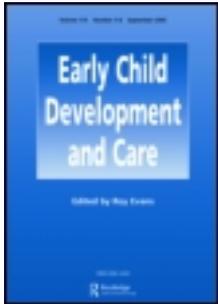


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ADHD, culture and education

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This article is a socio-historical account of the development of the Attention Deficit/Hyperactivity Disorder (ADHD) diagnosis and methylphenidate treatment in America, attending particularly to the political and institutional contexts that have supported this development. Historical developments in early–mid-twentieth-century America frame a national analysis that views contemporary schools and schooling practices as mediating factors in ADHD diagnoses and methylphenidate treatment. Consideration of the school as a mediating cultural context illuminates important questions about cultural variation in tolerance of young children's behaviour, educational and behavioural goals for children, and cultural styles of treating problem behaviours in children. It is argued that cross-national research on schools and schooling would increase understanding of the complex national and cultural features of pathways to ADHD diagnosis and methylphenidate treatment.

Keywords: *ADHD; Ritalin; Epidemiology of ADHD; Education and ADHD; History of ADHD*

Introduction

National variations in the prevalence rates of Attention Deficit/Hyperactivity Disorder (ADHD) diagnosis and consumption of methylphenidate (e.g. Ritalin or Concerta) are extraordinary, and, to date, almost totally unanalysed. Reliable diagnosis rates for ADHD are difficult to find in most countries. Because methylphenidate is a controlled substance, the United Nations Narcotics Control Board keep statistics on production and consumption, with consumption assumed to be 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 80% of the world's methylphenidate

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for medical purposes (United Nations International Narcotics Control Board [UNINCB], 2005). What is far more surprising, however, is that between 1999 and 2003 *per capita* methylphenidate usage in Iceland was slightly *greater* than in the USA (approximately 5.40 daily doses (DD)/1000 inhabitants versus approximately 5.30 DD/1000 inhabitants). *Per capita* usage in Canada and the UK was (more predictably) lower than in the USA (approximately 4.30 DD/1000 inhabitants in Canada, and approximately 3.85 DD/1000 inhabitants in the UK). Consumption rates of methylphenidate have increased dramatically across the globe with many countries seeing five- 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/1000 inhabitants to approximately 0.25 DD/1000 inhabitants (see Figure 1).

These figures present stark evidence that social and cultural factors are key to understanding trends in ADHD diagnosis and methylphenidate treatment. This reality may be acknowledged alongside an understanding of ADHD as having an organic aetiology; indeed as progress in behavioural genetics over the past five years has demonstrated, gene/biology–environment interaction is at the core of understanding complex human behaviour. 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 behaviours 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 behaviours are qualitatively different, and more severe, than other

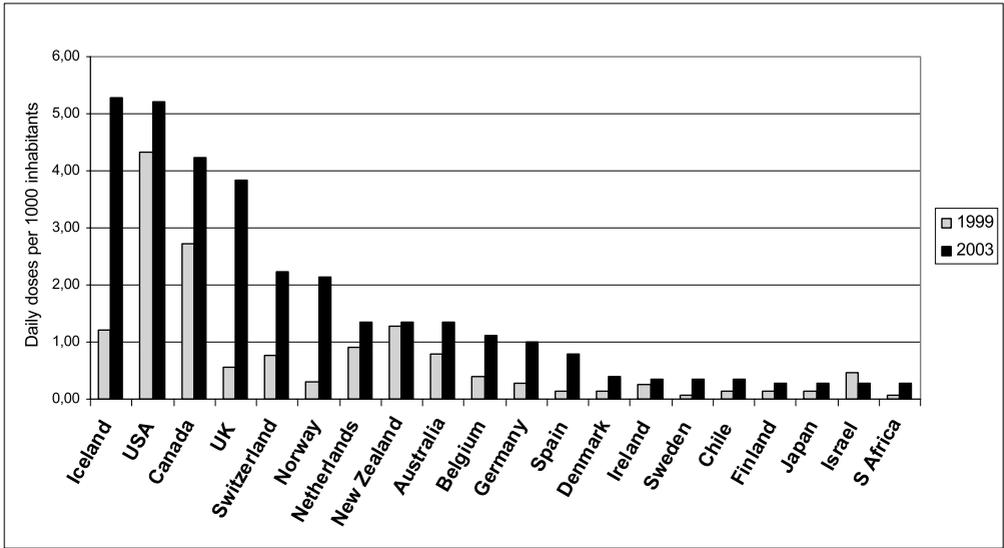


Figure 1. International *per capita* consumption of methylphenidate (1999 and 2003) (International Narcotics Control Board, 2005)

groups of children. There is also a 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 behaviours (e.g. attention, hyperactivity and impulsiveness) are both widely distributed and common to some degree in most children and because effective methylphenidate treatment of problem behaviours in children does not indicate accuracy of diagnosis. Methylphenidate has also been shown to improve attention and focus in 'healthy' volunteers (Rapoport et al., 1978).

Perhaps more than any other diagnosis on the medical market today, ADHD problematises the assumption of an objective measure of 'normal' functioning and points to the distinctly social tasks of judging normative behaviours, 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 longstanding sociological critique (e.g. Conrad, 1975; DeGrandpre, 1999; Shrag & Divoky, 1975). As part of this critique, institutions such as the school and the clinic have come under particular scrutiny, theorised as oppressive mechanisms of state control of the individual. It is the case that much of this critique fails to integrate an understanding of the clinical realities of children's behaviour problems and the important difference that successful psychotropic drug treatments can make for 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 the diagnosis and drug treatment are embedded in historical and cultural contexts, which nurture their development and rise.

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 I then discuss how consideration of the school as a mediating cultural context in relation to ADHD diagnoses and treatment strategies illuminates important questions about the validity of the ADHD diagnosis, cultural variation in the perception and tolerance of young children's behaviour, educational and behavioural goals for children, and cultural styles of treating problem behaviours in children. Some of this discussion draws upon observed similarities and differences between the US and the UK contexts, in relation to ADHD diagnosis and methylphenidate treatment.

Development of ADHD diagnosis and Ritalin treatment

Charles Bradley, a paediatrician, published the first article documenting experiments with the stimulant Bzedrine on children with a wide variety of 'behavior problems' in the *American Journal of Psychiatry* (Bradley, 1937). Bradley performed his experiment with 30 children, aged 5–14, who manifested a variety of behaviour disorders ranging from specific educational disabilities to epilepsy. All the children had normal intelligence. He pronounced the results most striking for the effect of Bzedrine on school performance. Almost half the children responded in spectacular fashion, presenting with unusual motivation to work, and an enhanced ability to read, to

comprehend and to do arithmetic. In their emotional response, Bradley reported 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 built 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 Bensedrine experimentation on children was embedded in a particular institutional culture, which combined educational, psychological and psychiatric approaches to children's behaviour 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, p. 651). In 1936, there were 269 patients at the Home, including 80 with behaviour problems, 64 with convulsive disorders, 40 with 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 behaviourist, psychoanalytic and mental hygienist principles emphasising 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 the home's environment was particularly therapeutic for children with behaviour problems who benefited from multiple activities based in natural surroundings, reinforced by nurses and teachers 'who have combined the rare endowment of an attractive, unruffled and ingenious personality' (1936, p. 651). While Bradley grounded the plans for his patients' daily life in these environmental principles, however, he also emphasised 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, p. 652).

The original approach of the Charles 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. Initially, the in-patient institutional setting allowed Bradley to experiment with implementing a variety of treatment strategies. By the late 1950s, however, the relatively comfortable alliances between biological and psychoanalytic approaches evident in both the psychological and the paediatric literatures of the 1940s, were beginning to chafe against a new surge of biological psychiatry. The institutional setting of the Bradley Home would provide

the productive ground for incorporating a renewed emphasis on organic theories of mental health and behaviour.

In 1957, Maurice Lauffer, the new director of the Bradley Home, coined a new term for the cluster of ADHD-like behaviours in children (these had previously been classified as emotional disturbance or Minimal Brain Dysfunction [MBD]). The term was 'hyperkinetic disorder of childhood'. Writing in the *Journal of Pediatrics*, Lauffer and his co-author, Eric Denhoff, emphasised 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 & 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, p. 319). Others suggested that child psychiatrists look 'as carefully among the myriad of possibilities of organic causation as [they] have in the past among the interpersonal, deprivation and stress factors' (Clements & Peters, 1962, p. 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, p. 473). As institutional and professional perspectives on child behaviour problems narrowed, approaches to treatment did as well: In keeping with the need to strike a professionally coherent note, biological psychiatrists emphasised 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, because stimulants were by this point an accepted form of treatment for behavioural problems in children, Ritalin, like Benzedrine, was used off-label in paediatric psychiatry. Following the accumulation of clinical case studies (required for 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 behavioural disorder in children. The label itself, however, did not take hold, perhaps because it appeared in the DSM as 'hyperkinetic *reaction* of childhood' [my emphasis], thereby giving it a psychoanalytic rather than a biological slant. Until the more familiar term, attention deficit disorder, appeared in the 1980s, the professional label for children with ADHD-like behaviours continued to be 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, 2007).

Integration of medical and educational agendas in American schools

The modern school in some way resembles the original Bradley Home in that it has become far more than a place where children receive basic educational skills. Schools are national institutions in which prominent cultural 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, health education, meals, basic healthcare screening and moral education. To fulfil 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 schoolhouse. Moreover, schools are best positioned to support the implementation of some aspects of the national mental health screening programmes proposed under the 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 early–mid twentieth century war-time context had an important and inter-connected 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. In the background of the NDEA lurked a story of mental failure and weakness, which had resulted in 12% of World War II recruits being diagnosed with a predisposition to mental breakdown during pre-screening tests. In addition, over one million US soldiers suffered from some form of neurosis during the war (Herman, 1996). 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 counsellors, 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 organisations 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, p. 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 medicalisation of American education. Post-World War II, this process centrally involved the influx of newly trained mental health and child guidance workers, whose job it was to identify children’s mental illness at the pre-delinquent stage (Singh, 2002). As this period of medicalisation of education overlapped with the revival of biological psychiatry, organic ideas about childhood behavioural 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 likely 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 behaviour 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, there were strong suspicions of links between the quality of mothering neurotic recruits had received (e.g. enmeshed, smothering) and their adult psychological functioning (Ehrenreich & English, 1978; Fromm-Reichmann, 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.

The level of integration among school, clinic, government policy and psychiatric understanding of child development may have resulted in a unique fertile ground for drug treatments for children’s problem behaviours to find acceptance in the US context. While there is as yet very little cross-national 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 longstanding understanding of hyperactivity and attention 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

Within national contexts, cultural attitudes and practices in relation to child behaviour make a big difference in mediating the ways in which home and school perceive a child. In the UK, where public understanding of ADHD is still quite poor and the stigma of child psychiatric diagnosis and stimulant treatment is high, it is often parents who view their child’s behaviour as being symptomatic of ADHD, having consulted websites and/or friends in their efforts to deal with their child’s behaviour (Klasen, 2000). Schools are still under-resourced to deal with children with ADHD-type

behaviours, and teachers tend not to know very much about the diagnosis and behavioural/educational methods of treatment. However, in the USA, where child psychiatric conditions are in general more widely diagnosed and treated, and where many more children are diagnosed with ADHD and treated with methylphenidate, teachers often know as much as, or more than, parents about the disorder. Teachers are often the primary instigators of a process of evaluation for a child's behaviour (Sax & 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 behaviour, 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 *culture of schooling*. At the highest level, the culture of schooling is part of a national educational agenda. The agenda is actualised 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 USA, there exists an additional layer of interpretive complication, as national educational policies intersect with state educational policies.

Within this broader 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 behaviour*. In this way, the school, its personnel and its educational practices can generate expectations of and knowledge about children's behaviour. Routine classroom practices come to be viewed as normative; for example, in most American primary schools, very 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' behaviour and achievement for children at various stages of development. While there may be some variation in these classroom practices among 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 towards medical assessment and treatment of a child's behaviour.

Paradoxically, both the critique and the defence of ADHD and methylphenidate treatment have been built around this notion of the school as a key mechanism for embedding medical understandings of children. The critique has argued that schools support the medicalisation of behaviour in children and opt out of their pedagogical commitments. Frustrated, poorly educated and under-resourced teachers are more likely to advise a parent of a misbehaving child to get a prescription for Ritalin than to utilise pedagogical techniques and resources to improve a child's behaviour (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' behaviour and to reduce the need for more ADHD diagnoses and stimulant drug use in the classroom.

A defence 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 Mountain region underline the need for the supportive role of schools in identifying undiagnosed students (Angold, Erkanli, Egger, & Costello, 2000).

One major problem in the US context with both the critique and the defence of the school as a cultural mechanism that supports medicalisation and diagnosis of children's behaviour is that there are few empirical investigations to justify either set of arguments. Research such as the *Great Smoky Mountain Study* points to the complications inherent in making generalisations about the culture of schools or schooling in the USA in relation to ADHD diagnosis and methylphenidate treatment. Regional differences in the USA 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 behaviour disorders. Moreover, while broad regional or state-level data does provide a dimension of cultural 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 neighbourhoods or school districts within a particular county (Olson, Gameroff, Marcus, & Jensen, 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 behaviour and about appropriate treatment strategies, it is also important to do local empirical studies, within particular schools, in particular cultural settings, in order to begin to understand

how a network of relationships supports the production of knowledge and defines potential pathways towards 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 behaviour (Singh, 2004). In the context of the school, a series of hierarchical relationships arguably operates 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 behaviours 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 behaviour problems? How does the school perform at the state or national level in educational achievement?

Within this hierarchy of relational engagements, race/ethnicity, gender and class are obvious cultural components embedded in the processes through which children's behaviour 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, Lesesne, & Abramowitz, 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 among children from poor and low-income families (Olfson et al., 2003).

Along with race/ethnicity and socioeconomic status, gender is still an under-analysed cultural feature of ADHD and methylphenidate treatment. A gender dynamic exists at the centre of the ADHD phenomenon: Boys are three to four times more likely to be diagnosed with ADHD than girls. Women (mothers and teachers) are the primary instigators of ADHD evaluations. Moreover, as the ADHD diagnosis expands to include inattentive as well as hyperactive behavioural symptoms, there is a particular need to investigate whether conceptions of normative behaviour in young girls are being impacted.

As any parent knows, perceptions of a child and his/her behaviour 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, systematised and/or regulated. At the moment, these procedures vary widely at every level: school, district and state, not to mention nation. While systematisation 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 expansion of an already ambiguous diagnosis. While the ADHD diagnosis has been criticised as part of psychiatry's growing effort to pathologise everyday life (e.g. Breggin, 1998), it seems important to note that the ambiguity and generosity that characterise this diagnosis do not exist only at the level of psychiatric classification. In other words, it is not just psychiatrists who are using ambiguous and inconsistent procedures to understand children's behaviour. Ambiguity and inconsistency are also evident in the contexts in which children's behaviour is first identified as problematic—the school and the home.

In the USA, where individual states have significant control over educational practices, it may be difficult to achieve national consistency in schools' approaches to children's problem behaviours. 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 behaviour 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 classroom as a micro-culture within the broader school ecology that frames child behaviour 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 behaviour. When we look more closely at the kinds of behaviours 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 behaviours will be deemed problematic is context-dependent. While attention and focus are important in some organised play activities, ADHD behaviours are in general less obvious on 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 behaviours as problematic, then it is important to query whether behavioural 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 homework, and initiating more standardised testing regimes designed to track intellectual development and progress. 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 (i.e. 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., forthcoming). 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).

Conclusion

Charles Bradley probably could not have envisioned a time when 3–5% 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 behaviour problems is realised in the modern American schools. Much of the argument about culture and schools in this article underlines the importance of local empirical work that seeks to understand cultural 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 peculiar American issue – a circumscribed cultural phenomenon. (Of course, as is repeatedly emphasised in this article, it is misleading to draw conclusions about ADHD diagnoses and methylphenidate treatment in America without taking into account cultural factors and cultural variation at every level.) How then to understand the global growth of methylphenidate use for treatment of ADHD over the past decade? One promising path to unravelling this puzzle is to study schools and schooling in relevant national settings. We have seen that in relation to ADHD and methylphenidate treatment, schools are mechanisms that both produce and embed cultural knowledge about children's behaviour, and approaches to treatment. In order to understand the global spread of this disorder, we need to understand just how these cultural knowledge aspects are shifting understandings of and approaches to children's problematic behaviours, and why. As the other articles in this special issue demonstrate, this is a complex and local process of discovery. However, it is exactly this level of complexity that will be necessary to counter the predictably polarised arguments

about cross-national variation 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 USA, 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 up to more sophisticated, in-depth analyses of what is going on in particular cultural settings. Once we have a good body of local cultural knowledge across different national settings, we can begin to build more complex theories about cross-national variation in ADHD diagnoses and methylphenidate treatment.

Notes

1. An almost identical version of this article was previously published as: Singh, I. (2006). A framework for understanding trends in ADHD diagnosis and stimulant drug treatment: Schools and schooling as a case study. *BioSocieties*, 1(4), 439–452. Some of the material presented on the history of ADHD and stimulant drug treatment in children was previously published in Singh, I. (2002). Bad boys, good mothers and the miracle of Ritalin. *Science in Context*, 15(4). I am grateful to Cambridge University Press for permission to use this material.
2. The material on the UK context is drawn largely from an interview with Sir Michael Rutter in January 2002, conducted by the author. 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.
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).
4. Such implementation has been attempted at the community level in a remarkable series of case studies in North Carolina (Foy & 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' (p. 97). The result is a consensus-based protocol that is followed for up to 10 years by school personnel and community physicians.

Notes on contributor

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