspectives in different national contexts. For example, in the UK, where public understanding of ADHD is still quite poor, and skepticism about child psychiatric diagnosis and stimulant treatment is relatively higher than in the US, it is often parents who view their child’s behavior as being symptomatic of ADHD, having consulted websites and/or friends in their efforts to deal with their child’s behavior (Klasen, 2000). Many schools are still under-resourced to deal with children with ADHD-type behaviors, and teachers tend not to be sufficiently educated about the diagnosis and behavioral/educational methods of treatment (Blew and Kenny, 2006). The UK situation is not representative of Europe, however. In Italy, ADHD is recognized as a valid disorder by only a handful of child psychiatrists, methylphenidate is not yet licensed for use as a treatment for ADHD, and a small group of parents is fighting to educate the public and teachers about the disorder (Frazzetto, unpublished). In the Nordic countries, ADHD was for a number of years associated with a controversy over an associated diagnosis, DAMP (Deficits in Attention, Motor Control, and Perception); however, clinicians and parents in the Nordic countries are now beginning to recognize ADHD as a legitimate disorder and, as Figure 1 illustrates, use of methylphenidate treatment is growing.

national contexts, which we know to be key factors—or ‘surfaces of emergence’—in the ADHD phenomenon. In this article, I have offered a case study of US schools and schooling, which illustrates the ways in which US schools are mechanisms that both produce and embed socio-cultural knowledge about children’s behavior, and approaches to treatment. In order to understand the spread of ADHD, we need to understand just how these knowledges are shifting understandings of and approaches to children’s ‘problem’ behaviors, and why. This is a complex process of discovery. A major difficulty is knowing the most fruitful and significant level of analysis. As suggested in this article, if schools are a surface of emergence of the ADHD phenomenon, what should be the target of investigation: national educational policies, school districts, individual schools, or individual classrooms and teachers? Appropriate targets in one context may not be appropriate targets in another. What we need are local investigations which are then hooked into other local investigations, both intra- and inter-nationally, resulting in a broad mapping of the phenomenon—a mapping that is capable of illustrating local-level idiosyncrasies as well as broad common features.

This may be a daunting and time-consuming task, but it is exactly this level of complexity that will be necessary to counter the predictably polarized arguments about cross-national variations in ADHD diagnosis and methylphenidate use that are already spreading: global growth of this disorder and drug treatment are almost certainly not due simply to pervasive bio-genetic human similarities (an argument which suggests that ADHD has been widely under-diagnosed outside the US, and methylphenidate treatment is being under-used); nor is this growth due simply to the exploitative global export of American values and commodities. Reduced versions of these arguments may hold some truth, but they need to be linked to more sophisticated, in-depth analyses of what is going on in particular national settings. Once we have a good body of local social and cultural knowledge across these different national contexts, we can begin to build more complex theories about national and cross-national variations in ADHD diagnoses and methylphenidate treatment.

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